Report of 2016 Ground VLF-EM Survey on the Boston Property

Boston Township
Larder Lake Mining Division
Northeastern, Ontario

UTM: 576500 E, 5323300 N [NAD83] ZONE 17U
NTS: 32D 04 / SW

Claims 4262042

Prepared by:
Stephen Roach

January 4, 2017

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1.0) Introduction

1.1 General

The Boston Property is located 14 kilometers south of Kirkland Lake, Ontario (Figure 1). The purpose of the 2016 ground VLF-EM survey is to evaluate the geophysical responses over a number of mineralized historical trenches.

The 2016 surface exploration program consisted of 2.575 line km of ground VLF-EM. The field work was conducted on November 18, 2016, covering one (1) mining claim, located in the Larder Lake Mining Division.

This report describes the geophysical results from the 2016 ground VLF-EM survey covering one (1) claim, numbered 4262042. .

2.0) Property Description and Location

2.1) Location and Access

The Boston Property is located 14 kilometers south of Kirkland, Lake, Ontario (Figure 1). It is located in the Larder Lake Mining Division (NTS 32D04/SW).

Road access to the property from Route 650 (Adams Mine Road) is via Highway 112. The Adams Mine Road offers direct and easy access to the claim group, bisecting the property in an east-west direction. There are also a number of old exploration trails that can be used from the Adams Mine Road. Access is available all year.

2.2) Description of Mining Claims

The Boston Property consists of 8 units in four (4) mining claims, covering approximately 1.28 square kilometers (Figure 2). Exploration activity was completed on one (1)) claim, numbered 4262042. The claim distribution of the Boston Property in this report is summarized in Table 1 and illustrated in Figure 2. The mining claims are currently owned by three individuals and are summarized in Table 1.

Table 1 – Boston Property Claim Summary

Claim Numbers	Units	NTS Map Number	Claim Holder
4262037	2	32D04/SW	S. Roach, D. Laforest, and M. Laforest
4262039	3	32D04/SW	S. Roach, D. Laforest, and M. Laforest
4262042 (SRO)	2	32D04/SW	S. Roach, D. Laforest, and M. Laforest
4273073 (SRO)	1	32D04/SW	S. Roach, D. Laforest, and M. Laforest

Figure 1 – Location Map of Boston Property

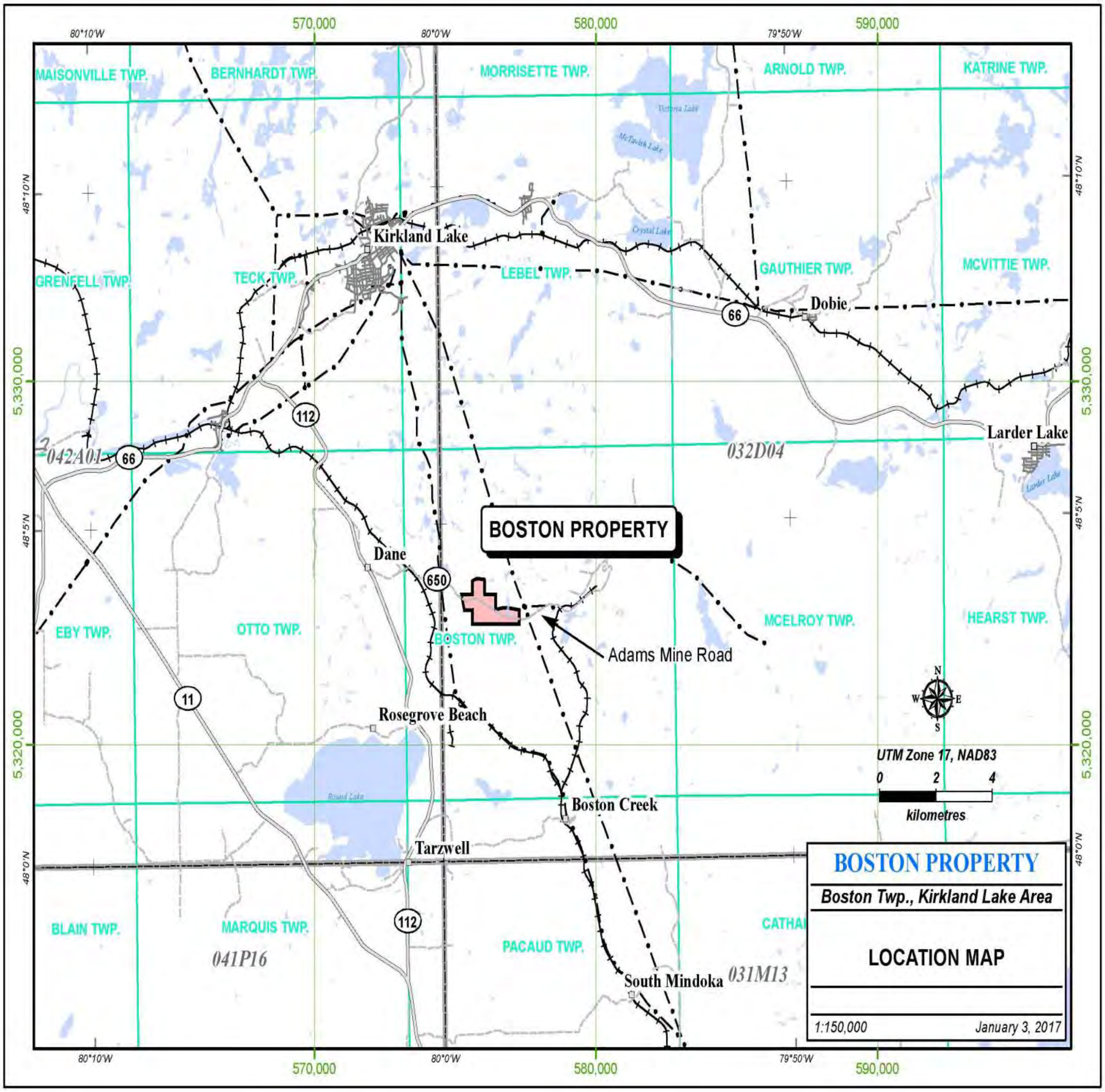
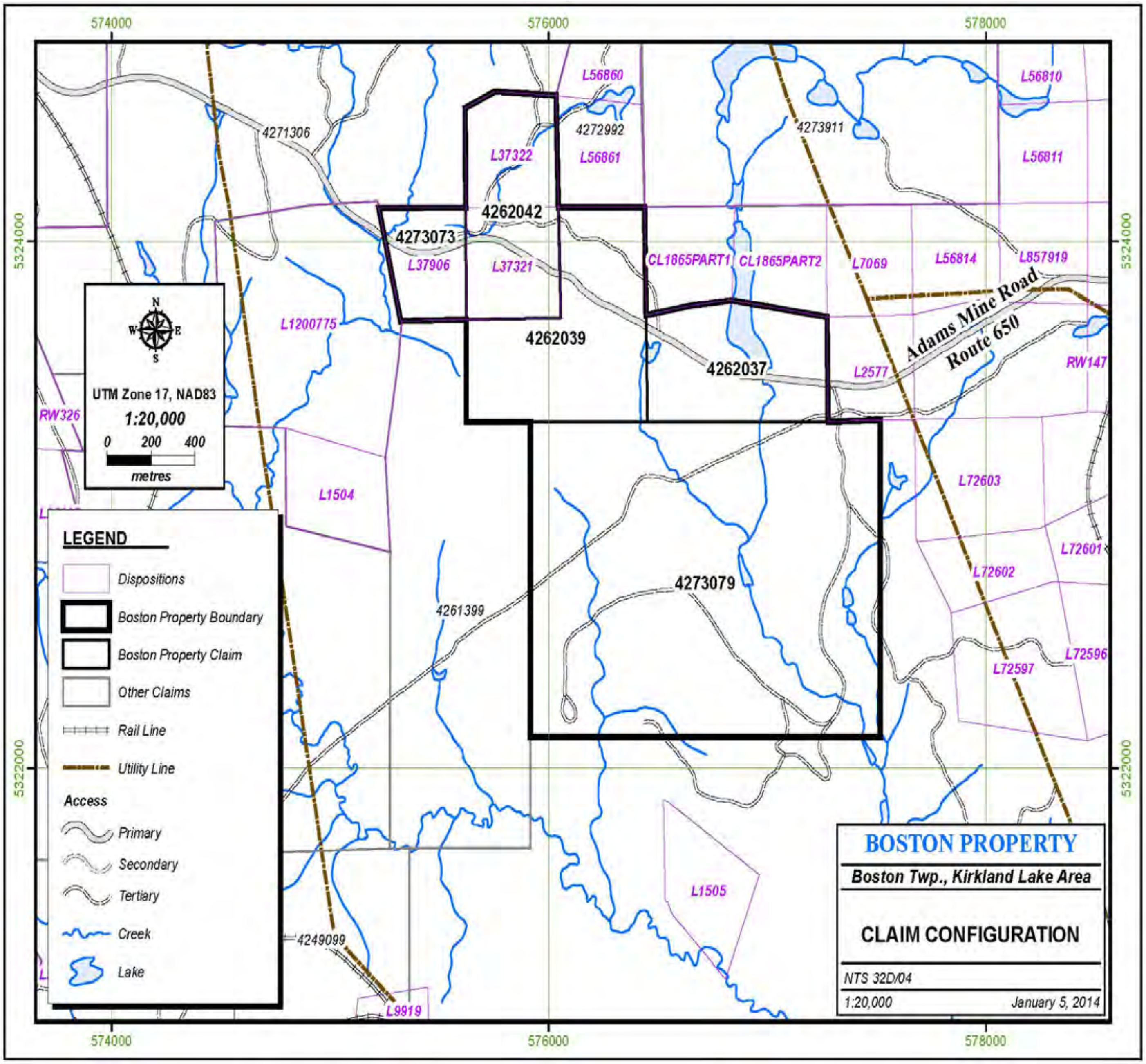


Figure 2 – Boston Property Claim Map



3.0) Physiography and Vegetation

The Boston Property height of land ranges from approximately 285 to 340 meters above sea level. Overall, the inferred thickness is not known, with limited historical drilling and trenching data suggesting the overburden thickness varying from bedrock exposure to 2 vertical meters. For the most part, the property has variable outcrop rock exposure (<5% to 40%), with the higher concentration of the outcrop exposure north of the Adams Mine Road. The southern part of the property has intermittent exposure. The low-lying outcrops are generally undulating with the glacial cover. The overburden cover consists of unconsolidated glacial gravel, silty sand with thin sand and gravel areas in higher relief areas, and thick organic matter and clay in poorly drained lower relief areas. For the most part, the relief on the property is gentle and undulating. The lower relief areas are occupied by extensive clay-rich swamp and muskeg with poor drainage.

Boston and Pacaud townships are located south of the continental divide and are drained by Boston Creek and its tributaries (Lawton – 1957). Boston Creek is located and bounds the western part of the property, flowing southward into the Blanche River, which empties into Lake Timiskaming. There is a major stagnant swampy, 'lake' area located on the eastern part of the property and mapped area, trending north-south.

Vegetation consists of small black spruce balsam and poplar mixture in the bouldery till knolls and outcropping areas. Local alder brush and cedars occupy the swampy areas, dominated by clay and silty-clay soil.

4.0) Historical Exploration

This area is known for one its earliest gold and iron ore discovery areas in the region, with the discoveries made between 1900 and 1914. Most of the exploration concentrated in the southern part of Boston Township with the first gold discovery being the 'Kenzie' Vein in 1914. The most prolific iron ore mine in the region is the Adams Mine (1963-90), which is located approximately 2.4 kilometers east of the Boston Property.

Known documented exploration on the property was carried between 1963 and 1984, with no recent exploration carried out for the last 32 years. Exploration work consisted of line-cutting, ground geophysics, prospecting and sampling, mapping, variety of ground geophysical surveys, and a number of small diamond drill programs (Table 2). Ground geophysics consisted of VLF-EM, magnetic, and IP surveys.

Rio Tinto Exploration conducted the first known exploration in 1963, located in the northeastern part of the property. Their focus on exploration was designed to test VMS copper-zinc base metal mineralization. Rio Tinto completed a 60.6 meter drill-hole, and intersected variable concentrations of pyrite and pyrrhotite hosted in banded iron formation and cherty tuff. From 1982 to 1984, both Shining Tree Exploration and Caninco carried out a variety of surface surveys, including a 498 meter, six (6) drill-hole program by Caninco. Some drill assays were reported. Caninco (under option from Shiningtree Gold Resources) conducted geological mapping, sampling, and IP and magnetic ground geophysical survey, followed by 498 meters of diamond drilling in 6 drill holes (Table 2). The drill program was designed to test a number of IP chargeability zones and a gold showing in a trench area, which returned 9.27 g/t Au. Although no assays were reported by Caninco, drill-hole 54084 intersected a fairly wide intercept at the bottom of the drill hole to test the gold showing. It intersected variably altered silicified and chloritic mafic volcaniclastics/epiclastics and greywacke with cherty interbeds over 11.05 meters, from 107.45 to 118.5. Sulphides consist of <1% to 10% disseminated pyrite. Another drill hole 72304-0, which is located in the southeastern part of claim 4262039, intersected a fairly wide intercept of sulphides. Pyrite mineralization varied from <1% to 15% from 15.24 to 22.92 in both greywacke with minor chert. Silicification along with chlorite alteration was identified along with quartz stringers and veinlets. No precious and base metals were reported.

In 2011, a field investigation by Pro Minerals south of the Boston Property confirmed the surface gold showing, where values of 9.85 g/t Au and 7.77 g/t Au were returned from surface samples.

Table 2 – Summary of Documented Historical Exploration on Boston Property

Company/Individual	**Duration (yrs)**	**Area/Target**	**Description of Exploration Work**
Pro Minerals	2011	South of Boston Property	Field investigation of gold showing and surrounding area, which returned grab values of 9.85 g/t Au and 7.77 g/t Au
Caninco	1984	Southern part (426037) and south of Boston Property	Geological mapping and sampling, IP & magnetic ground surveys, and part of a 498 meter drilling program in 6 drill holes – some assays reported
Shiningtree Gold Resources	1982-83	South and southeast of Boston Property	Line-cutting (95 km), VLF-EM-magnetic surveys, trenching & power-washing, and sampling - highlights from gold showing include 9.27 g/t Au / 0.73 meters
Shepherd Exploration Ltd	1970	South of Boston Property – test VLF-EM targets	Line-cutting, VLF-EM, and 300 meters of drilling in 4 drill holes – no significant Au assays (limited assays)
Rio Tinto Exploration	1963	North part of Boston Property	Following up airborne conductors with unknown ground geophysical survey and 60 meter drill hole – no assays reported

There are numerous historical trenches situated in the western part of the property, located just north of the Adams Mine Road.

There are various governmental geological surveys, which include….

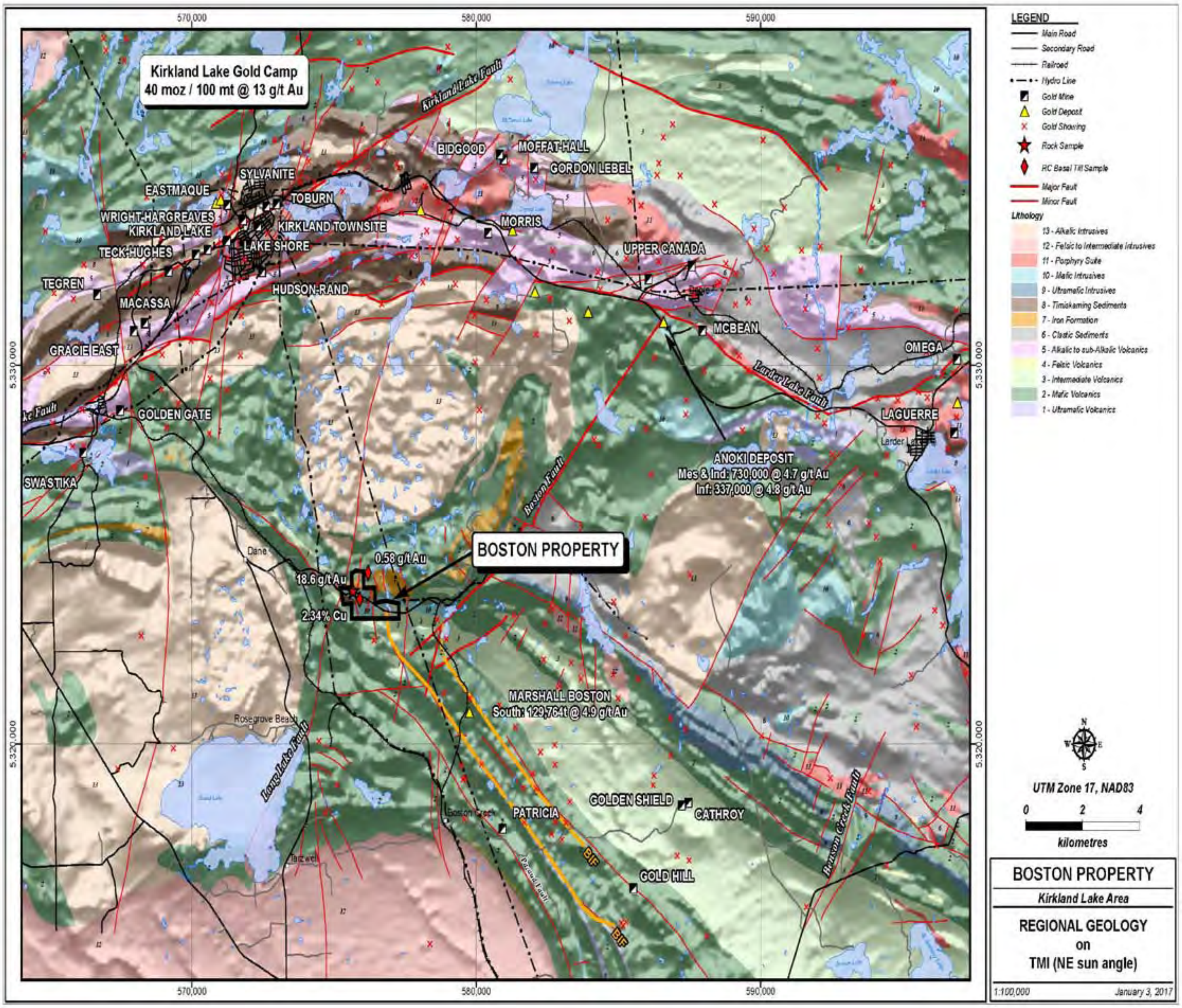
1) Airborne Magnetic and Electromagnetic Survey (map 82 040 in 2000)
2) Reverse Circulation Drilling and Basal Till Geochemical and Mineralogical Data (OFR 5506)
3) Geology of Boston Township (Volume LXV1, Part 5, 1957)

5.0) Regional and Property Geology Setting

The supracrustal rocks underlying the general area is located in the Abitibi Greenstone Belt and part of the Boston Assemblage (ca 2750-2700 Ma) of the Superior Province in the Precambrian Shield (Figure 3). This may include the Tisdale Assemblage (ca 2710-2703 MA). The Boston Assemblage is characterized by bimodal calc-alkaline felsic to intermediate and iron and magnesium-rich mafic metavolcanics with minor ultramafics. There is a significant presence of banded oxide iron formation and cherty chemical metasediments. A well defined narrow clastic metasedimentary (10%) horizon lies within the mafic metavolcanics and is predominantly composed of polymictic conglomerate (Timiskaming Sediments) along with arkose, greywacke, and argillaceous interbeds. The Timiskaming sediments may represent a younger major structural break (ca younger than 2675 to 2685 Ma) within the metavolcanics. Oxide to silicate facies iron formation reflects strong magnetic anomalies in the region. They are in-turn intruded by a variety of younger alkalic felsic intrusives (syenite), related to the Lebel Syenite Stock. They occur as dyke-like features and possibly as smaller marginal bodies to the Lebel Syenite Stock. The supracrustal rocks have undergone greenschist metamorphism.

The prominent regional structure in the region is the Lebel Structural Complex (S.L. Jackson et al – 1995). This deformation zone is a highly strained and sheared zone as a result of the emplacement of the Lebel Syenite Stock. It has overprinted both the metavolcanics and oxide iron formation. The Long Lake Fault is located in the western part of the property, and is part of a regional 15 to 20 kilometer long north to northeast trending structure. Lawton (1957) has described this fault as occupying recessive feature, following Boston Creek and its topographical valley. The structure cross-cuts major lithostratigraphic units, showing sinistral horizontal movement. The trend of the Long Lake Fault to a northeast trend within the Kirkland Lake Gold Camp (40 Moz Au) complement known gold-bearing trends such as the Kirkland Lake Break (24 Moz Au) and the Upper Canada Break.

Figure 3 – Regional and Property Geology



6.0) Deposit Types

The Kirkland Lake Gold Camp is one of the most prolific gold camps in the Canadian Shield, having produced close to 40 Moz gold (Figure 3). The gold camp is located on the Larder Lake Break, where the east extension is the Cadillac Break in Quebec, which has produced close to 200 Moz in both Ontario and Quebec. They are hosted by a wide range of metavolcanic and metasedimentary rock types, with the Timiskaming sediments always spatially near to the gold deposits. The Lebel Syenite Intrusion also plays an important host to the gold-bearing structures. Gold mineralization in Kirkland Lake shows evidence of a similar pattern to the underlying supracrustal rocks and structures in the Boston Property area, with the presence of Timiskaming sediments, shear zone hosted quartz-sulphide structures, and a geochemical signature of Te>Au, Mo, Pb, Ag, and low As. This reflects a greenstone mesothermal, orogenic gold environment. However, the presence of high-grade copper with anomalous zinc-lead may suggest a polymetallic VMS environment.

It remains to be seen whether gold mineralization on the Boston Property is more typical of an orogenic-type mesothermal gold environment within shears of folded and faulted felsic metavolcanics and clastic/chemical metasediments. There is an also spatial and genetic relationship between the gold mineralization and the Lebel Syenite Stock, with anomalous Te-Bi-Pb hosted in both the altered felsic metavolcanics and chemical metasediments..

7.0) Summary of 2016 Boston Property Surface Exploration Program

On November 18th, 2016, Shaun Parent of Superior Exploration (P.O. Box 22052, 44 Great Northern Road, Sault Ste. Marie, Ontario P6B 6H4) was contracted to complete a reconnaissance ground VLF-EM survey. A total of 2.575 line km of ground VLF-EM was completed in the west-central part of the Boston Property on claim 4262042. Superior Exploration conducted three test lines across the area where there are known mineralized historical trenches, as well as cover an area where there is strong airborne magnetic high anomalies reflected by oxide facies banded iron formation (BIF). A Geonics EM-16 was utilized, with in-phase and quadrature measurements collected every 20 meters along GPS-controlled lines. More detailed readings were taken 10 and 12 meters apart when cross-over areas were anticipated. GPS and compass survey (Garmin GPS 60Cx) was used for line control and record data locations as UTM co-ordinates. Accuracy is approximate, between 2 and 6 meters. Nad 83 in Zone 17 was utilized 2.575 kilometers of traverse was completed. Two stations were used…

1) NAA (24.0 kHz) - Cutler, Maine, USA
2) NML (25.2 kHz) – La Moure, North Dakota, USA

The field strength is in H-mode with the transmitting station at right angles to the bearing of the operator from the observation point. The operator at the observation point held the instrument with its axis horizontal so that a minimum signal or null was obtained. Next, the instrument is turned through 90º and finally tilted until a minimum signal or null was obtained. Two readings at the observation point for each station was then taken. These readings are the tilt (in-phase) and quadrature (out-of-phase). The operator is always facing north before the readings were taken.

VLF-EM profiles of each of the three survey lines from NAA and NML are presented in Appendix 1 and 2, respectively. A Fraser Filter plan plot is presented in Appendix 3 with Geonics 16 instrument specifications presented in Appendix 4.

9.0) Discussion of Results from 2016 Ground VLF-EM Survey

A ground VLF-EM survey was successful in delineating a number of VLF-EM zones within the limited survey area of the property. Both in-phase and quadrature profiles show a high degree of noise, especially on L6000E. The VLF-EM zones together show;

1) Moderate to strong reverse cross-overs
2) Variable none/weak to strong resistivity lows
3) Moderate to strong Fraser Filter anomalies
4) Variable weak to strong K-H Filter anomalies

There are four VLF-EM anomalies/zone (A to D) and are summarized in Table 3 with their VLF-EM current (Fraser Filter) and resistivity characteristics.

Table 3 – Summary of VLF-EM Zones

Anomaly	Anomaly Strike Length (m)	Cross-Over	Fraser Filter	Resistivity	Quality Factor (amp/amp/m)	Geological Explanation
A	350 (open)	Yes – reverse and sharp	Direct and strong	Coincidental strong low	Strong - 24.5 to 57.8	Marginal to Cu-rich Sulphidized BIF & quartz-sericite-pyrite schist; direct to Hydro Power-line
B	350 (open)	Yes – reverse and shallow	Moderate	None to weak low deflection	Weak to moderate – 7.7 to 25.1	Extension Cherty Tuff / Silicified Felsics (unexplained)
C	275 (open east)	Yes – reverse and shallow	Moderate	Weak low deflection	Weak to moderate – 10.4 to 25.0	Silicified BIF/Felsics (unexplained)
D (may be in part the SE extension of B)	100 (open?)	Yes – weak reverse and broad	Moderate to strong	Moderate to strong	Strong – 35.6 to 46.1	Extension of historical trenches with pyritic oxide BIF with local quartz veins & stockwork to the west

Anomaly A

This anomaly is located in the south-central part of the survey. It strikes for at least 350 meters in an east-southeast direction, and open in both directions. It has a characteristic sharp, reverse cross-over with a coincidental strong Fraser Filter and quality factor (Appendix 1 and 2 - Table 3). There is also a corresponding strong resistivity low. Although the anomaly corresponds with a hydro power-line, a sulphide-rich BIF and a quartz-sericite-pyrite (QSP) schist underlies an area adjacent and north of the hydro line (Appendix 3). The initial interpretation is that anomaly is a shallow source (hydro line), but there are implications that this anomaly extends at depth indicating a deeper bedrock source.

Anomaly B

This anomaly is located in the central part of the survey area on claim 4262042 trending in an east-west direction. It is open in both directions. Overall this anomaly is weak with a weak and broader reverse cross-over (Appendix 1 and 2 - Table 3). There is a corresponding moderate Fraser Filter and weak to moderate quality factor. There is a weak resistive inflection to no resistivity anomaly associated with this VLF-EM zone with a shallow bedrock source. This anomaly is unexplained at this time, but is on strike with silicified and cherty felsic metavolcanics and cherty tuffs to the east.

Anomaly C

This anomaly underlies the northern-most part of the survey area, close to the northern claim boundary. It is approximately 275 meters in strike length, open to the east and trends east-southeast. The stronger response is on L5800E. It has the same characteristics as Anomaly B and is largely unexplained. Ontario government (Ontario Department of Mines) mapping by Lawton (1957) indicates silicified BIF and felsic metavolcanics the main underlying rock types in this area.

Anomaly D

This anomaly response may be in part of Anomaly B or a separate anomaly. If part of Anomaly B, a southeast trend is inferred. The strike length is unknown at this time. This anomaly has a much stronger response with respect to Fraser Filter, resistivity, and quality factor, in comparing to the VLF-EM characteristics to Anomaly B and C (Appendix 1 and 2 - Table 3). This anomaly is unexplained at this time, but is on strike 100 meters to the southeast in a series of historical trenches comprising of sulphide-rich and quartz vein fractured oxide BIF. .

10.0) Conclusions

The 2016 VLF-EM survey was successful in identifying some new areas where there is little to no known historical trenching. A total of four (4) anomalies have been outlined from the ground geophysical survey. Although one of the anomalies (Anomaly A) coincides with a cultural hydro power-line, there are marginal geophysical characteristics of Anomaly A which closely coincide with thick quartz-sericite-pyrite alteration of felsic metavolcanics and oxide facies BIF which returned significant copper values up to 2.34%. The remaining anomalies are generally unexplained and underlies favorable geological areas conducive to precious and base metal mineralization.

Host rock and copper base metal mineralization with the presence of Te and other local pathfinders, suggests both greenstone gold shear zone analogous to quartz vein gold deposits, as well as in a polymetallic VMS environment. The Lebel Structural Complex is similar to greenstone hosted, shear zone related quartz-carbonate gold deposits, particularly in the Kirkland Lake Gold Camp. Cross-cutting faults, and fractures along and adjacent to this structural corridor, would provide pathways and traps for auriferous hydrothermal fluid movement. The presence of chemical metasediments in the form of oxide facies iron formation and sulphide-rich cherty tuffs would provide the chemical trap for gold to precipitate in the formation of pyrite in veined and silica-'flooded' structures. The presence of syenite and possibly other feldspar and quartz-feldspar bodies provide the heat to the hydrothermal system, as well as the precious and base metals.

11.0) Recommendations

A more detailed VLF-EM and magnetic survey is recommended at 100 meter spacing throughout the Boston Property, in light of the success of this survey. This ground geophysical survey would complement the recommended mapping and prospecting as a two phase program. A structural overview would greatly enhance the understanding of the structural controls of the mineralization. The focus of prospecting is to follow-up on favorable ground VLF-EM responses, as well as, locating historical trenches, finding additional sulphide mineralization, and find the source of gold from the RC drilling.

12.0) References

Jackson, S.L. and assistants (1995)

Precambrian Geology, Larder Lake Area, Ontario Geological Survey, Map 2628, Scale: 1:50.

Lawton, K.D. (1957)

Geology of Boston Township and part of Pacaud Township, Department of Mines Annual Report, Volume LXVI, Part 5, 55 p.

Burrows, A.G. and Hopkins, P.E. (1916)

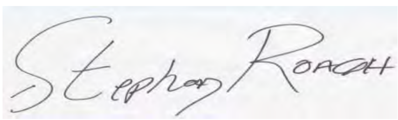
Bulletin No. 29 of the Ontario Department of Mines, Boston Creek Gold Area and Goodfish Lake Gold Area, 24 p.

STATEMENT OF QUALIFICATIONS

I, Stephen Roach, of 47 Crantham Crescent, Stittsville, Ontario K2S 1R2, certify that;

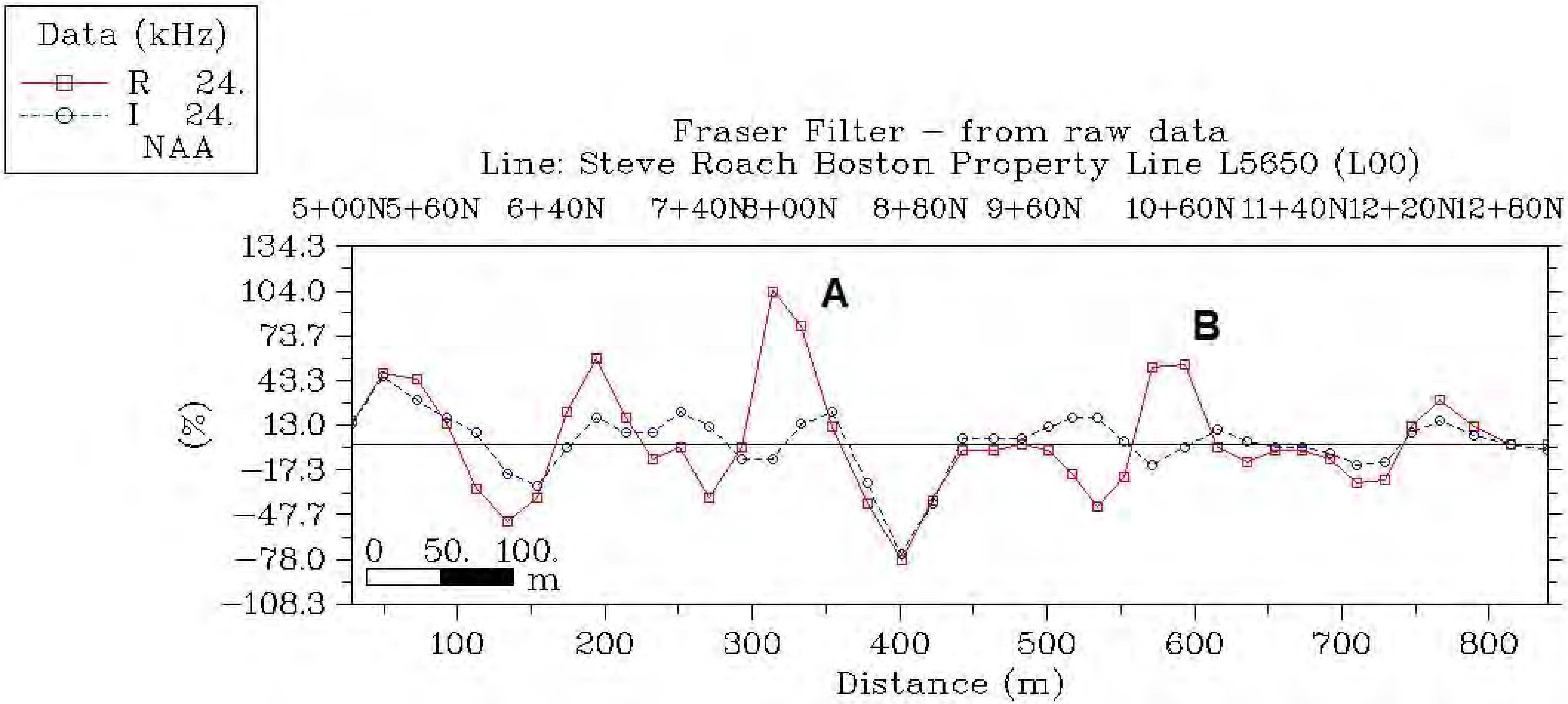
1) I am responsible for this report entitled , Report of 2016 VLF-EM Survey on the Boston Property
2) I have a direct interest in the Boston Property, which is the subject of this report.

Dated January 4, 2017



Stephen Roach, B.Sc. Geology

APPENDIX 1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134.3
104.0
73.7
43.3
13.0
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-78.0
-108.3
(%)
A
B
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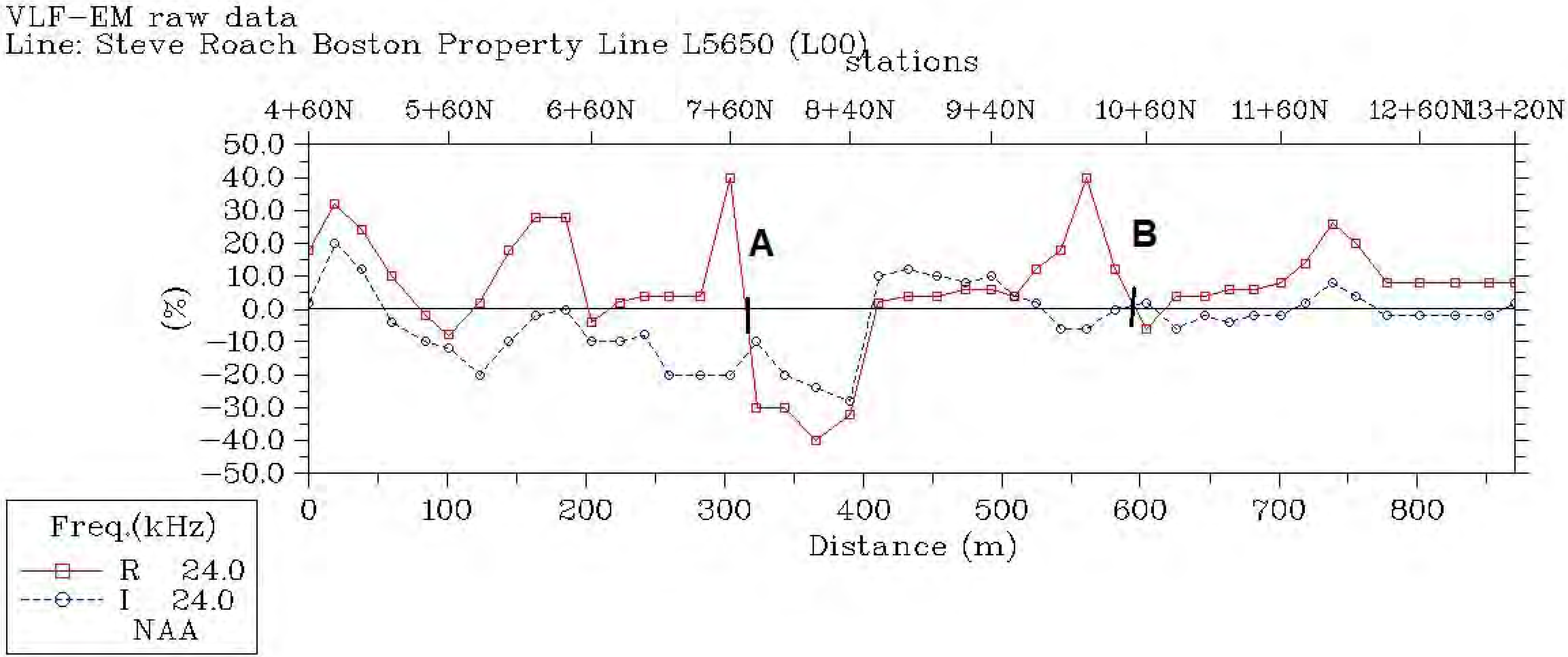
Distance (m)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(%)
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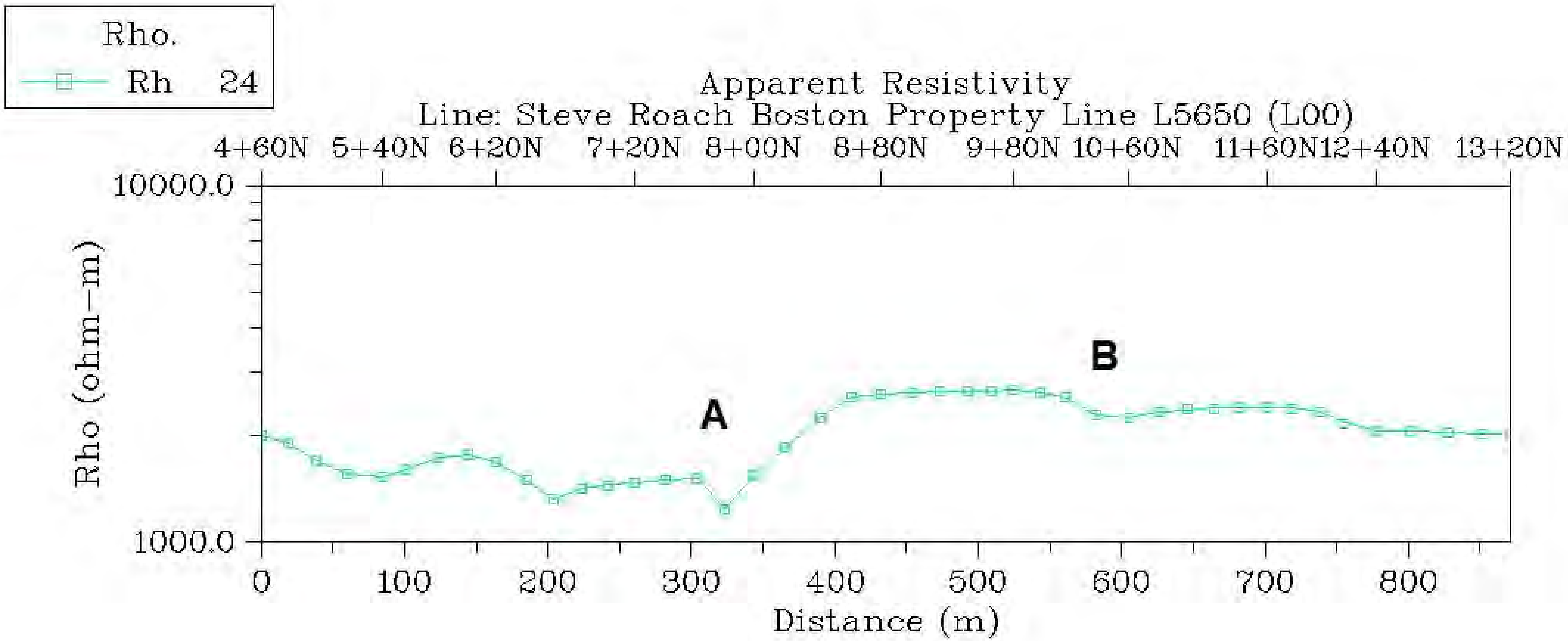

Rho.
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Rho (ohm-m)
A
B
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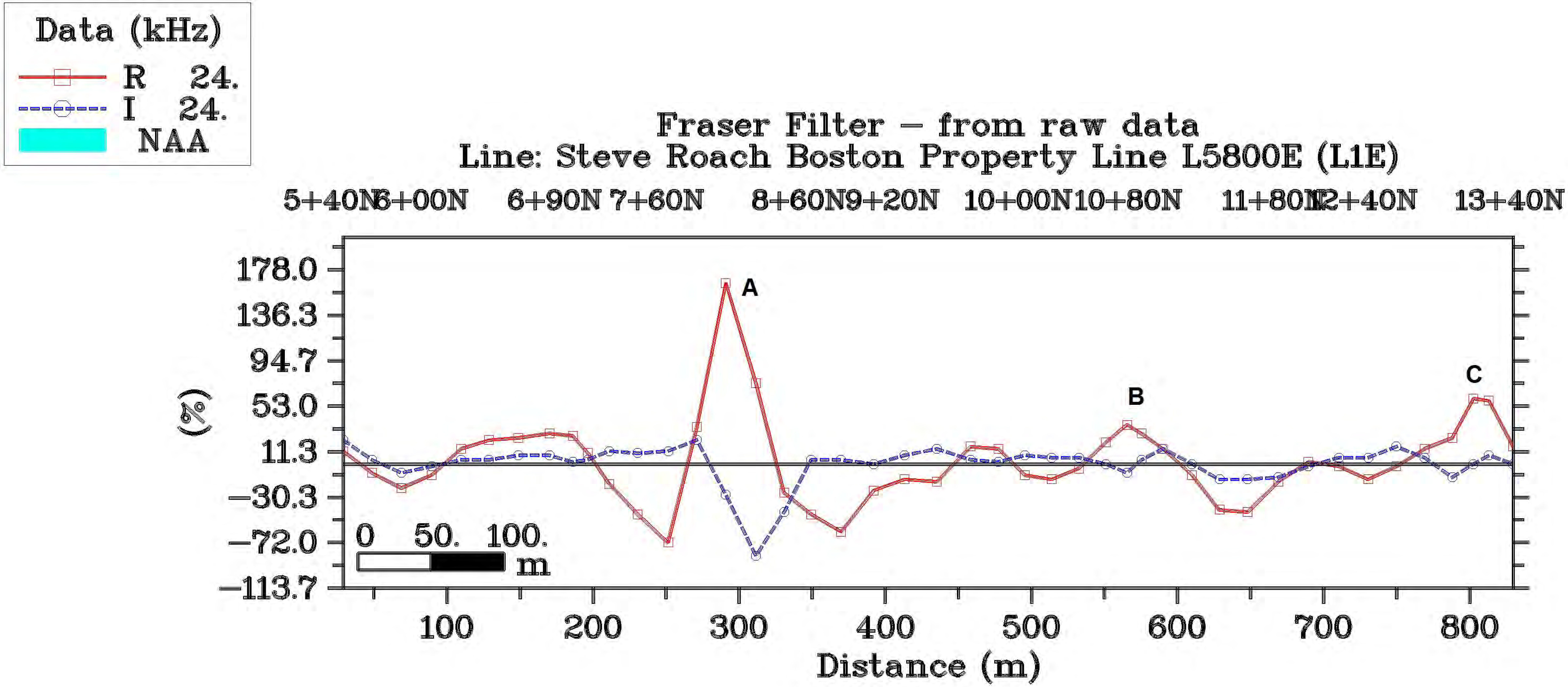
Distance (m)



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I 24.
NAA
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136.3
94.7
53.0
11.3
-30.3
-72.0
-113.7
(%)
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C
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Distance (m)

VLF–EM raw data
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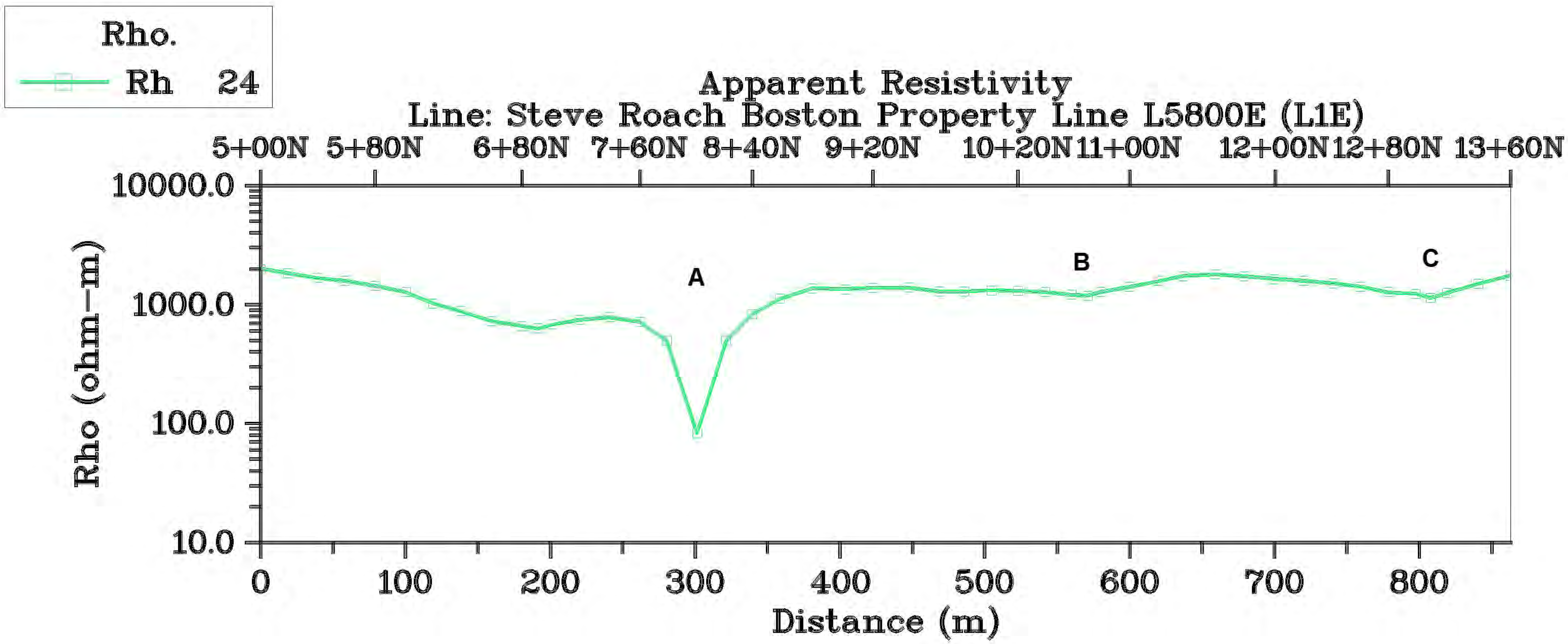
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Rho (ohm-m)
A
B
C
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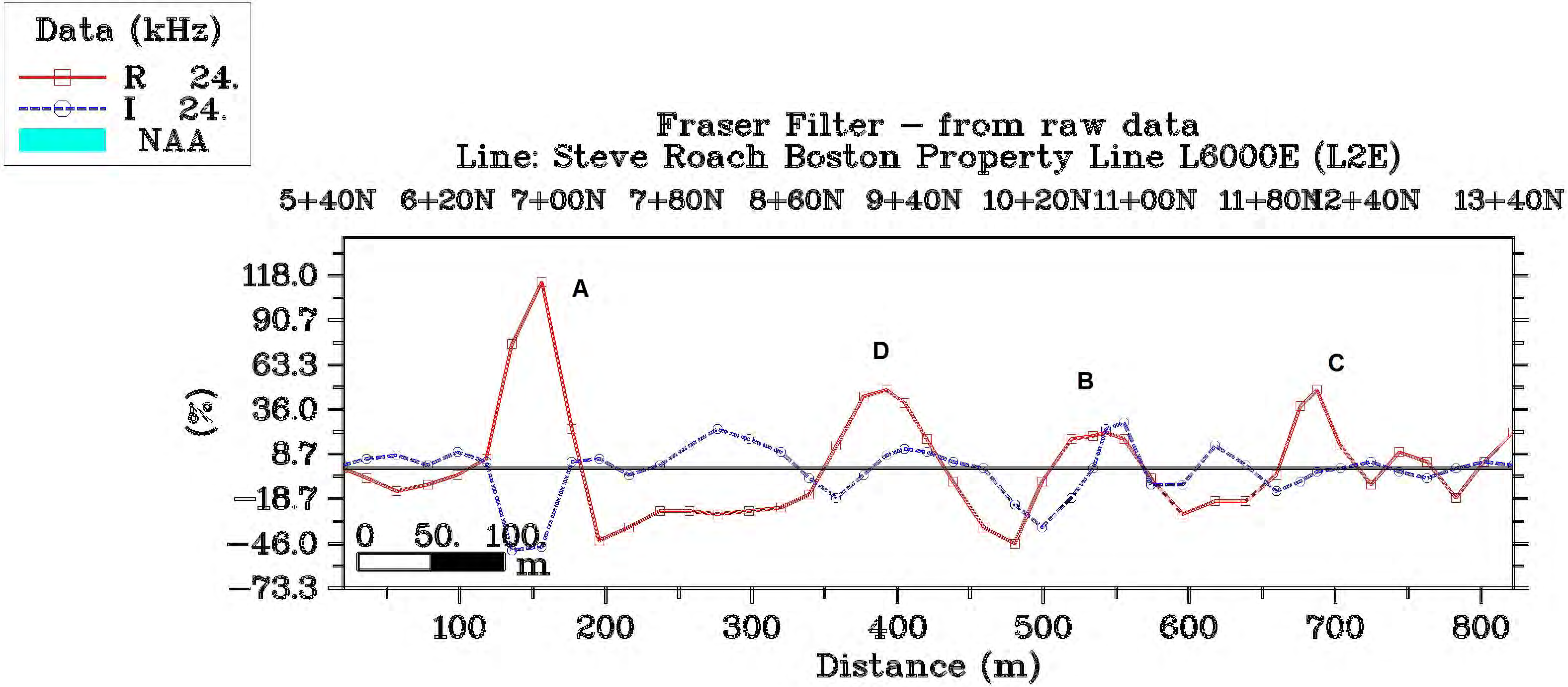
Distance (m)



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12+40N
13+40N
118.0
90.7
63.3
36.0
8.7
-18.7
-46.0
-73.3
(%)
A
D
B
C
0
50.
100.
m
100
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300
400
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600
700
800
Distance (m)

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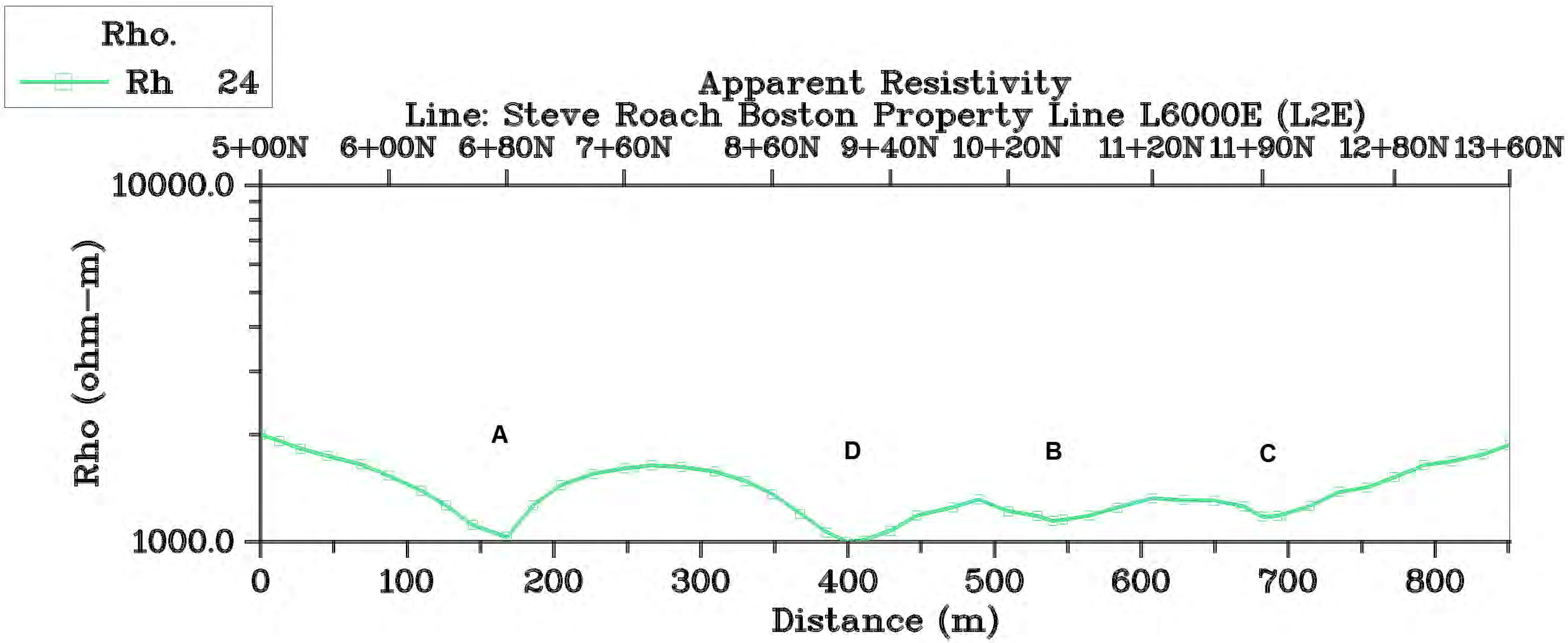
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10+20N
11+20N
11+90N
12+80N
13+60N
10000.0
1000.0
Rho (ohm-m)
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D
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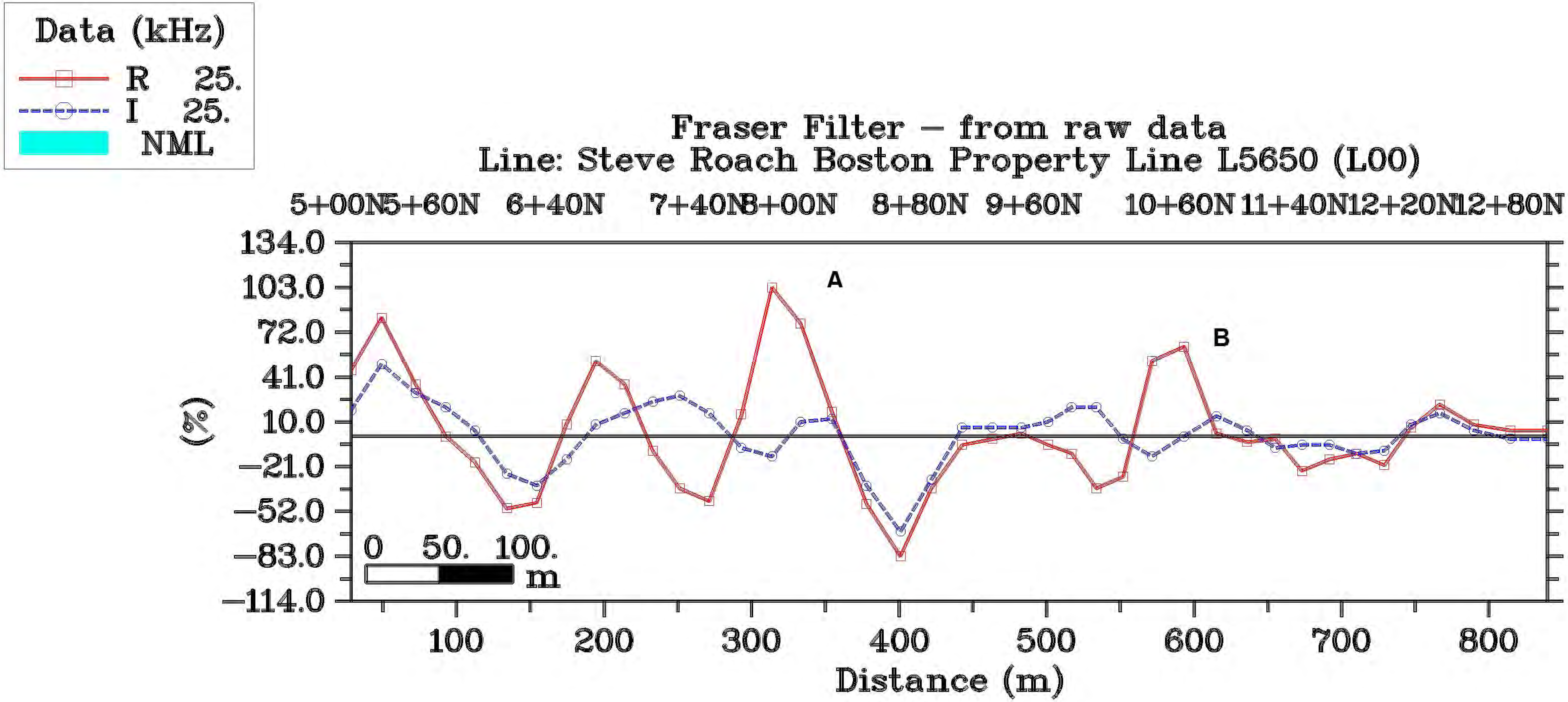
100
200
300
400
500
600
700
800
Distance (m)

APPENDIX 2



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103.0
72.0
41.0
10.0
–21.0
–52.0
–83.0
–114.0
(%)
A
B
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m
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Distance (m)

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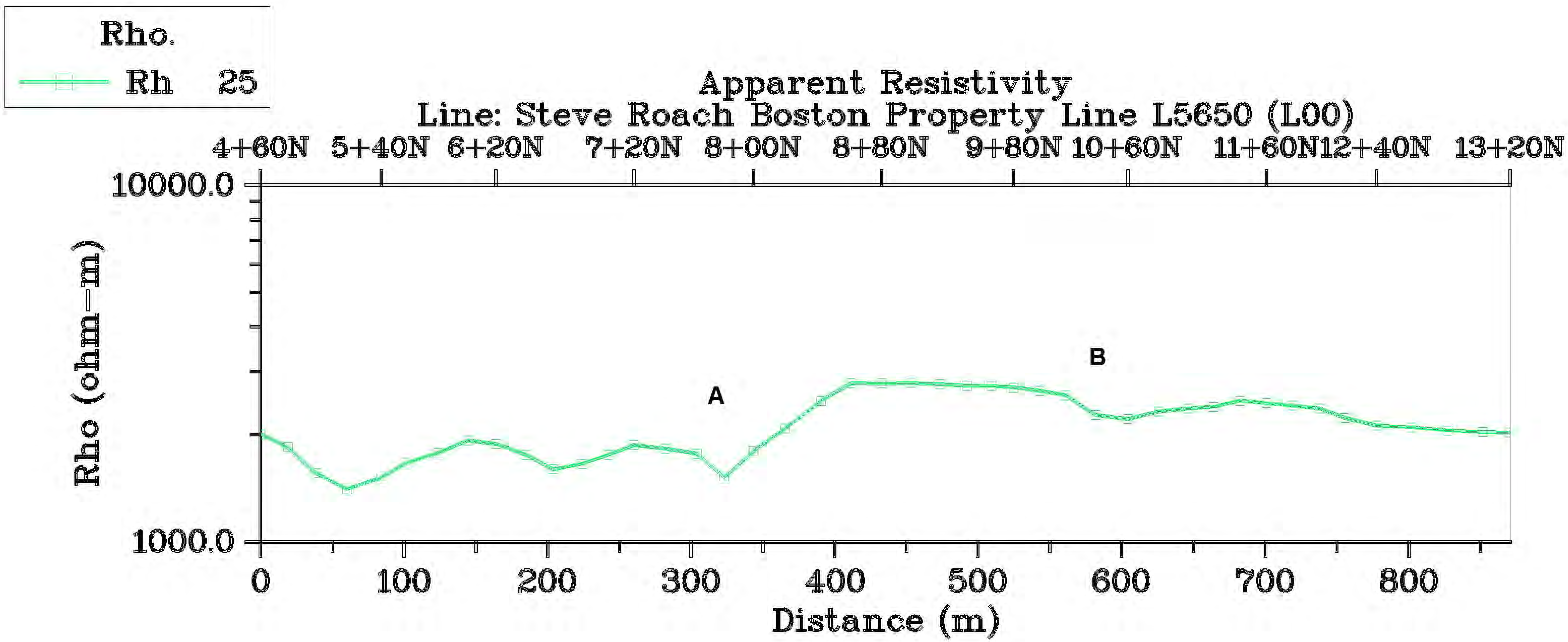

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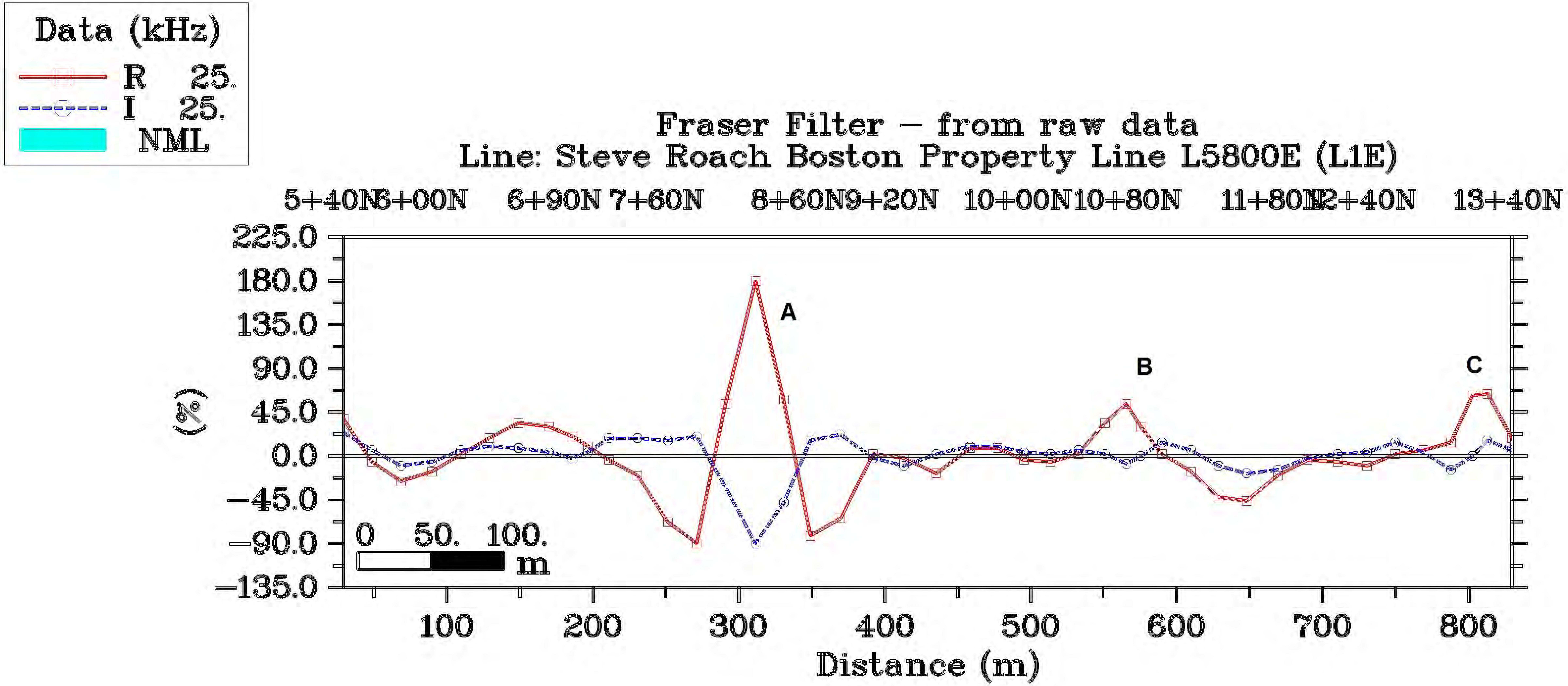
Distance (m)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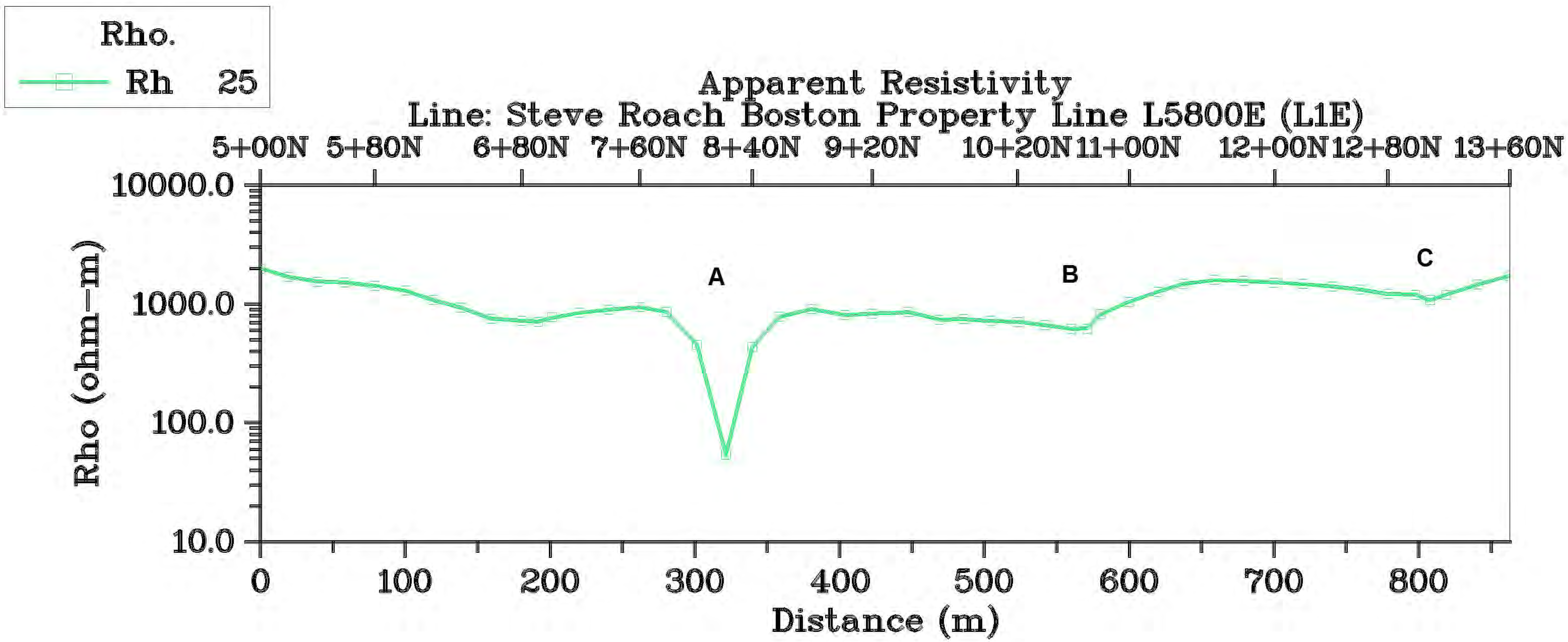
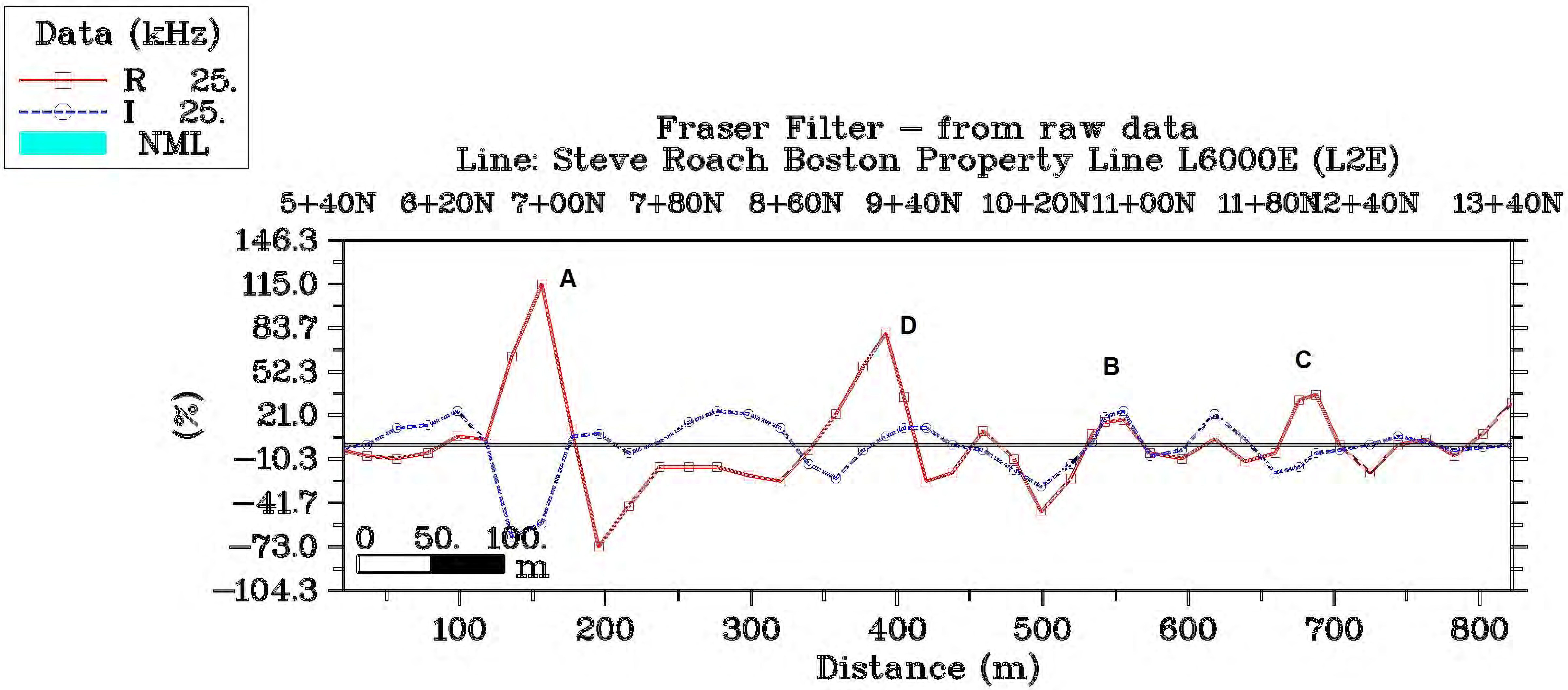
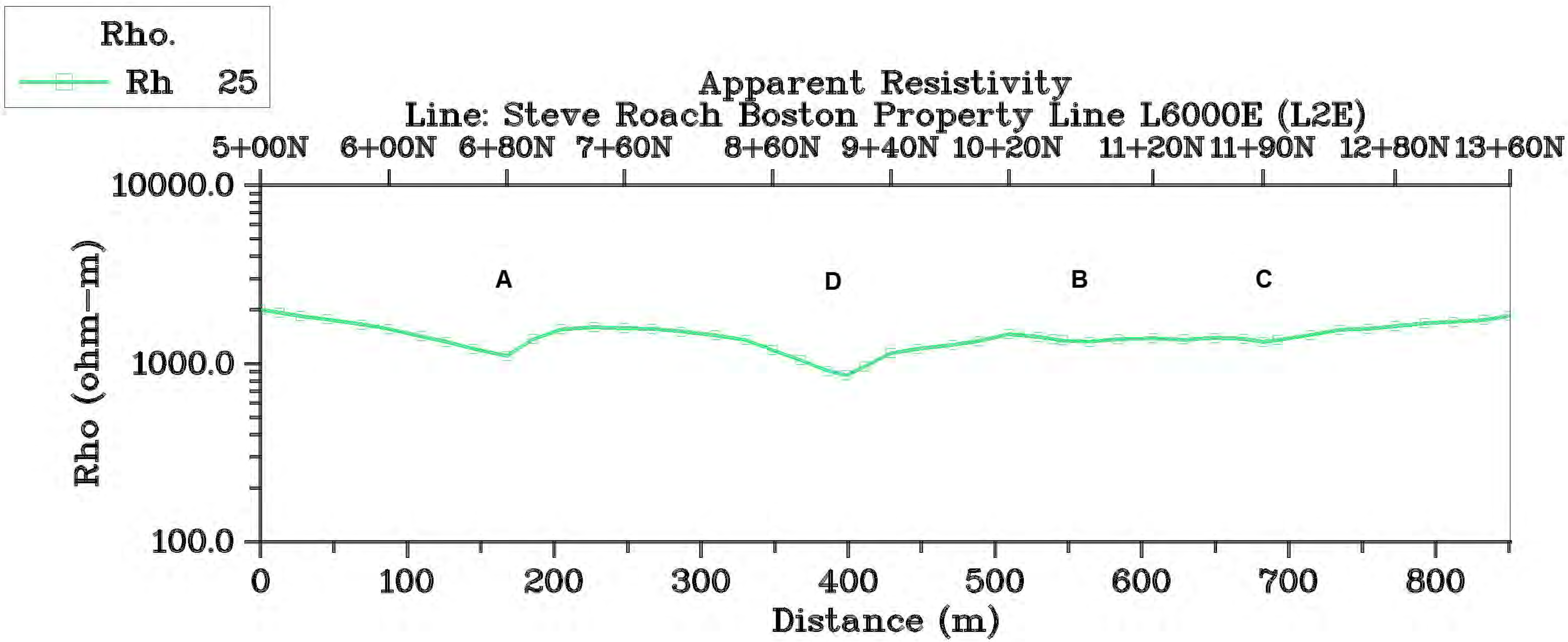
-45.0
-90.0
-135.0
(%)
A
B
C
0 50. 100.
m
100 200 300 400 500 600 700 800
Distance (m)

VLF–EM raw data
Line: Steve Roach Boston Property Line L5800E (L1E)


Rho.
Rh 25
Apparent Resistivity
Line: Steve Roach Boston Property Line L5800E (L1E)
5+00N 5+80N 6+80N 7+60N 8+40N 9+20N 10+20N 11+00N 12+00N 12+80N 13+60N
10000.0
1000.0
100.0
10.0
Rho (ohm-m)
A
B
C
0 100 200 300 400 500 600 700 800
Distance (m)


Data (kHz)
R 25.
I 25.
NML
Fraser Filter – from raw data
Line: Steve Roach Boston Property Line L6000E (L2E)
5+40N 6+20N 7+00N 7+80N 8+60N 9+40N 10+20N 11+00N 11+80N 12+40N 13+40N
146.3
115.0
83.7
52.3
21.0
–10.3
–41.7
–73.0
–104.3
(%)
A
D
B
C
0 50. 100.
m
100 200 300 400 500 600 700 800
Distance (m)

VLF–EM raw data
Line: Steve Roach Boston Property Line L6000E (L2E)



Rho.
Rh 25
Apparent Resistivity
Line: Steve Roach Boston Property Line L6000E (L2E)
5+00N
6+00N
6+80N
7+60N
8+60N
9+40N
10+20N
11+20N
11+90N
12+80N
13+60N
10000.0
1000.0
100.0
Rho (ohm-m)
A
D
B
C
0
100
200
300
400
500
600
700
800
Distance (m)

APPENDIX 3

BOSTON PROPERTY
Boston Twp., Kirkland Lake Area
2017 GEOLOGY with VLF
NAA FRASER IN-PHASE
NTS 32D/04
Nominal scale 1:2,500
January 3, 2017
UTM Zone 17, NAD83
Nominal scale 1:2,500
0 50 100
metres
CLAIM LINE
To Kirkland Lake
To Adams Mine
Adams Mine Road
Route 650
Hydro Line
A
B
C
D
4273073
4262042
4262039
4262037
Early PreCambrian (Archean Blake River Group)
Timiskaming Metasediments
10A Unsubdivided
10C Polymictic Conglomerate (sedimentary matrix supported)
10D Polymictic Conglomerate (volcanic fragment supported)
Felsic to Intermediate Intrusives
9A Unsubdivided
9D Syenite
Mafic Intrusives
7A Unsubdivided
Chemical Metasediments
5A Chert/Cherty Tuff
5B Oxide Facies BIF
Clastic Metasediments
4A Unsubdivided
4B Arenaceous-arenite
4F Volcaniclastic-Epiclastic
Felsic Metavolcanics
3A Unsubdivided
3F Tuff
3J Volcaniclastic-Epiclastic
Intermediate Metavolcanics
2A Unsubdivided
Mafic Metavolcanics
1A Unsubdivided
1B Massive Flow
1C Flow Top/Bottom Breccia
1D Pillow Flow Breccia
SYMBOLS
Outcrop Area; Small Outcrop
Bedding (Inclined, Vertical)
Foliation (Inclined, Vertical)
Joint / Vein Fracture (Inclined, Vertical)
Lineation with plunge direction (inclined)
2014 Rock Sample Location (sample number (ppb Au))
2013 Rock Sample Location (sample number (ppb Au))
Claim Post (observed)
Claim Post (inferred)
Trench (historical)
ABBREVIATIONS
Silicates & Alteration
amp amphibole
bio biotite
cb carbonate
chl chlorite
ep epidote
fd feldspar
fus fuschite
kspar potassic feldspar
mag magnetite
px pyroxene
qs quartz stringer
qv quartz vein
ser sericite
sid siderite
sil silicified
Sulphides
cpy chalcopyrite
po pyrrhotite
py pyrite
sp sphalerite
Structure &Texture
bd bedded
bx brecciated
clvg cleavage
fg fine grained
fract fractured
msv massive
sh sheared
NAA Fraser In-Phase Values
160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80
2079 (10 ppb Au, 1.94% Cu)
2075 (8 ppb Au, 1.30% Cu)
2076 (6 ppb Au)
2084 (7 ppb Au, 0.195% Zn)
QTZ-SULPHIDE VEIN
7B Trench
1OD(7A DYKE)
2093 (<5)
2094 (<5)
SP, BOULDERS
NO O/C
BOULDARY TILL
CLAY BOULDERS
BOULDERY TILL
POP, BRUSH
SP & POP
SP-POP BRUSH
intermittent rusty


BOSTON PROPERTY
Boston Twp., Kirkland Lake Area
2017 GEOLOGY with VLF NML FRASER IN-PHASE
NTS 32D/04
Nominal scale 1:2,500
January 3, 2017
UTM Zone 17, NAD83
Nominal scale 1:2,500
0 50 100
metres
CLAIM LINE
Hydro Line
Adams Mine Road
Route 650
To Kirkland Lake
To Adams Mine
4273073
4262042
4262039
4262037
Early PreCambrian (Archean Blake River Group)
Timiskaming Metasediments
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10C Polymictic Conglomerate (sedimentary matrix supported)
10D Polymictic Conglomerate (volcanic fragment supported)
Felsic to Intermediate Intrusives
9A Unsubdivided
9D Syenite
Mafic Intrusives
7A Unsubdivided
Chemical Metasediments
5A Chert/Cherty Tuff
5B Oxide Facies BIF
Clastic Metasediments
4A Unsubdivided
4B Arenaceous-arenite
4F Volcaniclastic-Epiclastic
Felsic Metavolcanics
3A Unsubdivided
3F Tuff
3J Volcaniclastic-Epiclastic
Intermediate Metavolcanics
2A Unsubdivided
Mafic Metavolcanics
1A Unsubdivided
1B Massive Flow
1C Flow Top/Bottom Breccia
1D Pillow Flow Breccia
SYMBOLS
Outcrop Area; Small Outcrop
Bedding (Inclined, Vertical)
Foliation (Inclined, Vertical)
Joint / Vein Fracture (Inclined, Vertical)
Lineation with plunge direction (inclined)
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2013 Rock Sample Location (sample number (ppb Au))
Claim Post (observed)
Claim Post (inferred)
Trench (historical)
ABBREVIATIONS
Silicates & Alteration
amp amphibole
bio biotite
cb carbonate
chl chlorite
ep epidote
fd feldspar
fus fuschite
kspar potassic feldspar
mag magnetite
px pyroxene
qs quartz stringer
qv quartz vein
ser sericite
sid siderite
sil silicified
Sulphides
cpy chalcopyrite
po pyrrhotite
py pyrite
sp sphalerite
Structure &Texture
bd bedded
bx brecciated
clvg clevage
fg fine grained
fract fractured
msv massive
sh sheared
NML Fraser In-Phase Values
160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90
575200 575400 575600 575800 576000 576200 576400 576600 576800 577000 577200
5324600 5324400 5324200 5324000 5323800 5323600 5323400

APPENDIX 4

GEONICS LIMITED

A Canadian-owned company located in Mississauga, Ontario, Geonics Limited is a world leader in the design, manufacture and service of electromagnetic (EM) geophysical instrumentation.

Incorporated in 1962, Geonics earned early recognition with the development of the patented EM16 VLF Receiver, which became an exploration industry standard for ground VLF instrumentation. Equipment manufactured during the first several years included surface, fixed wing and helicopter EM systems, primarily for applications in natural resource exploration.

From an early commitment to specialize in electromagnetic methods, Geonics has since been able to develop a broad range of unique instrumentation for an ever-increasingly diverse range of applications. With the introduction of the EM31 Ground Conductivity Meter in 1976, Geonics began to service end-user communities, such as geotechnical engineers and environmental professionals, with a particular interest in near-surface characterization. Subsequent development of the EM34-3 and EM38 series of Ground Conductivity Meters – for exploration to relatively greater and lesser depths, respectively – expanded the range of application fields to include groundwater, and agriculture and archaeology.

Using more than 15 years of experience in the design and development of time domain electromagnetic (TDEM) systems, Geonics introduced, in 1987, the versatile, digital PROTEM TDEM systems. With a single receiver and, now, five interchangeable transmitters, the modular PROTEM systems are suitable for a full range of applications from shallow environmental and groundwater studies, to deep resistivity soundings and three-component surface and downhole exploration for mineral and geothermal targets.

From this long tradition of research and development excellence, Geonics continues to move forward with the introduction of new, more advanced instrumentation: the second generation of EM61 Metal Detectors has been recognized by the North American military community as a standard sensor technology for the detection of unexploded ordnance (UXO); applications in resource exploration have been further supported by the recent availability of surface and downhole fluxgate sensors; the PROTEM CM and G-TEM TDEM systems each offer the convenience of receiver/transmitter consolidation; and, in the case of G-TEM specifically, a Windows-based operating system that supports both new and enhanced in-field functionality.

And, in addition to standard production instrumentation, custom-build solutions are available to address many unique or otherwise unconventional requirements.

For more than five decades, used extensively throughout the world in varied and demanding survey environments, Geonics instrumentation has earned, and continues to earn the field-tested reputation for superior quality and performance.

EM16 / EM16R / TX27

The EM16 VLF Receiver is the most widely used EM geophysical instrument of all time. Local tilt and ellipticity of VLF broadcasts are measured and resolved into in-phase and quadrature components of VLF response. The EM16 has discovered several base and precious metal ore bodies and many water-bearing faults.

The EM16R Resistivity Attachment uses a pair of electrodes to measure the apparent resistivity of the earth. The combined EM16/16R instrument can detect a second earth-layer if the layer occurs within the VLF skin-depth. In addition, the EM16/16R can map resistive alteration for gold exploration.

The TX27 is a portable VLF transmitter supplying a VLF field for surveying with either the EM16 or EM16/16R if remote broadcasts are weak, intermittent or poorly coupled with the target. For EM16 surveys, the TX27 antenna consists of a long (typically 1 km) grounded wire.

EM16/16R Specifications

MEASURED QUANTITIES	EM16: In-phase and Quadrature components of the secondary VLF field, as percentages of the primary field EM16R: Apparent resistivity in ohm-metres, and phase angle between Ex and Hy
PRIMARY FIELD SOURCE	VLF broadcast stations
SENSOR	EM16: Ferrite-core coil EM16R: Stainless-steel electrodes, separated by 10 m; sensor impedance is 100 MΩ in parallel with 0.5 pf
OPERATING FREQUENCY	15 to 28 kHz, depending on VLF broadcasting station
MEASUREMENT RANGES	EM16: In-phase: ±150 %; Quadrature: ±40 % EM16R: 300, 3000, 30000 Ω-m, Phase: 0-90°
POWER SOURCE	EM16 or EM16/16R: 9 V battery
OPERATING TEMPERATURE	-30° C to +50° C
DIMENSIONS	EM16 or EM16/16R: 53 x 30 x 22 cm
WEIGHT	EM16: Instrument: 1.8 kg; Shipping: 6.2 kg EM16R: Instrument: 1.5 kg; Shipping: 6 kg

TX27 Specifications

PRIMARY FIELD SOURCE	Grounded wire or 500 x 500 m loop, current adjustable, 0 to 2 A
OPERATING FREQUENCY	18.6 kHz
POWER SOURCE	120/220 V, 350 W motor generator
DIMENSIONS	Transmitter and loop: Shipping: 89 x 29 x 39 cm Generator: Shipping: 50 x 27 x 36 cm
WEIGHT	Transmitter and loop: Shipping: 32.5 kg Generator: Shipping: 17 kg