PLATE 2

GEOTECHNICAL MAP

Newland Sierra
San Diego, California

Proj: 10618.002	Eng/Geol: WDO/RCS
Scale: 1"=250'	Date: November 2015

Drafted By: MAM | Checked By: | P:\DRAFTING\10618\002\CAD\OF_2015-06-26\10618-002_P1&P2_GM_20150626.DWG (11-04-15 4:21:18PM) Plotted by: mmurphy

Leighton

FOR LEGEND SEE PLATE 1

APPENDIX A

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APPENDIX A

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APPENDIX A (Continued)

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Aerial Photographs

Date	Source	Flight	Photo No(s)
3/31/53	USDA	AXN-3M	126 through 128
3/31/53	USDA	AXN-3M	162 through 165

APPENDIX B

TRENCH, BORING AND ROCK DRILL LOGS

TRENCH LOGS 1 THROUGH 48

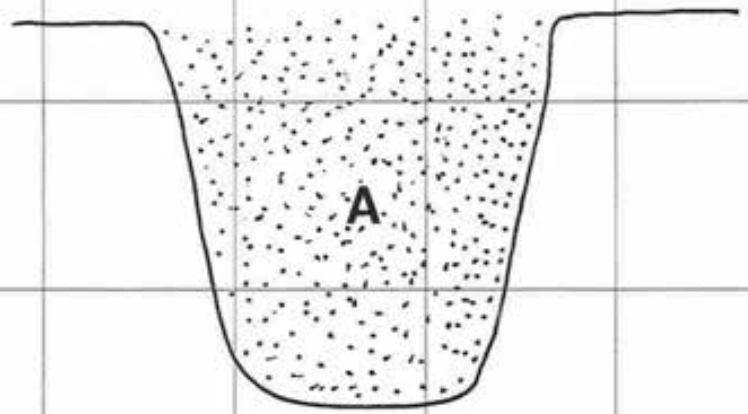
(LEIGHTON, 2002 AND 2004)

LOG OF TRENCH: T-1

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±838 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium (Qal) @ 0': Fine to medium silty SAND: brown to dark brown, dry, loose; porous, very dry, excavates easily @ 5.5': Color changes to red-brown to brown @ 8': Becomes damp @ 16': Same as above Total Depth = 16 Feet	Qal	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=8' SURFACE SLOPE: 0° TREND: N45°E



Total Depth = 16 Feet
No Ground Water Encountered
Backfilled: 8/2702

LOG OF TRENCH: T-2

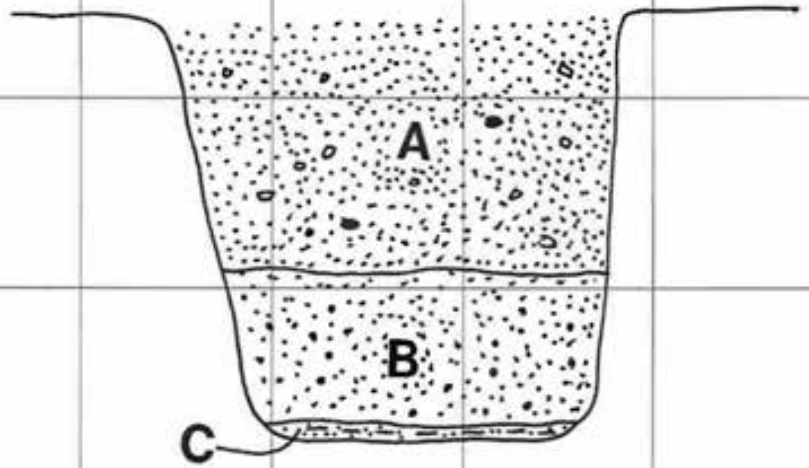
Project Name: Merriam Mountains | Logged by: GJM

Project Number: 040084-002 | Elevation: ±865 Feet

Equipment: JD 310 GS Backhoe 4x4 | Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium (Qal) @ 0': Fine to medium silty SAND: brown to medium brown, dry, loose; porous, some coarse grains and small gravel clasts @ 3.5': Becomes red-brown to brown, damp	Qal	SM			
	B @ 10': Becomes medium to coarse grained silty SAND: light brown to brown, damp, loose; porous to very porous, mica present					
	C @ 17': Gray to gray-brown, slightly clayey SAND: damp, moist Total Depth = 17 Feet		SM/SC			

GRAPHICAL REPRESENTATION: SCALE: 1"=8' SURFACE SLOPE: 0° TREND: N65°E



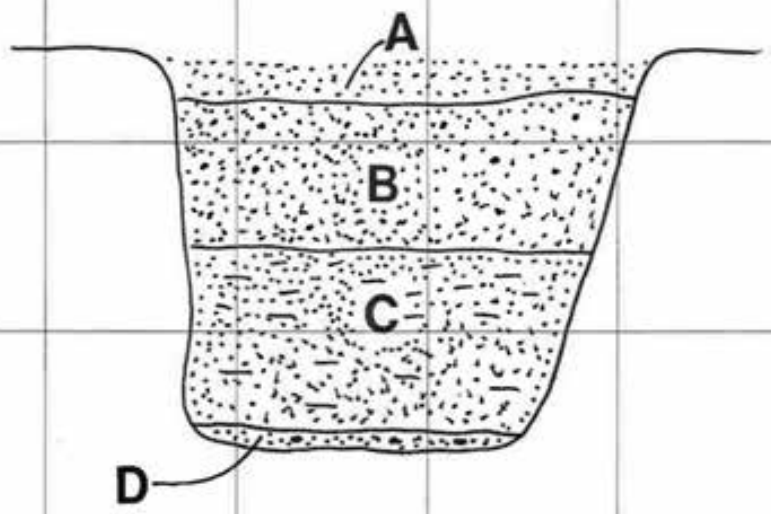
Total Depth = 17 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-3

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±853 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium (Qal) @ 0': Fine to medium silty SAND: dry, loose	Qal	SM			
	B @ 2': Becomes medium to coarse, light brown to brown, damp, dense @ 5': Becomes red-brown to brown					
	C @ 8': Medium clayey SAND: gray to gray-brown, damp, dense; some coarse grains @ 12': Fine to medium slightly clayey SAND: damp, dense to very dense; caliche present		SM/SC			
	D @ 16': Fine to medium silty SAND: Gray to medium gray, moist, dense; some coarse grains, caliche present, well cemented, near refusal, some porosity Total Depth = 16 Feet					

GRAPHICAL REPRESENTATION: SCALE: 1"=8' SURFACE SLOPE: 0° TREND: N50°W



Total Depth = 16 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-4

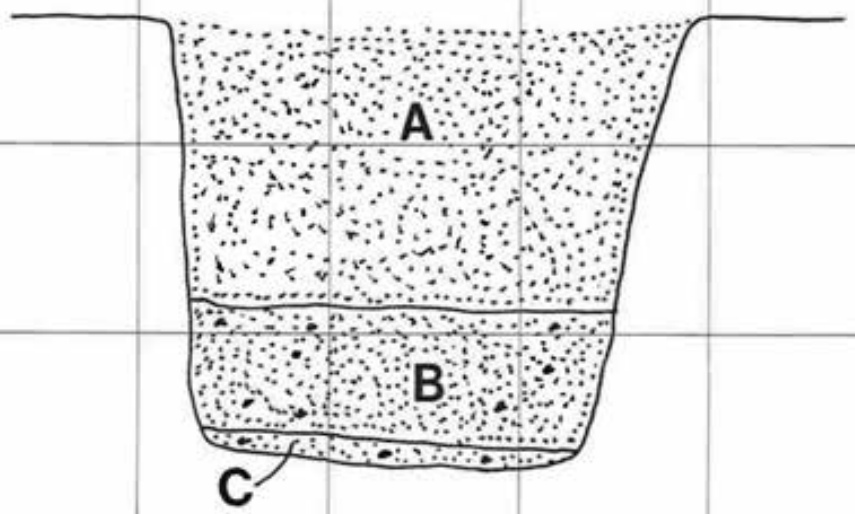
Project Name: Merriam Mountains Logged by: GJM

Project Number: 040084-002 Elevation: ±895 Feet

Equipment: JD 310 GS Backhoe 4x4 Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium (Qal) @ 0': Fine to medium silty SAND: brown to red-brown, dry, loose; porous @ 5': Becomes damp B @ 7': Becomes coarse grained, light brown to gray-brown; porous C @ 11': Fine to medium silty SAND: gray to medium gray, damp, medium dense, some coarse grains, some pores Practical Refusal on boulder or possibly Kgr Total Depth = 11 Feet	Qal	SM			

GRAPHICAL REPRESENTATION: SCALE: 1'=5' SURFACE SLOPE: 0° TREND:N75°E

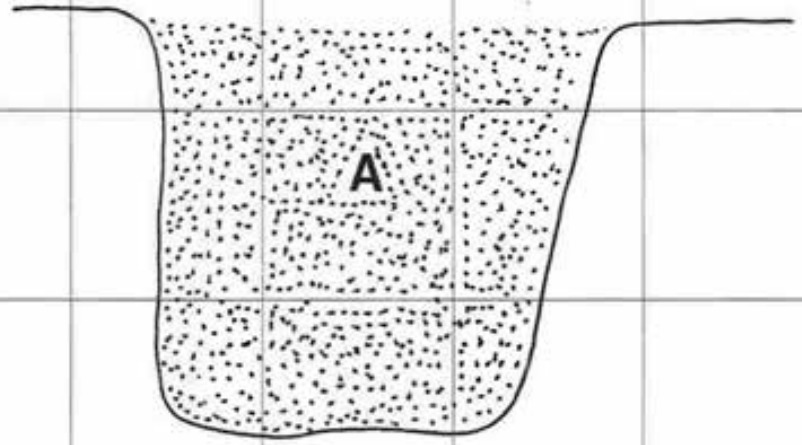


Total Depth = 11 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-5

Project Name: Merriam Mountains		Logged by: GJM		ENGINEERING PROPERTIES			
Project Number: 040084-002		Elevation: ±923 Feet					
Equipment: JD 310 GS Backhoe 4x4		Location/Grid: See Map					
GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:		GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium (Qal) @ 0': Fine to medium silty SAND: brown, dry, loose; some coarse grains @ 17': Same as above; gets damp with depth, very loose Total Depth = 17 Feet		Qal	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=8' SURFACE SLOPE: 0° TREND: E-W



Total Depth = 17 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-6

Project Name: Merriam Mountains		Logged by: GJM		ENGINEERING PROPERTIES			
Project Number: 040084-002		Elevation: ±1,065 Feet					
Equipment: JD 310 GS Backhoe 4x4		Location/Grid: See Map					
GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:		GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr)		Kgr	SM			
	@ 0': Excavates as fine to medium silty SAND with some gravel-sized pieces up to 4-6": light brown to light gray, dry, dense to very dense						
J:N85°W/70S	@ 3.5': Still seems rippable with heavy equipment, closely spaced joints 1-2" apart						
	Practical Refusal at 3.5 Feet Total Depth = 3.5 Feet						

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N20°E

Total Depth = 3.5 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-7

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,180 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates as fine to medium silty SAND with some gravel-sized pieces up to 4-6", light brown to light gray, dry, very dense	Kgr	SM			
J:N45°E/90°	Practical Refusal at 5 Feet, jointed Total Depth = 5 Feet					

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N80°E

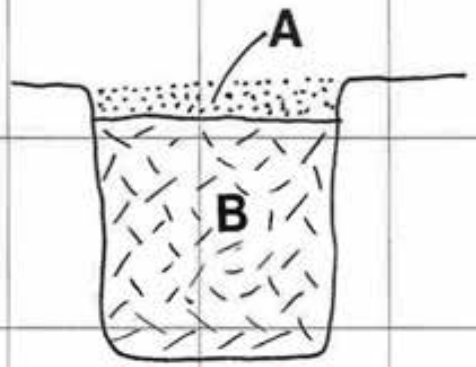
Total Depth = 5 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-8

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,255 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Artificial Fill (Af) @ 0': Fine to medium silty SAND: light brown to gray-brown, dry, loose	Af	SM			
	B Cretaceous Granitics (Kgr) @ 1': Excavates as fine to medium silty SAND with some gravel-sized pieces up to 4-6" light brown to light gray, dry, dense to very dense Practical Refusal at 7 Feet Total Depth = 7 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 10-15°N TREND: N/S



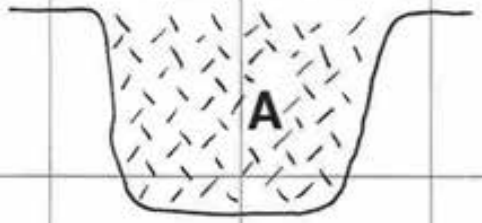
Total Depth = 9 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-9

Project Name: Merriam Mountains	Logged by: GJM	ENGINEERING PROPERTIES			
Project Number: 040084-002	Elevation: ±1,325				
Equipment: JD 310 GS Backhoe 4x4	Location/Grid: See Map				

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates as fine to medium silty SAND: light brown to yellow-brown, dry, medium dense to dense; some coarse grains and 4-6" sized clasts Practical Refusal at 5 Feet Total Depth = 5 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N30°W



Total Depth = 5 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-10

Project Name: Merriam Mountains	Logged by: GJM	ENGINEERING PROPERTIES			
Project Number: 040084-002	Elevation: ±1,305 Feet				
Equipment: JD 310 GS Backhoe 4x4	Location/Grid: See Map				

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates as fine to medium silty SAND: light brown, dry, very dense Practical Refusal at 1 Foot Total Depth = 1 Foot	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N25°W

Total Depth = 1 Foot
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-11

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1443 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates as fine to medium silty SAND with high gravel content: light brown to pale brown, dry, very dense; highly weathered, very fractured (randomly oriented) Practical Refusal at 3.5 Feet Total Depth = 3.5 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N50°E

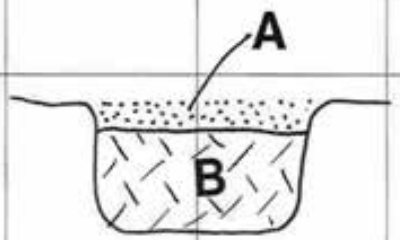
Total Depth = 3.5 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-12

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,453 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Topsoil @ 0': Fine to medium silty SAND: brown to medium brown, dry, medium dense; some coarse grains		SM			
	B Cretaceous Granitics (Kgr) @ 1': Excavates as fine to medium silty SAND: light brown to pale brown, dry, very dense Practical Refusal at 3.5 Feet Total Depth = 3.5 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: E-W

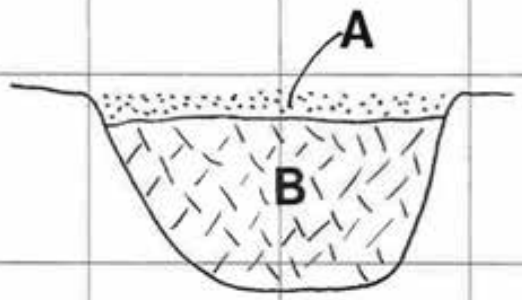


Total Depth = 3.5 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-13

Project Name: Merriam Mountains		Logged by: GJM		ENGINEERING PROPERTIES		
Project Number: 040084-002		Elevation: ±1,367 Feet				
Equipment: JD 310 GS Backhoe 4x4		Location/Grid: See Map				
GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:		GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Topsoil @ 0': Fine to medium silty SAND: brown, dry, medium dense			SM			
	B Cretaceous Granitics (Kgr) @ 1': Excavates to fine to medium silty SAND with some gravels and 4 to 6" clasts, dry, very dense, no structure Practical Refusal at 5 Feet Total Depth = 5 Feet		Kgr				

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N10°W



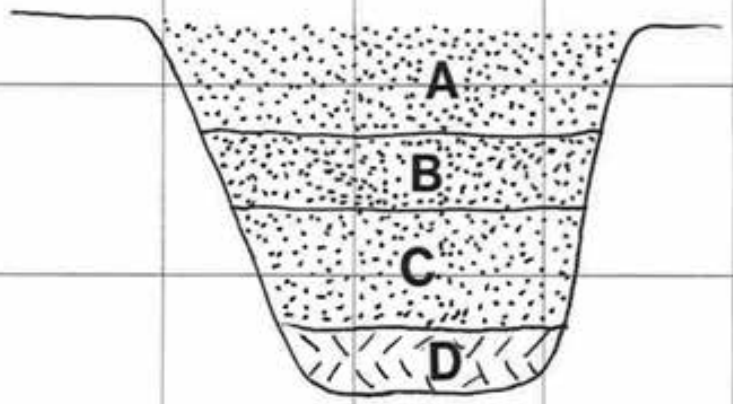
Total Depth = 5 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-14

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,363 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES USCS	Sample No.	Moisture (%)	Density (pcf)
	A Artificial Fill (Af) @ 0': Fine to medium silty SAND: brown to light brown, dry, loose to medium dense	Af	SM			
	B Topsoil @ 3': Fine to medium silty SAND: brown to dark brown, dry, loose; roots		SM			
	C Quaternary Alluvium/Slopewash (Qal/Qsw) @ 5': Fine to medium silty SAND; light brown to pale brown, medium dense	Qal/Qsw	SM			
	D Cretaceous Granitics (Kgr) @ 8': Excavates to fine to medium silty SAND: damp, very dense; highly weathered Practical Refusal at 9 Feet Total Depth = 9 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N10°W



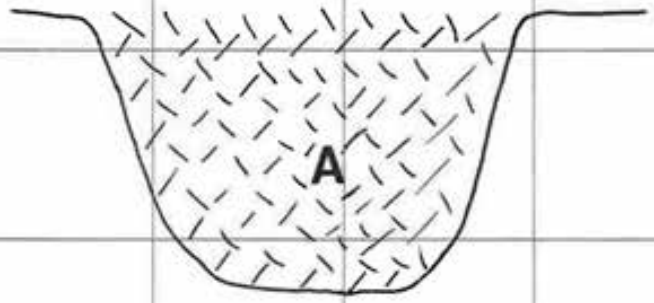
Total Depth = 9 Feet
No Ground Water Encountered
Backfilled: 8/27/02

LOG OF TRENCH: T-15

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,323 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/28/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) 0': Excavates to medium to coarse silty SAND: light brown to orange-brown, dry, dense to very dense; very weathered, rippable, excavates relatively easy, some gravels and 4-6" size clasts Practical Refusal at 7 Feet, no visible joint Total Depth = 7 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N/S



Total Depth = 7 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-16

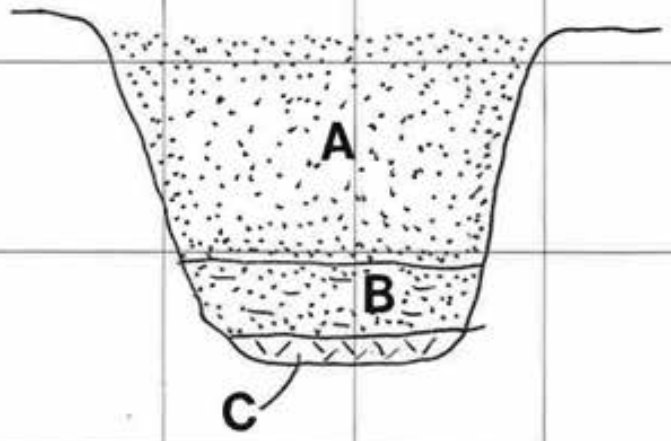
Project Name: Merriam Mountains | Logged by: GJM

Project Number: 040084-002 | Elevation: ±1,353 Feet

Equipment: JD 310 GS Backhoe 4x4 | Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/28/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium/Slopewash (Qal/Qsw)	Qsw	SM			
	@ 0': Fine to medium silty SAND: light brown to light gray-brown, dry, loose to medium dense, porous					
	@ 3': Color change to orange-brown, damp					
	B @ 6': Becomes slightly clayey, orange-brown to red-brown		SC/SM			
	C Cretaceous Granitics (Kgr)	Kgr	SM			
	@ 8': Excavates as fine to medium silty SAND: orange-brown, damp, very dense; weathered Practical Refusal at 9 Feet Total Depth = 9 Feet					

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N30°E



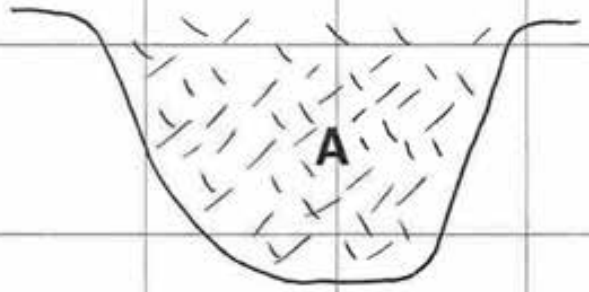
Total Depth = 9 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-17

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,355 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/28/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium/Slopewash (Qal/Qsw) @ 0': Fine to medium silty SAND: red-brown, damp, medium dense Practical Refusal on Boulder at 6.5 Feet Total Depth = 6.5 Feet	Qsw	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 10°W TREND: N80°W



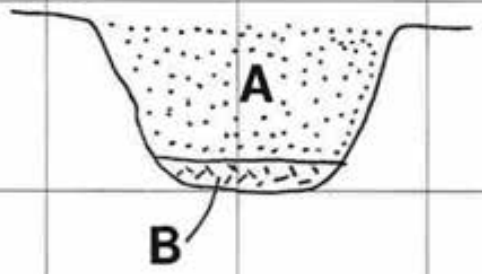
Total Depth = 6.5 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-18

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,367 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/28/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium/Slopewash (Qal/Qsw) 0': Medium silty SAND: red-brown to orange-brown, dry, damp, medium dense; some small pores	Qal/Qsw	SM			
	B Cretaceous Granitics (Kgr) @ 3': Excavates to medium grained silty SAND: orange-brown, damp, dense to very dense; very weathered Practical Refusal at 4 Feet Total Depth = 4 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 5°W TREND: N70°E

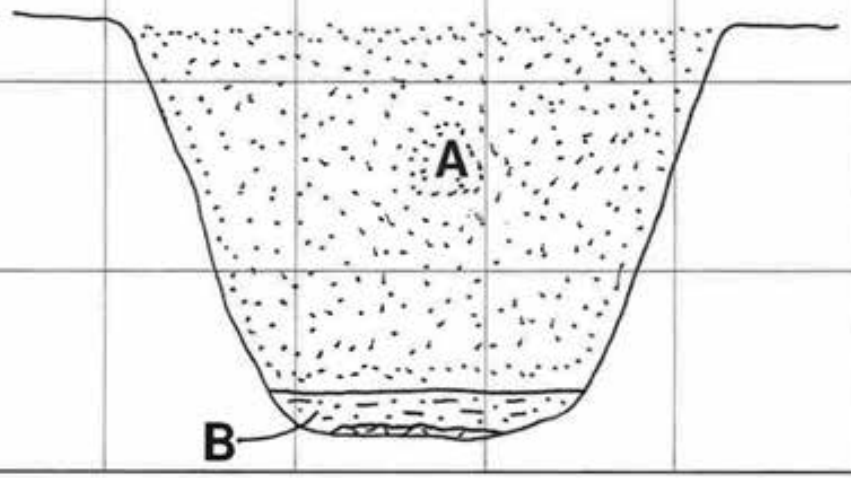


Total Depth = 4 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-19

Project Name: Merriam Mountains	Logged by: GJM	ENGINEERING PROPERTIES				
Project Number: 040084-002	Elevation: ±1,373 Feet					
Equipment: JD 310 GS Backhoe 4x4	Location/Grid: See Map					
GEOLOGIC ATTITUDES	DATE: 8/28/02 DESCRIPTION:	GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium/Slopewash (Qal/Qsw)	Qal/Qsw	SM			
	@ 0': Fine to medium silty SAND: brown to medium brown, damp to moist, medium dense					
	B @ 10': Fine to medium clayey SAND: olive green to gray-green, moist to wet, medium dense		SC			
	Practical Refusal on boulder or possibly Kgr at 11 Feet Total Depth = 11 Feet	Kgr?				

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N/S



Total Depth = 11 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-20

Project Name: Merriam Mountains	Logged by: GJM	ENGINEERING PROPERTIES			
Project Number: 040084-002	Elevation: ±1,417 Feet				
Equipment: JD 310 GS Backhoe 4x4	Location/Grid: See Map				

GEOLOGIC ATTITUDES	DATE: 8/28/02 DESCRIPTION:	GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates as fine to medium silty SAND: light brown to light orange-brown, dry, dense to very dense Practical Refusal at 2 Feet Total Depth = 2 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N15°W

Total Depth = 2 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-21

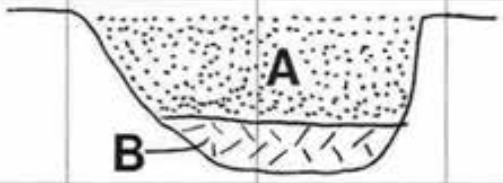
Project Name: Merriam Mountains | Logged by: GJM

Project Number: 040084-002 | Elevation: ±1,423 Feet

Equipment: JD 310 GS Backhoe 4x4 | Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/28/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium/Slopewash (Qal/Qsw) @ 0': Medium silty SAND: light brown to orange-brown, dry, medium dense; small pores (pinhole size)	Qal/Qsw	SM			
	B Cretaceous Granitics (Kgr) @ 3': Excavates to fine to medium silty SAND: dry, dense to very dense Practical Refusal at 4 Feet Total Depth = 4 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: E-W



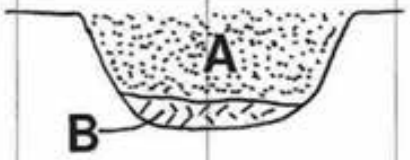
Total Depth = 4 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-22

Project Name: Merriam Mountains	Logged by: GJM	ENGINEERING PROPERTIES			
Project Number: 040084-002	Elevation: ±1,423 Feet				
Equipment: JD 310 GS Backhoe 4x4	Location/Grid: See Map				

GEOLOGIC ATTITUDES	DATE: 8/28/02 DESCRIPTION:	GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Colluvium (Qcol) @ 0': Medium silty SAND: light brown to orange-brown, dry, medium dense; small pores (pinhole size)	Qcol	SM			
	B Cretaceous Granitics (Kgr) @ 2.5': Excavates to fine to medium silty SAND: dry, dense to very dense Practical Refusal at 3 Feet Total Depth = 3 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: E-W



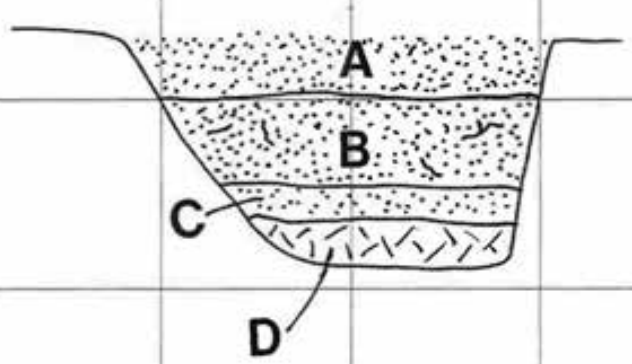
Total Depth = 3 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-23

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,413 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/28/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES USCS	Sample No.	Moisture (%)	Density (pcf)
	A Artificial Fill (Af) @ 0': Fine to medium silty SAND: light brown to pale brown, dry, medium dense	Af	SM			
	B Topsoil @ 1.5': Fine to medium silty SAND: brown to dark brown, dry to damp, loose roots and rootlets common		SM			
	C Quaternary Alluvium/Slopewash (Qal/Qsw) @ 4': Fine to medium silty SAND: light brown to pale brown, dry, medium dense; some small pores (pinhole size)	Qal/Qsw	SM			
	D Cretaceous Granitics (Kgr) @ 5': Excavates to fine to medium silty SAND: dry to damp, dense to very dense	Kgr	SM			
	Practical Refusal at 6 feet Total Depth = 6 Feet					

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 5°-10°W TREND: N60°E

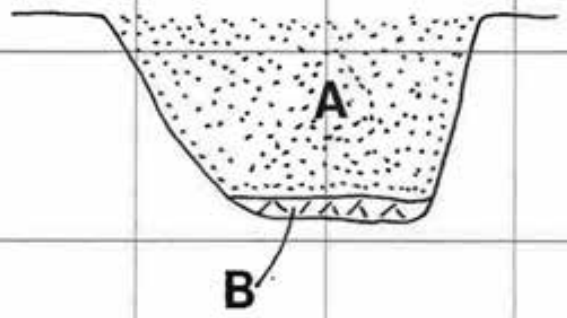


Total Depth = 6 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-24

Project Name: Merriam Mountains		Logged by: GJM		ENGINEERING PROPERTIES			
Project Number: 040084-002		Elevation: ±1,437 Feet					
Equipment: JD 310 GS Backhoe 4x4		Location/Grid: See Map					
GEOLOGIC ATTITUDES	DATE: 8/28/02	DESCRIPTION:	GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A	Quaternary Alluvium (Qal) @ 0': Fine to medium silty SAND: brown to dark brown, dry, loose to medium dense	Qal	SM			
	B	Cretaceous Granitics (Kgr) @ 5': Excavates to fine to medium silty SAND: gray to pale gray, dry, dense to very dense Practical Refusal on boulder or Kgr at 5.5 Feet Total Depth = 5.5 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N45°E



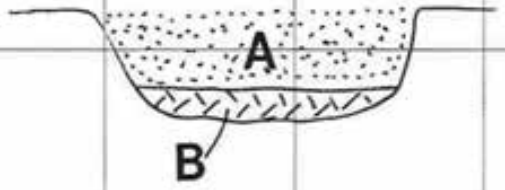
Total Depth = 5.5 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-25

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,450
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/28/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Colluvium (Qcol) @ 0': Fine to medium silty SAND: brown to medium brown, dry, loose to medium dense	Qcol	SM			
	B Cretaceous Granitics (Kgr) @ 2': Excavates to fine to medium silty SAND: gray to pale gray-brown, dry, very dense; very weathered Practical Refusal at 2.5 Feet Total Depth = 2.5 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 10°N TREND: N/S



Total Depth = 2.5 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-26

Project Name: Merriam Mountains		Logged by: GJM		ENGINEERING PROPERTIES			
Project Number: 040084-002		Elevation: ±1,502					
Equipment: JD 310 GS Backhoe 4x4		Location/Grid: See Map					
GEOLOGIC ATTITUDES	DATE: 8/28/02 DESCRIPTION:		GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates to fine to medium silty SAND: orange-brown to light brown, dry, dense to very dense; weathered Practical Refusal at 7.5 Feet Total Depth = 3.5 Feet		Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE 10°-15°N: TREND: N/S

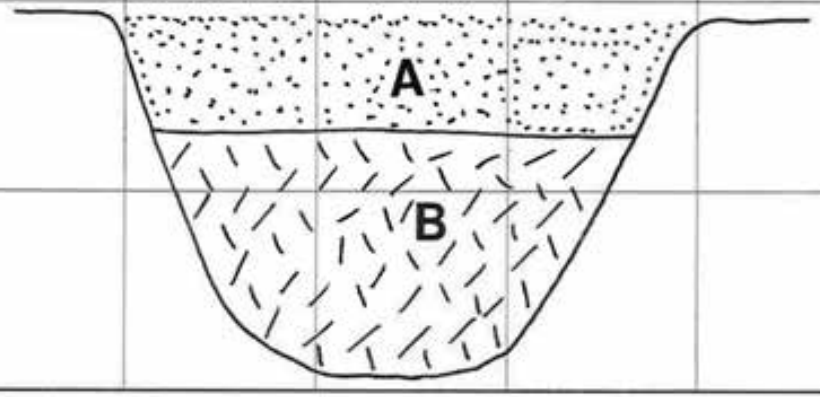
Total Depth = 3.5 Feet
No Ground Water Encountered
Backfilled: 8/28/02

LOG OF TRENCH: T-27

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,252 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Slopewash (Qsw) @ 0': Fine to medium silty SAND: light brown to pale brown, dry, loose to medium dense	SW	SM			
	B Cretaceous Granitics (Kgr) @ 3': Excavates fine to medium silty SAND: light brown to light orange reddish brown, damp to moist, medium dense to dense; some coarse grains, very weathered, some small pores, still rippable Practical Refusal at 9 Feet Total Depth = 9 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N/S



Total Depth = 9 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-28

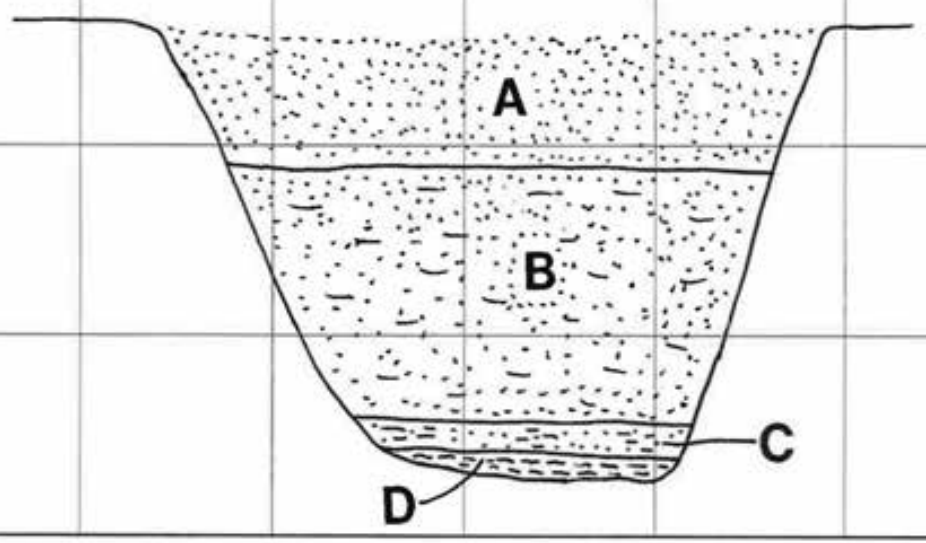
Project Name: Merriam Mountains | Logged by: GJM

Project Number: 040084-002 | Elevation: ±1,240 Feet

Equipment: JD 310 GS Backhoe 4x4 | Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Slopewash (Qsw) @ 0': Fine to medium silty SAND: light brown to brown, dry, loose to medium dense; porous	Qsw	SM			
	B @ 4': Becomes slightly more clayey, brown to dark brown, damp, medium dense, porous to very porous @ 8': Becomes brown to red-brown, medium dense to dense @ 10': Very porous		SM/SC			
	C @ 11': Local deposits of olive-gray to gray sandy CLAY: damp to moist, medium stiff		SC			
	D @ 12': Fine CLAY: gray to gray red-brown, damp, dense to very dense; no pores, some rootlets Total Depth = 12 Feet		CL			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N50°E



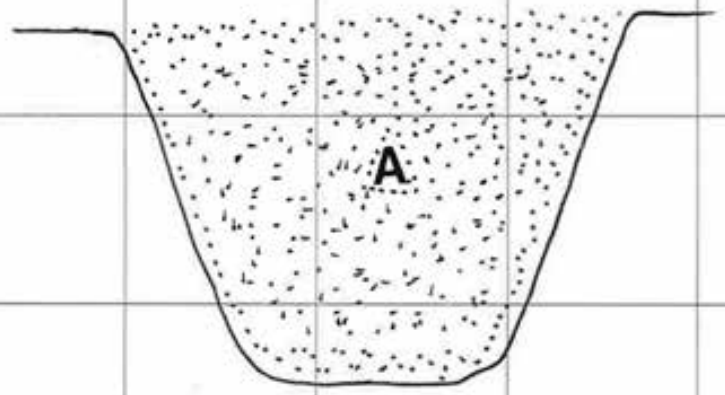
Total Depth = 12 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-29

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,225
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium/Slopewash (Qal/Qsw) @ 0': Fine to medium silty SAND: light brown to brown, dry, medium dense to dense; porous, caliche @ 6': Becomes brown to dark brown @ 8': Becomes gray to gray-brown, dense to very dense; less porous @ 9': Becomes gray to medium gray Practical Refusal at 9 Feet, possibly nearing Kgr contact Total Depth = 9 Feet	Qal/Qsw	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N55°E



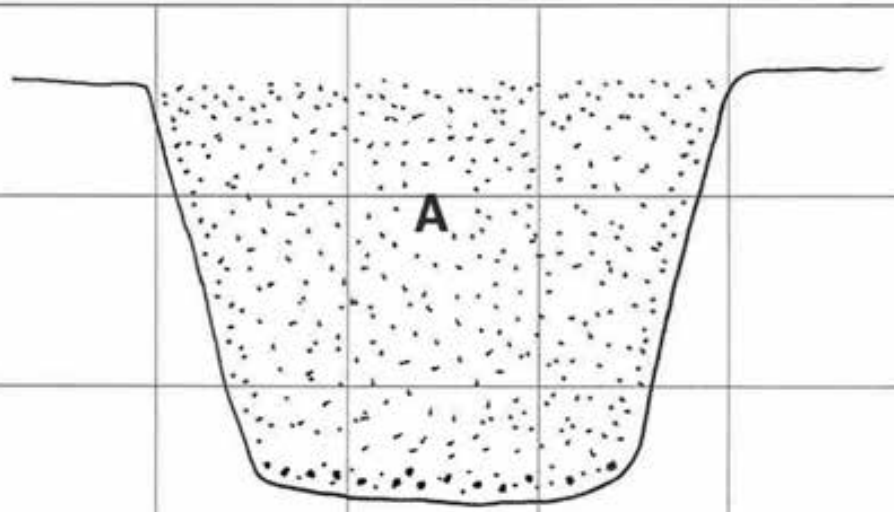
Total Depth = 9 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-30

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,225 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Alluvium (Qal) @ 0': Fine to medium silty SAND: brown to red-brown, dry to damp, dense; some small pores (pinhole sized), some coarse grains, blocky @ 9': Fine to medium silty SAND: gray to gray brown, dry to damp, dense; less porous @ 11': Becomes medium to coarse grained: brown to dark red-brown, damp, dense to very dense Practical Refusal at 12 Feet, still rippable but dense, possibly nearing Kgr contact Total Depth = 12 Feet	Qal	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N45°E



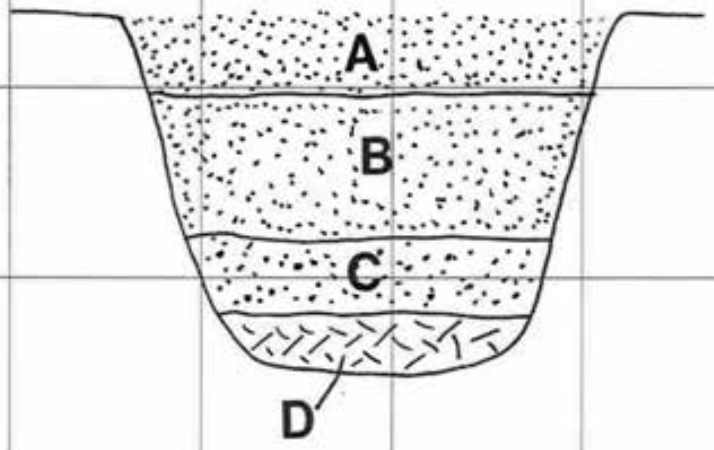
Total Depth = 12 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-31

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,185 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Topsoil @ 0': Fine to medium silty SAND: brown to dark brown, dry, loose		SM			
	B Quaternary Alluvium (Qal) @ 2': Fine to medium silty SAND: brown to gray-brown, dry to damp, medium dense to dense; some coarse grain, some small pores @ 4': Larger pores, up to 1/8" diameter	Qal	SM			
	C @ 6': Medium to coarse silty SAND: gray to gray-brown, dry to damp, dense; some small pores					
	D Cretaceous Granitics (Kgr) @ 8': Generally similar to above, weathered Kgr					
	Practical Refusal at 9 Feet Total Depth = 9 Feet					

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N65°E



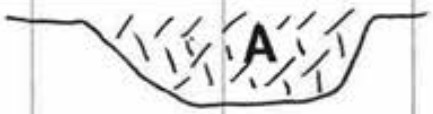
Total Depth = 9 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-32

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,192 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates medium to coarse silty SAND: dry, dense to very dense; weathered Practical Refusal at 2 Feet Total Depth = 2 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N45°E

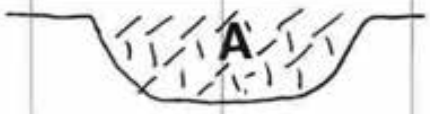


Total Depth = 2 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-33

Project Name: Merriam Mountains		Logged by: GJM		ENGINEERING PROPERTIES			
Project Number: 040084-002		Elevation: ±1,175 Feet					
Equipment: JD 310 GS Backhoe 4x4		Location/Grid: See Map					
GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:		GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates medium to coarse silty SAND: dry, dense to very dense; weathered Practical Refusal at 2 Feet Total Depth = 2 Feet		Kgr				

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N50°E



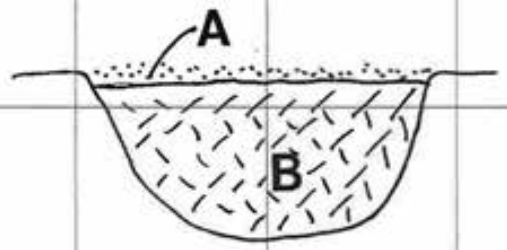
Total Depth = 2 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-34

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,510 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Quaternary Colluvium (Qcol) @ 0': Fine to medium silty SAND: brown to light brown, dry, medium dense; small pores	Qcol	SM			
	B Cretaceous Granitics (Kgr) @ .5': Excavates fine to medium silty SAND: light brown to orange-brown, dry, dense; weathered Practical Refusal at 4 Feet, still rippable Total Depth = 4 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N70°E



Total Depth = 4 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-35

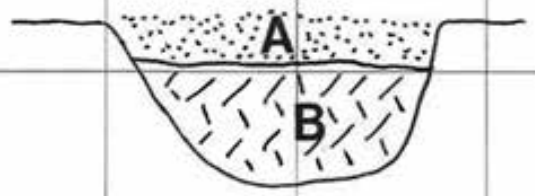
Project Name: Merriam Mountains | Logged by: GJM

Project Number: 040084-002 | Elevation: ±1,492

Equipment: JD 310 GS Backhoe 4x4 | Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Topsoil @ 0': Fine to medium silty SAND: brown to dark brown, dry, loose; roots		SM			
	B Cretaceous Granitics (Kgr) @ 1': Excavates as fine to coarse silty SAND: light brown to orange-brown, dry, medium dense to dense; very weathered Practical Refusal at 4 Feet Total Depth = 4 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N/S



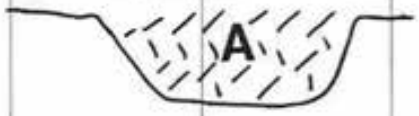
Total Depth = 4 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-36

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,474
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates as fine to coarse silty SAND: light brown to orange-brown, dry, medium dense to dense; very weathered Practical Refusal at 2 Feet Total Depth = 2 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N/S



Total Depth = 2 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-37

Project Name: Merriam Mountains			Logged by: GJM			ENGINEERING PROPERTIES			
Project Number: 040084-002			Elevation: ±1,470 Feet						
Equipment: JD 310 GS Backhoe 4x4			Location/Grid: See Map						
GEOLOGIC ATTITUDES	DATE: 8/29/02	DESCRIPTION:			GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A	Cretaceous Granitics (Kgr) @ 0': Excavates as fine to coarse silty SAND: light brown to orange-brown, dry, medium dense to dense; very weathered Practical Refusal at 2 Feet Total Depth = 2 Feet			Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N 40°E

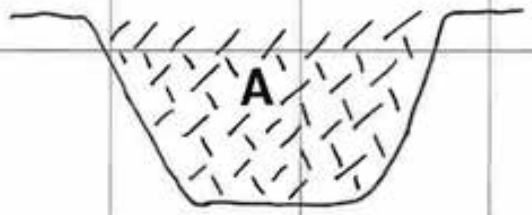
Total Depth = 2 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-38

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-002
Elevation: ±1,444 Feet
Equipment: JD 310 GS Backhoe 4x4
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/27/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates as fine to coarse silty SAND: light brown to light orange-brown, dry, medium dense; excavates easily through 3' Practical Refusal at 5 Feet Total Depth = 5 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N30°E

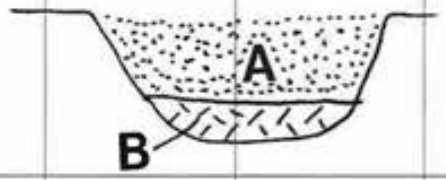


Total Depth = 5 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-39

Project Name: Merriam Mountains		Logged by: GJM		ENGINEERING PROPERTIES			
Project Number: 040084-002		Elevation: ±1,518 Feet					
Equipment: JD 310 GS Backhoe 4x4		Location/Grid: See Map					
GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:		GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A	Quaternary Colluvium (Qcol)	Qcol	SM			
		@ 0': Fine to medium silty SAND: brown to dark brown, dry, loose to medium dense; small pores					
	B	Cretaceous Granitics	Kgr				
		@ 2.5': Excavates as medium to coarse silty SAND: orange-gray, dry, dense					
		Practical Refusal at 3 Feet Total Depth = 3 Feet					

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N25°W



Total Depth = 3 Feet
No Ground Water Encountered
Backfilled: 8/29/03

LOG OF TRENCH: T-40

Project Name: Merriam Mountains	Logged by: GJM	ENGINEERING PROPERTIES			
Project Number: 040084-002	Elevation: ±1,105 Feet				
Equipment: JD 310 GS Backhoe 4x4	Location/Grid: See Map				

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates as medium to coarse silty SAND: light brown to orange-brown, dry, dense to very dense; weathered Practical Refusal at 2 Feet Total Depth = 2 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 10°E TREND: N/S

Total Depth = 2 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-41

Project Name: Merriam Mountains	Logged by: GJM	ENGINEERING PROPERTIES			
Project Number: 040084-002	Elevation: ±1,220 Feet				
Equipment: JD 310 GS Backhoe 4x4	Location/Grid: See Map				

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	A Cretaceous Granitics (Kgr) @ 0': Excavates as medium to coarse silty SAND: light brown to orange-brown, dry, dense to very dense; weathered Practical Refusal at 1 foot, still rippable Total Depth = 1 Foot	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N25W

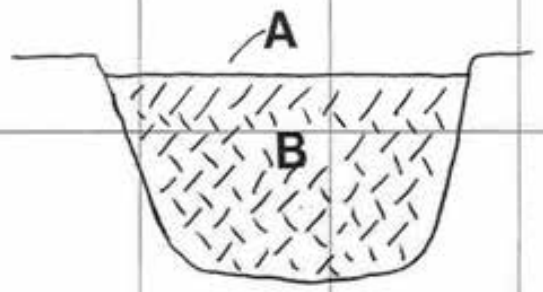
Total Depth = 1 foot
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-42

Project Name: Merriam Mountains
Project Number: 040084-002
Equipment: ID 310 GS Backhoe 4x4
Logged by: GJM
Elevation: ±1,250 Feet
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 8/29/02 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	A Topsoil @ 0'-.5': Fine to medium silty SAND: brown, dry, loose		SM			
	B Cretaceous Granitics (Kgr) @ .5': Excavates as medium to coarse silty SAND: light brown to orange-brown, dry, dense to very dense; weathered Practical Refusal at 6 Feet Total Depth = 6 Feet	Kgr	SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N/S



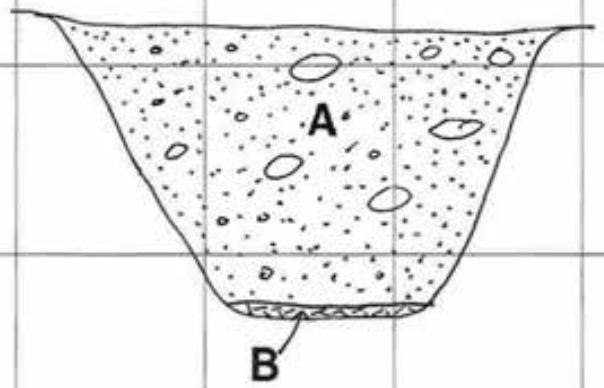
Total Depth = 6 Feet
No Ground Water Encountered
Backfilled: 8/29/02

LOG OF TRENCH: T-43

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-004
Elevation: 1,025 Feet
Equipment: JD Backhoe
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 2/12/04 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	QUATERNARY ALLUVIUM (Qal)	Qal				
	A @ 0': Fine to medium silty SAND: Brown to light brown, damp, medium dense; some gravel and cobbles		SM	1 @-4'		
	CRETACEOUS GRANITICS (Kgr)	Kgr		2 @-6'		
	B @ 8.5': Excavates as fine to medium silty SAND: Light gray to dark gray, damp, dense to very dense; very weathered			3 @-8'		

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: NE/SW



Total Depth = 8.5 Feet
No Ground Water Encountered
Backfilled: 2/12/04

LOG OF TRENCH: T-44

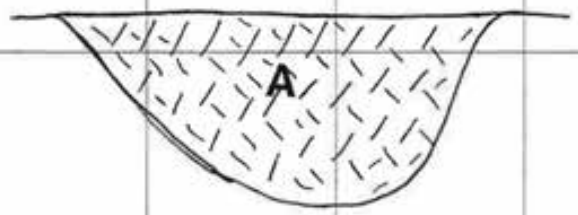
Project Name: Merriam Mountains Logged by: GJM

Project Number: 040084-004 Elevation: 1,040 Feet

Equipment: ID Backhoe Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 2/12/04 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES			
			USCS	Sample No.	Moisture (%)	Density (pcf)
	CRETACEOUS GRANITICS (Kgr)	Kgr				
	A @ 0': Excavates as fine to silty SAND and gravel: Brown to light brown, dry to damp, very dense		SM	1 @2'-3'		
	Practical refusal at 4'					

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: E/W



Total Depth = 4 Feet
No Ground Water Encountered
Backfilled: 2/12/04

LOG OF TRENCH: T-45

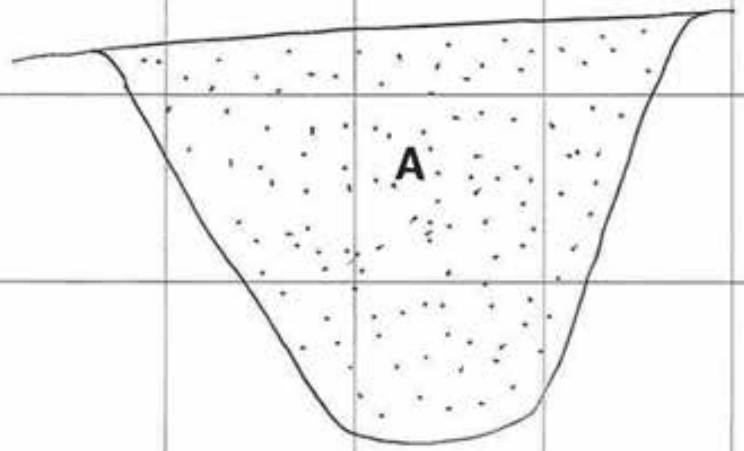
Project Name: Merriam Mountains Logged by: GJM

Project Number: 040084-004 Elevation: 1,025 Feet

Equipment: JD Backhoe Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 2/12/04 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	QUATERNARY ALLUVIUM (Qal)	Qal				
	A @ 0': Fine to medium silty SAND: Gray to light gray-brown, dry to damp, medium dense		SM			

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N/S



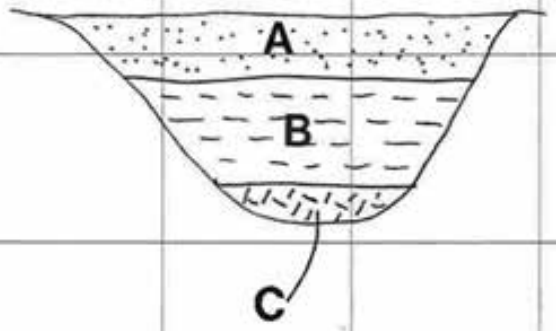
Total Depth = 12 Feet
No Ground Water Encountered
Backfilled: 2/12/04

LOG OF TRENCH: T-46

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-004
Elevation: 1,070 Feet
Equipment: JD Backhoe
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 2/12/04 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	QUATERNARY COLLUVIUM (Qcol)	Qcol				
	A @ 0': Fine to medium silty SAND: Red-brown, damp, medium dense to dense		SM	1 @-3-4'		
	B @ 2': CLAY: Dark gray to dark olive-gray, damp to moist, dense; blocky		CL	2 @-5'		
	CRETACEOUS GRANITICS (Kgr)	Kgr				
	C @ 4': Excavates as fine to medium silty SAND: Light gray to dark gray, damp, dense to very dense; very weathered					
	Practical refusal at 5'					

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: N/S



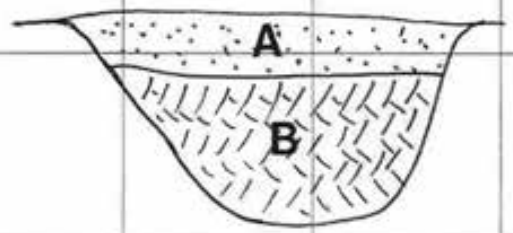
Total Depth = 5 Feet
No Ground Water Encountered
Backfilled: 2/12/04

LOG OF TRENCH: T-47

Project Name: Merriam Mountains
Logged by: GJM
Project Number: 040084-004
Elevation: 1,080 Feet
Equipment: ID Backhoe
Location/Grid: See Map

GEOLOGIC ATTITUDES	DATE: 2/12/04 DESCRIPTION:	GEOLOGIC UNIT	ENGINEERING PROPERTIES: USCS	Sample No.	Moisture (%)	Density (pcf)
	QUATERNARY COLLUVIUM (Qcol)	Qcol				
	A @ 0': Fine to medium silty SAND: Red-brown, damp, medium dense		SM			
	CRETACEOUS GRANITICS (Kgr)	Kgr				
	B @ 1.5': Excavates as fine to medium silty SAND: Light gray to dark gray, damp, dense to very dense; very weathered		SM	1 @-4.5'		
	@ 5': Rippable					

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 5-10°E TREND: E-W

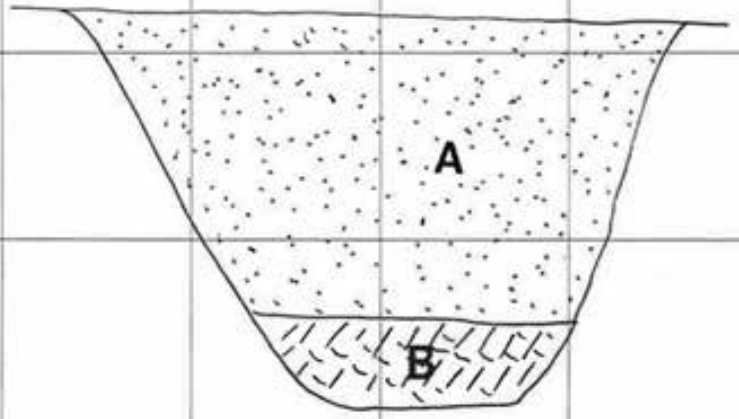


Total Depth = 12 Feet
No Ground Water Encountered
Backfilled: 2/12/04

LOG OF TRENCH: T-48

Project Name: Merriam Mountains	Logged by: GJM	ENGINEERING PROPERTIES				
Project Number: 040084-004	Elevation: 1,040 Feet					
Equipment: JD Backhoe	Location/Grid: See Map					
GEOLOGIC ATTITUDES	DATE: 2/12/04 DESCRIPTION:	GEOLOGIC UNIT	USCS	Sample No.	Moisture (%)	Density (pcf)
	QUATERNARY COLLUVIUM (Qcol)	Qcol				
	A @ 0': Fine to coarse silty SAND: Light orange-brown to red-brown, dry to damp, dense		SM			
	CRETACEOUS GRANITICS (Kgr)	Kgr		1 @-8'		
	B @ 8': Excavates as fine to medium silty SAND: Dark gray to light gray, damp, very dense					
	Practical refusal at 10'					

GRAPHICAL REPRESENTATION: SCALE: 1"=5' SURFACE SLOPE: 0° TREND: W/S



Total Depth = 10 Feet
No Ground Water Encountered
Backfilled: 2/12/04

TRENCH LOGS 49 THROUGH 100

(LEIGHTON, 2007)

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-49	QUATERNARY ALLUVIUM (Qal) @ 0-9': Fine grained silty to clayey SAND: Red-brown, slightly moist, loose to medium dense; oxidized, roots present in upper 2' CRETACEOUS GRANITIC ROCK (Kgr) @ 9'-13': Very weathered, excavates to fine-grained silty SAND: Oxidized @ 11-13' the rock grades to less weathered and becomes very difficult to excavate Total Depth = 13 Feet
T-50	QUATERNARY COLLUVIUM (Qcol) @ 0-3.5': Fine grained silty SAND: Red-brown, slightly moist, medium dense; oxidized CRETACEOUS GRANITIC ROCK (Kgr) @ 3.5'-4.5': Excavates to fine-to medium-grained SAND with some coarse grained SAND, moderately weathered, oxidized, the rock becomes less weathered and very difficult to excavate (practical refusal) Total Depth = 4.5 Feet
T-51	QUATERNARY ALLUVIUM/SLOPEWASH (Qal/Qsw) @ 0-6': Fine grained silty SAND: Red-brown, slightly moist, medium dense; oxidized CRETACEOUS GRANITIC ROCK (Kgr) @ 6'-9': Moderately weathered, oxidized near the top of the unit, excavates to approximately 30% coarse-grained SAND @ 8'-9': The rock becomes very difficult to excavate Total Depth = 4.5 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-52	QUATERNARY COLLUVIUM @ 0-3': Fine grained silty SAND: Dry, loose to medium dense; oxidized, porous CRETACEOUS GRANITIC ROCK (Kgr) @ 3'-4': Excavates to fine to medium grained silty SAND: Very dense; moderately weathered, very difficult excavation (refusal at 4') Total Depth = 4 Feet
T-53	QUATERNARY ALLUVIUM (Qal) @ 0-7': Fine grained silty SAND: Dry, medium dense; oxidized, porous CRETACEOUS GRANITIC ROCK (Kgr) @ 7'-8': Excavates fine- to medium-grained SAND: Moderately weathered, weak induration, moderate to difficult excavation Total Depth = 8 Feet
T-54	CRETACEOUS GRANITIC ROCK (Kgr) @ 0'-3.5': Excavates to fine-to coarse-grained SAND: Approximately 30% coarse-grained SAND, in the upper 3' very weathered at surface and grades to less weathered rock with approximately 70% coarse-grained sand at depth @ 3'-3.5': Very difficult excavation Total Depth = 3.5 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-55	QUATERNARY COLLUVIUM @ 0-3.5': Fine-to coarse-grained silty SAND: Red-brown, dry, loose; oxidized CRETACEOUS GRANITIC ROCK (Kgr) @ 3.5'-4.5': Generally fine to coarse grained silty SAND with approximately 20% 6-12" angular, fresh rock clasts present, approximately 70% coarse-grained SAND at depth, moderately difficult excavation Total Depth = 4.5 Feet
T-56	CRETACEOUS GRANITIC ROCK (Kgr) @ 0-4': Excavates to coarse-grained SAND with approximately 15%, 6 to 8" angular clasts, moderately weathered (generally able to break with hands) @ 4'-5': Very difficult excavation Total Depth = 5 Feet
T-57	QUATERNARY COLLUVIUM @ 0-3': Fine- to coarse-grained silty SAND: Red-brown, dry, loose to medium dense; oxidized, porous CRETACEOUS GRANITIC ROCK (Kgr) @ 3'-3.5': Excavates to coarse-grained SAND with some fine-grained SAND: Moderately weathered, approximately 90% coarse-grained SAND, moderately difficult excavation Total Depth = 3.5 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-58	CRETACEOUS GRANITIC ROCK (Kgr) @ 0-6': Excavates to coarse grained SAND with some fine- to medium-grained SAND, moderately weathered through 5'; many approximately 1 to 2" (able to break with hands), few approximately 4-6" angular clasts present, 90% coarse grained @ 5'-6' very difficult excavation; joints present with approximately 4 to 8" spacing, tight fractures, general attitude of N68E, 70NW Total Depth = 6 Feet
T-59	CRETACEOUS GRANITIC ROCK (Kgr) @ 0-9': Excavates to coarse-grained SAND with few fine-to medium-grained, weathered through 8', oxidized, few 3 to 4" angular clasts present @ 8.5'-9' very difficult excavation; joints with approximately 3-8" spacing, tight fractures, general attitude of N75E vertical Total Depth = 9 Feet
T-60	CRETACEOUS GRANITIC ROCK (Kgr) @ 0-7.5': Excavates to coarse-grained SAND with many 1 to 2" angular clasts, very weathered through 6', oxidized @ 6'-7.5' very difficult excavation (practical refusal); joints with approximately 1-4" spacing, tight fractures, general attitude of N60W, 60W Total Depth = 7.5 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-61	CRETACEOUS GRANITIC ROCK (Kgr) @ 0'-4': Excavates to coarse-grained SAND with gravel, moderately weathered, many (40%) 1 to 2" angular clasts cable to break with hand, few (105) 8 to 12" fresh angular boulders; Joint spacing 1 to 4" tight fracture, general attitude of N75E generally vertical Total Depth = 4.0 Feet
T-62	CRETACEOUS GRANITIC ROCK (Kgr) @ 0-6': Excavates to coarse-grained SAND with few fine- to medium-grained SAND, very to moderately weathered, oxidized, few 1 to12" angular clasts (increase frequency with depth); @ 5' to 6' very difficult excavation due to fresh jointed rock, joint spacing of approximately 1 to 6", tight fracture, general attitude of N75E, generally vertical Total Depth = 6 Feet
T-63	QUATERNARY ALLUVIUM (Qal) @ 0-8': Fine- to medium-grained silty SAND: Red-brown, dry, loose to medium dense; oxidized CRETACEOUS GRANITIC ROCK (Kgr) @ 8'-9': Excavates to coarse-grained SAND: Moderately weathered, 90% coarse-grained SAND, moderately difficult excavation Total Depth = 9 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-64	QUATERNARY ALLUVIUM (Qal) @ 0-7.5': Coarse-grained silty SAND, dry, loose to medium dense; oxidized DECOMPOSED CRETACEOUS GRANITIC ROCK (Kgr) @ 7.5'-8.5': Excavates to coarse-grained SAND with some fine-grained SAND, 70% coarse-grained SAND, very difficult excavation Total Depth = 8.5 Feet
T-65	QUATERNARY SLOPEWASH (Qsw) @ 0-3.5': Fine- to coarse-grained silty to clayey SAND: Red-brown, dry, slightly moist, loose to medium dense CRETACEOUS GRANITIC ROCK (Kgr) @ 3.5'-6': Excavates to silty to clayey SAND: Very weathered, very oxidized, many (60%) 1" angular clasts @ 5-6': Very difficult to excavate Total Depth = 6 Feet
T-66	QUATERNARY ALLUVIUM (Qal) @ 0-8': Fine- to coarse-grained silty SAND: Brown, dry, loose to medium dense; roots in upper 2' grades to more coarse at base of unit CRETACEOUS GRANITIC ROCK (Kgr) @ 8'-9': Excavates to silty SAND with few fine grained, 90% coarse-grained SAND, moderately weathered, moderate to difficult excavation Total Depth = 9 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-67	QUATERNARY ALLUVIUM (Qal) @ 0-1': Fine- to coarse-grained silty SAND: Brown, dry, loose; roots present CRETACEOUS GRANITIC ROCK (Kgr) @ 1'-4': Excavates to poorly-graded gravel with approximately 15% fine- to coarse-grained SAND, abundant 1 to 4" clasts, few 8 to 42" clasts @ 3'-4': Becomes very difficult to excavate; Joint spacing 3 to 6", tight fracture, general attitude of N33E, 63W Total Depth = 4.0 Feet
T-68	QUATERNARY SLOPEWASH (Qsw) @ 0-5': Fine- to coarse-grained silty SAND: Red-brown, dry, loose to medium dense; oxidized, roots in upper 3' CRETACEOUS GRANITIC ROCK (Kgr) @ 5'-6': Excavates to coarse-grained silty SAND: Moderately weathered, few 1 to 2" angular clasts approximately 70% coarse-grained SAND, very difficult excavation Total Depth = 6 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-69	QUATERNARY SLOPEWASH (Qsw) @ 0-10': Fine- to coarse-grained silty to clayey SAND: Red-brown, dry, loose to medium dense; oxidized, porous, increased percentage of coarse-grained SAND with depth CRETACEOUS GRANITIC ROCK (Kgr) @ 10'-12': Excavates to coarse-grained SAND with silt and fine-grained SAND: Very weathered, approximately 60% coarse-grained SAND, at 11 to 12' through 11' becomes very difficult to excavate Total Depth = 12 Feet
T-70	QUATERNARY SLOPEWASH (Qsw/al) @ 0-6': Silty SAND: Red-brown, dry, loose to medium dense; roots present CRETACEOUS GRANITIC ROCK (Kgr) @ 6'-7': Excavates to coarse-grained SAND with fine-grained sand and silt, approximately 80% coarse-grained SAND, very weathered, oxidized, many 3 to 4" breakable clasts, very difficult to excavate Total Depth = 7 Feet
T-71	QUATERNARY ALLUVIUM (Qal) @ 0-6': Silty to clayey SAND: Brown, dry; loose to medium dense; roots present CRETACEOUS GRANITIC ROCK (Kgr) @ 6'-7': Excavates to fine- to coarse-grained SAND, approximately 30% coarse-grained SAND, very weathered, traces of clay present in the upper portion of the unit, very difficult to excavate Total Depth = 7 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-72	QUATERNARY SLOPEWASH/ALLUVIUM (Qsw/al) @ 0-4': Fine- to coarse-grained silty SAND: Brown, dry, loose CRETACEOUS GRANITIC ROCK (Kgr) @ 4'-5': Excavates to fine- to coarse-grained SAND, very weathered, oxidized, approximately 30% coarse-grained SAND, moderately difficult to excavate Total Depth = 5 Feet
T-73	QUATERNARY ALLUVIUM (Qal) @ 0-5.5': Fine- to coarse-grained silty SAND: Red-brown, dry; loose to medium dense; traces of clay present CRETACEOUS GRANITIC ROCK (Kgr) @ 5.5'-6.5': Excavates to coarse-grained SAND: Oxidized and very weathered with approximately 70% coarse-grained SAND through 6' from 6' to 6.5', the rock becomes less weathered and was very difficult to excavate Total Depth = 6.5 Feet
T-74	QUATERNARY ALLUVIUM (Qal) @ 0-5': Silty SAND: Brown, dry to slightly moist, loose; few 6-8" angular clasts OLDER QUATERNARY ALLUVIUM (Qalo) @ 5'-6': Excavates to medium- to coarse-SAND, very to moderately weathered approximately 60% coarse-grained SAND, increase percentage of coarse-grained SAND with depth, somewhat difficult to excavate Total Depth = 6 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-75	CRETACEOUS GRANITIC ROCK (Kgr) @ 0-6': Excavates to medium- to coarse-SAND, very to moderately weathered, oxidized, abundant fine gravels (able to break with hands), 90% coarse-grained SAND, very difficult to excavate; joints generally 1-6" spacing, tight fractures, general attitude of N35E, 60W Total Depth = 6 Feet
T-76	QUATERNARY ALLUVIUM (Qal) @ 0-1': Silty to clayey SAND: Brown, dry, loose CRETACEOUS GRANITIC ROCK (Kgr) @ 1'-4.5': Excavates to coarse-grained SAND with some fine to medium gravelly sand; very to moderately weathered, oxidized, approximately 90% coarse-grained SAND, very difficult to excavate Total Depth = 4.5 Feet
T-77	QUATERNARY ALLUVIUM (Qal) @ 0-9': Fine- to coarse-grained silty to clayey SAND: Brown, dry, loose; roots present near surface, grades to more coarse with depth OLDER QUATERNARY ALLUVIUM (Qalo) @ 9'-10': Excavates to medium- to coarse-SAND, some clay at top of unit; approximately 70% coarse-grained SAND, very weathered, oxidized, moderately difficult to excavate Total Depth = 10 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-78	QUATERNARY ALLUVIUM (Qal) @ 0-13': Fine- to medium-grained silty SAND: Brown, dry, loose to medium dense, oxidized, approximately 30% coarse-grained SAND, porous Total Depth = 13 Feet
T-79	QUATERNARY ALLUVIUM (Qal) @ 0-9.5': Fine- to medium-grained silty SAND: Brown, dry, loose; some coarse-grained SAND at depth CRETACEOUS GRANITIC ROCK (Kgr) @ 9.5'-10': Excavates to medium- to coarse-grained SAND, with approximately 80% coarse-grained SAND, possible large floater at depth, very difficult to excavate Total Depth = 10 Feet
T-80	QUATERNARY SLOPEWASH (Qsw) @ 0-7': Fine- to medium-grained silty SAND: Brown, dry, loose with some coarse-grained SAND, grades to an increased percentage of coarse-grained SAND with depth CRETACEOUS GRANITIC ROCK (Kgr) @ 7'-8': Excavates to coarse-grained SAND, approximately 30% coarse-grained SAND, very weathered, abundant 1 to 3" class (able to break with hands), moderately to very difficult to excavate Total Depth = 8 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-81	CRETACEOUS GRANITIC ROCK (Kgr) @ 0'-5': Excavates to medium- to coarse-grained SAND, very weathered, and oxidized through 5', approximately 60% coarse-grained, few 6 to 8", angular rocks that are easily broken, @ 4'-5' very difficult to excavate Total Depth = 5 Feet
T-82	CRETACEOUS GRANITIC ROCK (Kgr) @ 0'-3': Excavates to medium- to coarse-grained SAND, highly to moderately weathered, abundant 6 to 12" angular clasts, @ 2'-3' very difficult to excavate (practical refusal) Total Depth = 3 Feet
T-83	CRETACEOUS GRANITIC ROCK (Kgr) @ 0'-4': Excavates to fine- to coarse-grained SAND, approximately 70% coarse-grained SAND, some 4 to 8" angular rock (difficult to break), highly to moderately weathered, near surface, moderately difficult to excavate Total Depth = 4 Feet
T-84	CRETACEOUS GRANITIC ROCK (Kgr) @ 0'-6': Excavates to fine- to coarse-grained SAND, approximately 80% coarse-grained, very moderately weathered, oxidized through 5', @ 5'-6' very difficult to excavate @ 6': Refusal (teeth chatter) Total Depth = 6 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-85	QUATERNARY COLLUVIUM @ 0-1.5': Fine- to coarse-grained silty SAND: Brown, dry, loose; porous, roots present CRETACEOUS GRANITIC ROCK (Kgr) @ 1.5'-2.5': Excavates to fine- to coarse-grained SAND, moderately weathered, few angular clasts 3 to 12", very difficult to excavate (practical refusal) Total Depth = 2.5 Feet
T-86	QUATERNARY COLLUVIUM @ 0-4': Fine- to medium-grained silty SAND: Brown, dry, loose; roots present CRETACEOUS GRANITIC ROCK (Kgr) @ 4'-5': Excavates to coarse-grained SAND with some fine- to medium-grained, 90% coarse-grained, moderately weathered (fresh rock); few large 2 to 3' rounded boulders near the surface, moderately to very difficult to excavate Total Depth = 5 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-87	QUATERNARY COLLUVIUM @ 0-3': Fine- to coarse-grained silty SAND: Red-brown, dry, loose to medium dense CRETACEOUS GRANITIC ROCK (Kgr) @ 3'-5': Excavates to coarse-grained SAND with fine- to medium-grained SAND, very to moderately weathered through 4', approximately 70% coarse-grained SAND, few breakable 3 to 4" clasts @ 4'-5': Very difficult to excavate @ 5': Refusal (teeth chatter) Total Depth = 5 Feet
T-88	CRETACEOUS GRANITIC ROCK (Kgr) @ 0-7': Excavates to fine- to coarse-grained SAND, very to moderately weathered through 6', approximately 70 percent coarse-grained, oxidized, few 3 to 6" angular clasts @ 7': Refusal Total Depth = 7 Feet
T-89	QUATERNARY COLLUVIUM (Qcol) @ 0-2': Fine to coarse-grained silty SAND: Brown, dry, loose CRETACEOUS GRANITIC ROCK (Kgr) @ 2'-4': Excavates to coarse-grained SAND with few fine grained SAND, approximately 90% coarse, very moderately weathered, oxidized, few 3 to 12" angular clasts, @ 3'-4' very difficult to excavate (practical refusal) Total Depth = 4 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-90	QUATERNARY ALLUVIUM (Qal) @ 0-4': Fine- to coarse-grained silty SAND: Yellow-brown, dry to slightly moist, loose to medium dense CRETACEOUS GRANITIC ROCK (Kgr) @ 4'-5': Excavates to fine- to coarse-grained SAND, moderately weathered; approximately 70% coarse-grained SAND, few angular clasts to 12" (all clasts breakable), moderately to very difficult to excavate Total Depth = 5 Feet
T-91	CRETACEOUS GRANITIC ROCK (Kgr) @ 0-1.5': Excavates to gravels and boulders with some fine- to coarse-grained SAND; approximately 70% 3 to 10" fresh, angular clasts, difficult excavation (30% fines), very difficult to excavate (practical refusal) Total Depth = 1.5 Feet
T-92	CRETACEOUS GRANITIC ROCK (Kgr) @ 0-5': Excavates to coarse-grained SAND with some fine- to medium-grained SAND, very to moderately weathered, oxidized, few breakable angular clasts to 12" in diameter @ 4'-5': Very difficult to excavate Total Depth = 5 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-93	ARTIFICIAL FILL UNDOCUMENTED @ 0-4': Silty SAND with gravel and boulders, approximately 60% gravel and boulders, 40% fines; local road fill QUATERNARY ALLUVIUM (Qal) @ 4-6': Fine- to medium-grained silty SAND: Dark brown, slightly moist, loose CRETACEOUS GRANITIC ROCK (Kgr) @ 6'-7': Excavates to coarse-grained SAND with some fine- to medium-grained SAND, moderately weathered, moderately difficult to excavate Total Depth = 7 Feet
T-94	ARTIFICIAL FILL UNDOCUMENTED (Afu) @ 0-5': Fine- to coarse-grained silty SAND: Yellow-brown, dry to slightly moist, loose; few (10%) 6 to 15" (angular clasts, fresh to weathered), fill used to elevate road approximately 5' from natural QUATERNARY ALLUVIUM (Qal) @ 5'-8': Fine- to medium-grained silty SAND: Brown, dry to slightly moist, loose; roots present CRETACEOUS GRANITIC ROCK (Kgr) @ 8'-11': Excavates to coarse-grained SAND, with some fine- to medium-grained SAND, moderately weathered, approximately 90% grained SAND, oxidized, moderately to very difficult to excavate Total Depth = 11 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-95	CRETACEOUS GRANITIC ROCK (Kgr) @ 0'-4.5': Excavates to coarse-grained SAND with some fine- to medium-grained SAND, very to moderately weathered, oxidized approximately 80% coarse-grained SAND @ 4.5'-5': Becomes less weathered and is very difficult to excavate Total Depth = 5 Feet
T-96	CRETACEOUS GRANITIC ROCK (Kgr) @ 0'-6': Excavates to gravel with some fine- to medium-grained SAND, 10% fines, approximately 90% 1-3" angular clasts, fresh highly fractured rock, fine-grained rock @ 6'-7' jointed rock becomes very difficult to excavate; Joints 0.5 to 3" joint spacing, oxidized fractures, general attitude of N65W, 60N Total Depth = 7 Feet
T-97	CRETACEOUS GRANITIC ROCK (Kgr) @ 0'-4': Excavates to coarse-grained SAND, with some fine- to medium-grained SAND, approximately 80% coarse-grained SAND, weathered through 3' @ 3'-4': Becomes very difficult to excavate Total Depth = 4 Feet

Merriam Mountains Earthwork and Rippability	
Equipment: Hitachi EX450 30-in Bucket w/Rock Teeth Date: 10/2-4/2007 by: AJB	
Trench Number	Depth and Description
T-98	QUATERNARY ALLUVIUM (Qal) @ 0-4': Fine- to coarse-grained SAND with some fine- to medium-grained SAND, approximately 60% coarse-grained SAND, one approximately 2' subangular boulder CRETACEOUS GRANITIC ROCK (Kgr) @ 4'-5': Excavates to coarse-grained SAND with some fine- to medium-grained SAND, approximately 80% coarse, weathered, oxidized through 4' @ 4'-5': The rock becomes very difficult to excavate Total Depth = 5 Feet
T-99	CRETACEOUS GRANITIC ROCK (Kgr) @ 0'-3': Excavates to coarse-grained SAND with some fine- to medium-grained SAND, few 6 to 12' weathered angular clasts @ 0-2' @ 2'-3': The rock becomes less weathered and is very difficult to excavate (practical refusal) Total Depth = 3 Feet
T-100	CRETACEOUS GRANITIC ROCK (Kgr) @ 0'-6': Excavates to coarse-grained SAND with fine- to medium-grained SAND, approximately 70% coarse-grained SAND, moderately weathered through 5', very oxidized, few breakable 4 to 12" clasts @ 5'-6': Rock becomes less weathered and is very difficult to excavate Total Depth = 6 Feet

BORING LOGS BH-1 THROUGH BH-3

(LEIGHTON, 2007)

GEOTECHNICAL BORING LOG BH-1

Date 10-26-07 **Sheet** 1 **of** 1

Project 040084-013 Merriam Mountains **Logged / Sampled By** DB

Drilling Co. Cal Pac **Type of Rig** B-61

Hole Diameter 8 in. **Drive Weight** 140 pound hammer **Drop** 30"

Elevation Top of Hole 832' **Location** Northwest Lot

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
830	0							ML	**QUATERNARY ALLUVIUM (Qal)** @ 0': Sandy SILT: Light brown, damp to dry	
				R-1	7				@ 2.5': Sandy SILT: Light brown, damp, loose to medium dense	
825	5			S-1	7		3		@ 5': Sandy SILT: Light brown, damp, medium dense	
				@7'-10'					@ 7'-10': Change in color: Dark brown, damp to moist	
				B-1						
820	10			R-2	41	119	9	SM	**QUATERNARY OLDER ALLUVIUM (Qalo)** @ 10': Silty medium to coarse SAND: Light brown, damp, dense	SW
				@12'-15'					@ 12'-15': Silty medium to coarse SAND: Light brown, moist	
				B-2						
815	15			S-2	37		8		@ 15': Silty coarse SAND: Orange-brown, damp, medium dense, micaceous	
								ML		
810	20			R-3	50/6"	112	11		@ 20': SILT: Orange-brown, damp to moist, hard **Total Depth = 20 Feet** **No ground water encountered at time of drilling** **Backfilled on 10/26/07**	
805	25									
	30									

SAMPLE TYPES:

S	SPLIT SPOON	G	GRAB SAMPLE
R	RING SAMPLE	C	CORE SAMPLE
B	BULK SAMPLE		
T	TUBE SAMPLE		

TYPE OF TESTS:

DS	DIRECT SHEAR	SA	SIEVE ANALYSIS	-200	% FINES PASSING
MD	MAXIMUM DENSITY	SE	SAND EQUIVALENT	AL	ATTERBERG LIMITS
CN	CONSOLIDATION	EI	EXPANSION INDEX	CO	COLLAPSE
CR	CORROSION	RV	R VALUE	PP	POCKET PENETROMETER
UC	UNCONFINED COMPRESSIVE STRENGTH				

GEOTECHNICAL BORING LOG BH-2

Date 10-26-07 **Sheet** 1 **of** 1

Project 040084-013 Merriam Mountains **Logged / Sampled By** DB

Drilling Co. Cal Pac **Type of Rig** B-61

Hole Diameter 8 in. **Drive Weight** 140 pound hammer **Drop** 30"

Elevation Top of Hole 880' **Location** Northwest Lot

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
880	0			B-1 @0'-2.5'				ML	**QUATERNARY ALLUVIUM (Qal)** @ 0': Sandy SILT: Brown, damp to dry	
				R-1	54			SM	@ 2.5': Silty medium to coarse SAND: Brown, dry to damp, dense	
875	5			S-1 @7'-10'	20		8		@ 5': Silty medium to coarse SAND: Brown, dry to damp, medium dense @ 7'-10': Silty medium to coarse SAND: Brown, damp	
				B-2						
870	10			R-2	50/6"	112	5		**QUATERNARY OLDER ALLUVIUM (Qalo)** @ 10': Silty coarse to very coarse SAND: Light brown to orange-brown, dry to damp, very dense	SW
865	15			S-2	29		5	SW	@ 15': Medium to very coarse SAND: Brown to orange-brown, damp, medium dense	
860	20			R-3	44	108	5		@ 20': Fine to very coarse SAND: Orange-brown, damp, medium dense **Total Depth = 20 Feet** **No ground water encountered at time of drilling** **Backfilled on 10/26/07**	SW
855	25									
850	30									

SAMPLE TYPES:

S SPLIT SPOON
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE
G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:

DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION
UC UNCONFINED COMPRESSIVE STRENGTH
SA SIEVE ANALYSIS
SE SAND EQUIVALENT
EI EXPANSION INDEX
RV R VALUE
-200 % FINES PASSING
AL ATTERBERG LIMITS
CO COLLAPSE
PP POCKET PENETROMETER

GEOTECHNICAL BORING LOG BH-3

Date 10-26-07 **Sheet** 1 **of** 1

Project 040084-013 Merriam Mountains **Logged / Sampled By** DB

Drilling Co. Cal Pac **Type of Rig** B-61

Hole Diameter 8 in. **Drive Weight** 140 pound hammer **Drop** 30"

Elevation Top of Hole 900' **Location** Northwest Lot

Elevation Feet	Depth Feet	Graphic Log (N–S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
900	0							ML	**QUATERNARY ALLUVIUM (Qal)** @ 0': Sandy SILT: Light orange-brown, damp to moist	
				R-1	42	118	6		@ 2.5': Sandy SILT: Light orange-brown, dry to damp, hard	SW
				@3.5'-5' B-1					@ 3.5'-5': Sandy SILT: Orange-brown, dry to damp	
895	5			S-1	27		5	SM	@ 5': Silty medium to coarse SAND: Light brown, dry to damp, medium dense	
				@7'-10' B-2					@ 7'-10': Orange-brown to light brown, damp to moist	
890	10			R-2	69	122	7		**QUATERNARY OLDER ALLUVIUM (Qalo)** @ 10': Silty medium to coarse SAND: Light brown, damp to moist, dense	SW
									@ 12'-15': Silty medium to coarse SAND: Orange-brown, dry to damp	
885	15			S-7	63				@ 15': Silty medium to very coarse SAND: Orange-brown to light brown, dry to damp, dense	
									@ 17'-20': Silty medium to coarse SAND: Orange-brown, dry to damp	
880	20			R-3	50/2"				@ 20': No recovery	
									Total Depth = 20 Feet **No ground water encountered at time of drilling** **Backfilled on 10/26/07**	
875	25									
870	30									

SAMPLE TYPES:

S SPLIT SPOON
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE
G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:

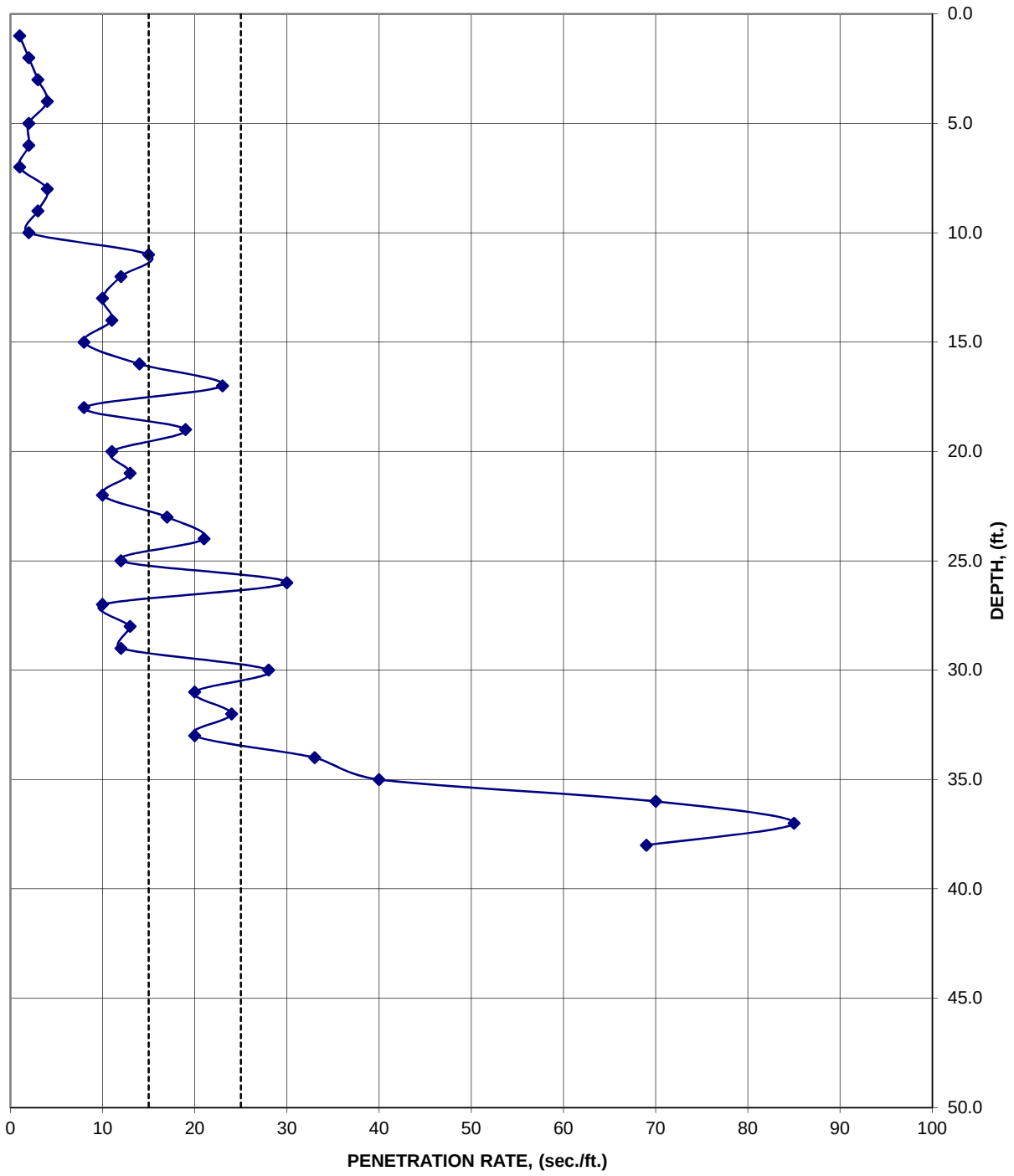
DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION
UC UNCONFINED COMPRESSIVE STRENGTH
SA SIEVE ANALYSIS
SE SAND EQUIVALENT
EI EXPANSION INDEX
RV R VALUE
-200 % FINES PASSING
AL ATTERBERG LIMITS
CO COLLAPSE
PP POCKET PENETROMETER

ROCK DRILL (AIR TRACK) LOGS

AT-1 THROUGH AT-44

(LEIGHTON, 2007)

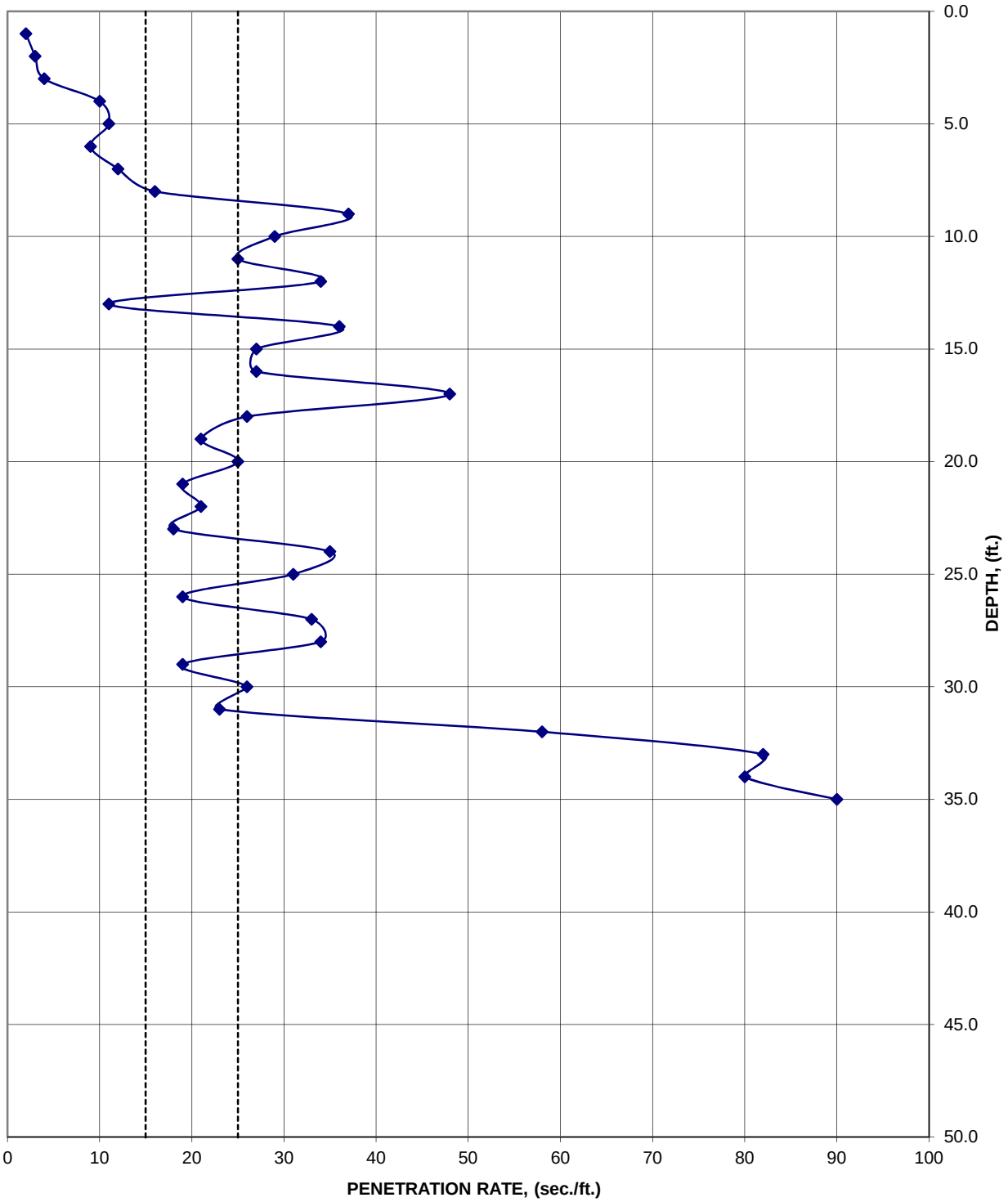
BORING AT-1



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-1

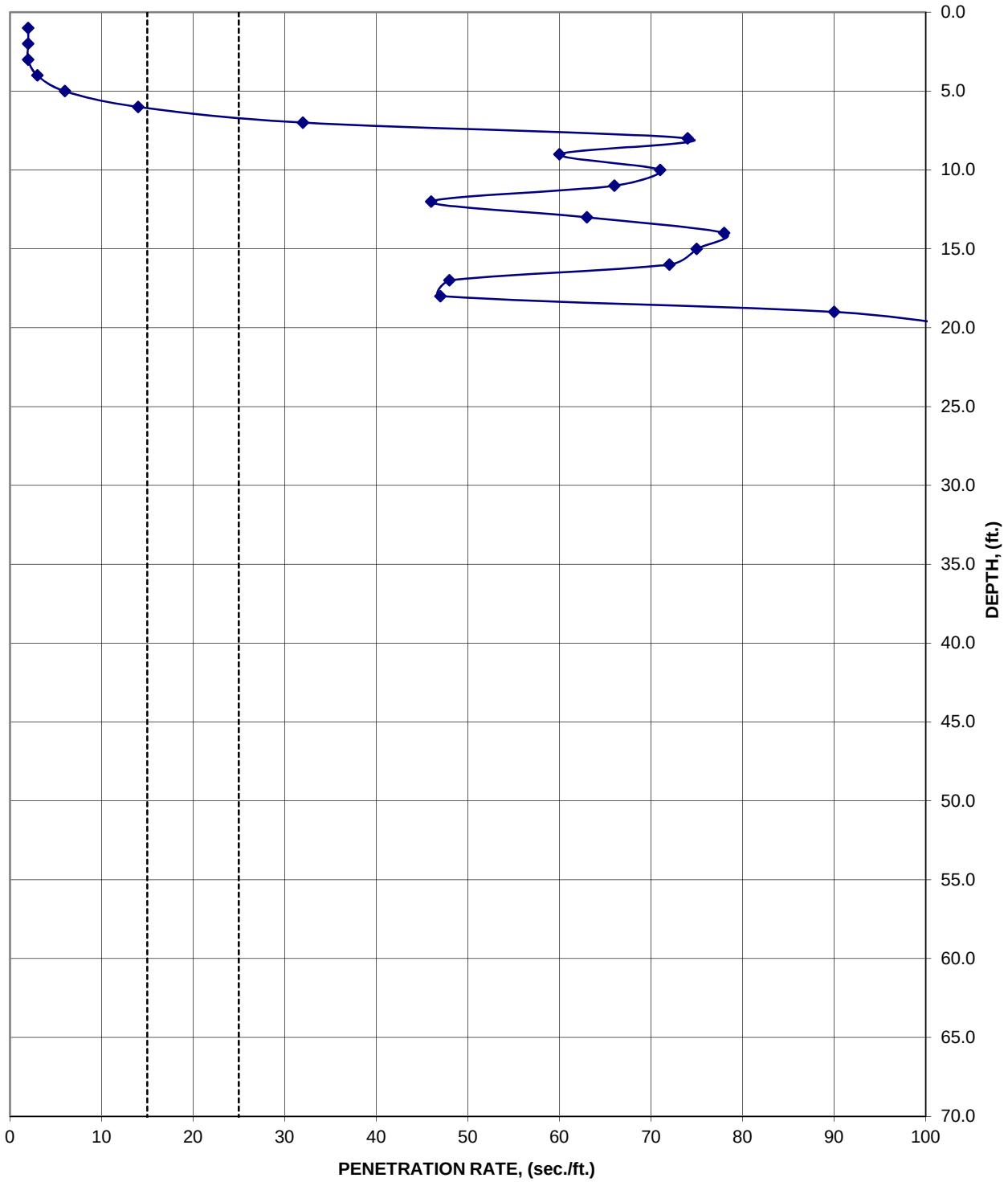
BORING AT-2



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-2

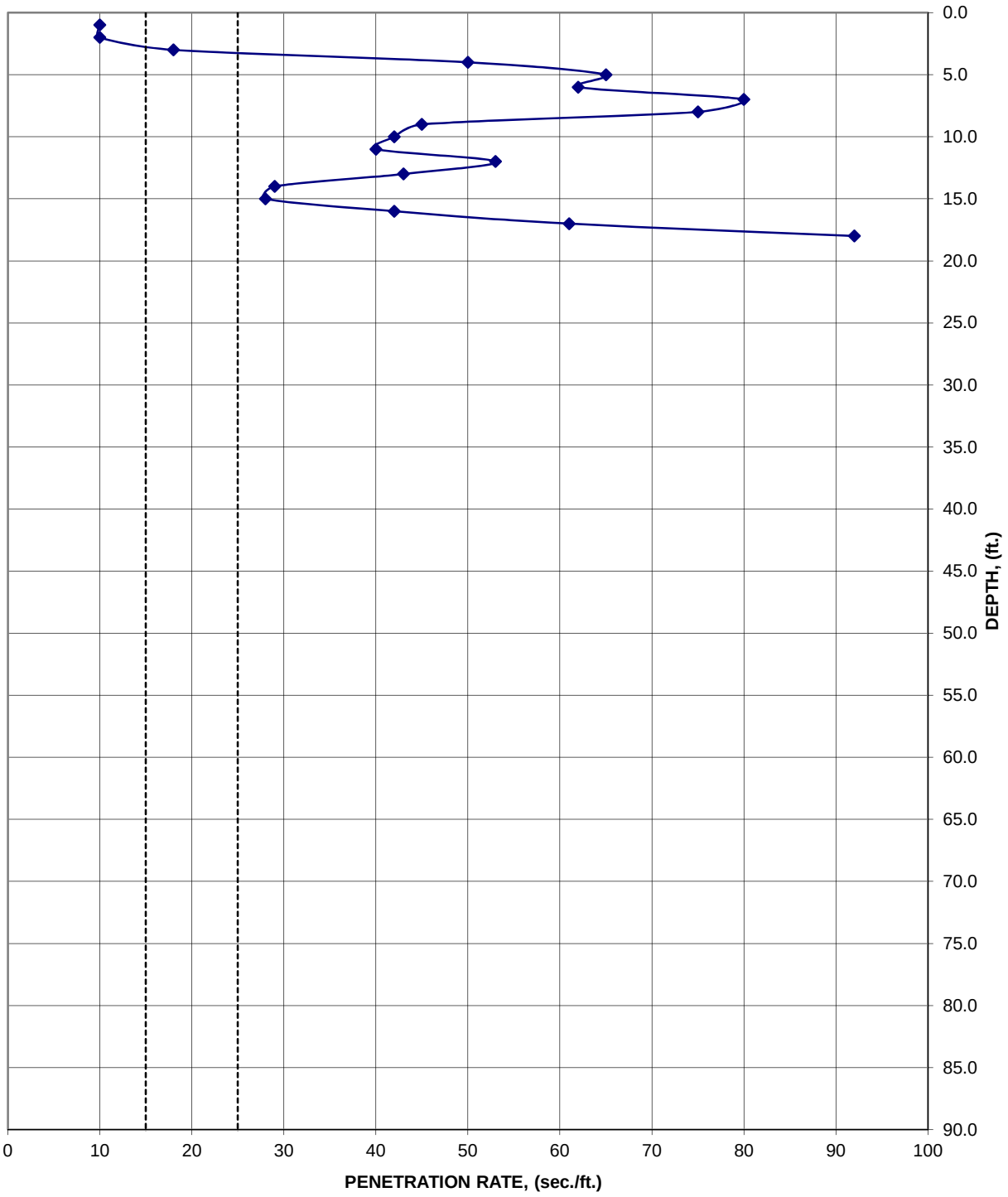
BORING AT-3



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-3

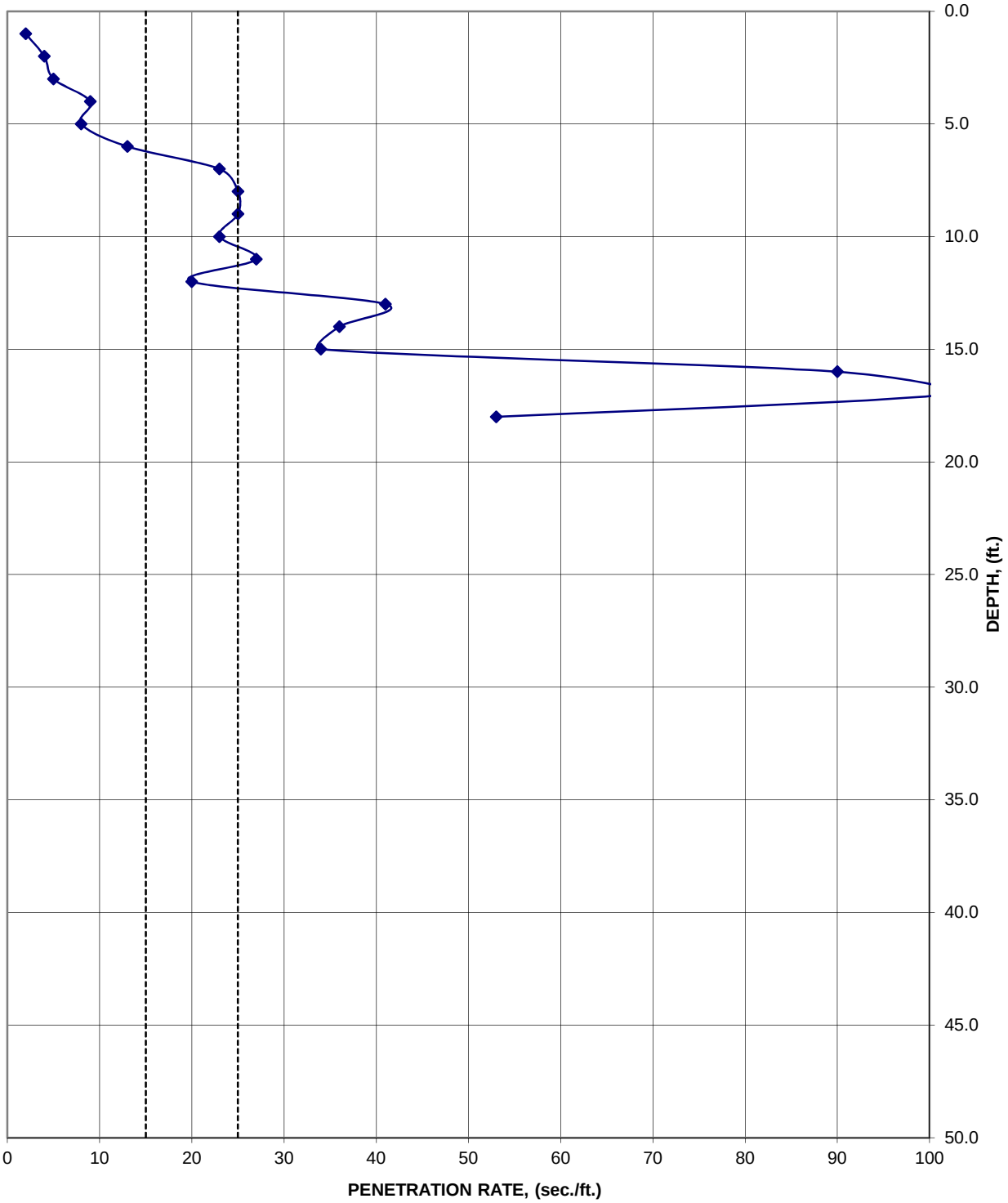
BORING AT-4



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-4

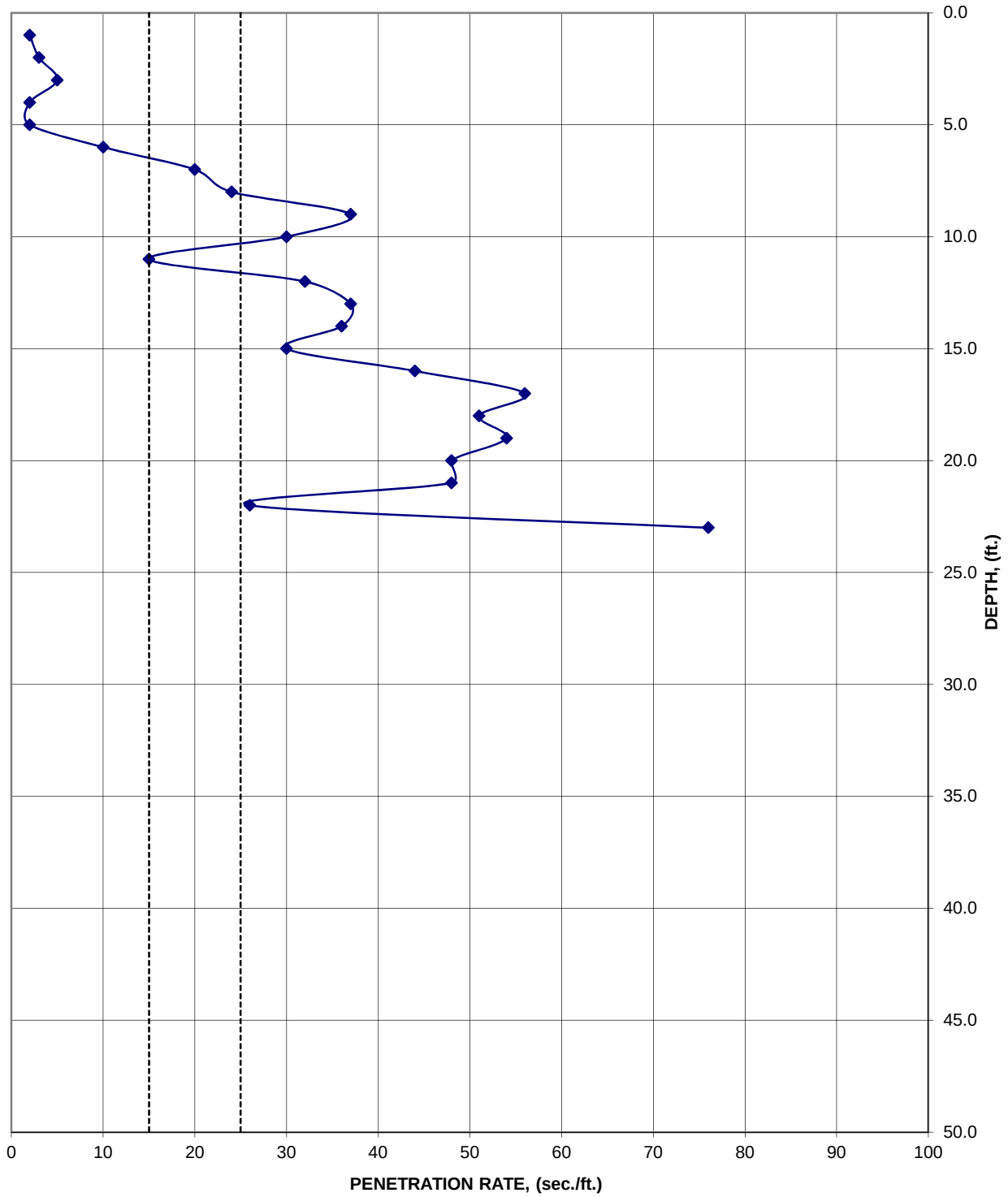
BORING AT-5



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-5

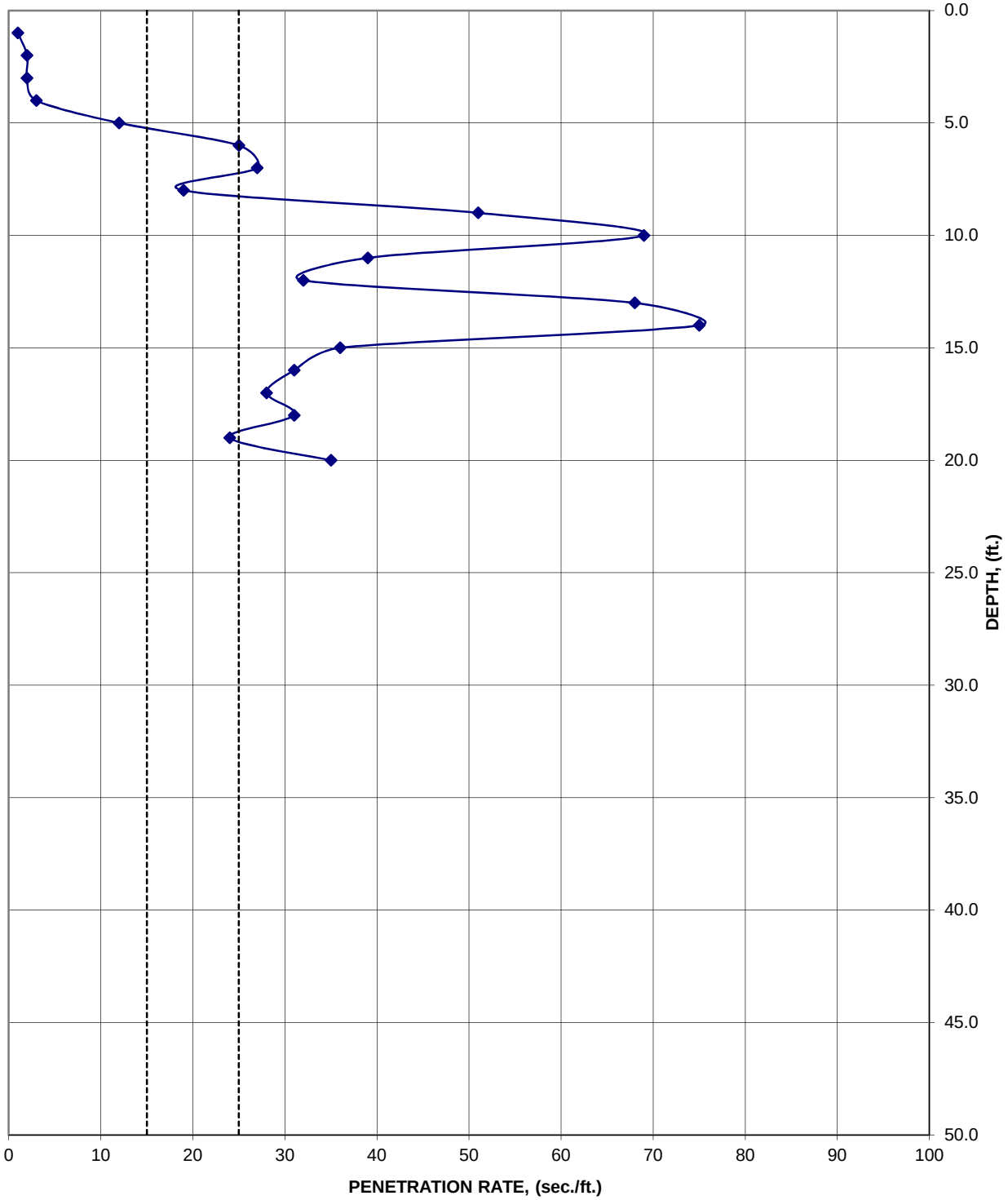
BORING AT-6



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-6

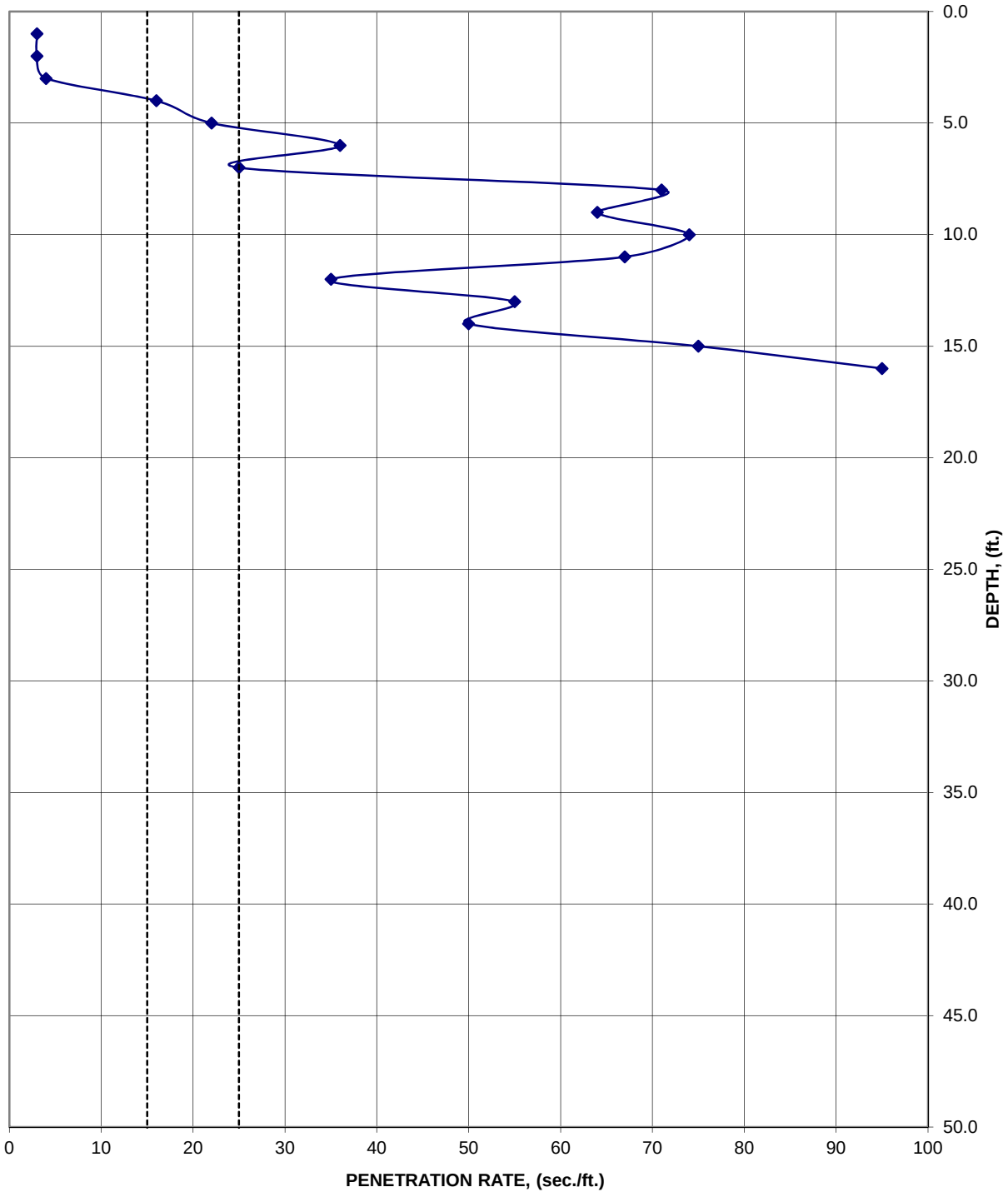
BORING AT-7



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-7

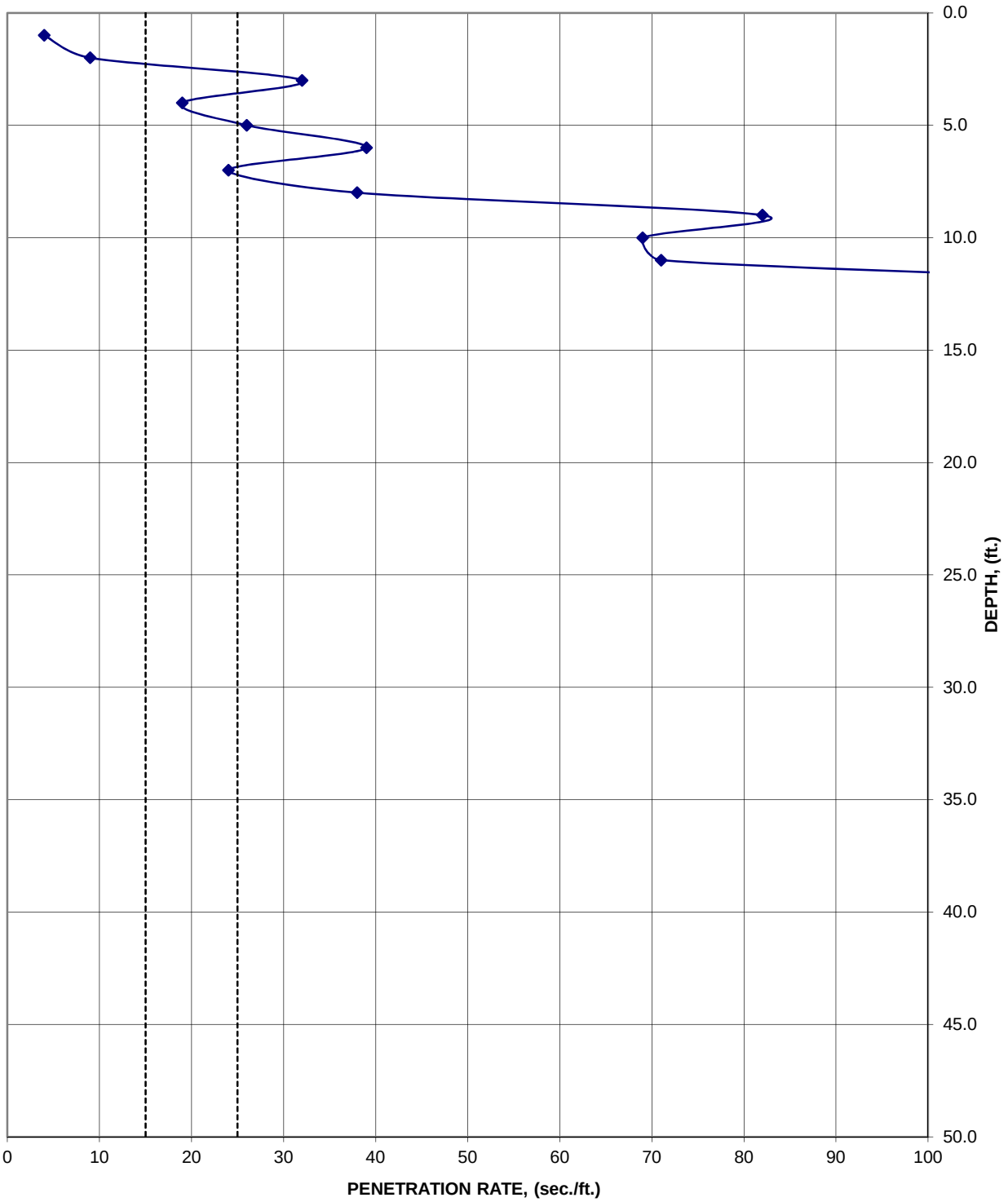
BORING AT-8



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-8

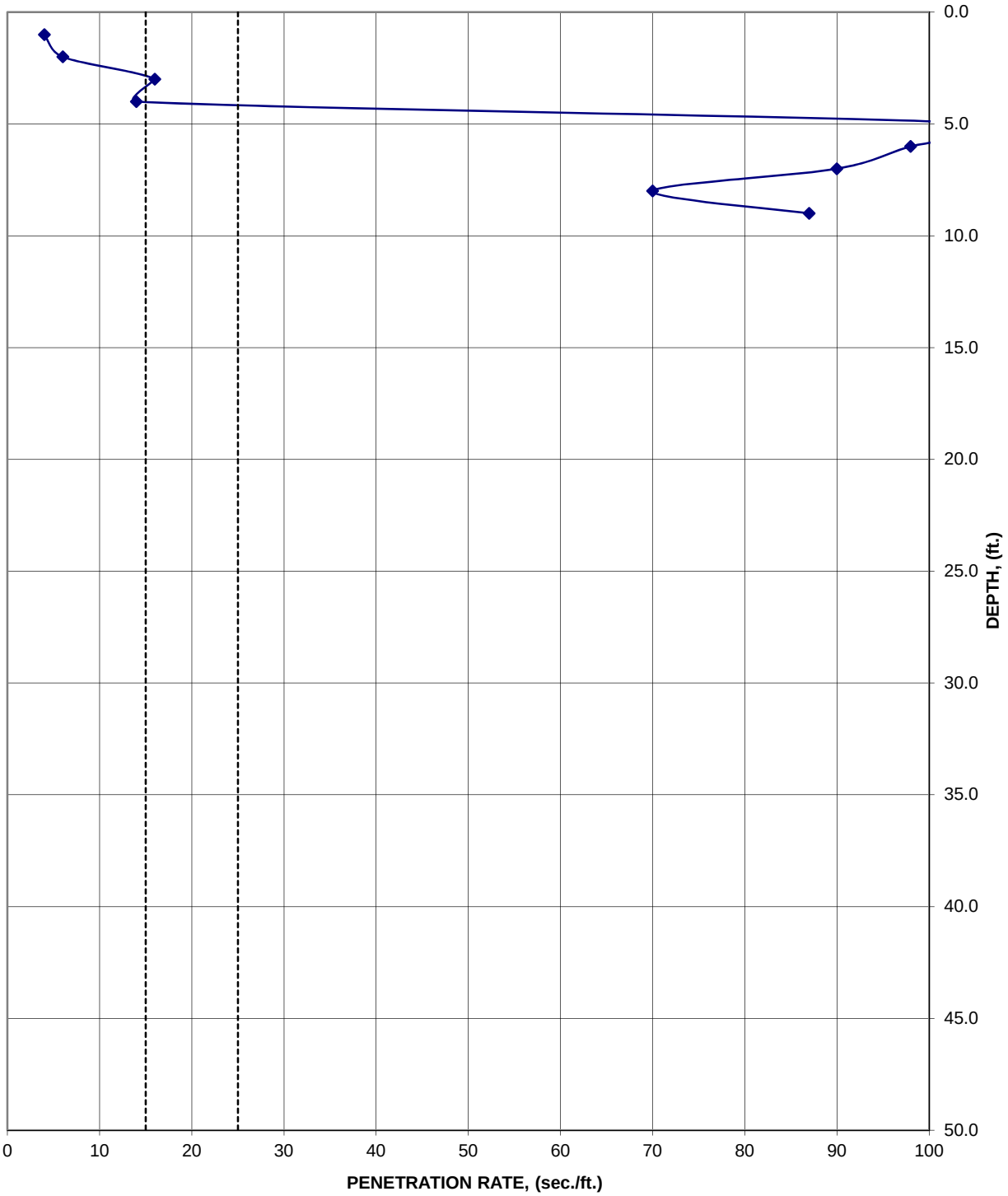
BORING AT-9



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-9

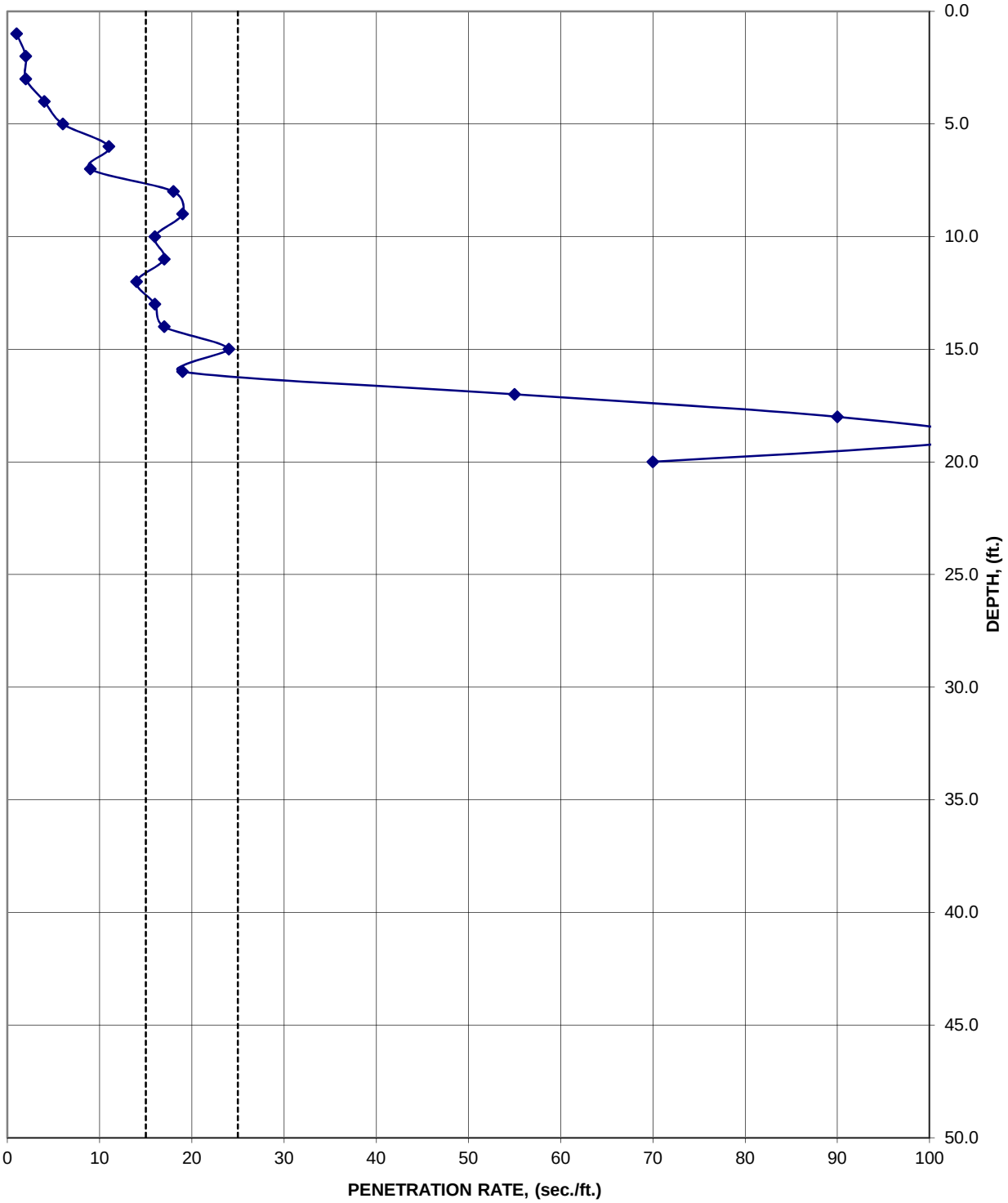
BORING AT-10



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-10

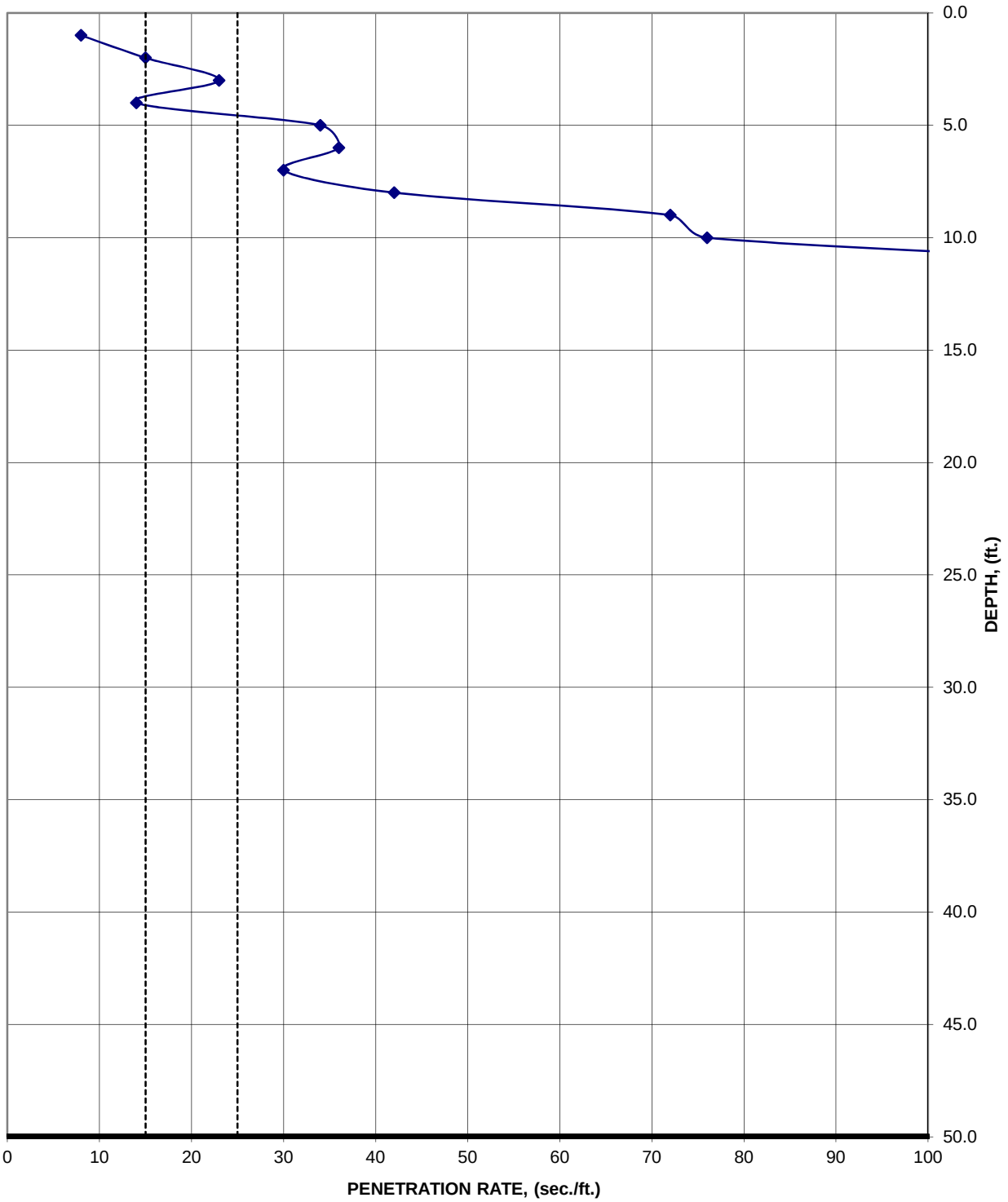
BORING AT-11



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-11

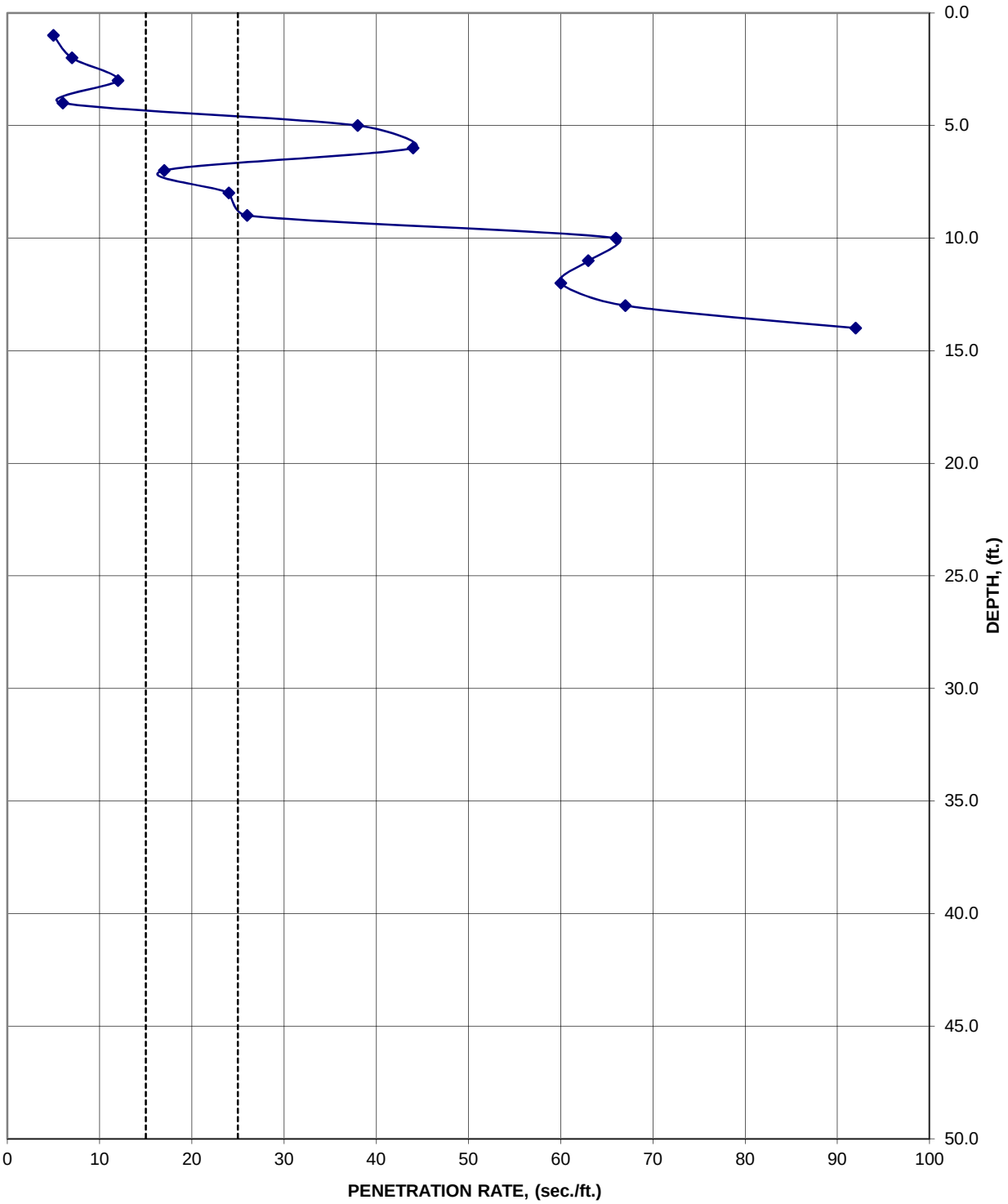
BORING AT-12



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-12

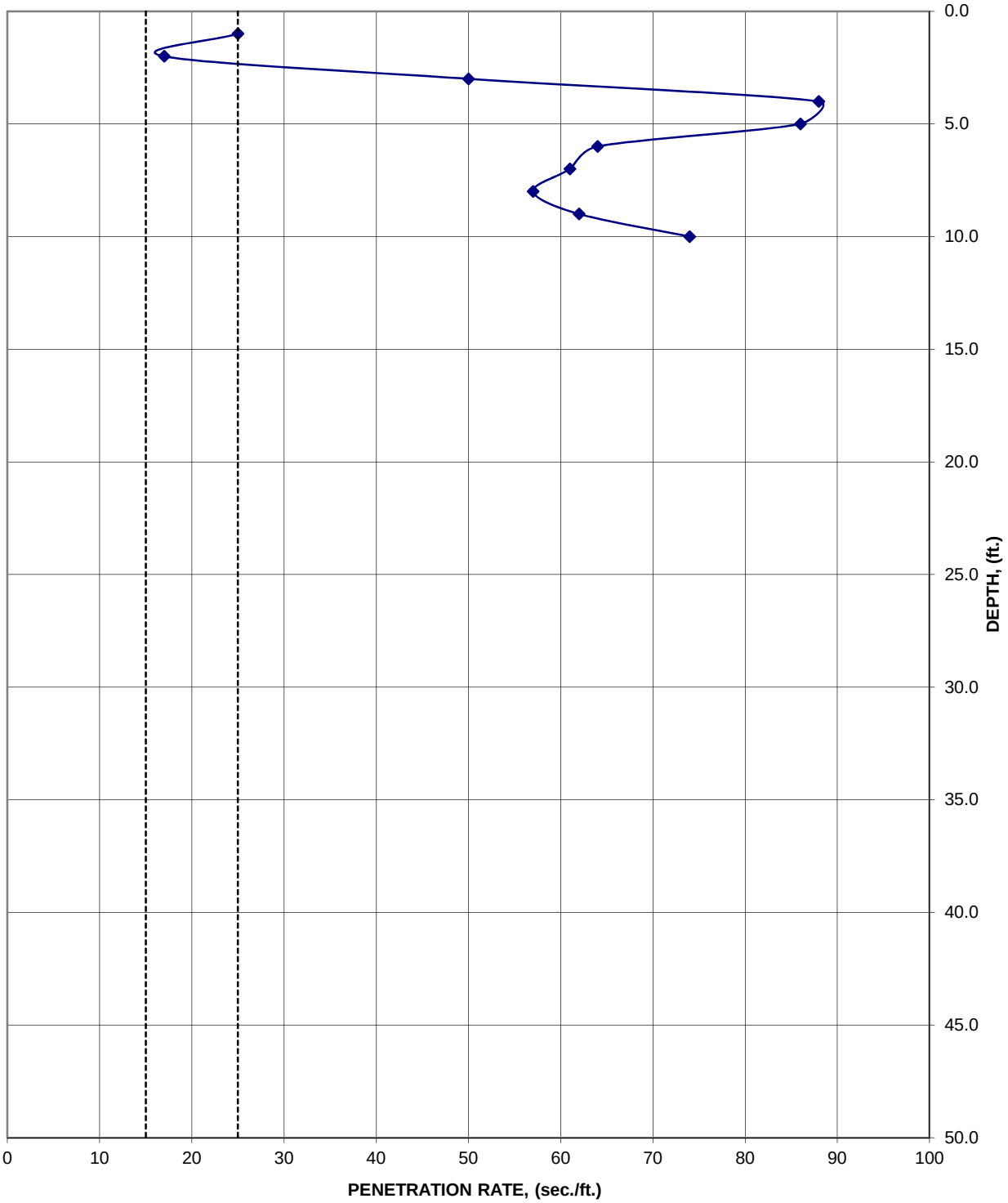
BORING AT-13



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-13

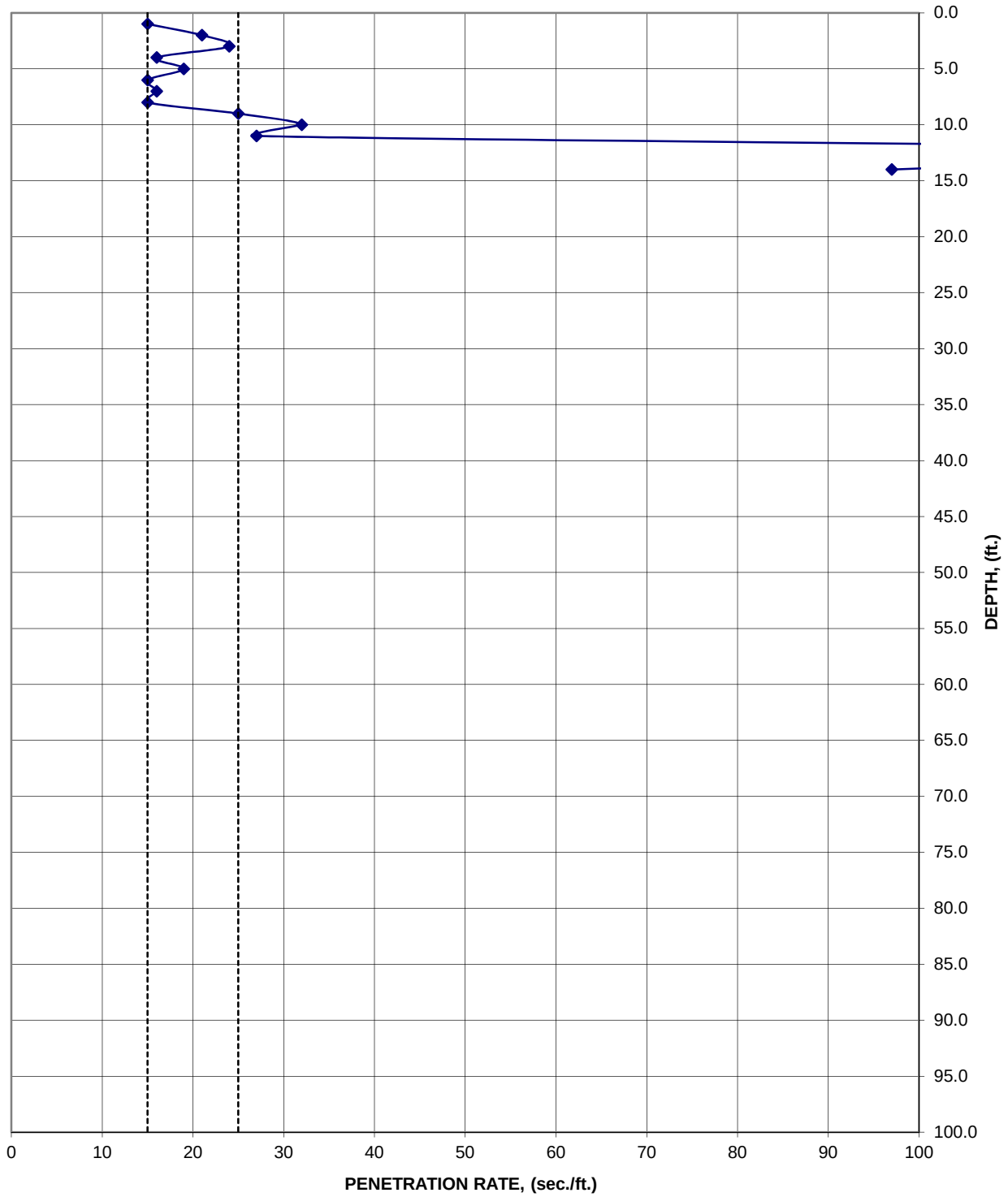
BORING AT-14



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-14

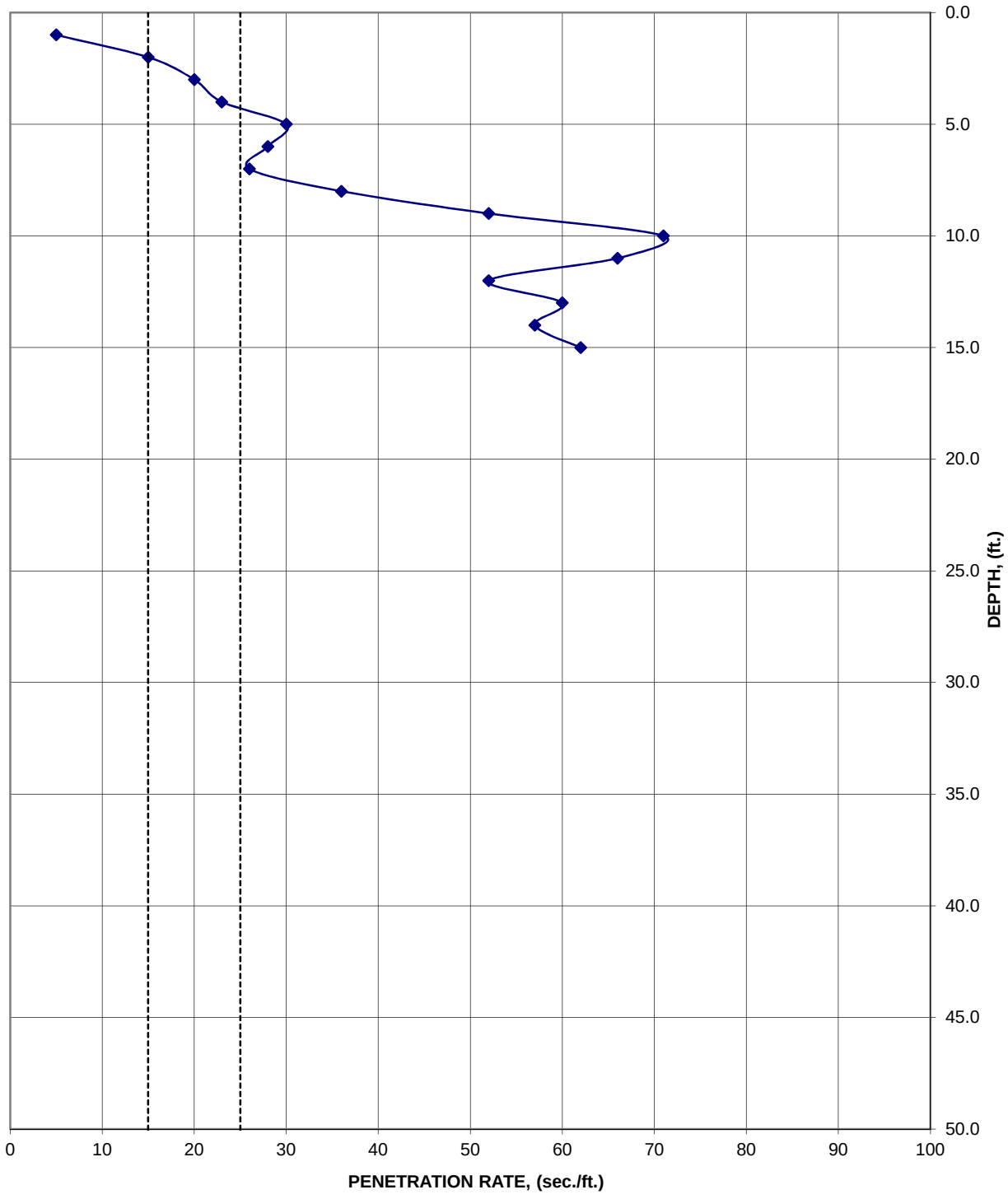
BORING AT-15



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-15

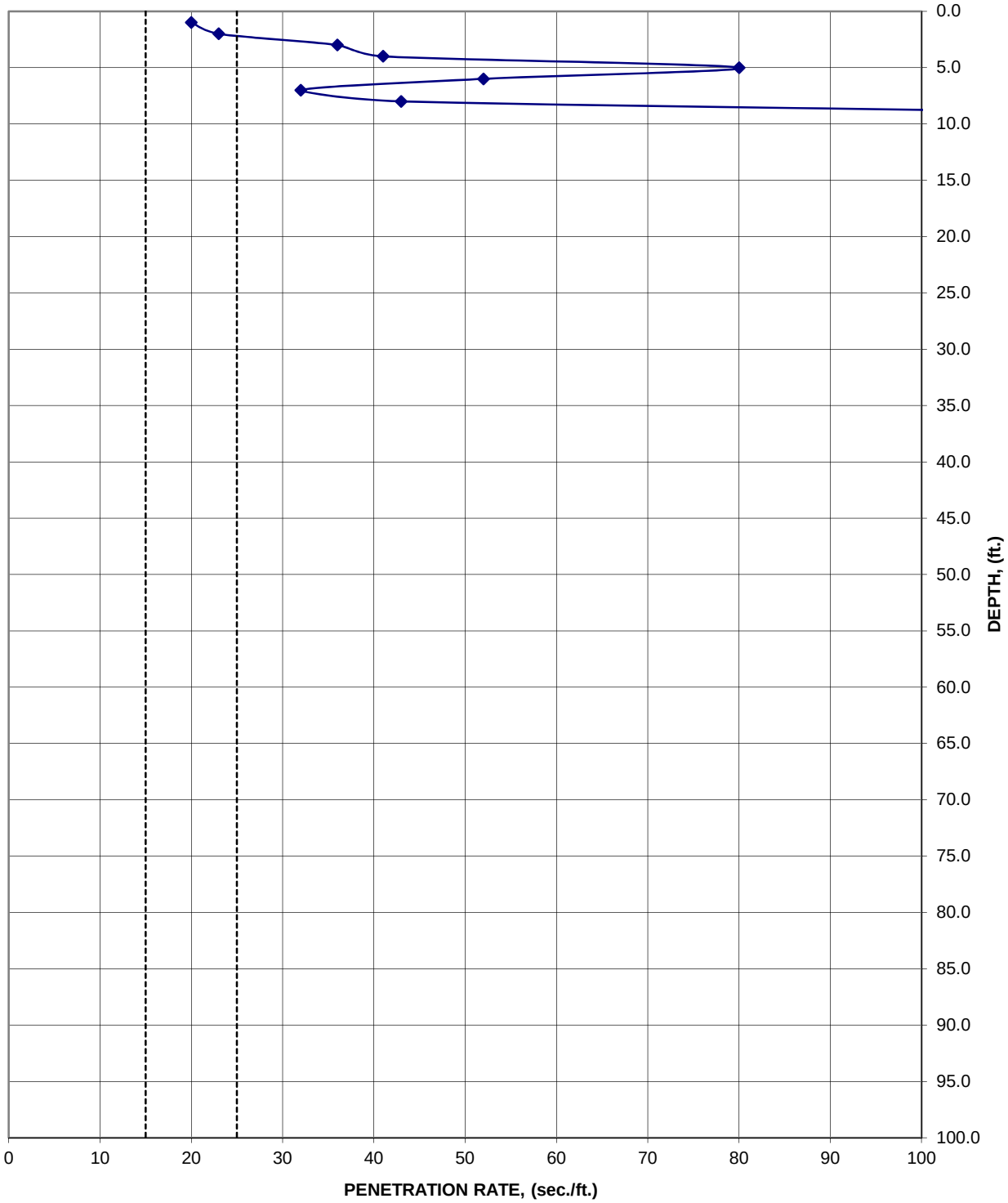
BORING AT-16



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-16

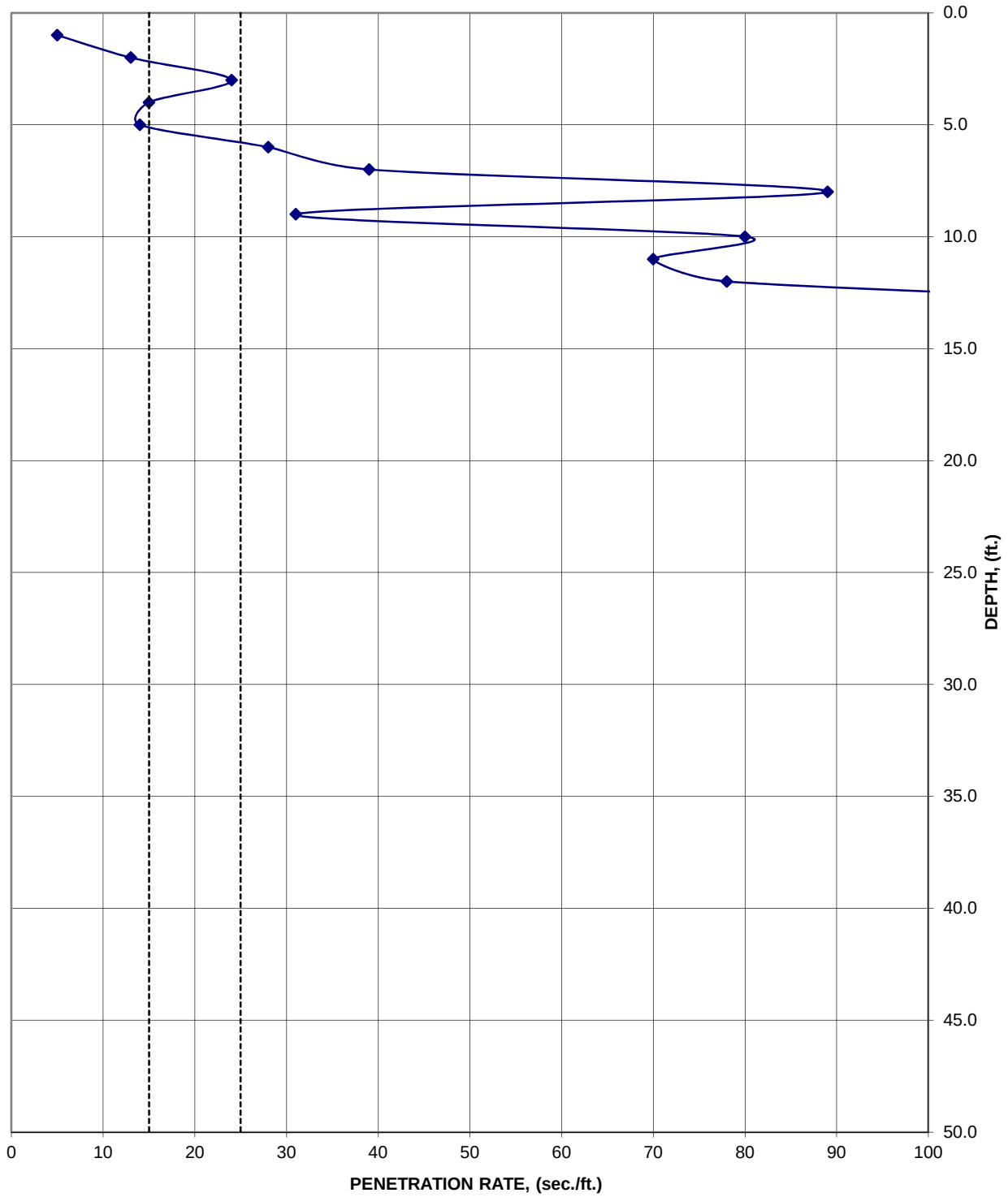
BORING AT-17



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-17

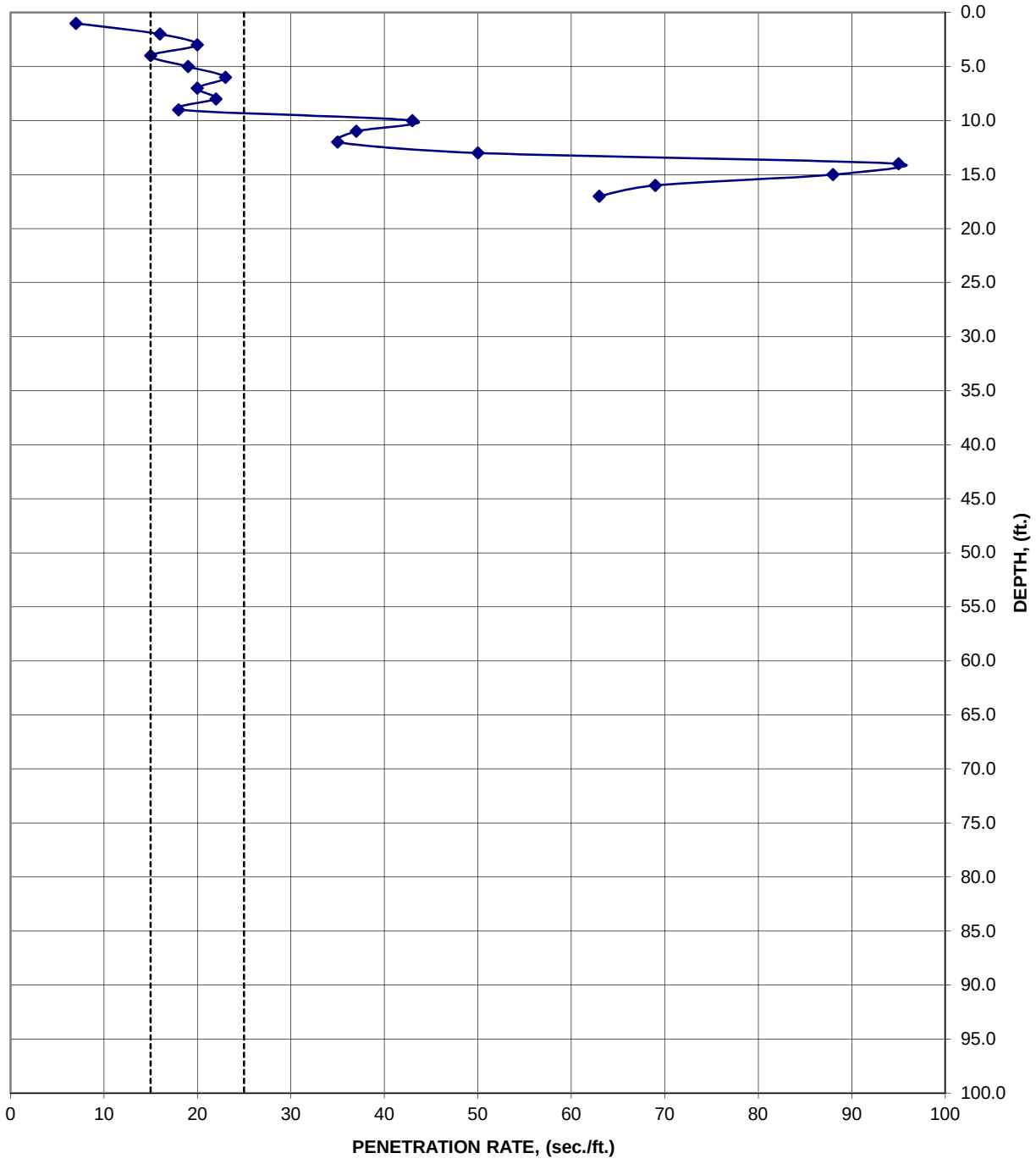
BORING AT-18



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-18

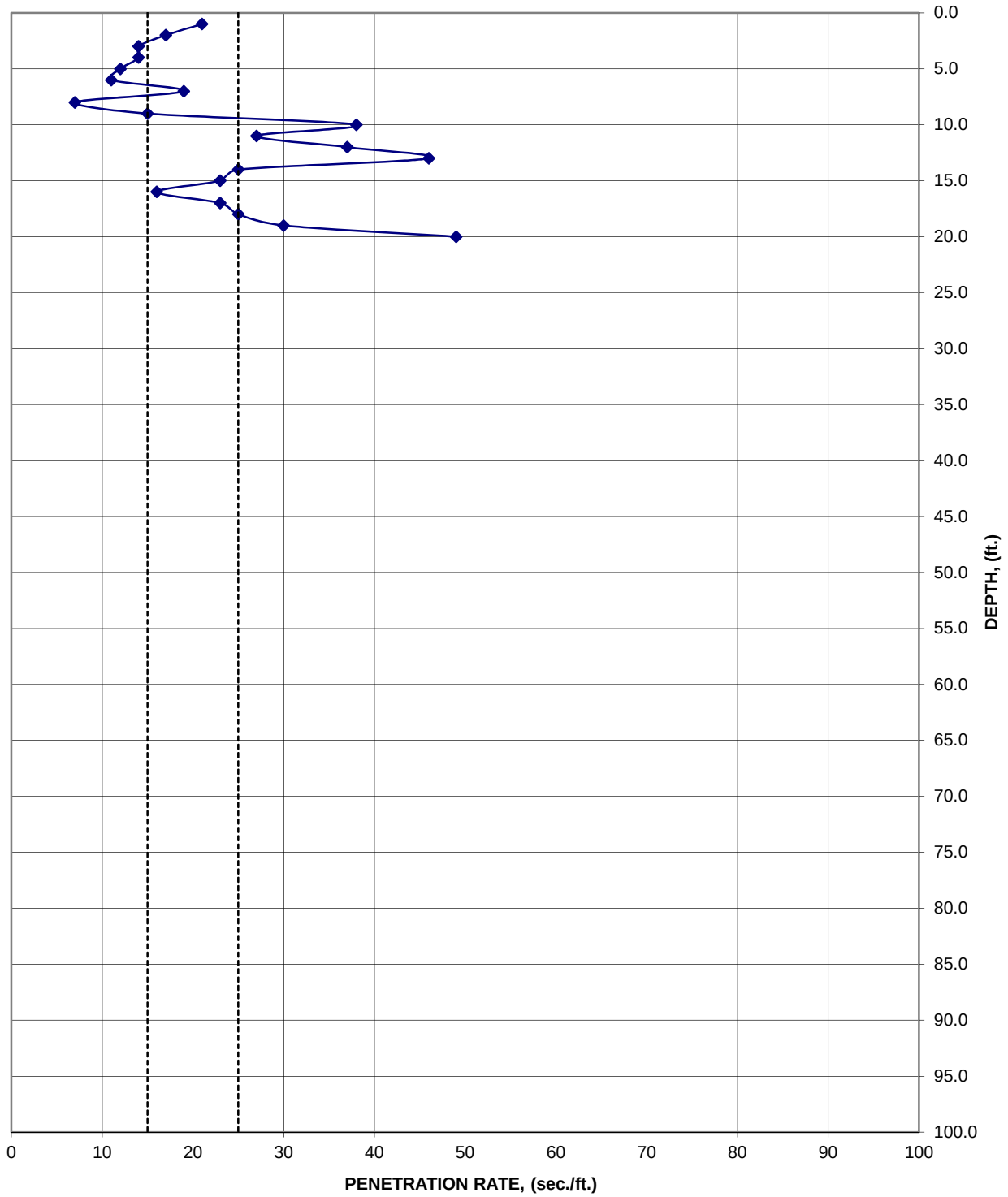
BORING AT-19



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-19

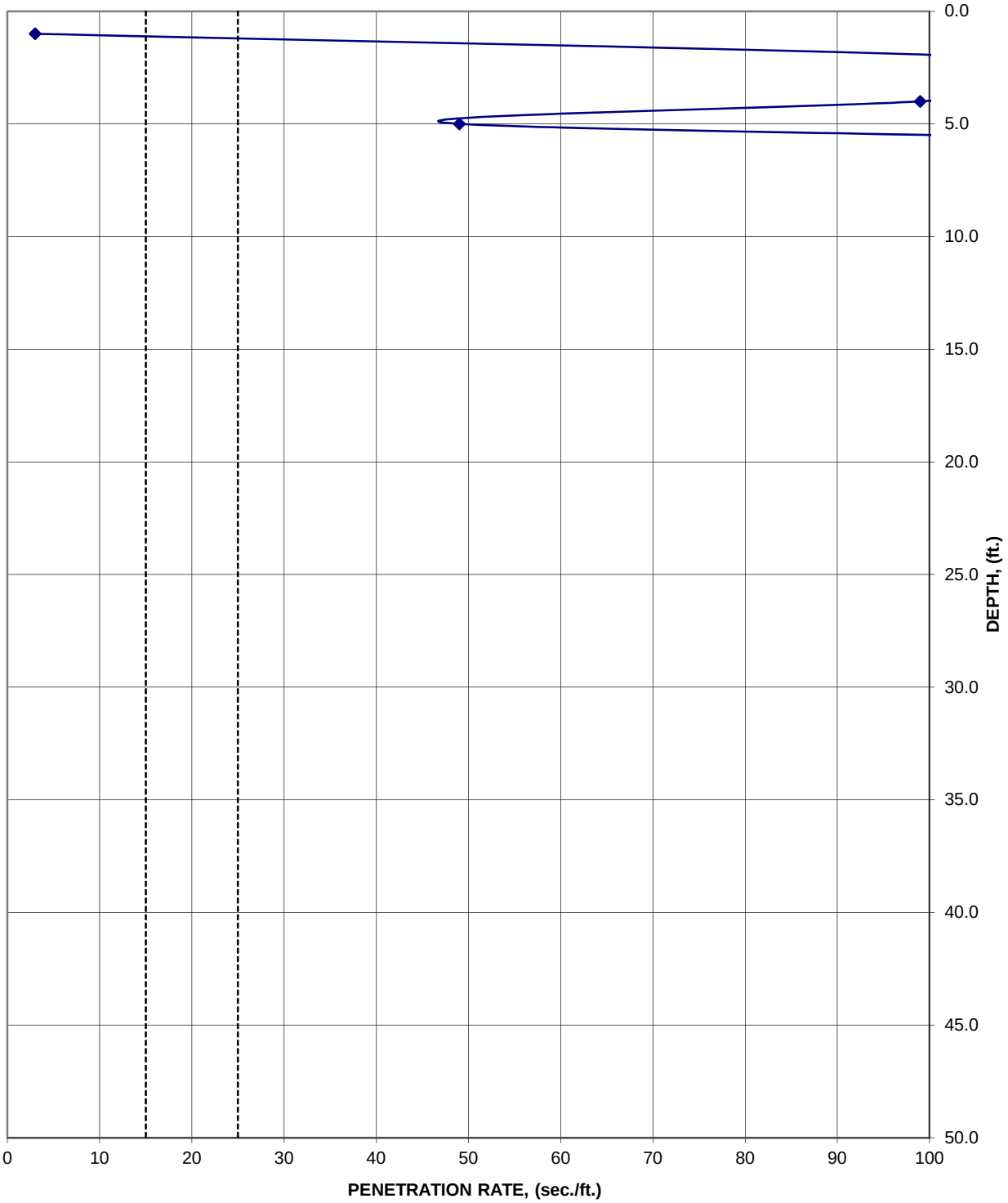
BORING AT-20



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-20

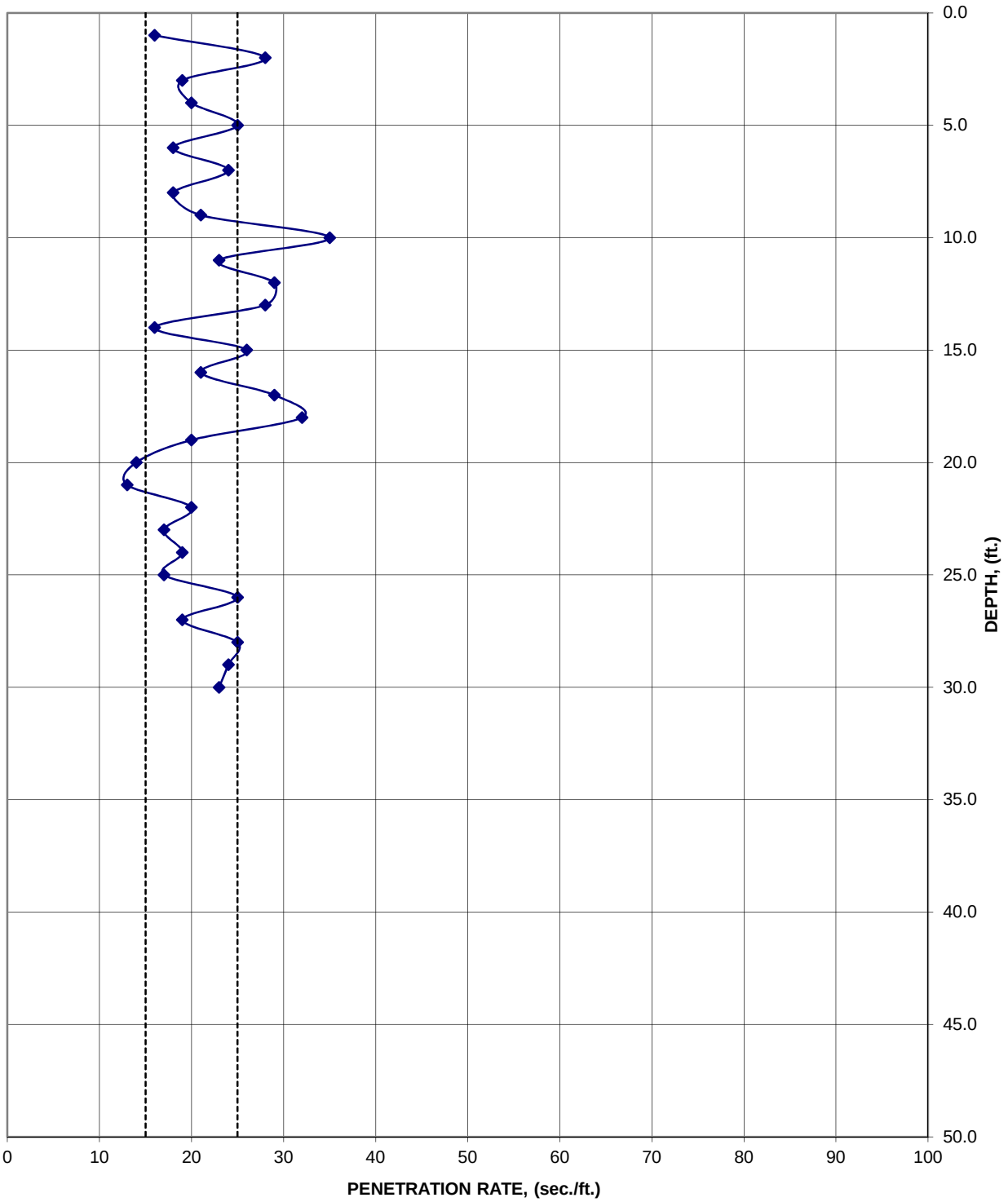
BORING AT-21



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-21

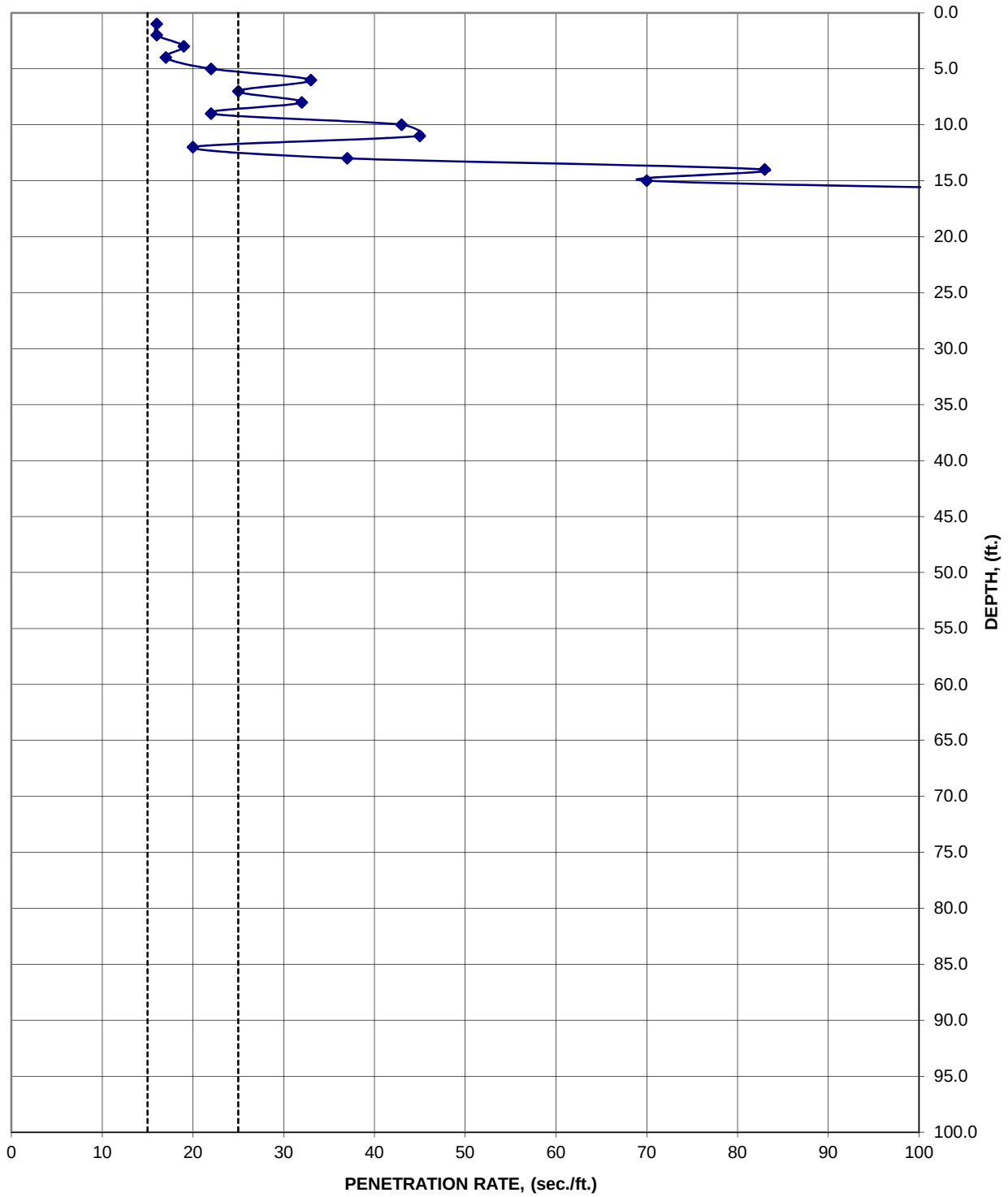
BORING AT-22



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-22

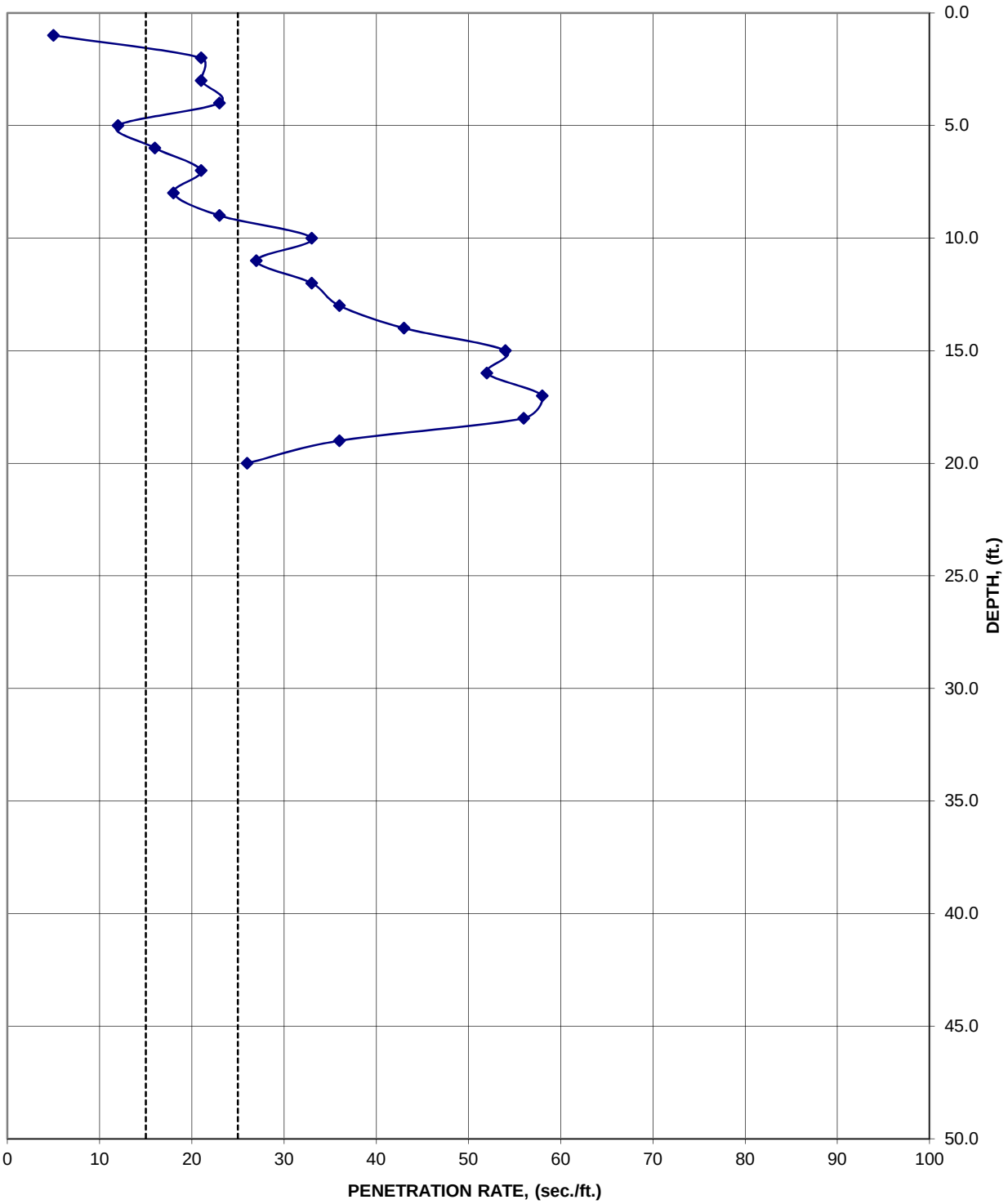
BORING AT-23



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-23

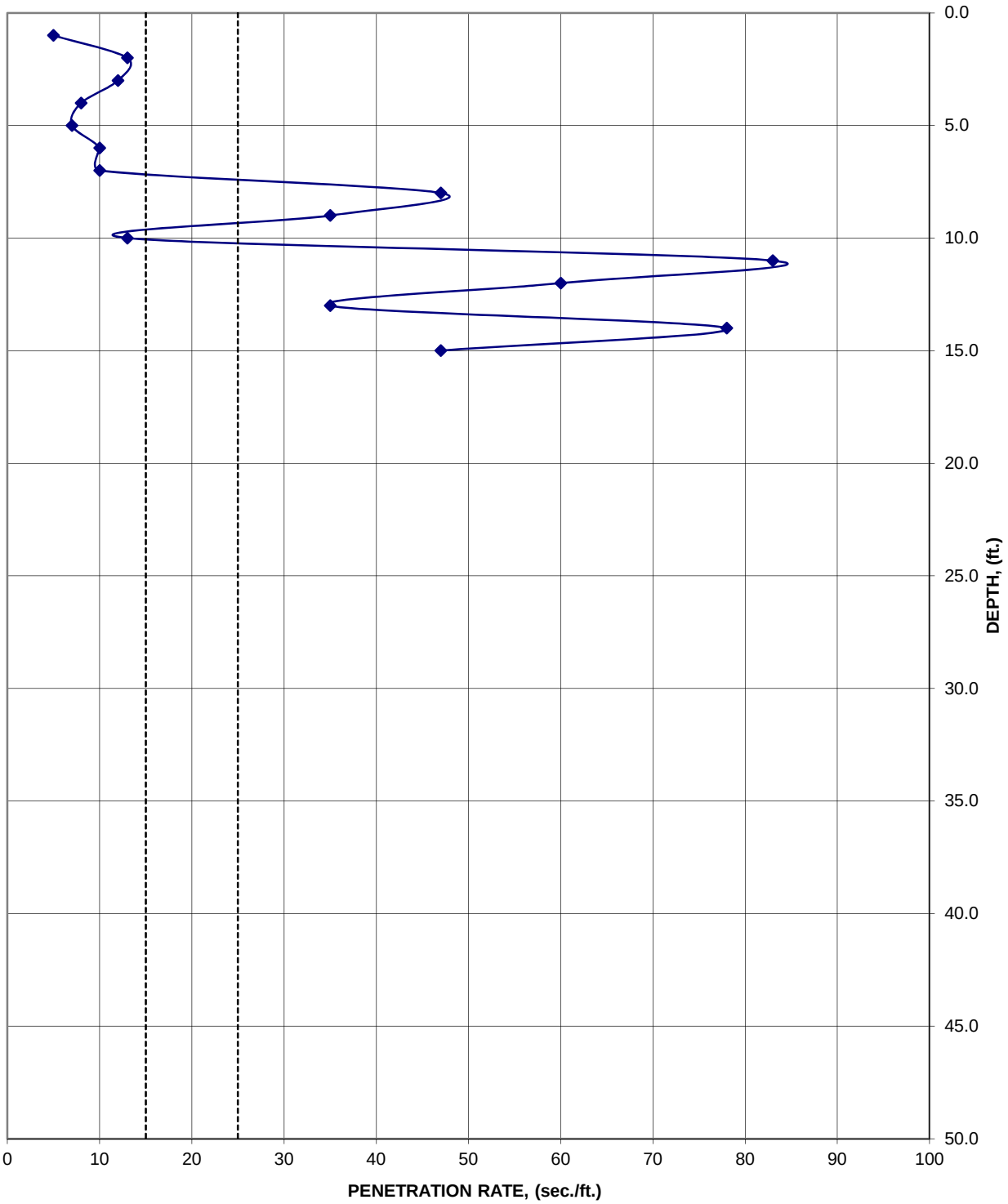
BORING AT-24



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-24

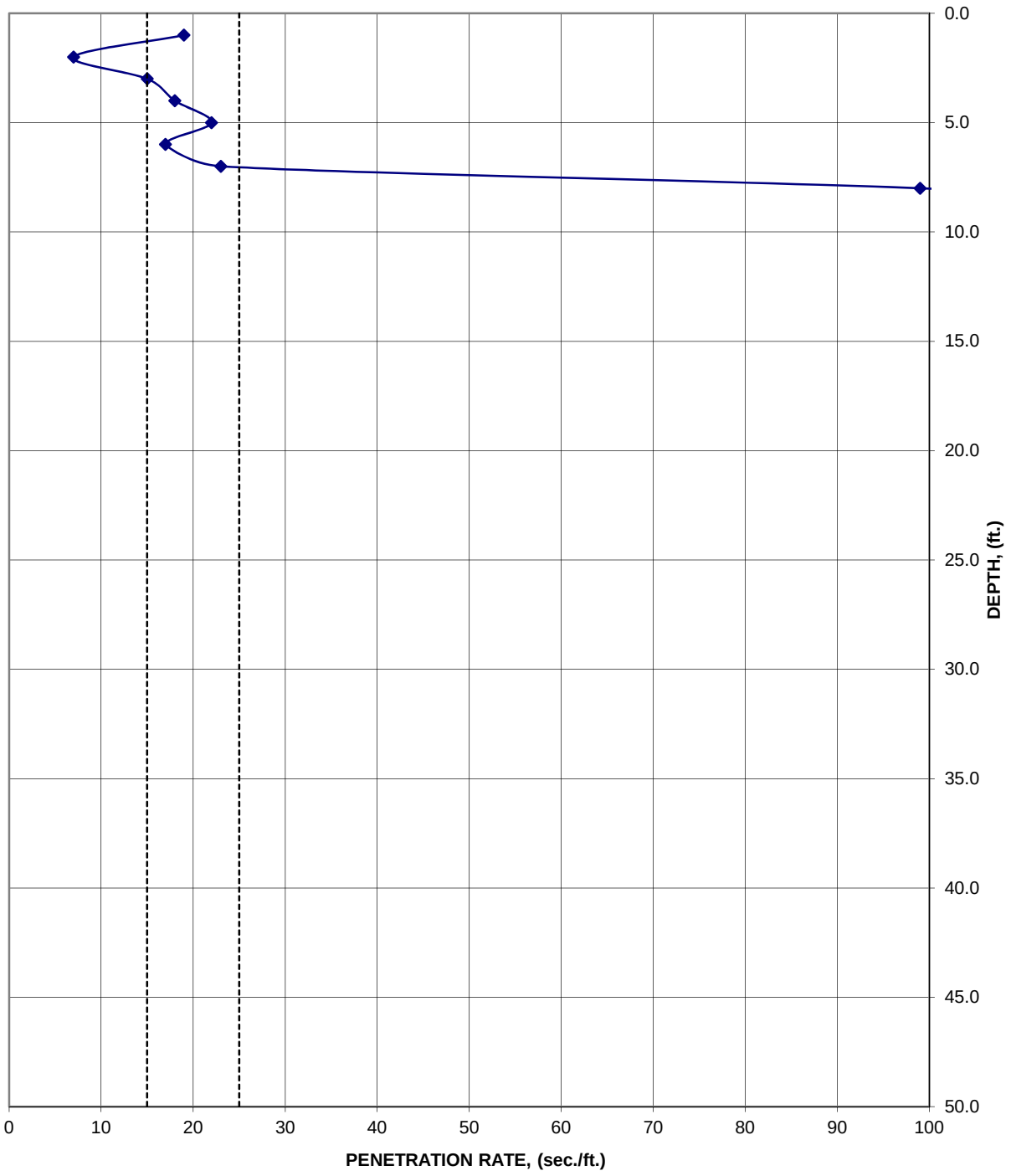
BORING AT-25



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-25

BORING AT-26



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

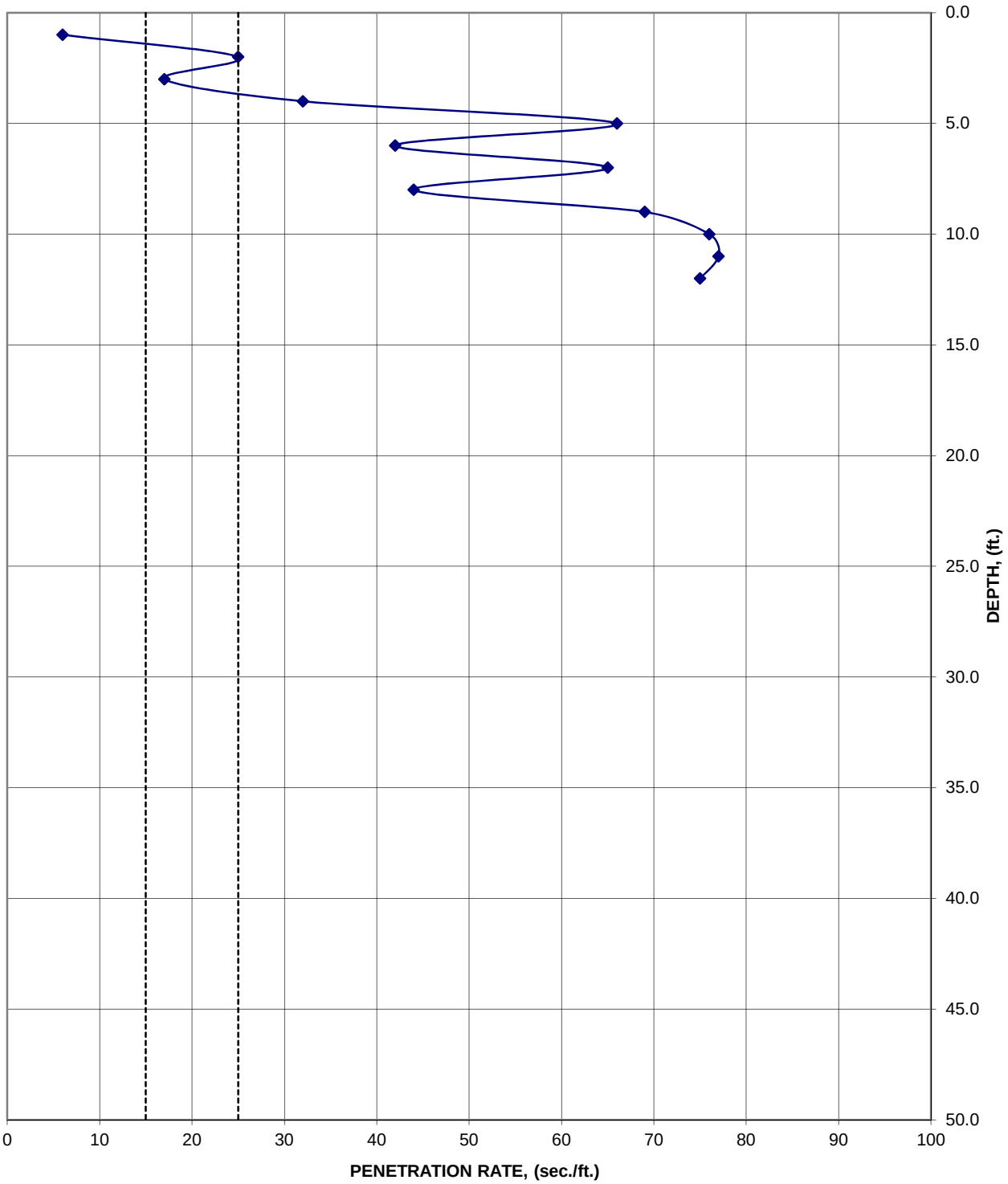
Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-26

BORING AT-27

PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-27

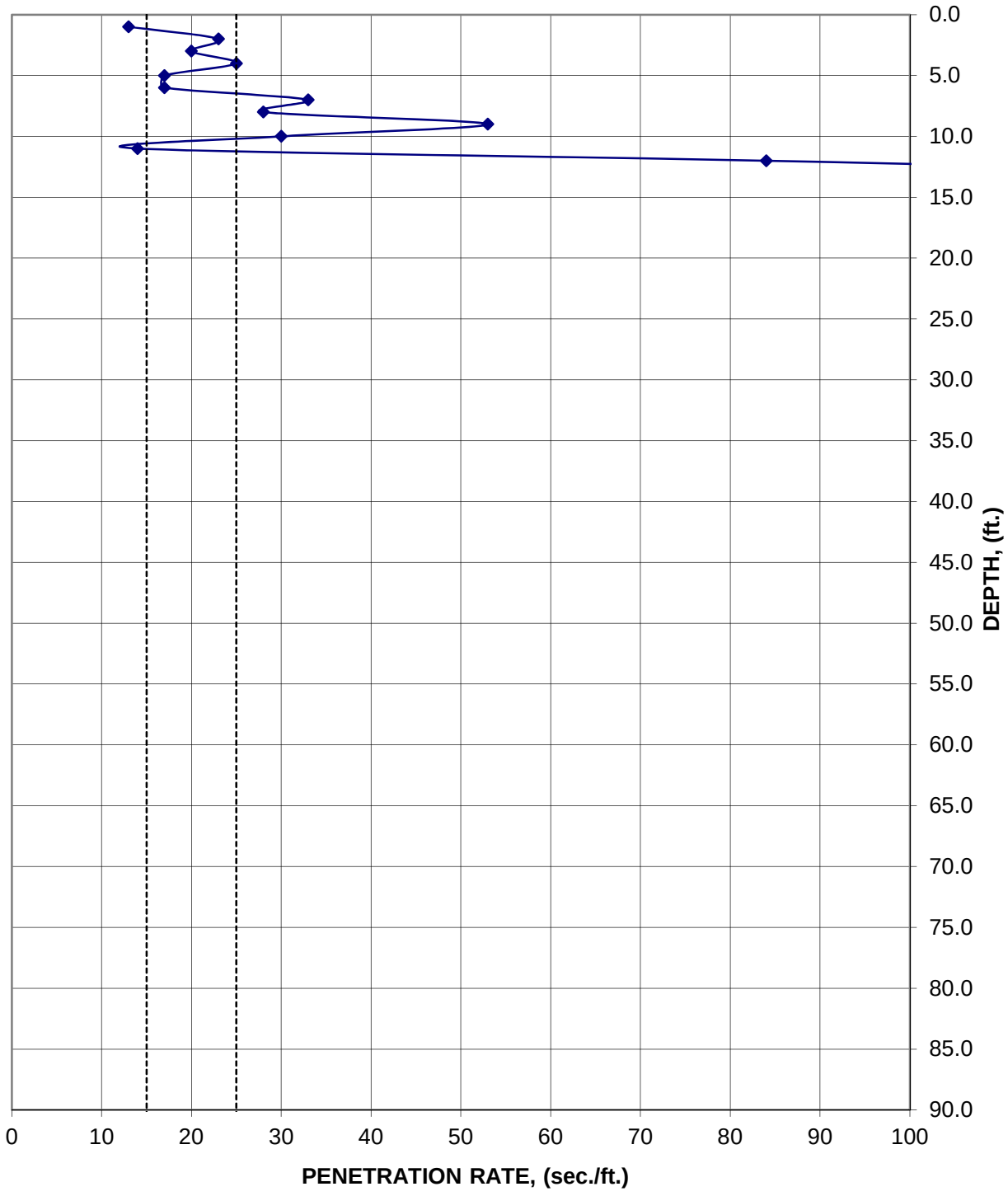
BORING AT-28



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-28

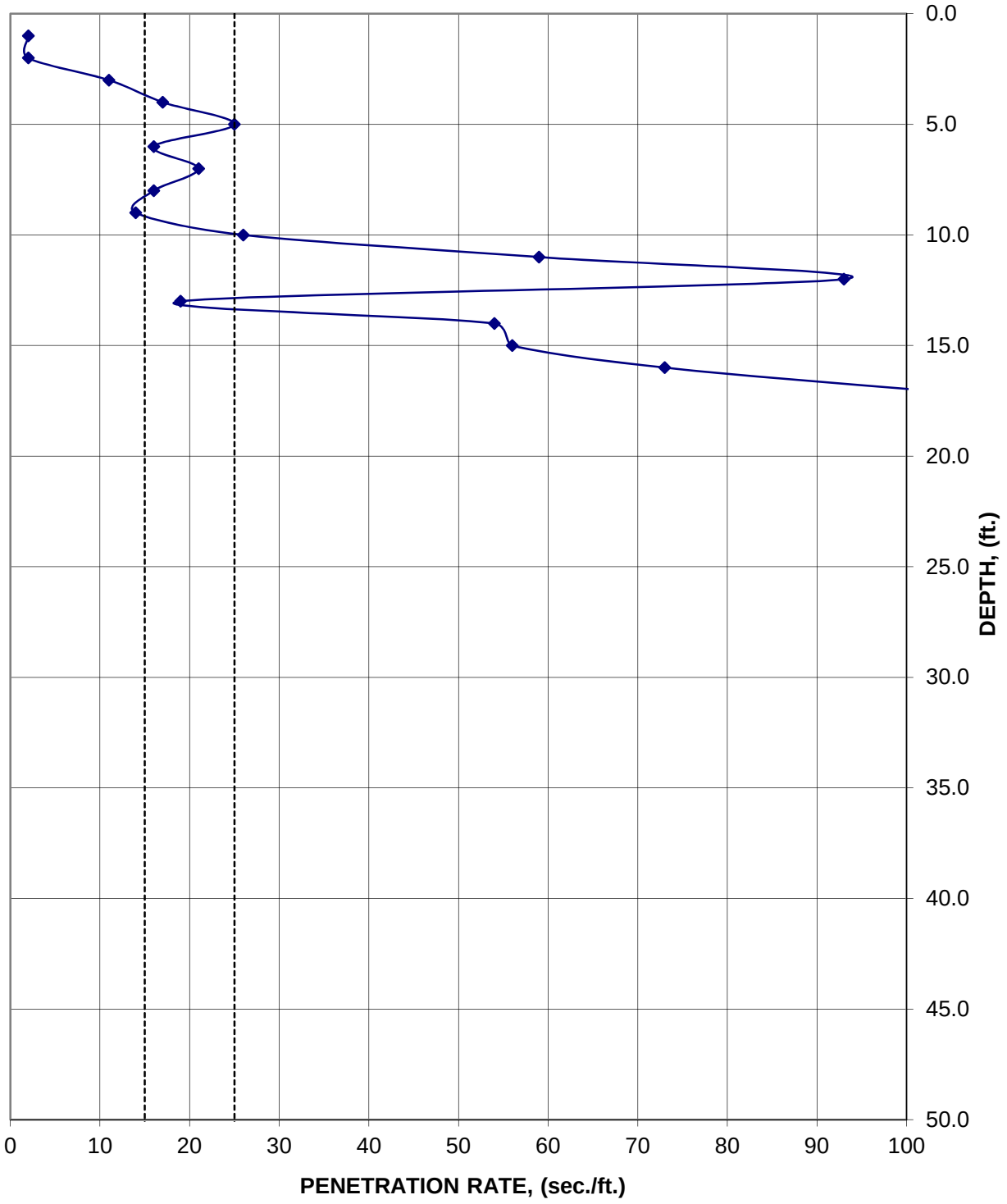
BORING AT-29



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-29

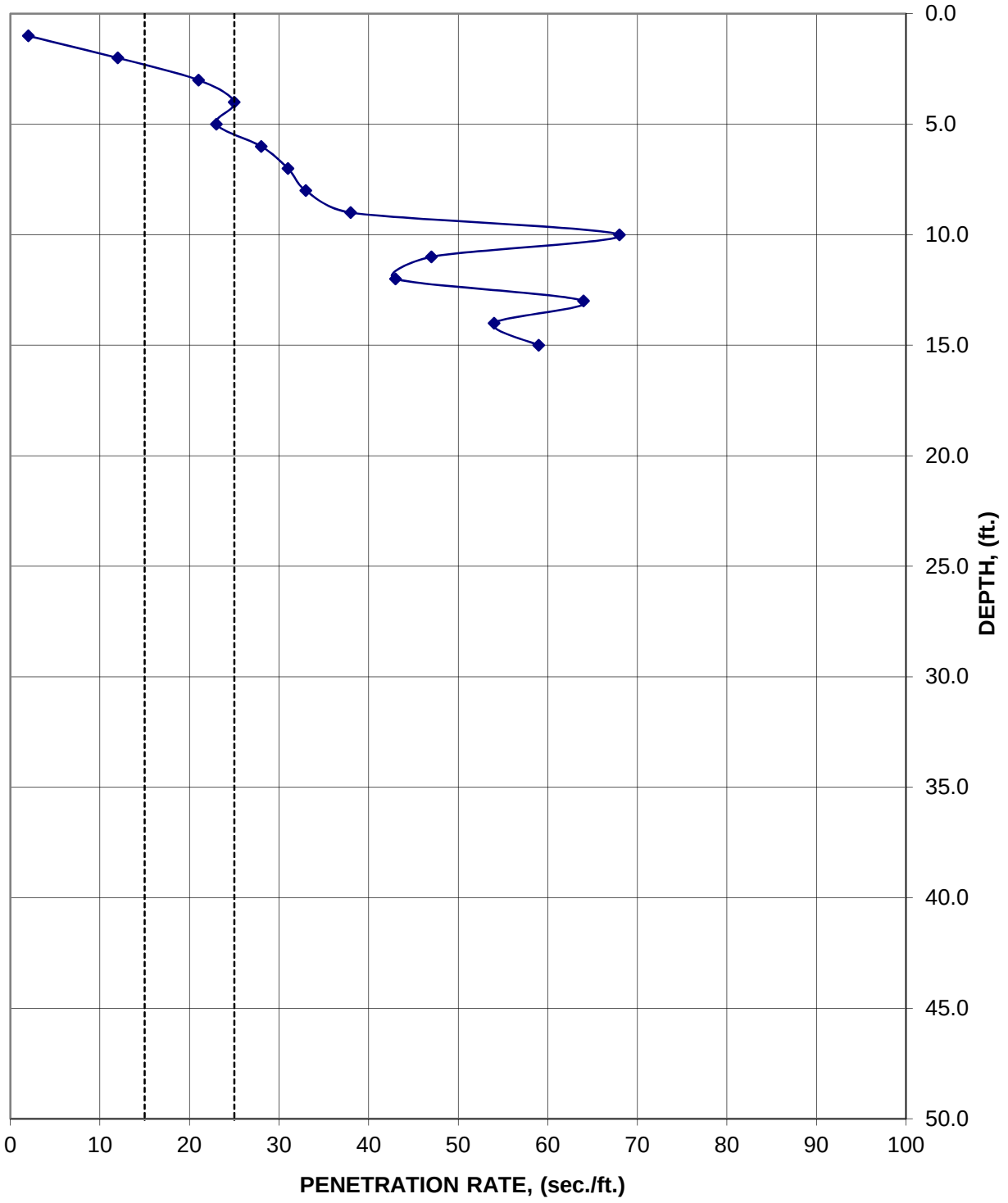
BORING AT-30



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-30

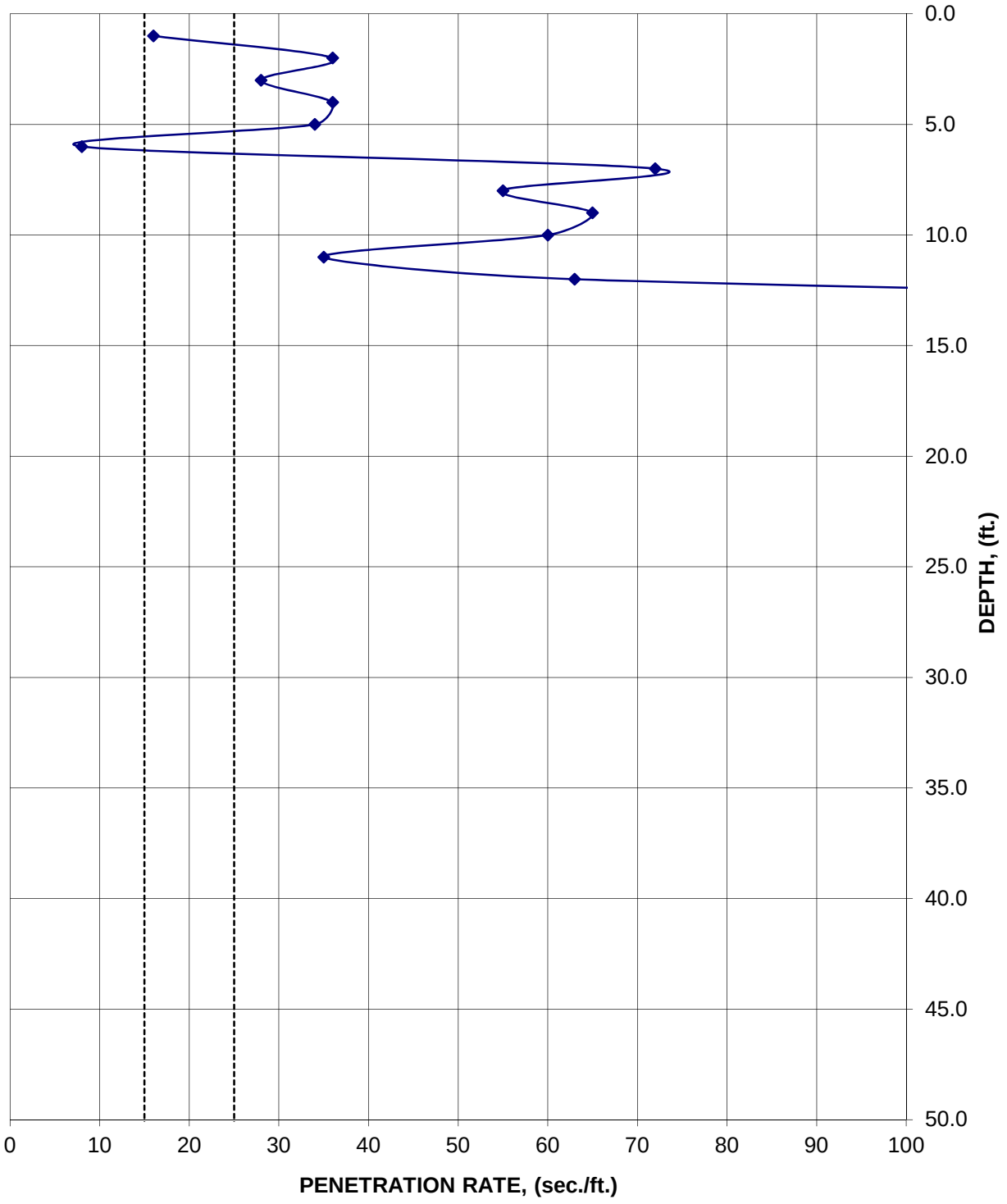
BORING AT-31



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-31

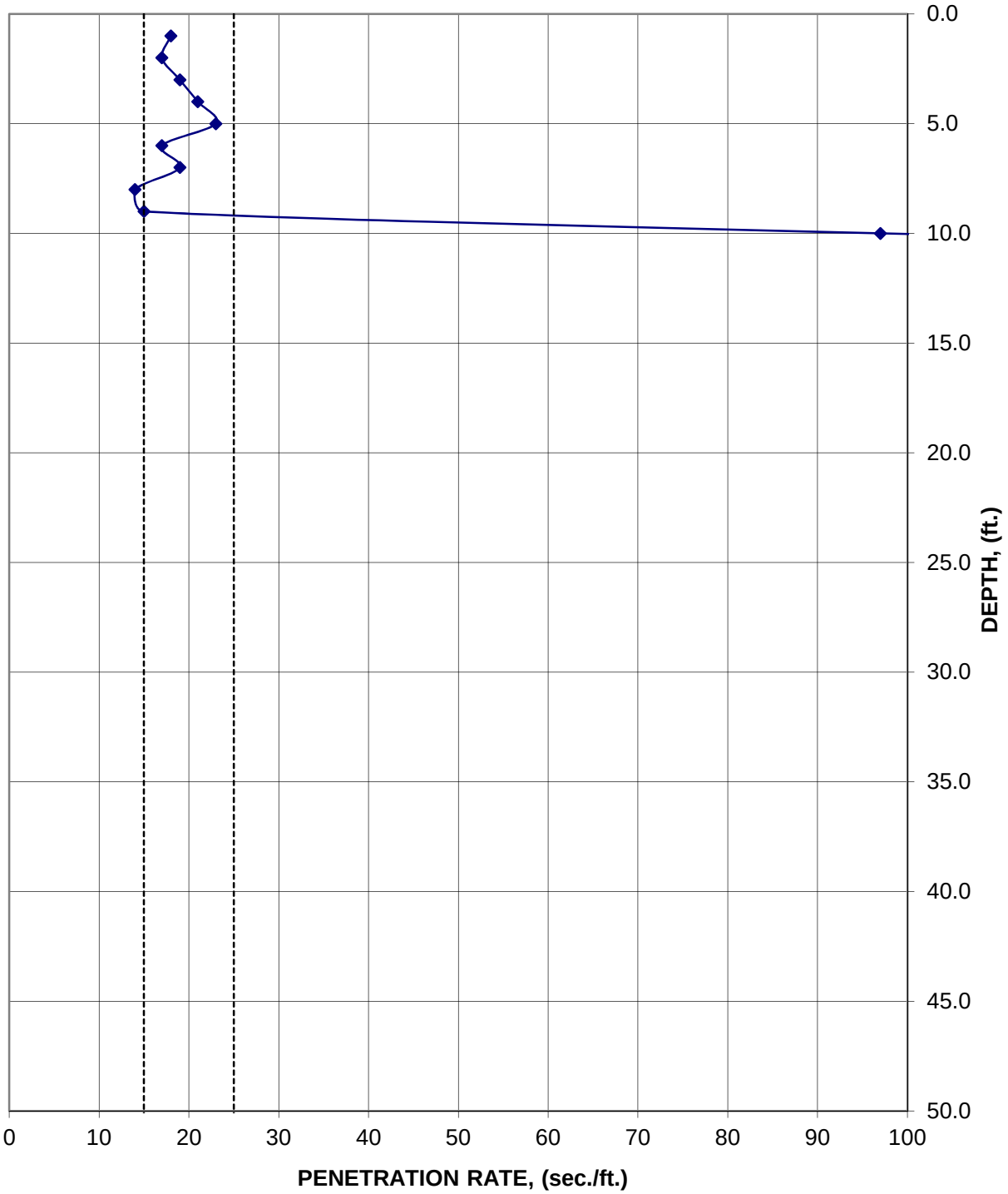
BORING AT-32



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-32

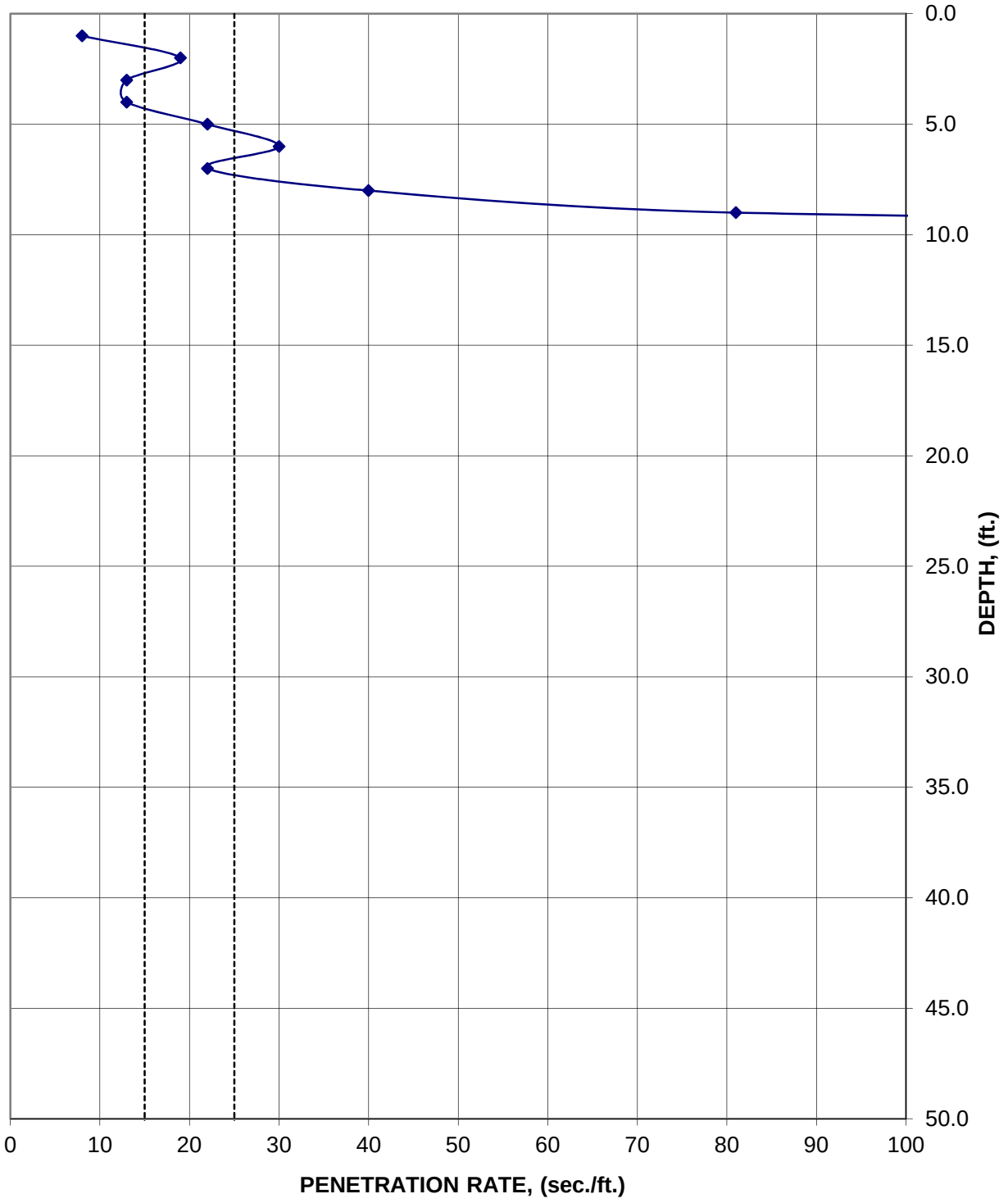
BORING AT-33



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-33

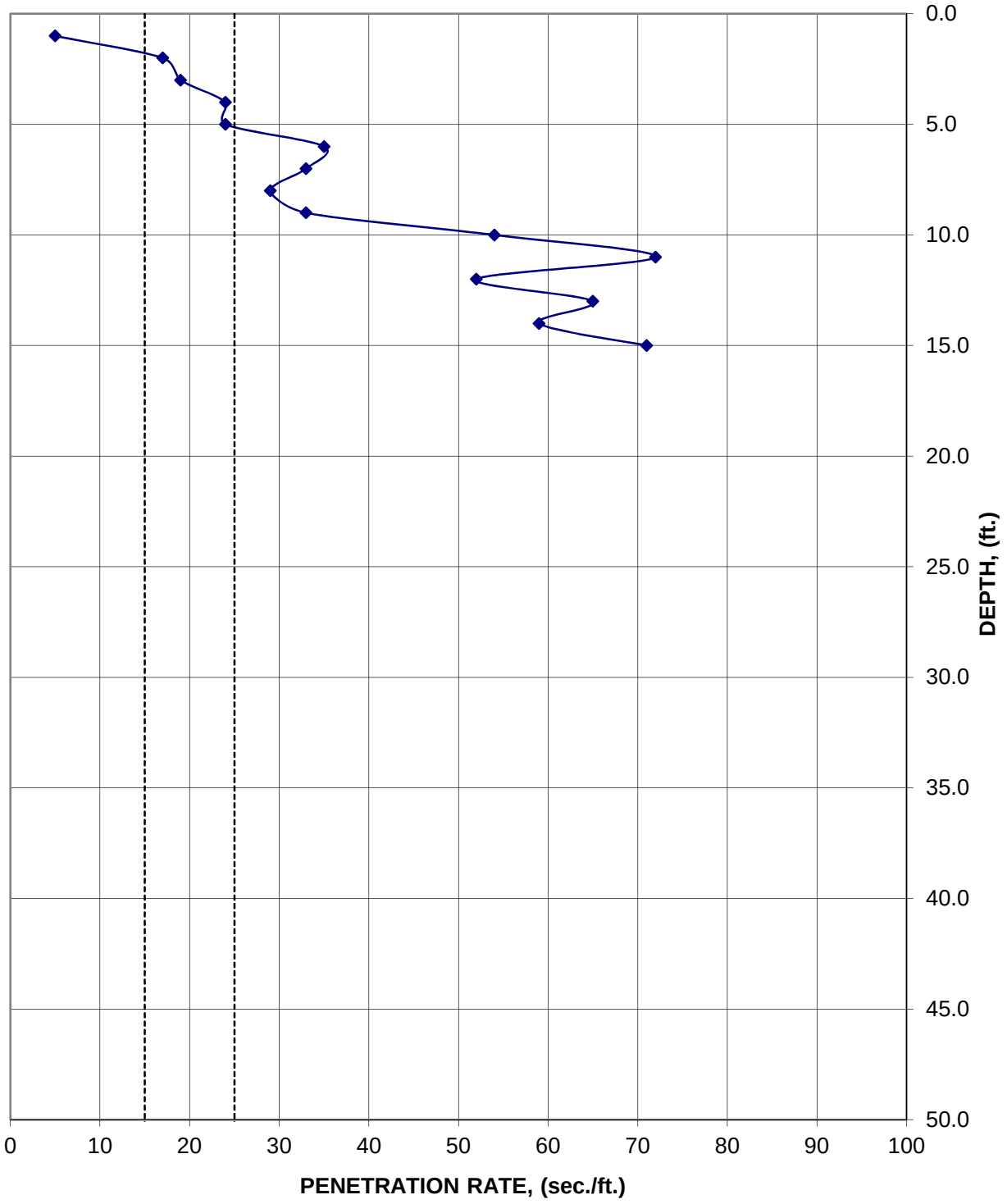
BORING AT-34



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-34

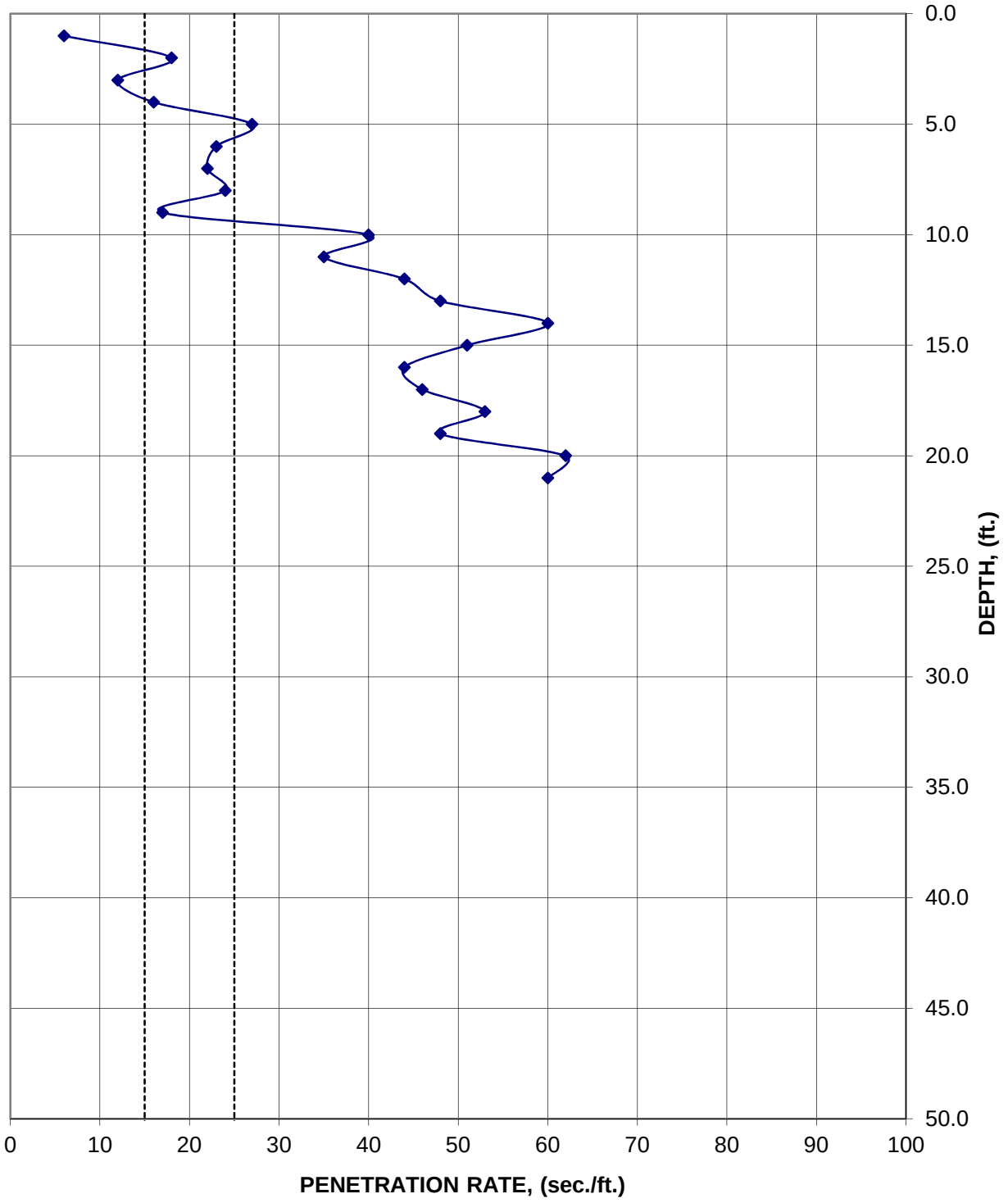
BORING AT-35



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-35

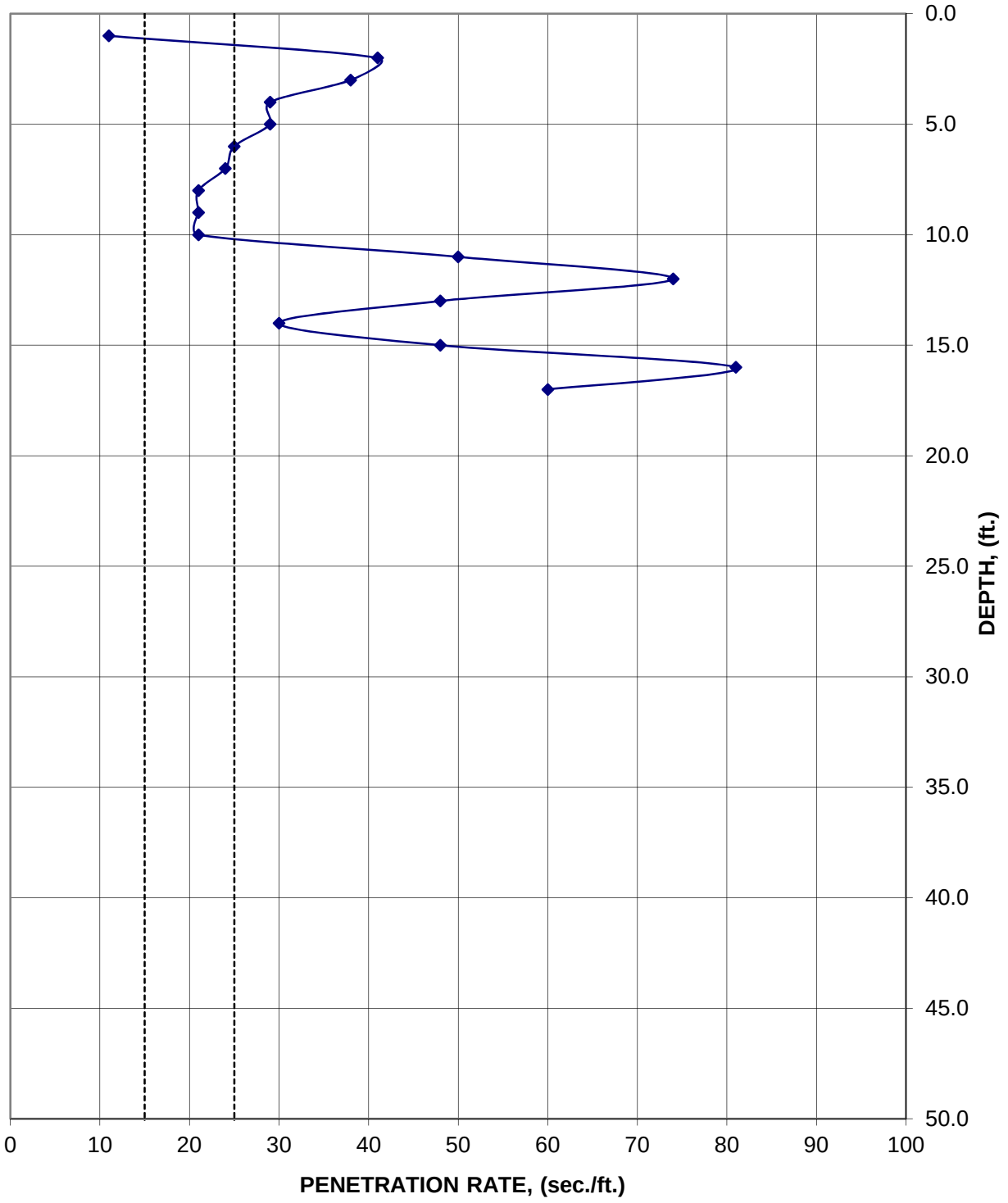
BORING AT-36



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-36

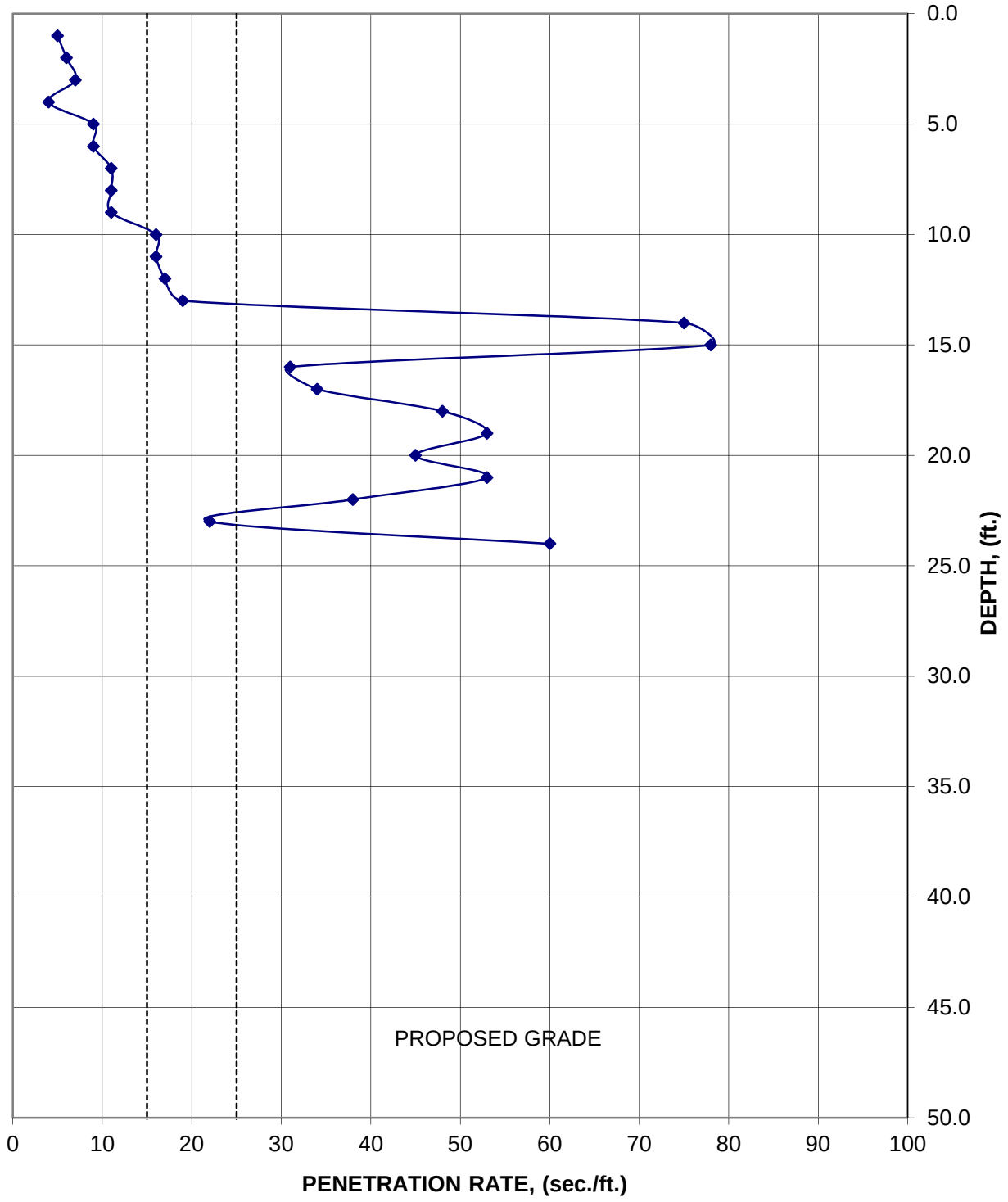
BORING AT-37



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-37

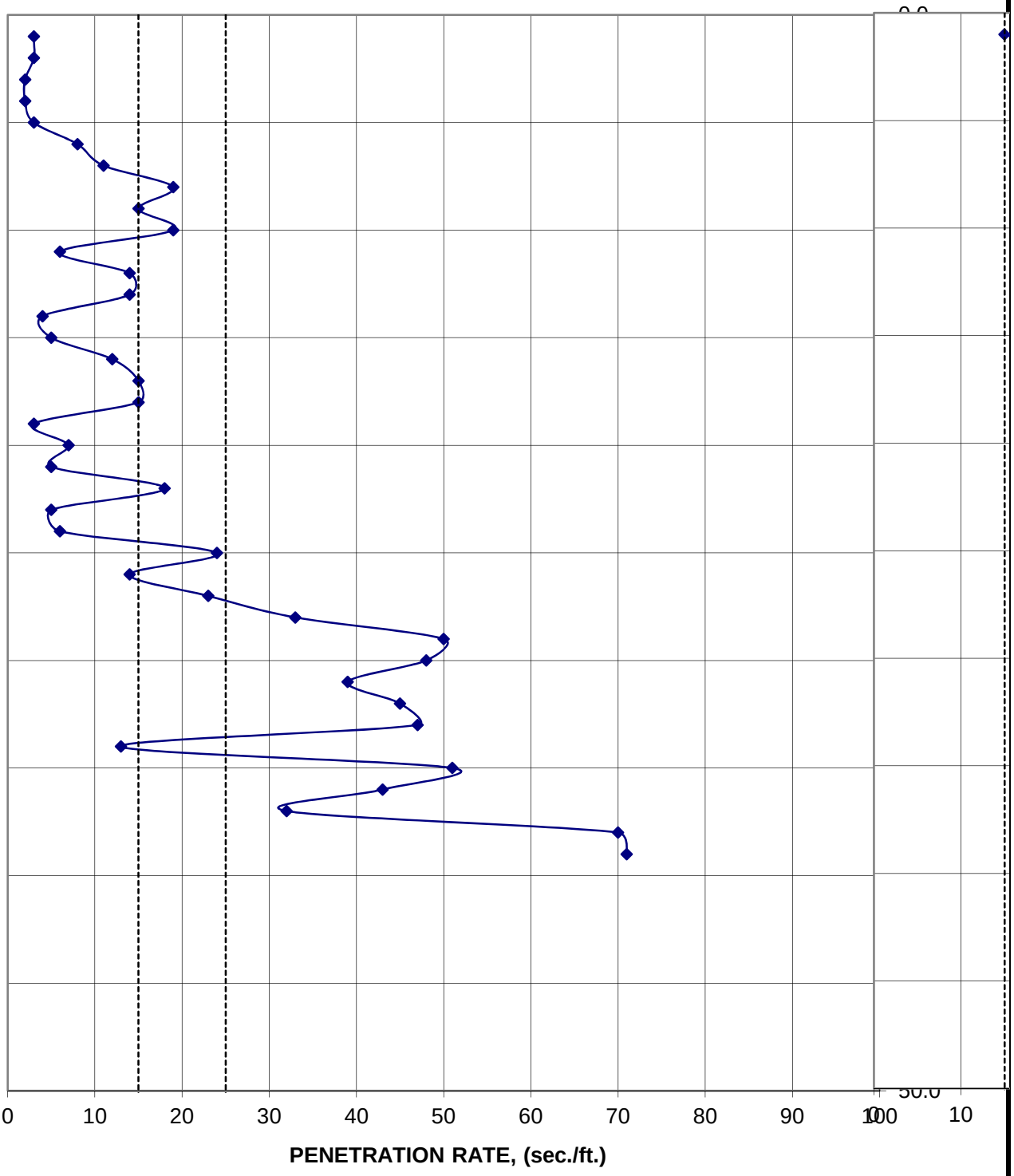
BORING AT-38



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-38

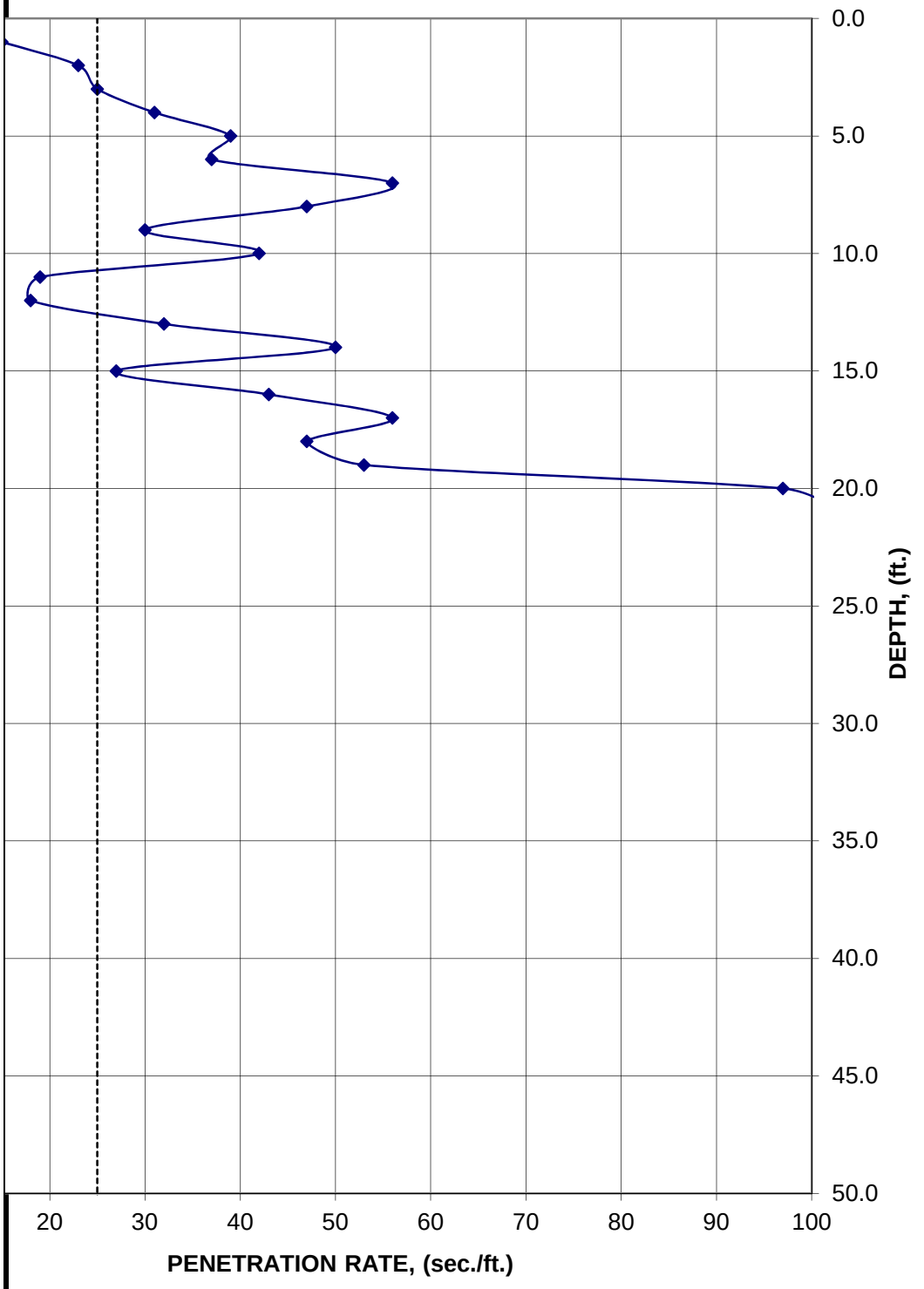
BORING AT-39



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-39

BORING AT-40



PERCUSSION DRILL PENETRATION RATE - Ingersol Rand ECM-370 w/4"Bit

Project No.: 040084-013	**Merriam Mountains**	**Figure No.:** BORING AT-40