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CENTER FOR TRANSPORTATION INFRASTRUCTURE AND SAFETY



Non-invasive Imaging and Assessment of Active Karst Features in Proximity to Paved Roadways

by

Neil Anderson



**NUTC
R350**

**A National University Transportation Center
at Missouri University of Science and Technology**

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16. Abstract In an effort to better understand and define the lateral and vertical extent of active karst features in immediate proximity to paved MoDOT roadways in Springfield Missouri, MS&T will acquire electrical resistivity tomography (ERT) data. The intent is to use this non-invasive technology to map the lateral and vertical extent of the active karst features so that appropriate mitigation plans can be developed.					
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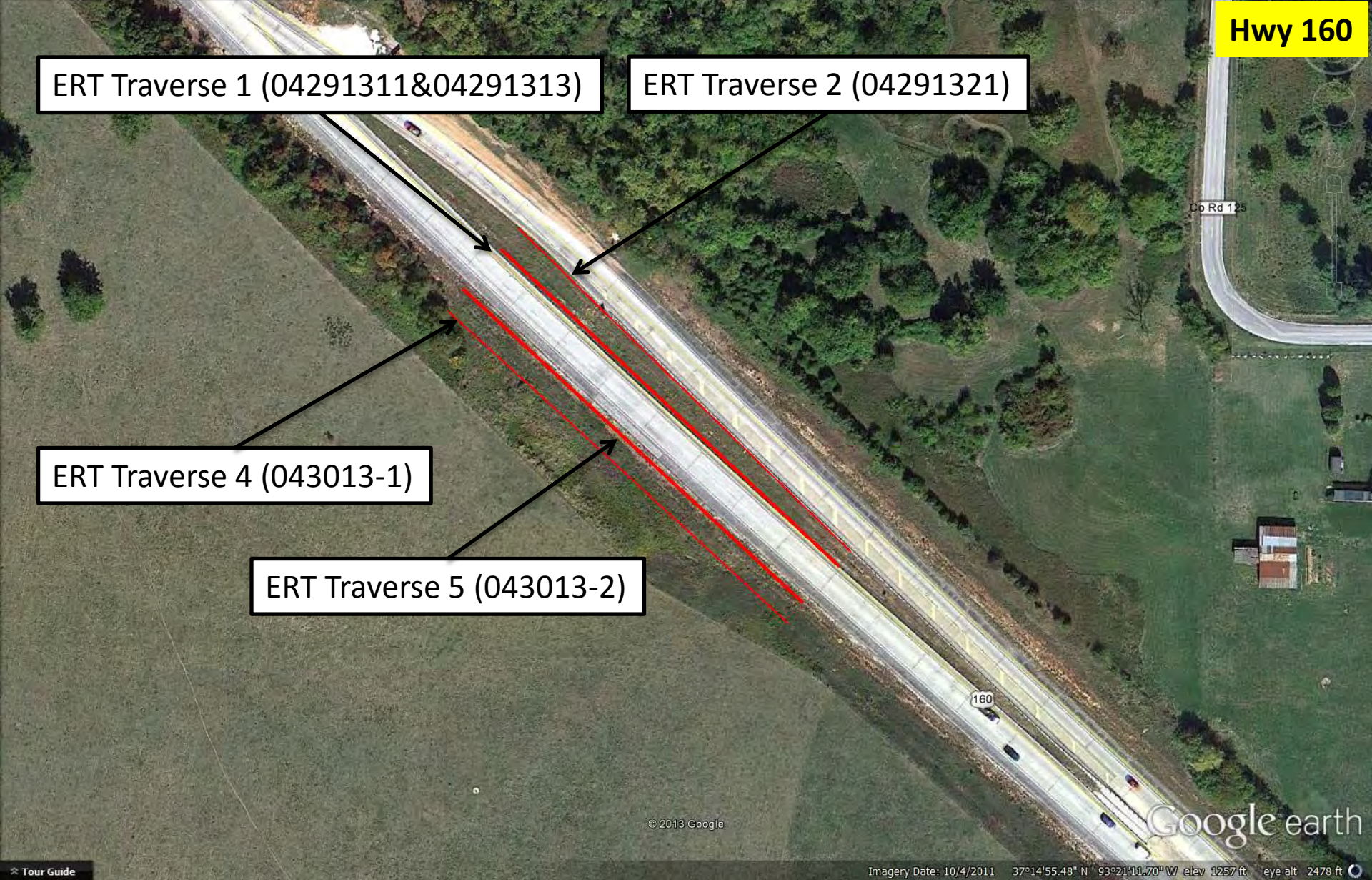
Non-Invasive Imaging and
Assessment of Active Karst Features
in Proximity to Paved Roadway

ERT Traverse 1 (04291311&04291313)

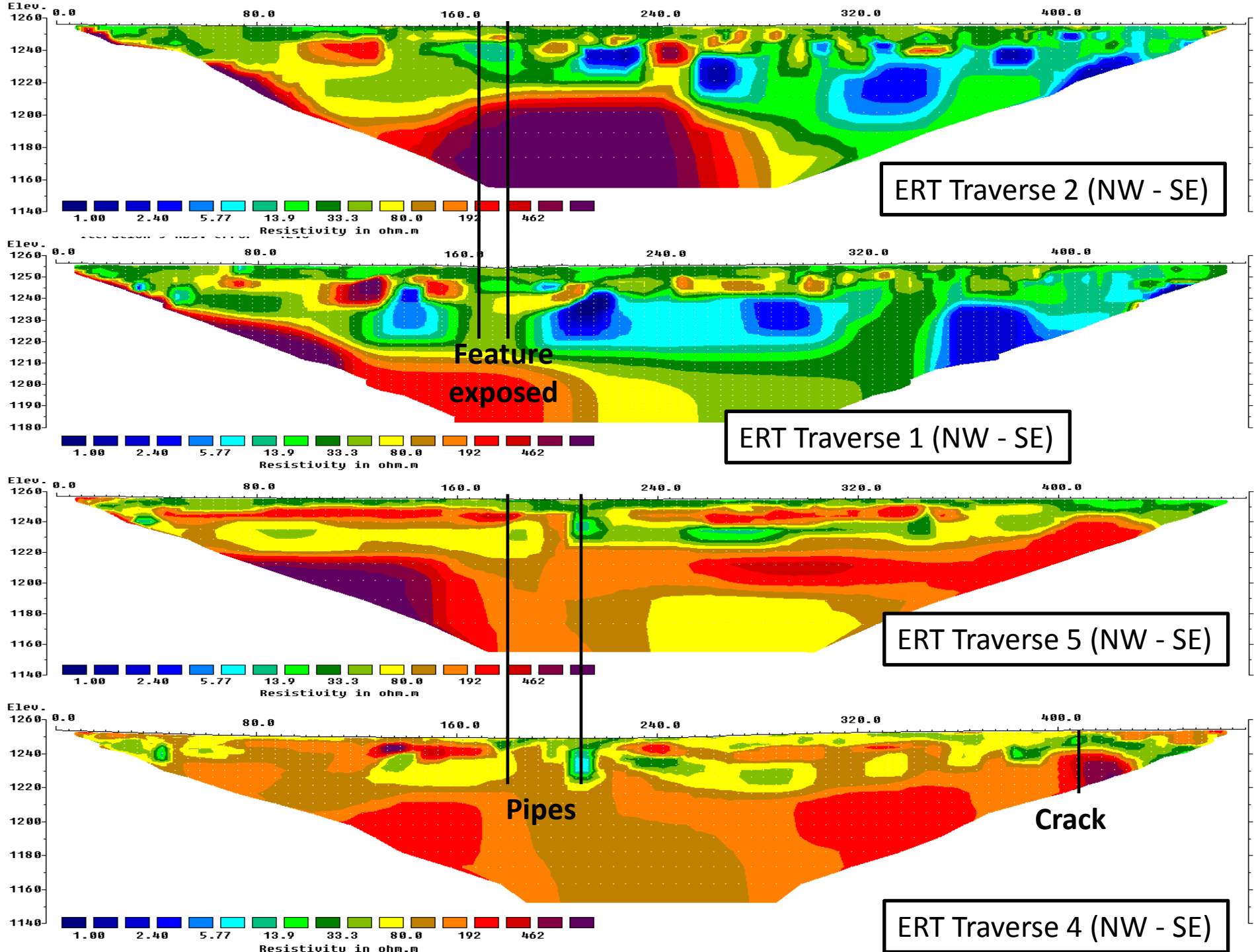
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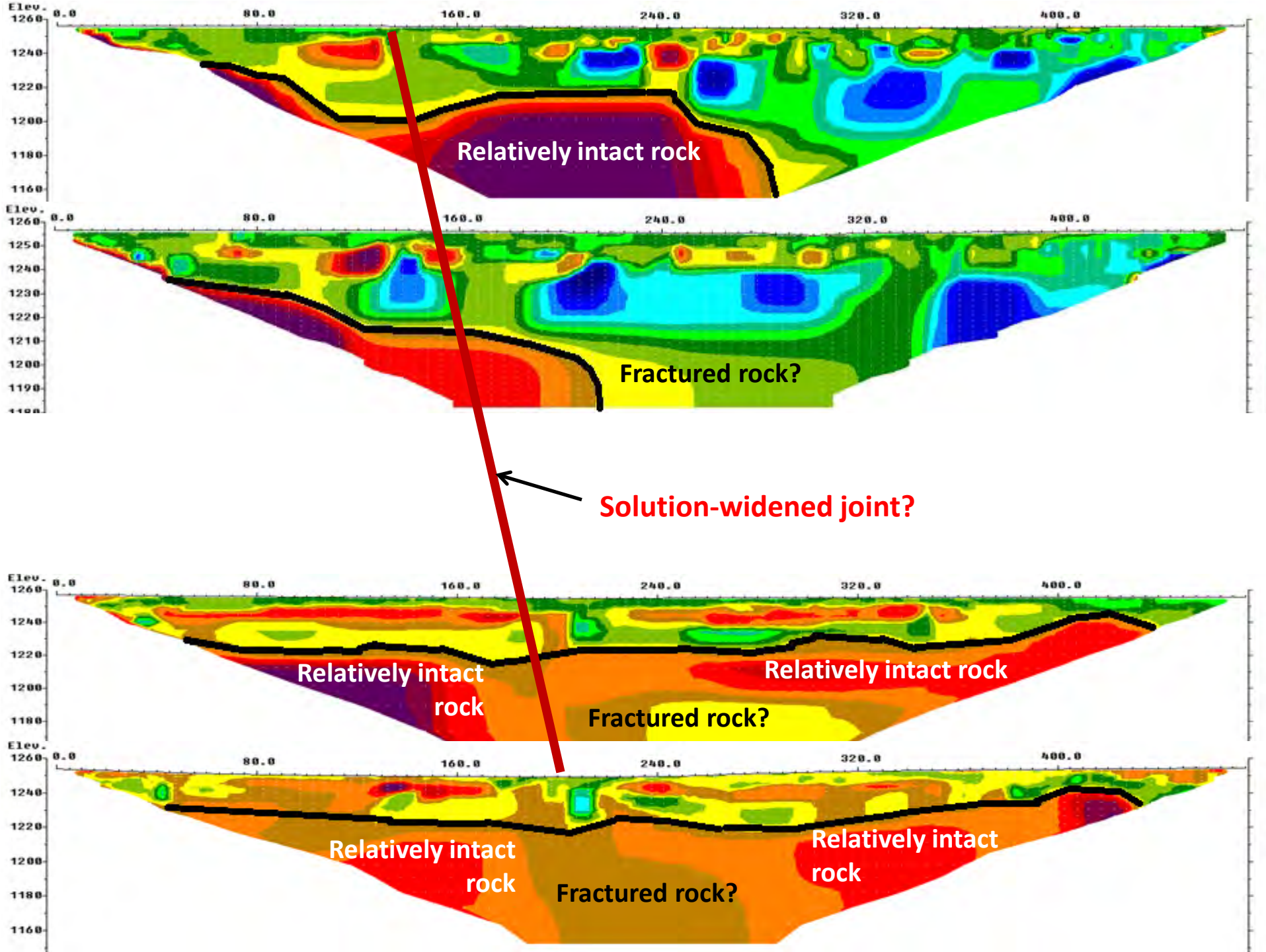
ERT Traverse 4 (043013-1)

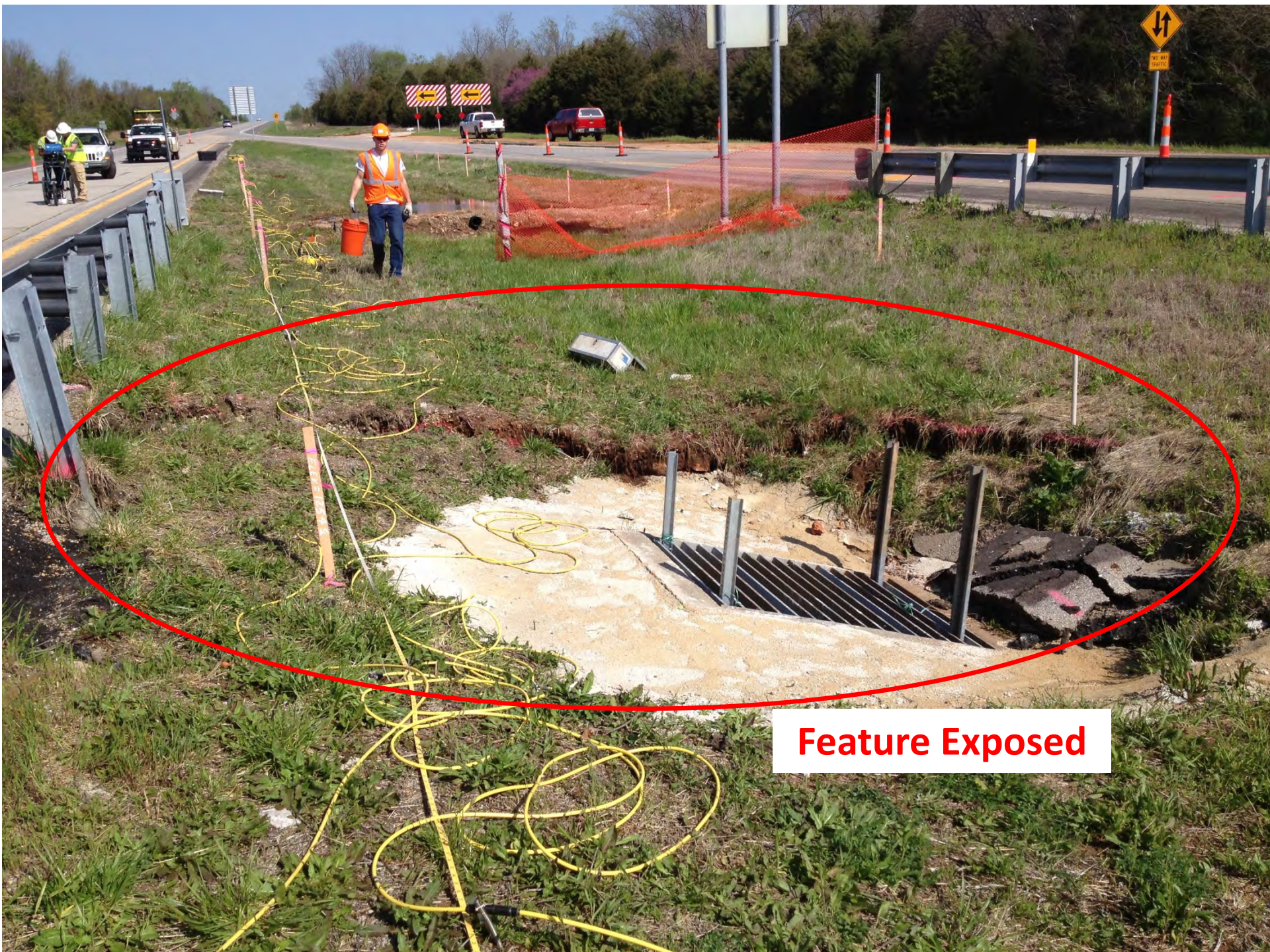
ERT Traverse 5 (043013-2)



Approximate locations of the ERT traverses (station "0" is at the northwest end of the traverses)

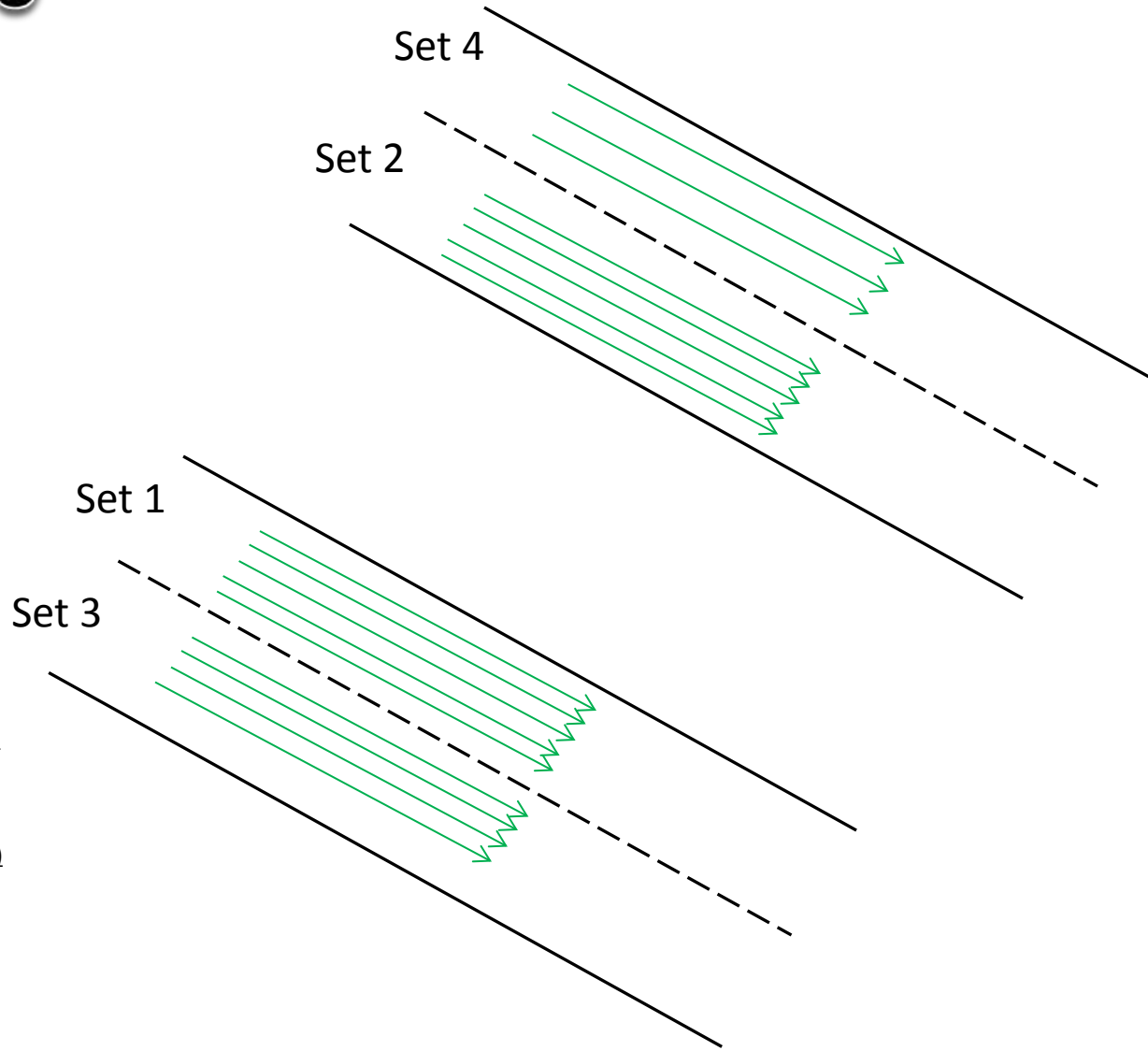






Feature Exposed

Rte 160



Set 1 (NW to SE and NE to SW)

2-6 – high frequency

7-11 – low frequency

Set 2 (NW to SE and SW to NE)

12-16 – low frequency

17-21 – high frequency

Set 3 (NW to SE and NE to SW)

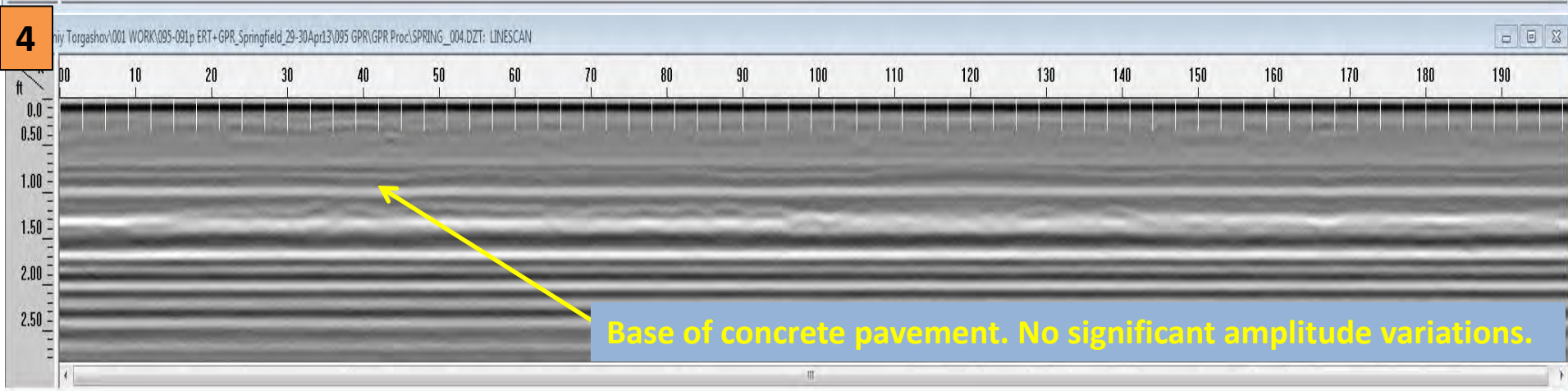
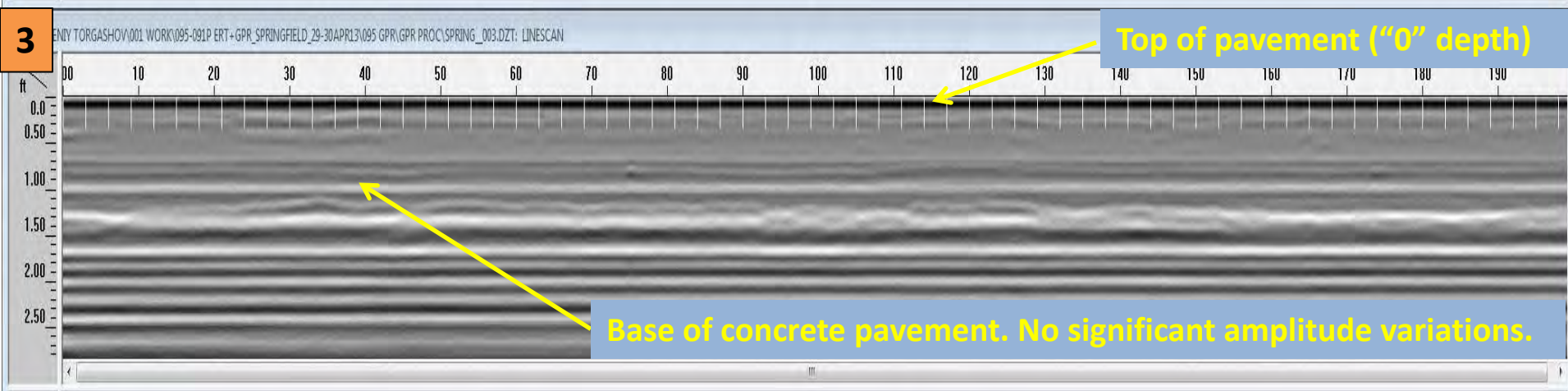
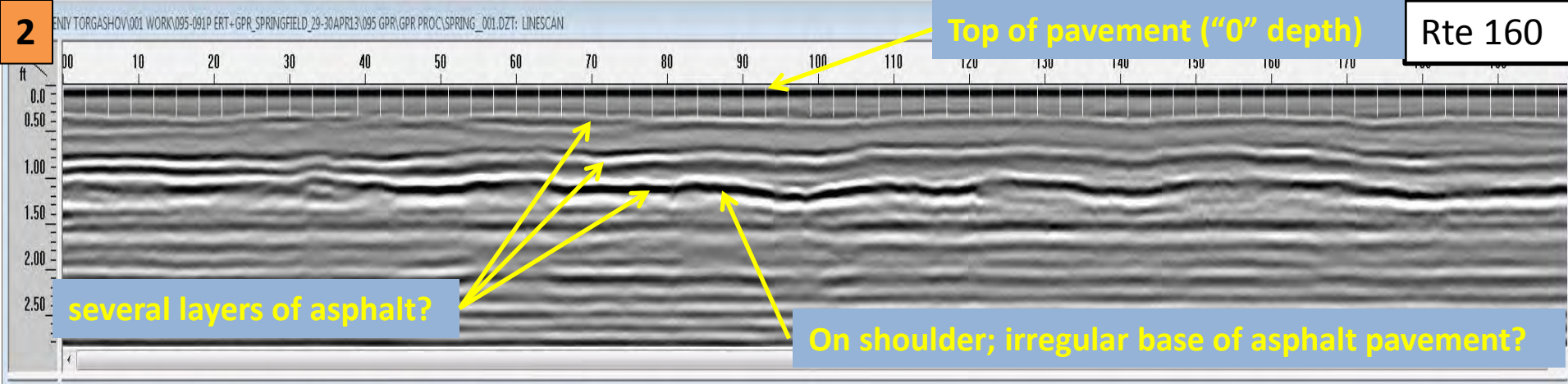
22-25 – high frequency

26-29 – low frequency

Set 4 (NW to SE and SW to NE)

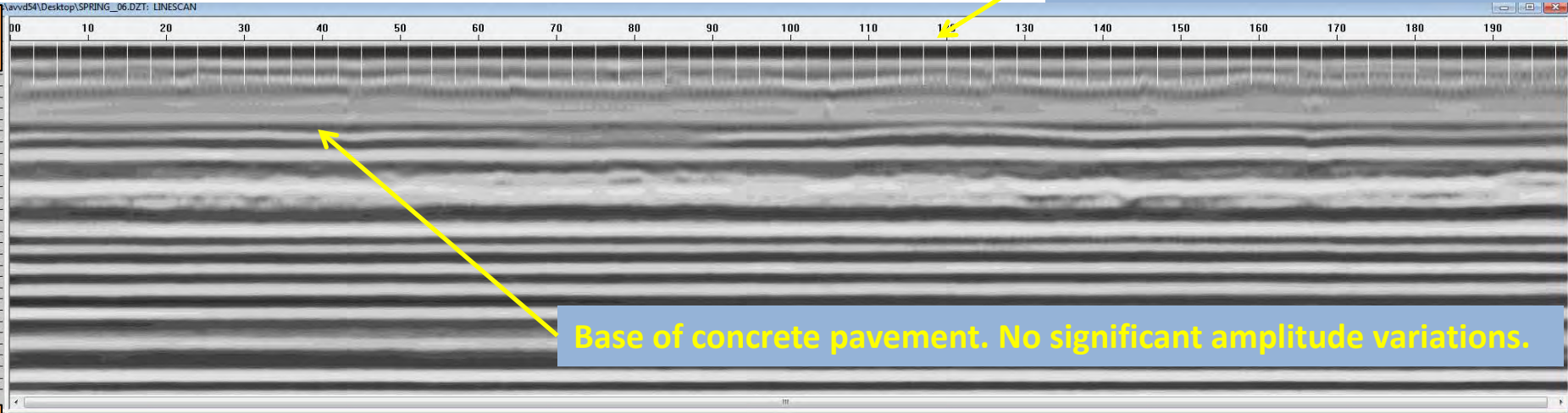
30-32 – low frequency

33-35 – high frequency

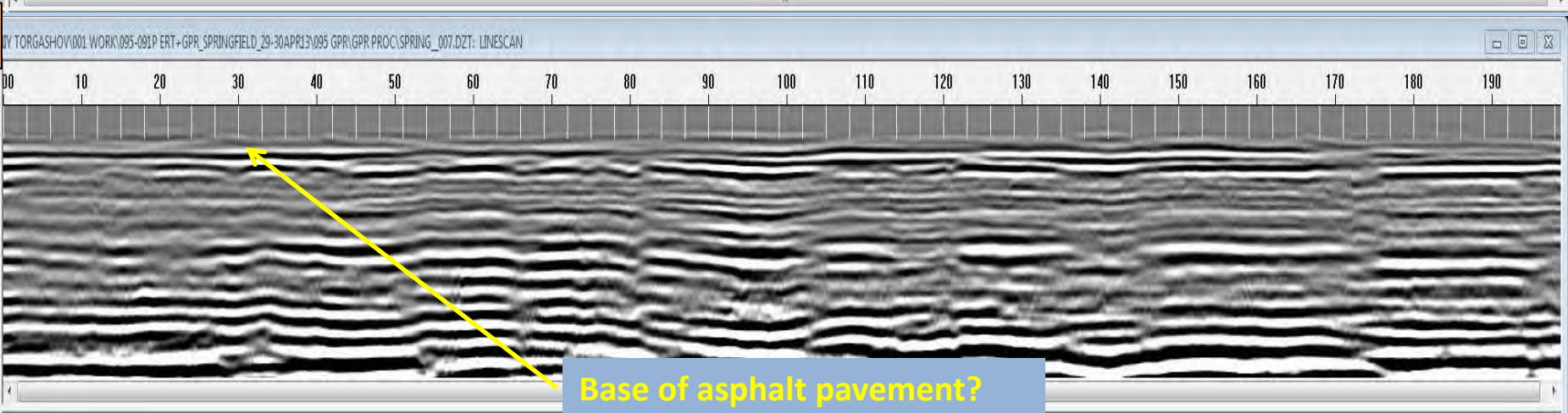


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6



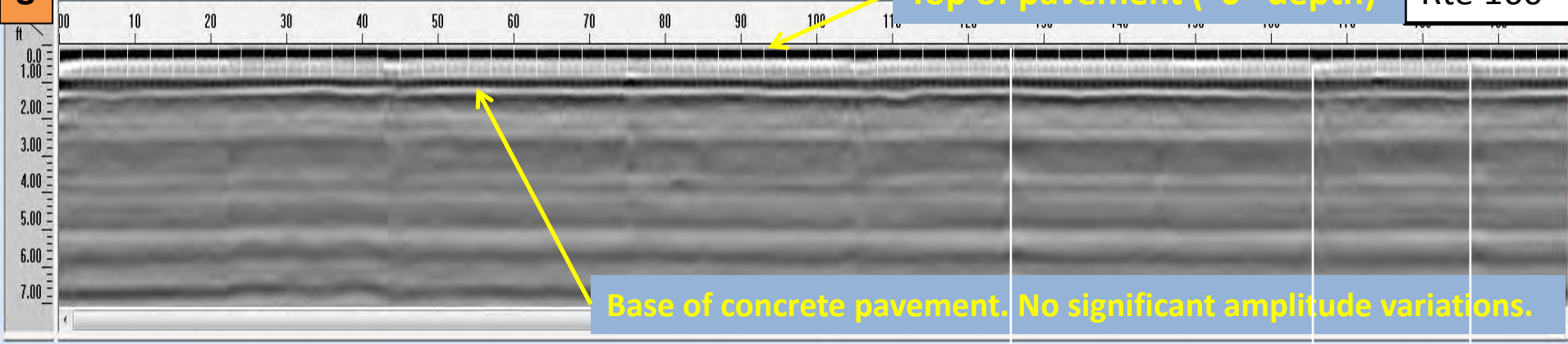
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Top of pavement ("0" depth)

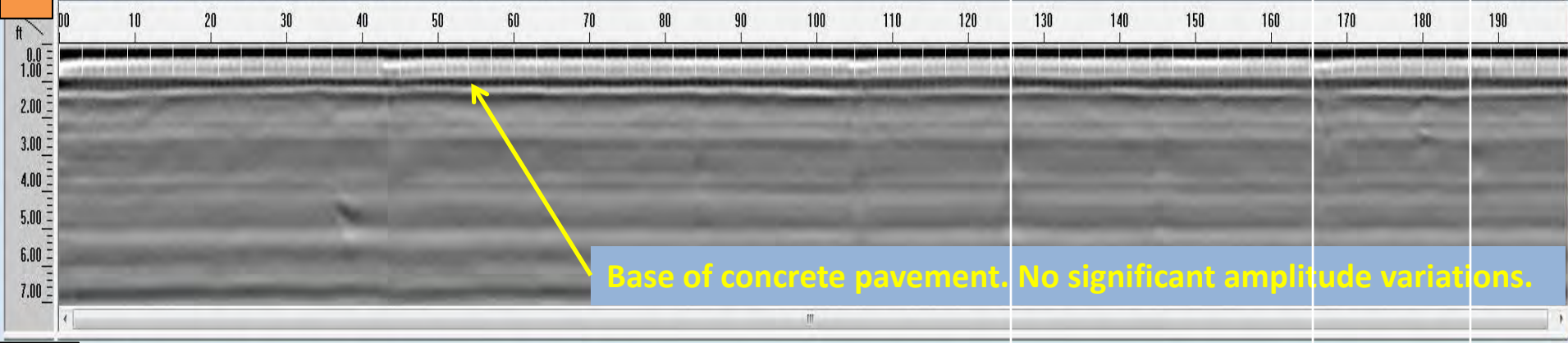
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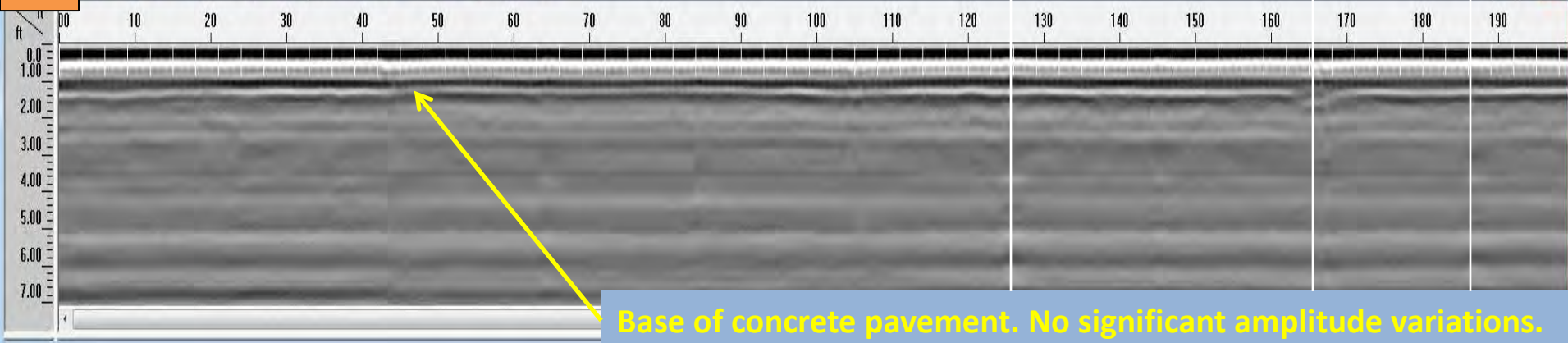
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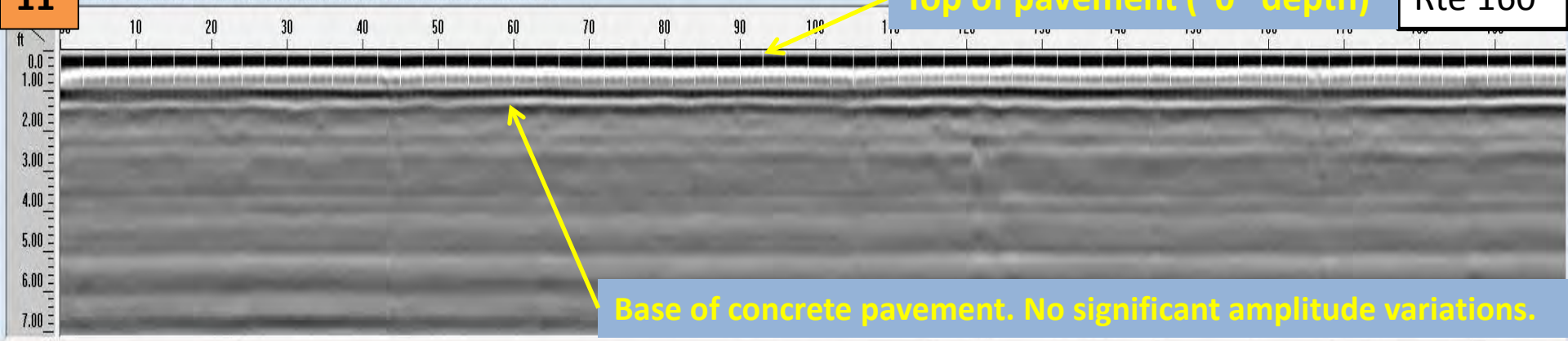
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Top of pavement ("0" depth)

11

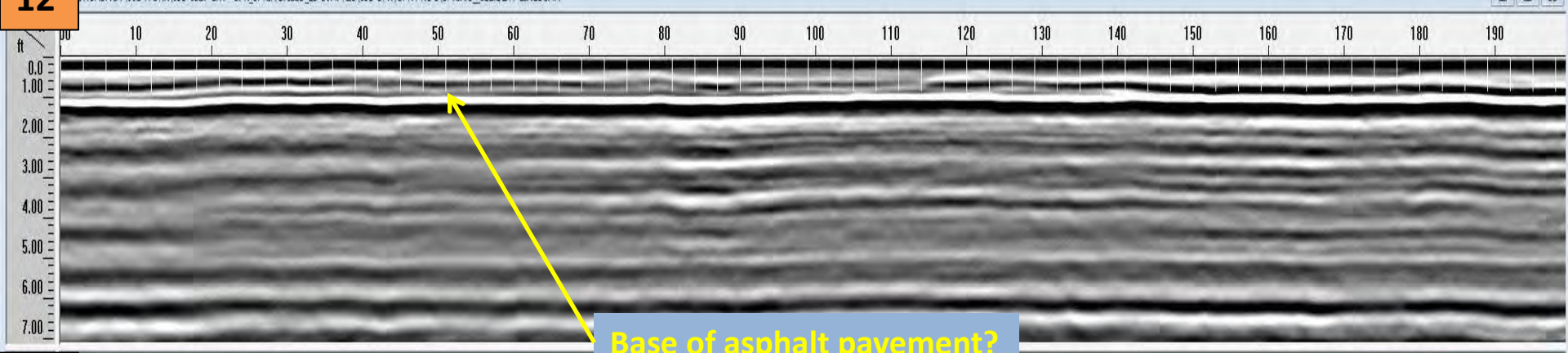
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Base of concrete pavement. No significant amplitude variations.

12

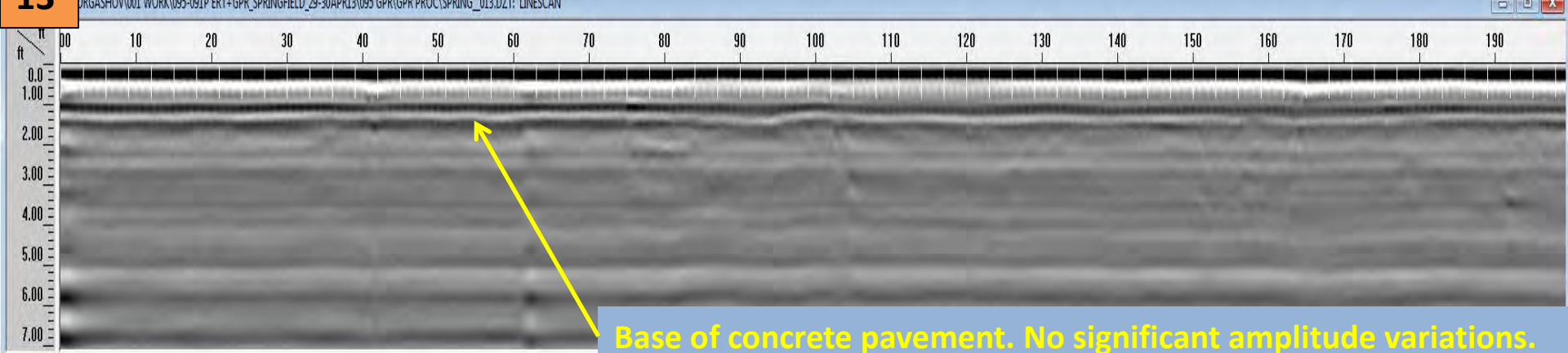
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Base of asphalt pavement?

13

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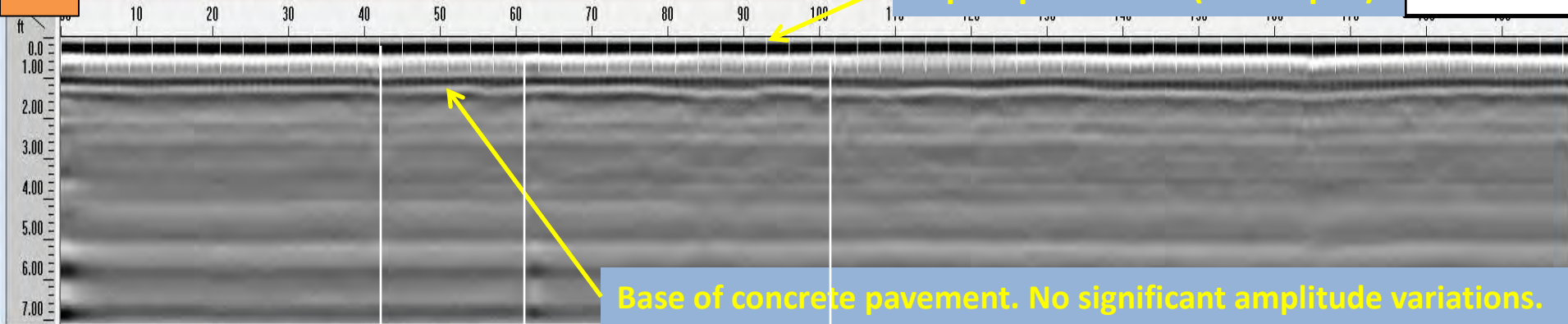


Base of concrete pavement. No significant amplitude variations.

Top of pavement ("0" depth)

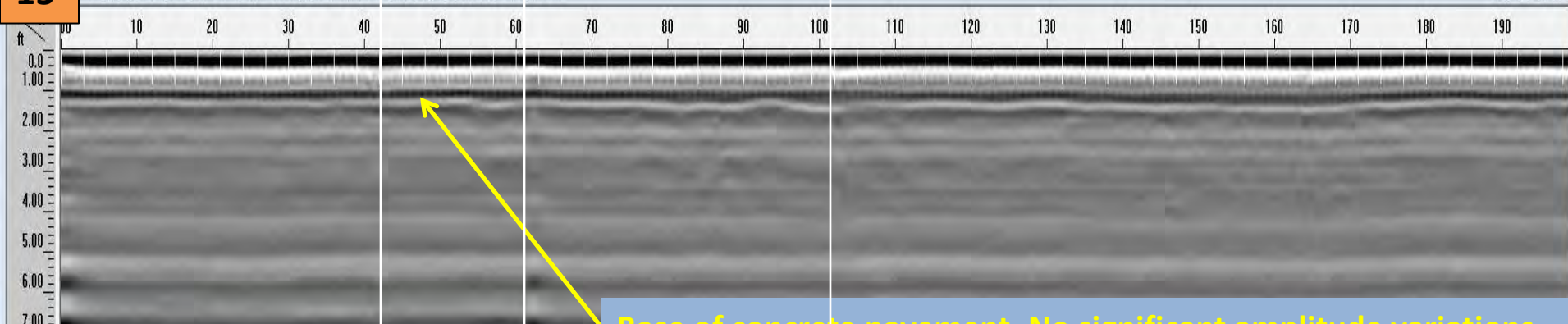
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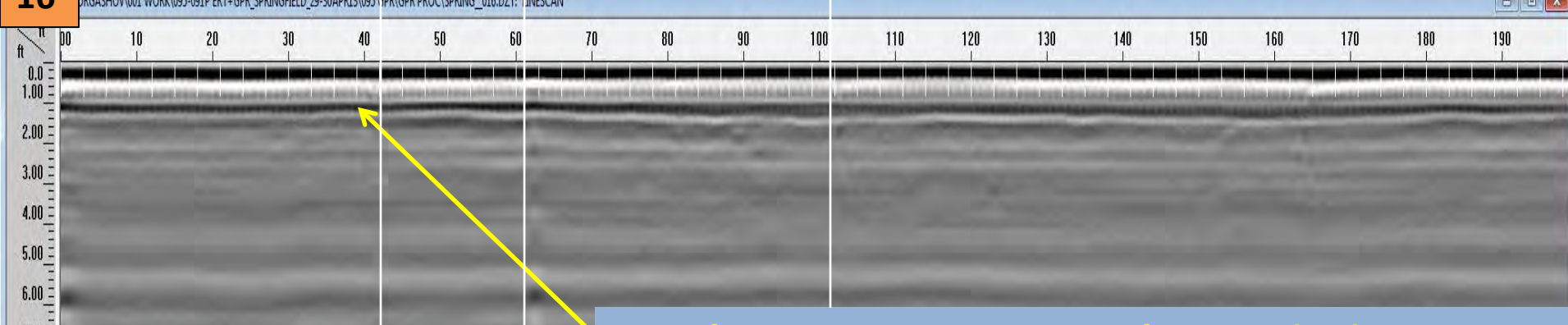
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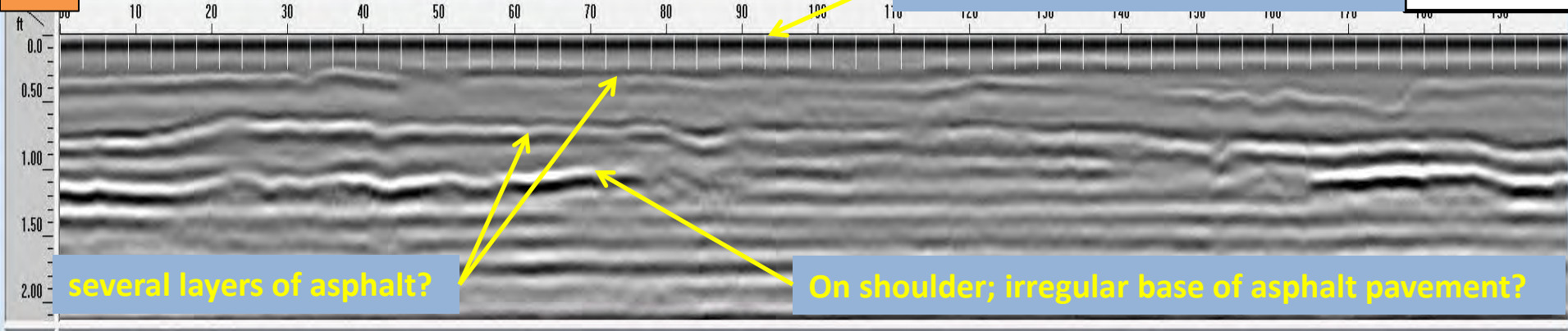
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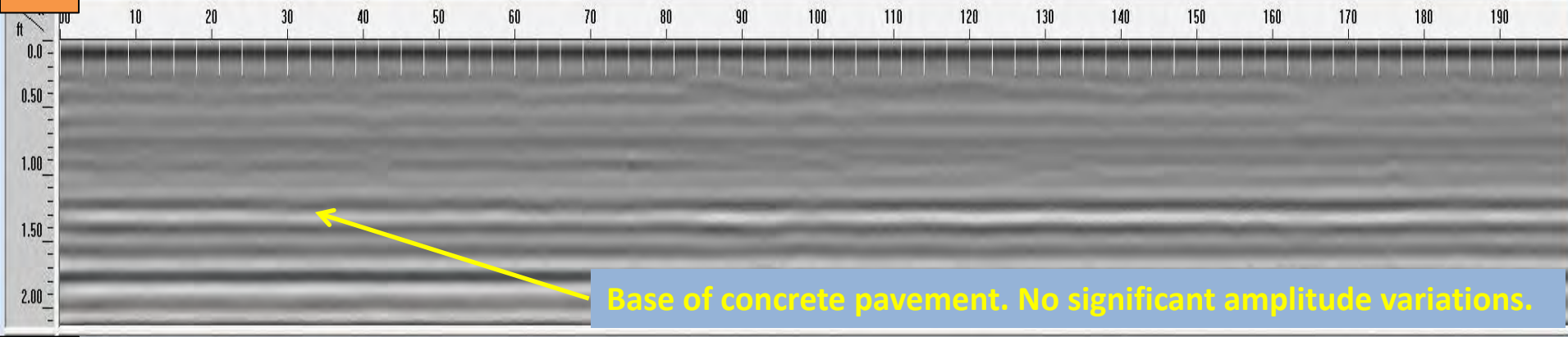


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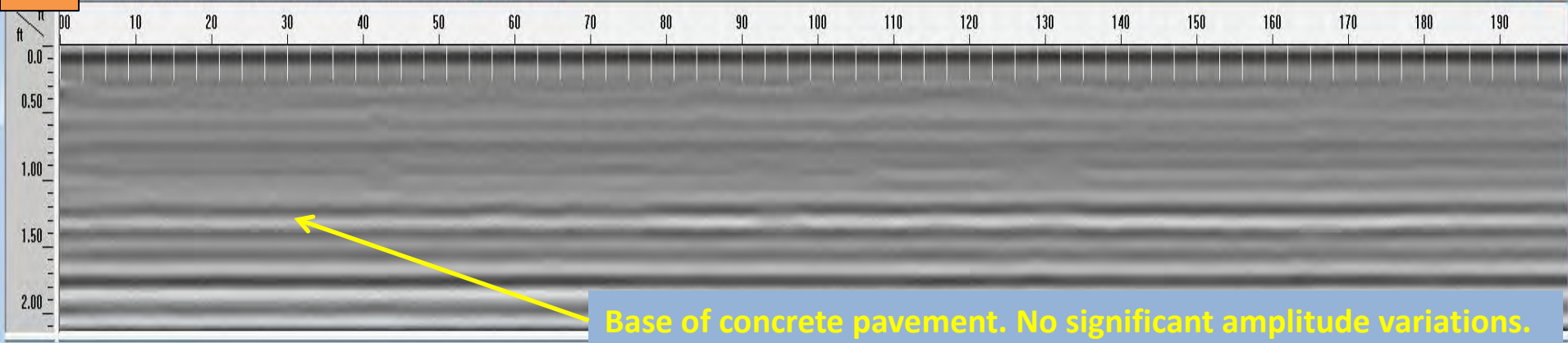
Top of pavement ("0" depth)



18



19

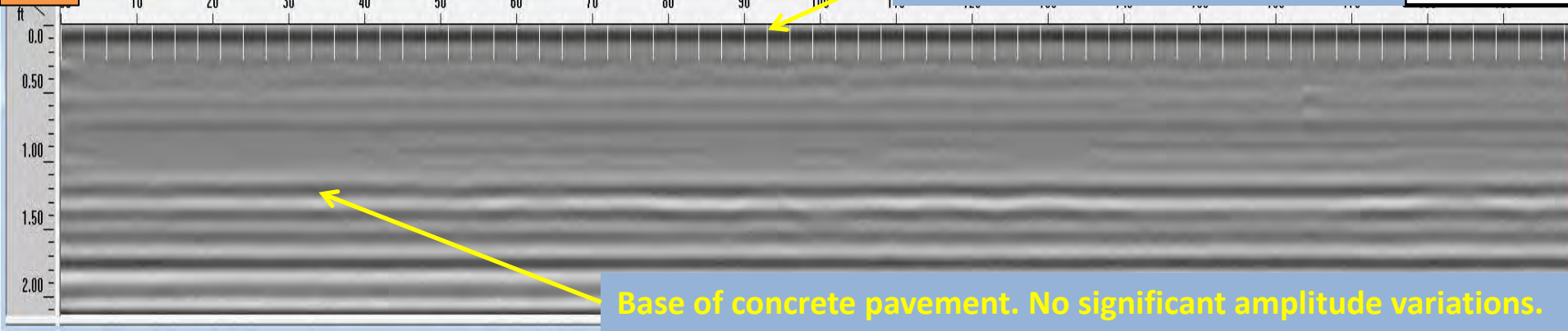


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DRGASHOV\001\WORK\095-091P\ERT+GPR_SPRINGFIELD_29-30APR13\095 GPR\GPR PROC\SPRING_020.DZT; LINESCAN

Top of pavement ("0" depth)

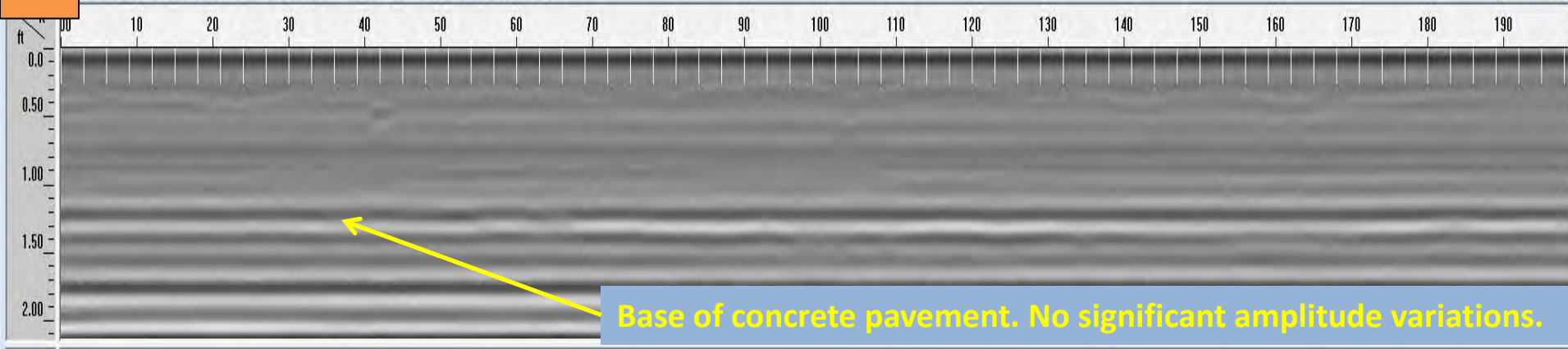
Rte 160



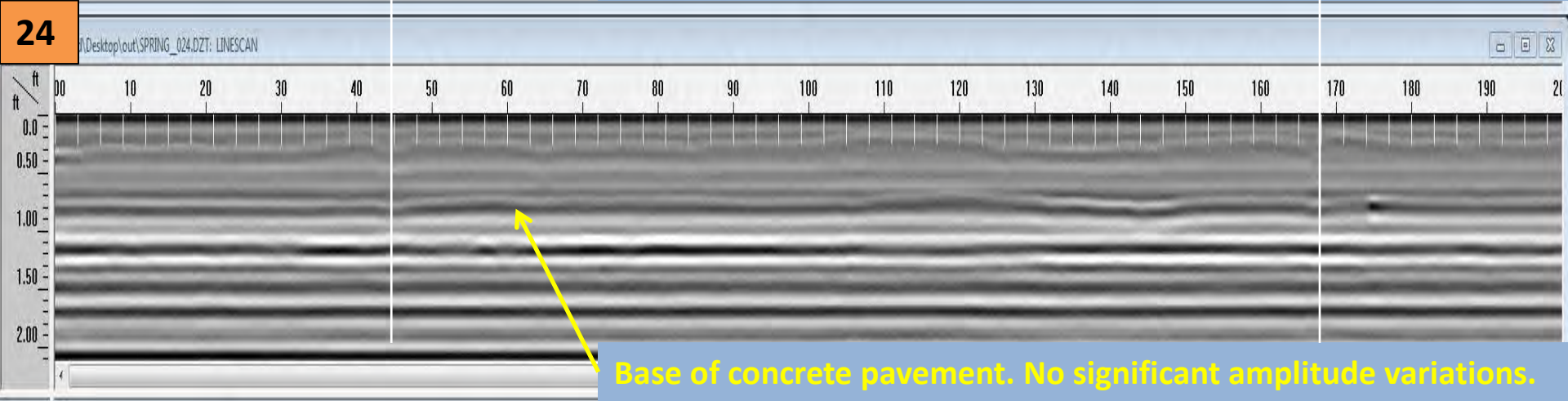
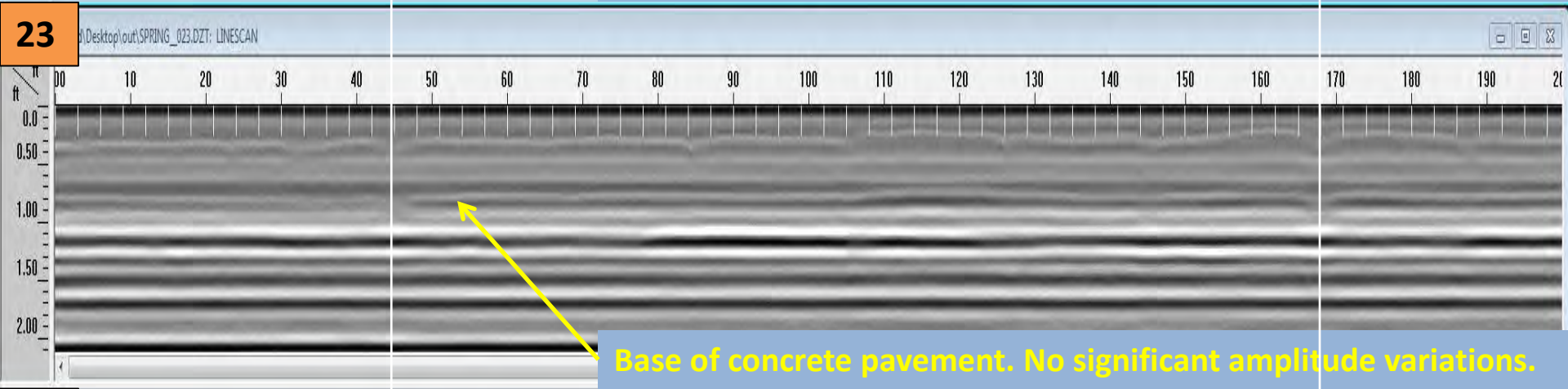
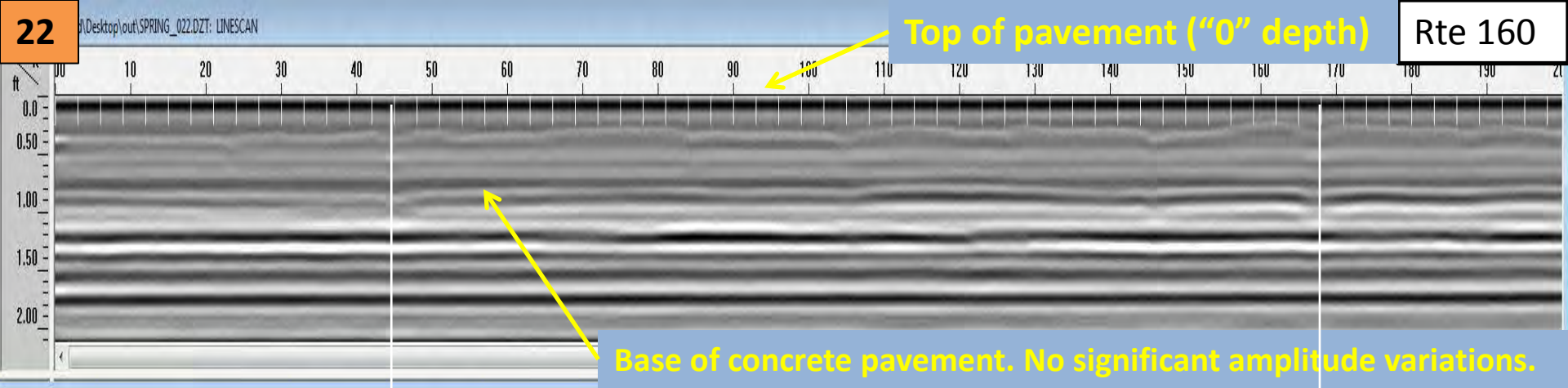
Base of concrete pavement. No significant amplitude variations.

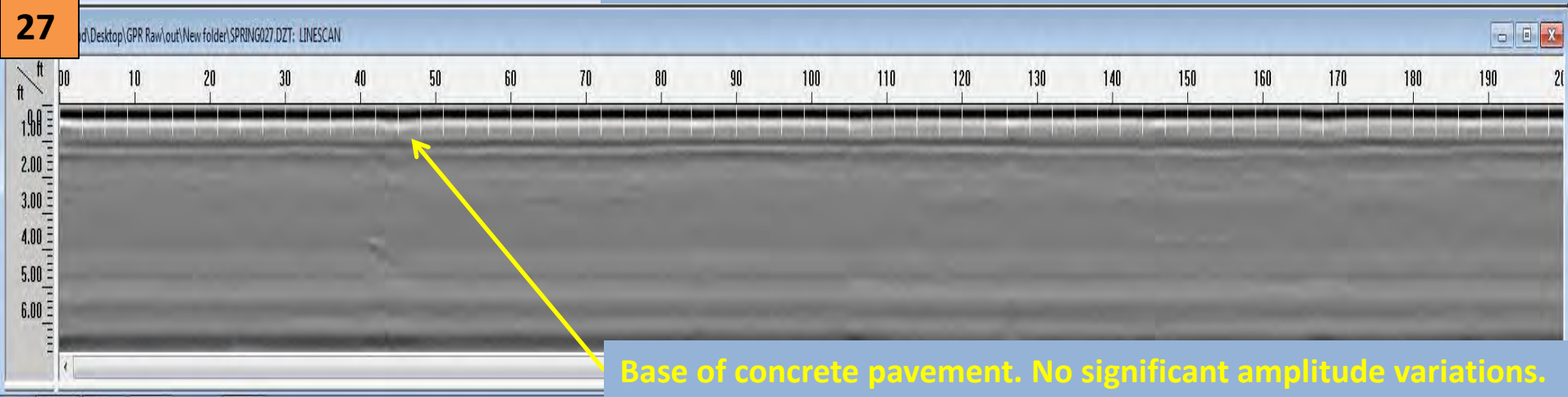
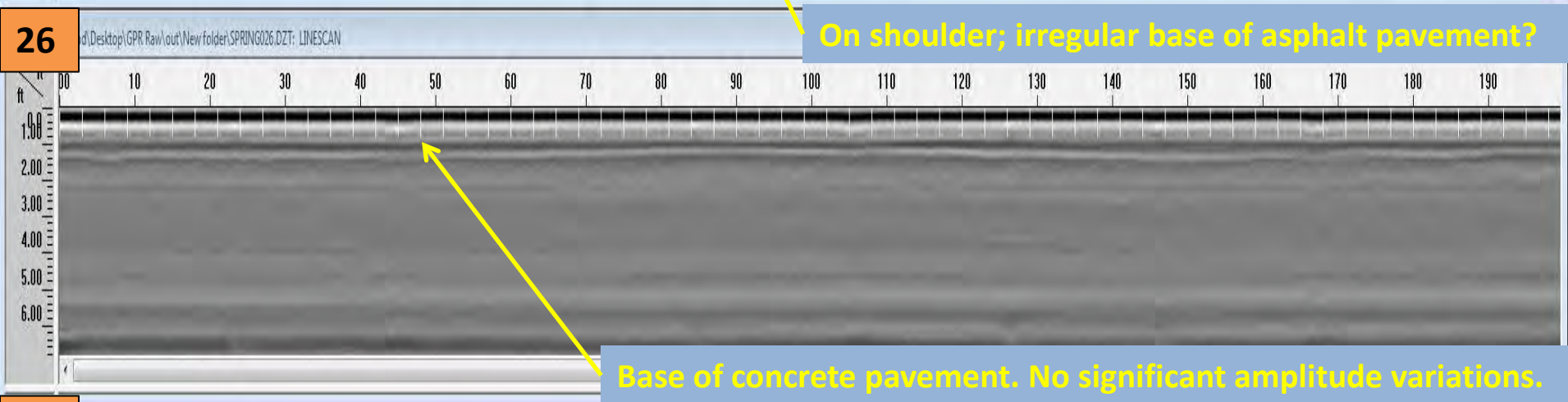
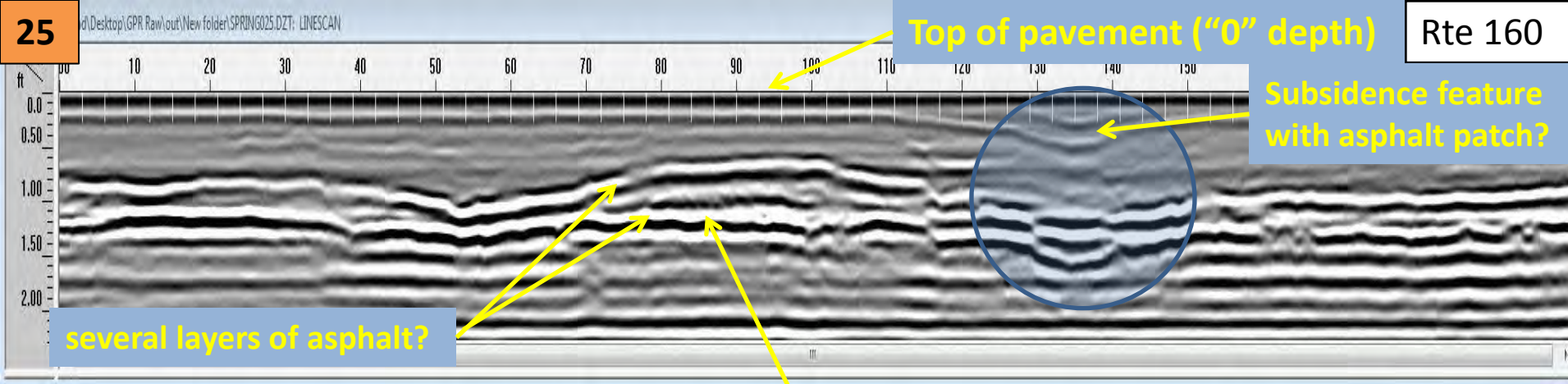
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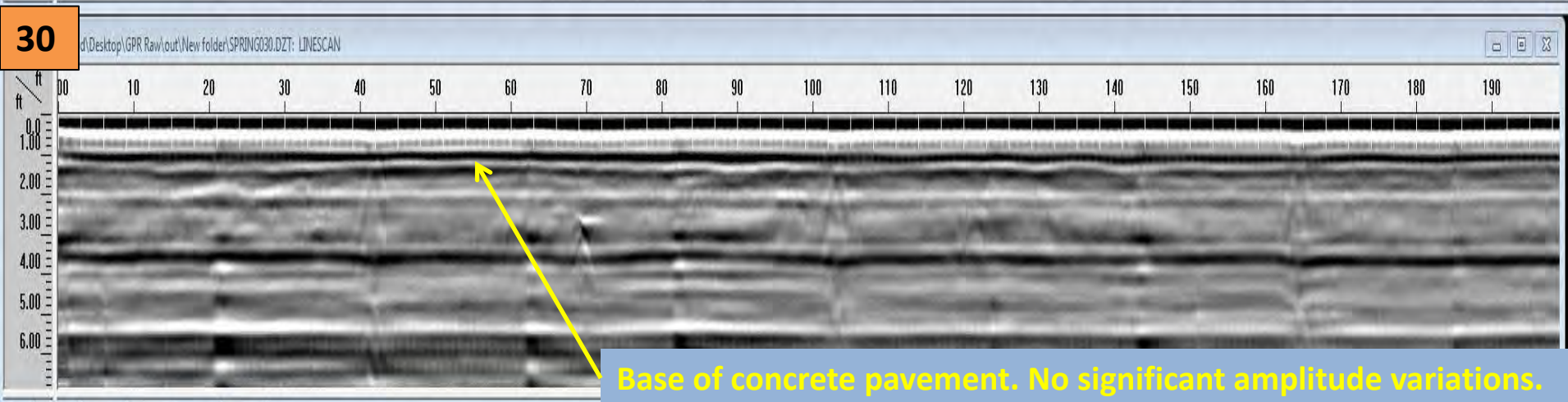
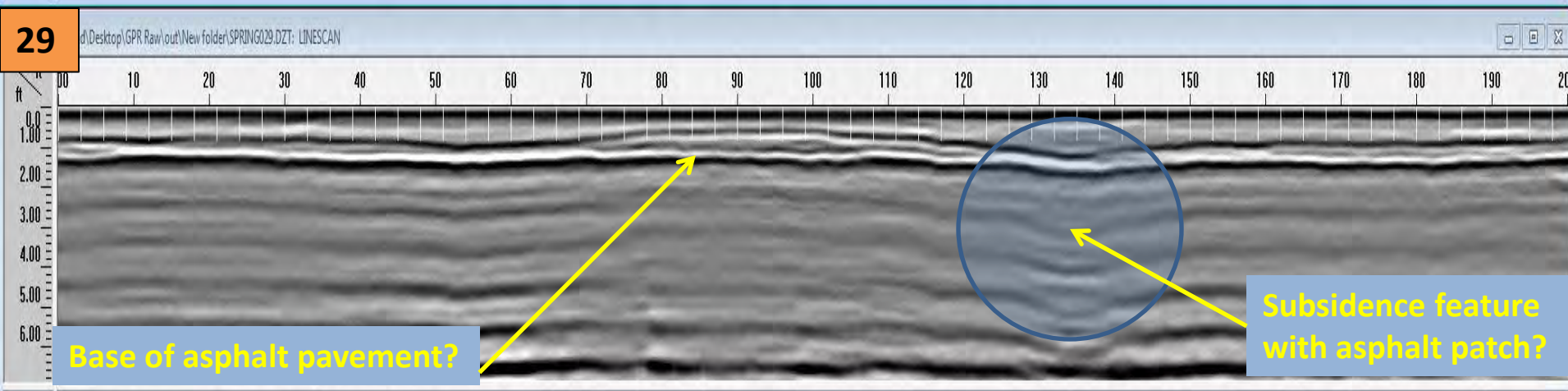
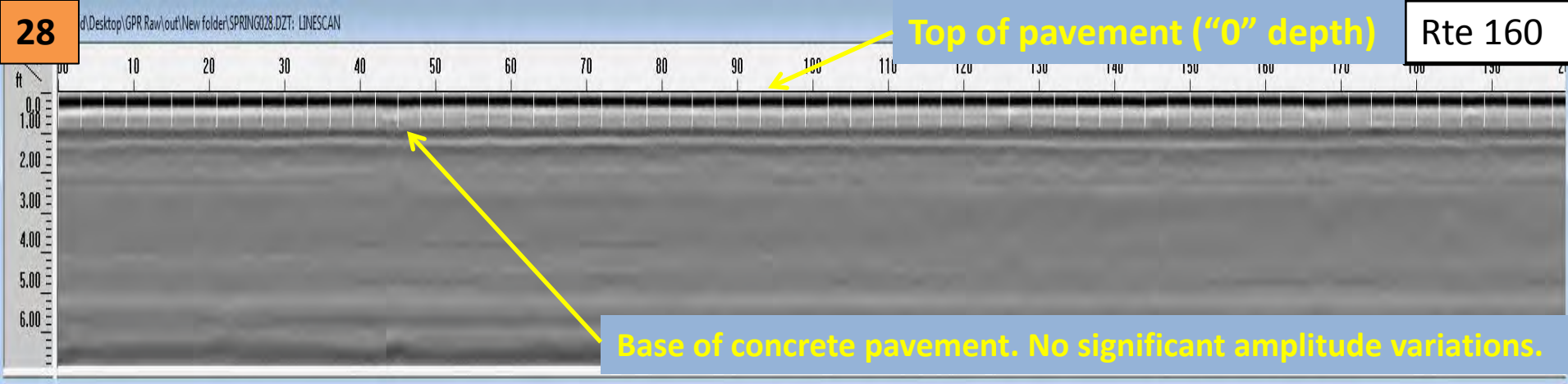
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Base of concrete pavement. No significant amplitude variations.



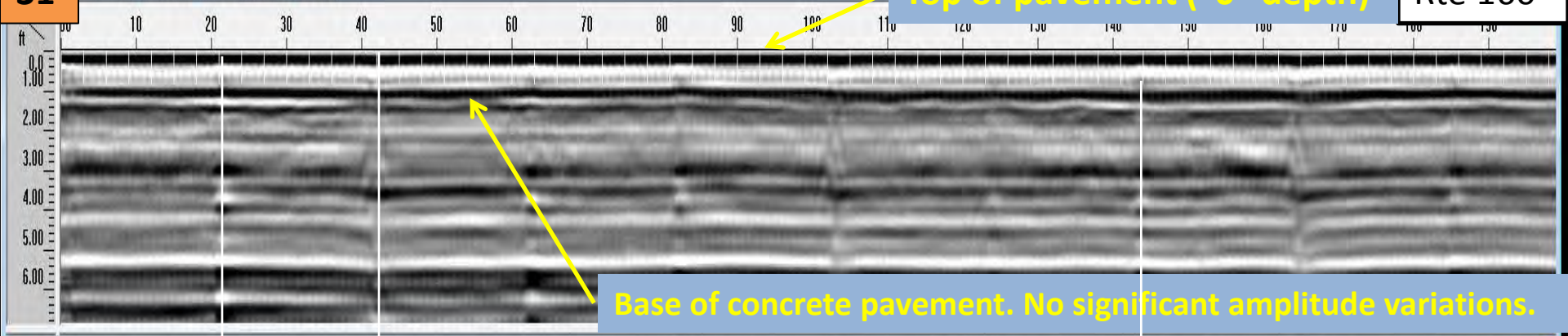




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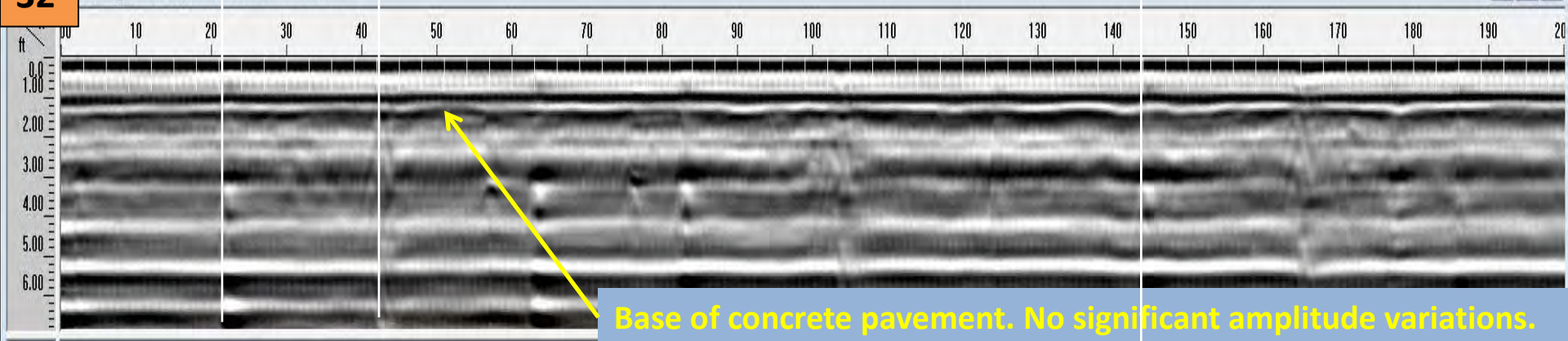
Top of pavement ("0" depth)



Base of concrete pavement. No significant amplitude variations.

32

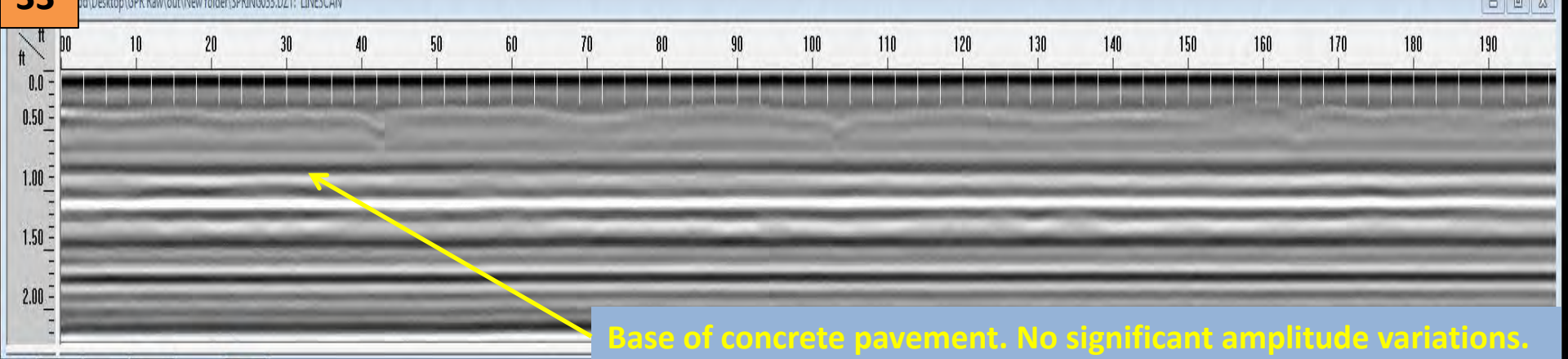
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Base of concrete pavement. No significant amplitude variations.

33

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Base of concrete pavement. No significant amplitude variations.

