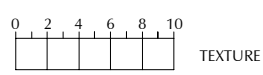


Elevation:
269 Meters
(881 Feet)

Centimeters



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

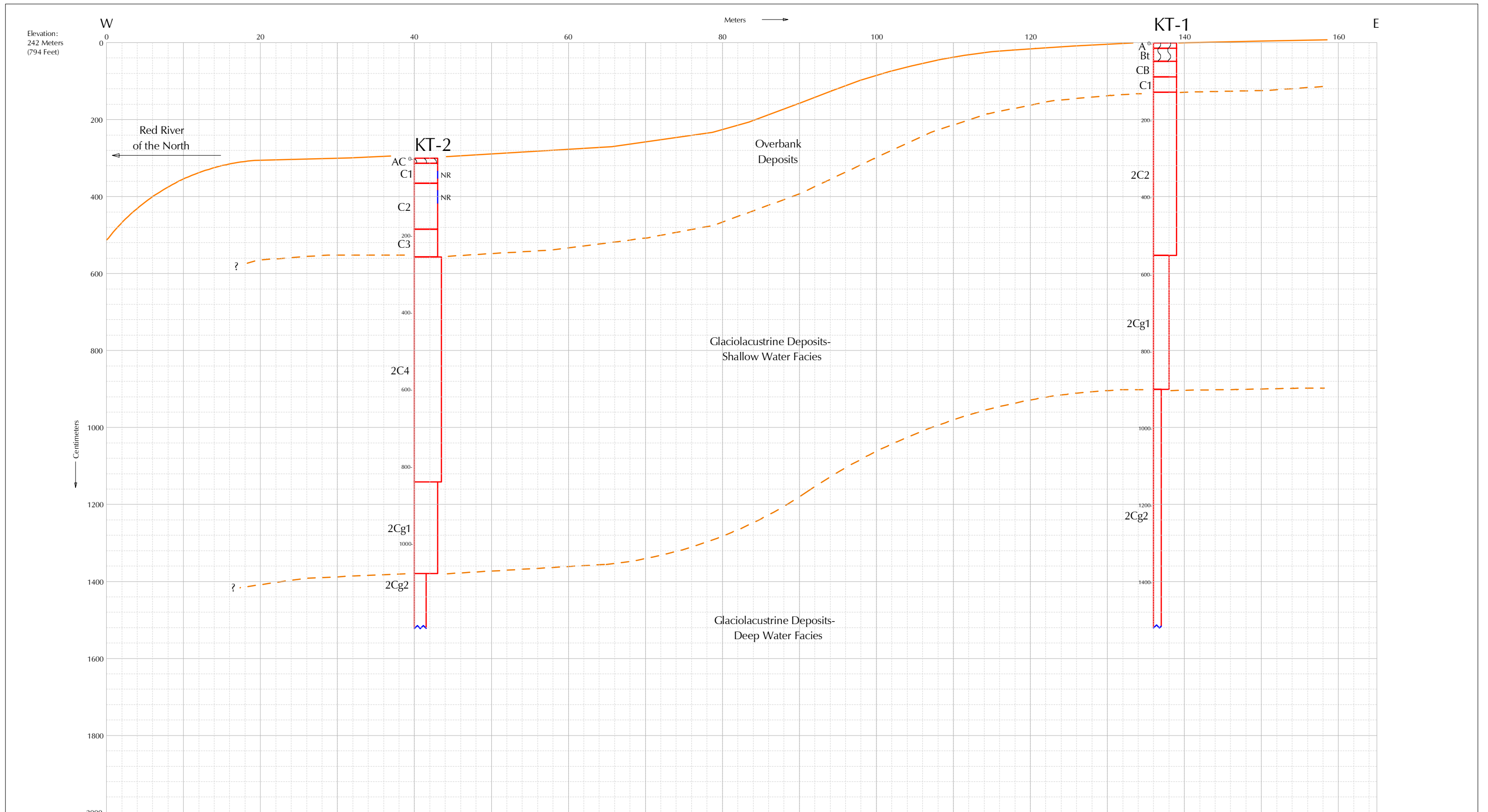
- Solum
- Peat/Organic Soil
- Textures (See Chart at Left)
- Break for Graphic Representation
- Shells
- NR No Recovery
- Plant Matter for C-14

MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-42
US 75 OVER BUFFALO RIVER
SECTION 32, T142N, R48W

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA

Scale: AS SHOWN
Date: 4/97
By: KEB



Elevation:
242 Meters
(794 Feet)

W

Meters

KT-1

E

Red River
of the North

Overbank
Deposits

Glaciolacustrine Deposits-
Shallow Water Facies

Glaciolacustrine Deposits-
Deep Water Facies

Centimeters



TEXTURE

- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

- Solum
- Peat/
Organic
Soil
- Textures
(See Chart at Left)
- Break for Graphic
Representation
- Shells
- NR No Recovery
- Plant Matter for C-14

MINNESOTA DEPARTMENT OF TRANSPORTATION

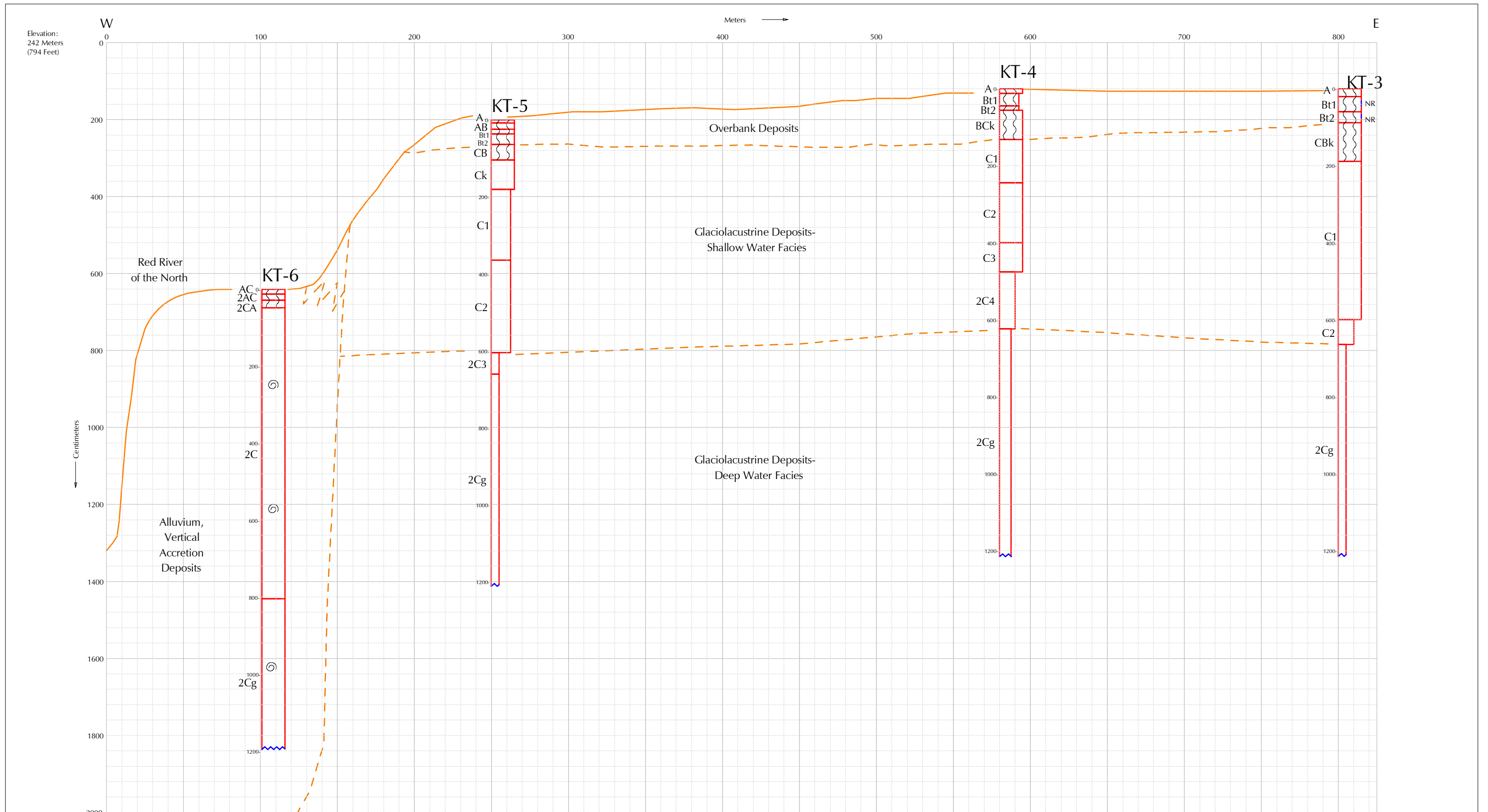
FIGURE E-43
T.H.11 OVER RED RIVER OF THE NORTH
SECTION 29, T159N, R50W

DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

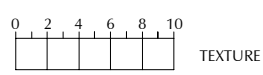
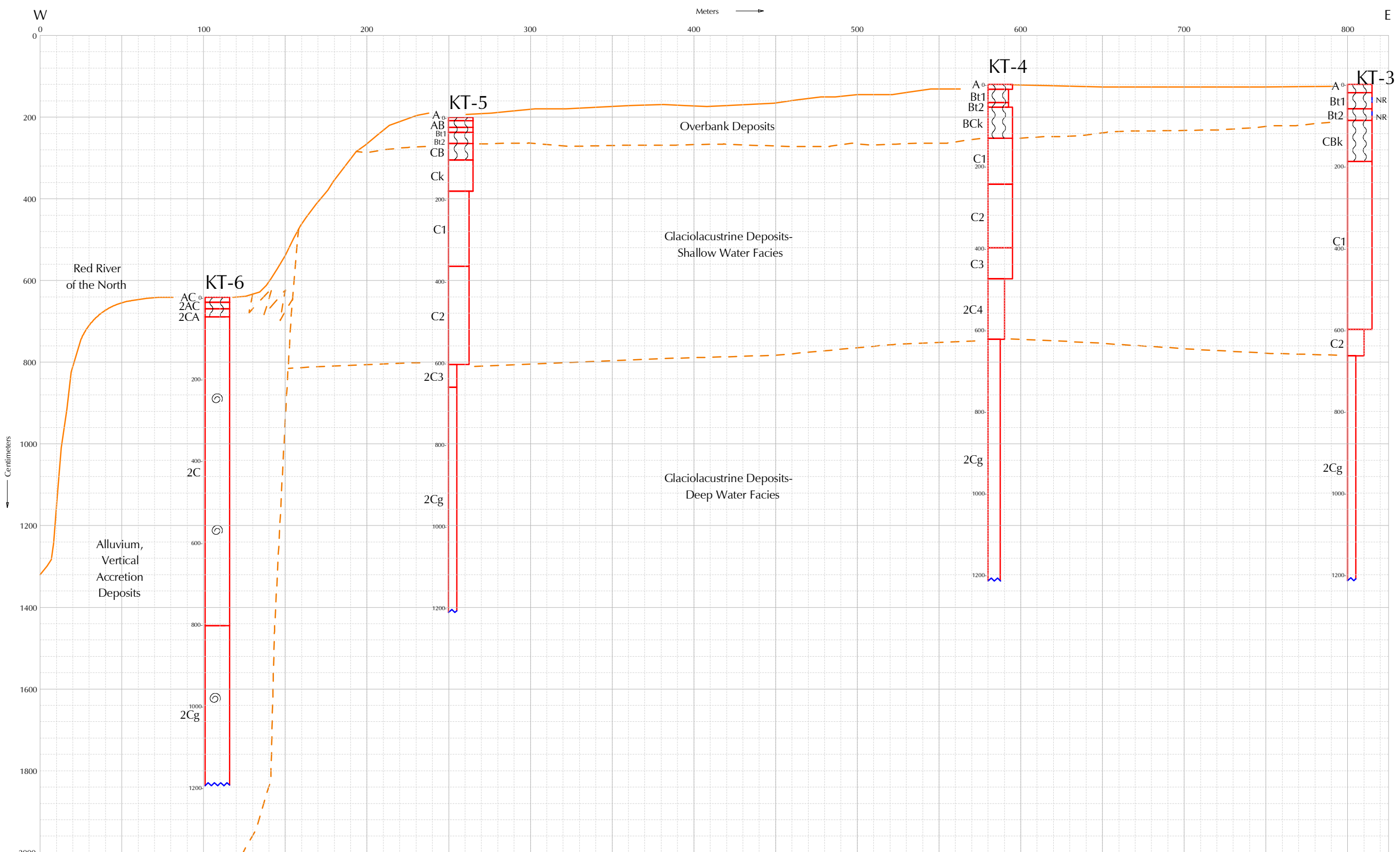
Scale: AS SHOWN

Date: 5/97

By: KEB



Elevation:
242 Meters
(794 Feet)



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

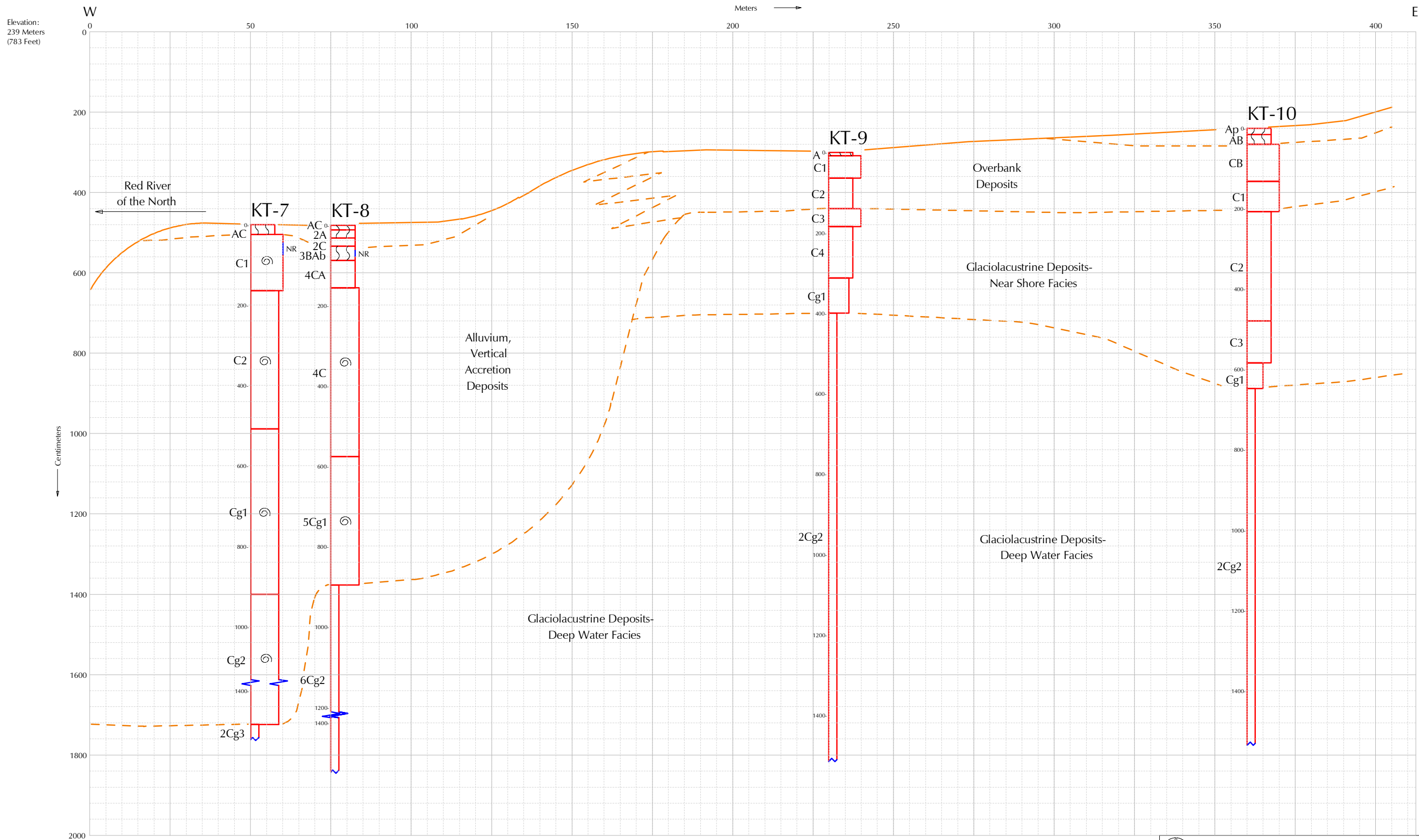
	Solum		Peat/ Organic Soil		Textures (See Chart at Left)
	No Recovery		Break for Graphic Representation		Shells
	Plant Matter for C-14				

MINNESOTA DEPARTMENT OF TRANSPORTATION

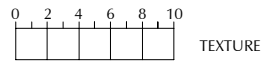
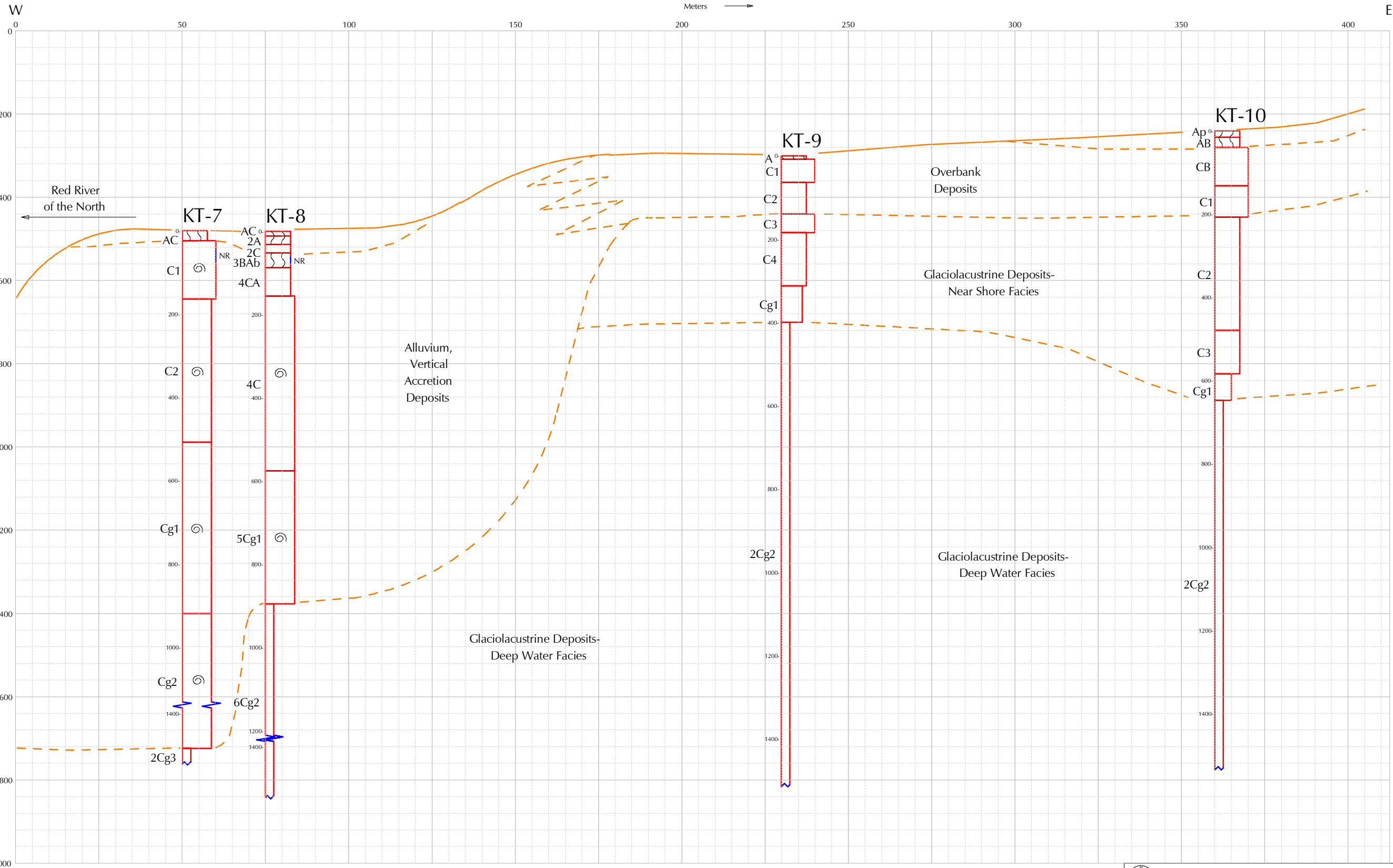
FIGURE E-44
T.H. 175 OVER RED RIVER
SECTIONS 8 & 9, T61N, R50W

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA	Scale: AS SHOWN
	Date: 4/97

By: KEB



Elevation:
239 Meters
(783 Feet)



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

	Solum		Peat/ Organic Soil		Textures (See Chart at Left)
NR	No Recovery				Break for Graphic Representation
	Plant Matter for C-14				Shells

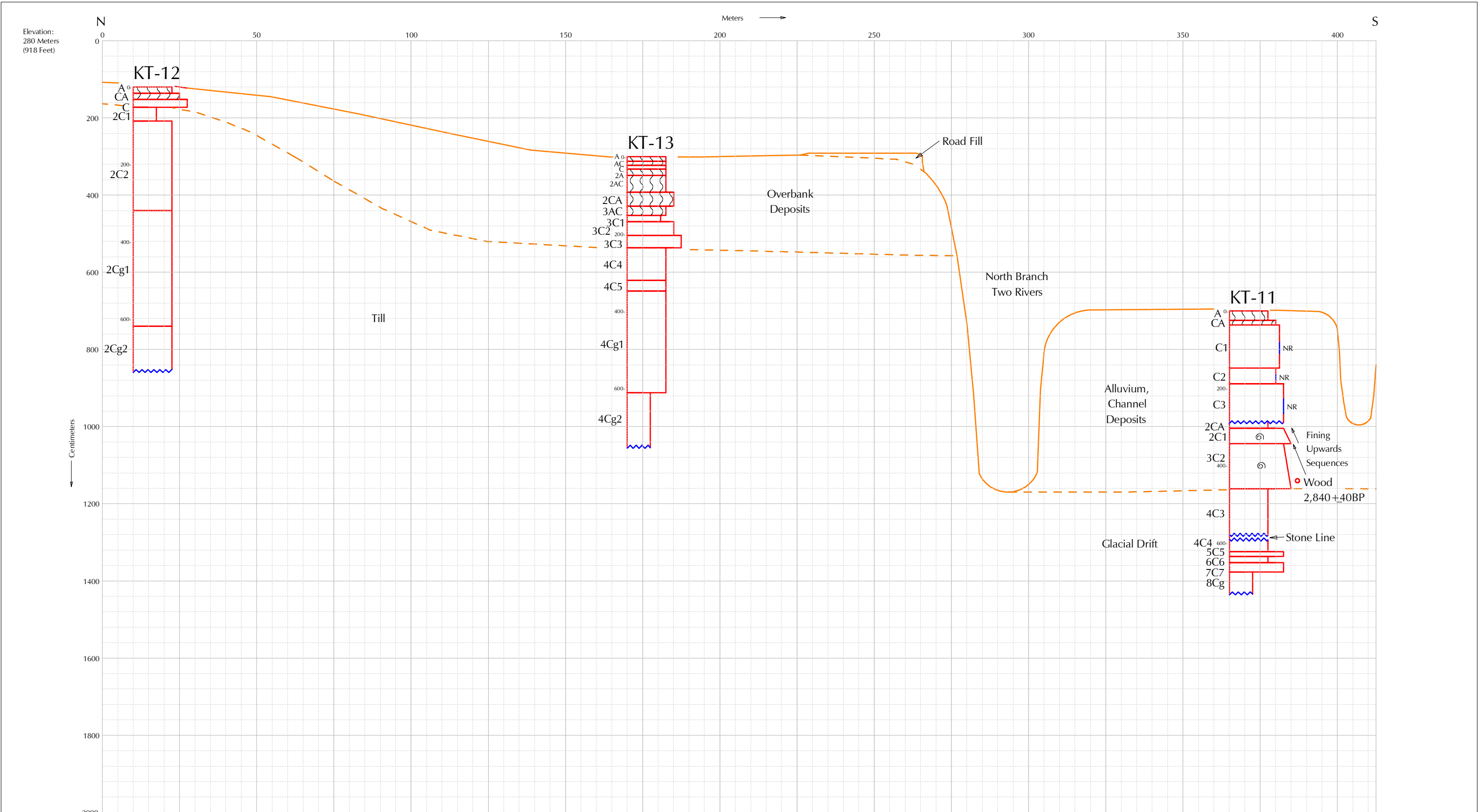
MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-45

T.H. 171 OVER RED RIVER OF THE NORTH
SECTION 2, T163N, R51W

	Scale: AS SHOWN
	Date: 5/97

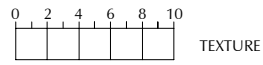
By: KEB



Elevation:
280 Meters
(918 Feet)

N
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Centimeters

0 50 100 150 200 250 300 350 400
Meters → S



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

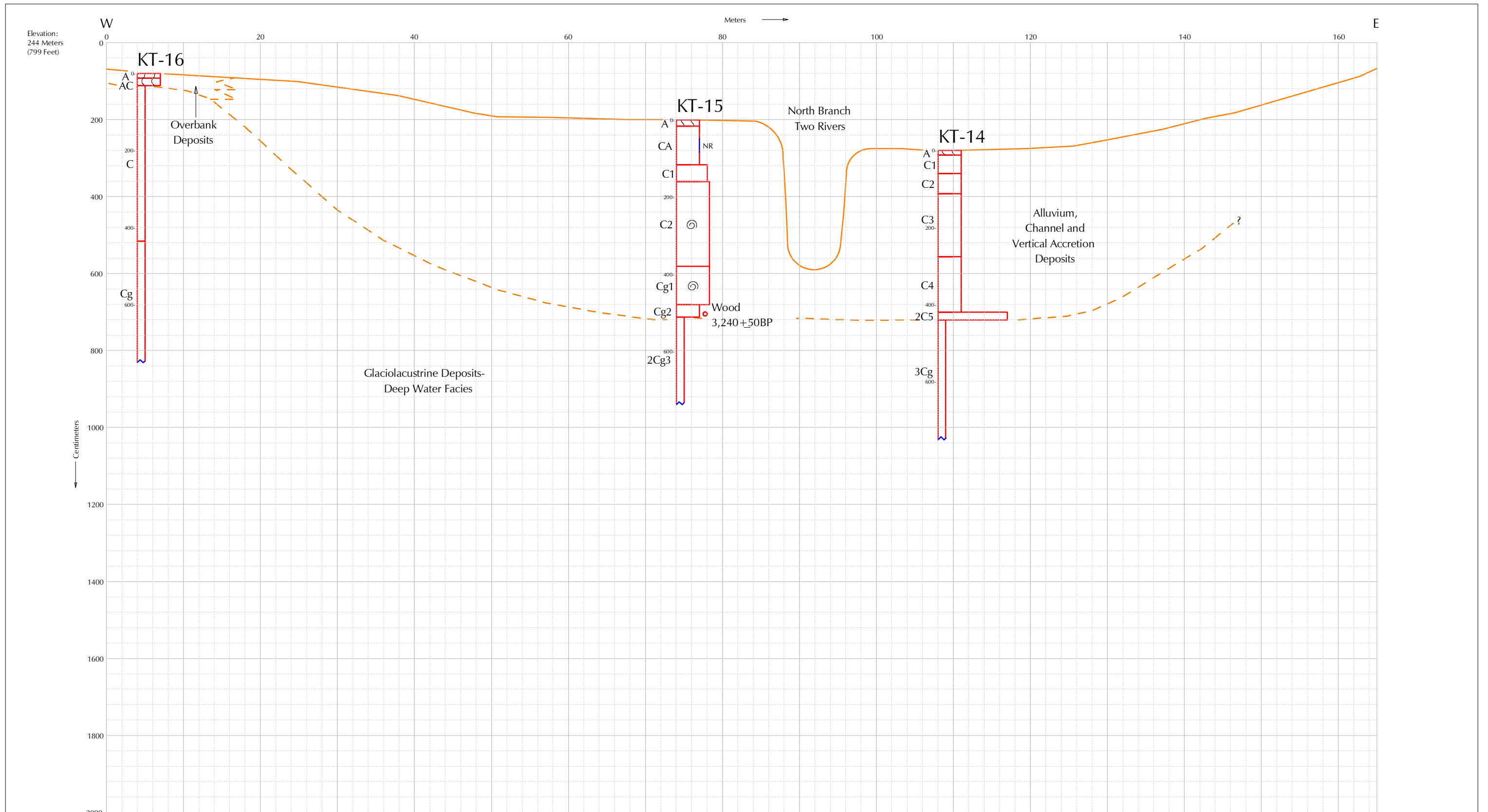
	Solum		Peat/ Organic Soil		Textures (See Chart at Left)
NR	No Recovery		Plant Matter for C-14		Break for Graphic Representation
	Shells				

MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-46

US 59 OVER NORTH BRANCH OF TWO RIVERS
SEC. 7, T162N, R47W; SEC.12, T162N, R48W

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA	Scale: AS SHOWN	
	Date: 4/97	By: KEB



Elevation:
244 Meters
(799 Feet)

Centimeters

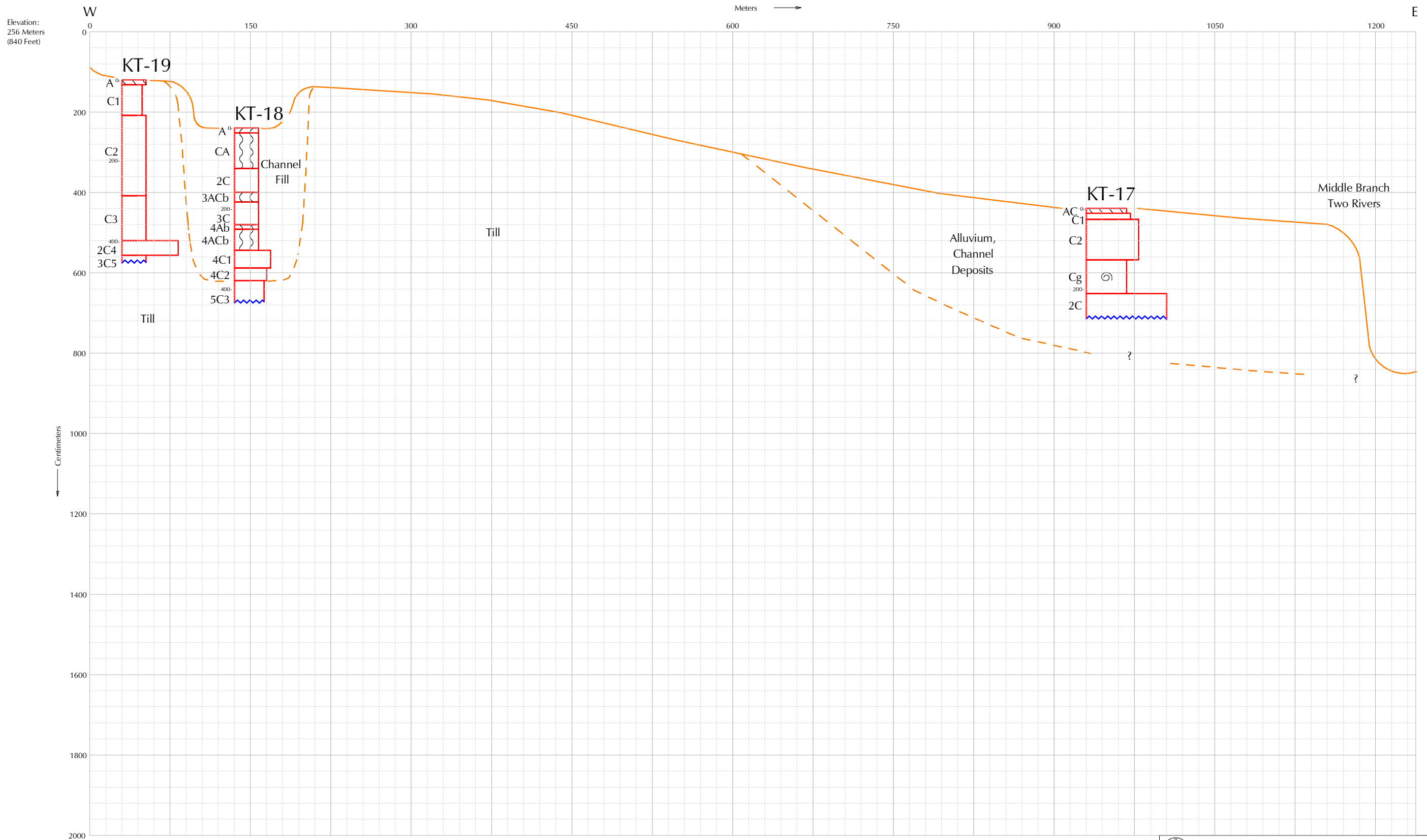


- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

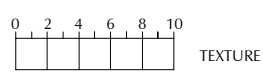
Solum No Recovery Plant Matter for C-14	Peat/Organic Soil	Textures (See Chart at Left) Break for Graphic Representation Shells
---	-------------------	--

MINNESOTA DEPARTMENT OF TRANSPORTATION		
FIGURE E-47 US 75 OVER NORTH BRANCH OF TWO RIVERS SECTION 16, T162N, R49W		
DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA	Scale: AS SHOWN Date: 4/97	By: KEB



Elevation:
256 Meters
(840 Feet)

Centimeters



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

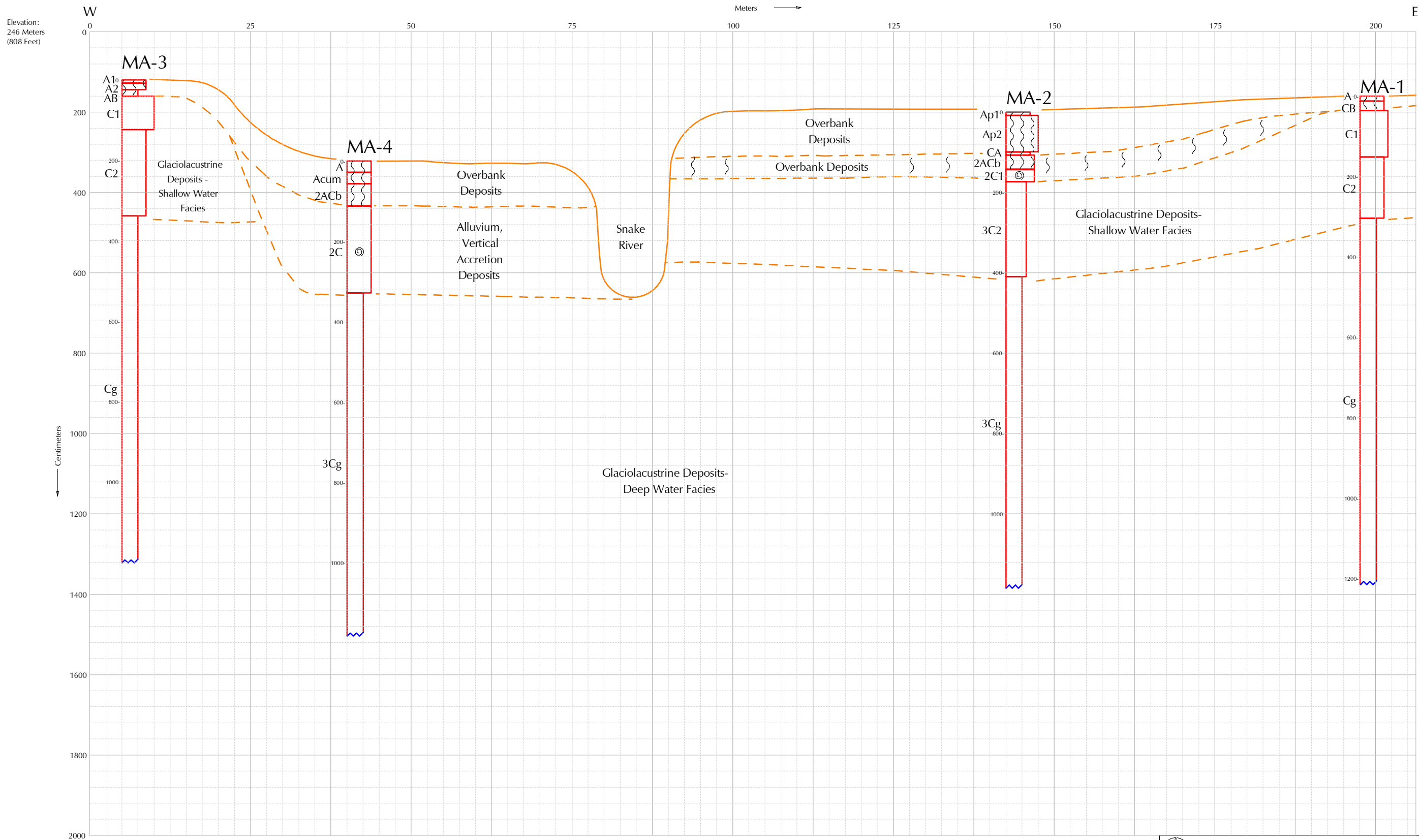
	Solum		Peat/ Organic Soil		Textures (See Chart at Left)
NR	No Recovery				Break for Graphic Representation
	Plant Matter for C-14				Shells

MINNESOTA DEPARTMENT OF TRANSPORTATION

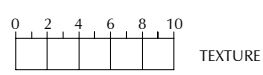
FIGURE E-48

TH 175 OVER MIDDLE BRANCH OF TWO RIVERS
SECTIONS 9&16 T161N R48W

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA	Scale: AS SHOWN	
	Date: 4/97	By: KEB



- | | |
|----|--|
| 1 | Clay or Sandy Clay |
| 2 | Silty Clay |
| 3 | Sandy Clay Loam, Silty Clay Loam, or Clay Loam |
| 4 | Silt Loam, Silt, Loam, or Peat |
| 5 | Sandy Loam |
| 6 | Loamy Sand |
| 7 | Very Fine to Fine Sand |
| 8 | Medium Sand |
| 9 | Coarse Sand |
| 10 | Gravel |



LEGEND

	Solum		Peat/ Organic Soil		Textures (See Chart at Left)
NR	No Recovery				Break for Graphic Representation
	Plant Matter for C-14				Shells

MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-49

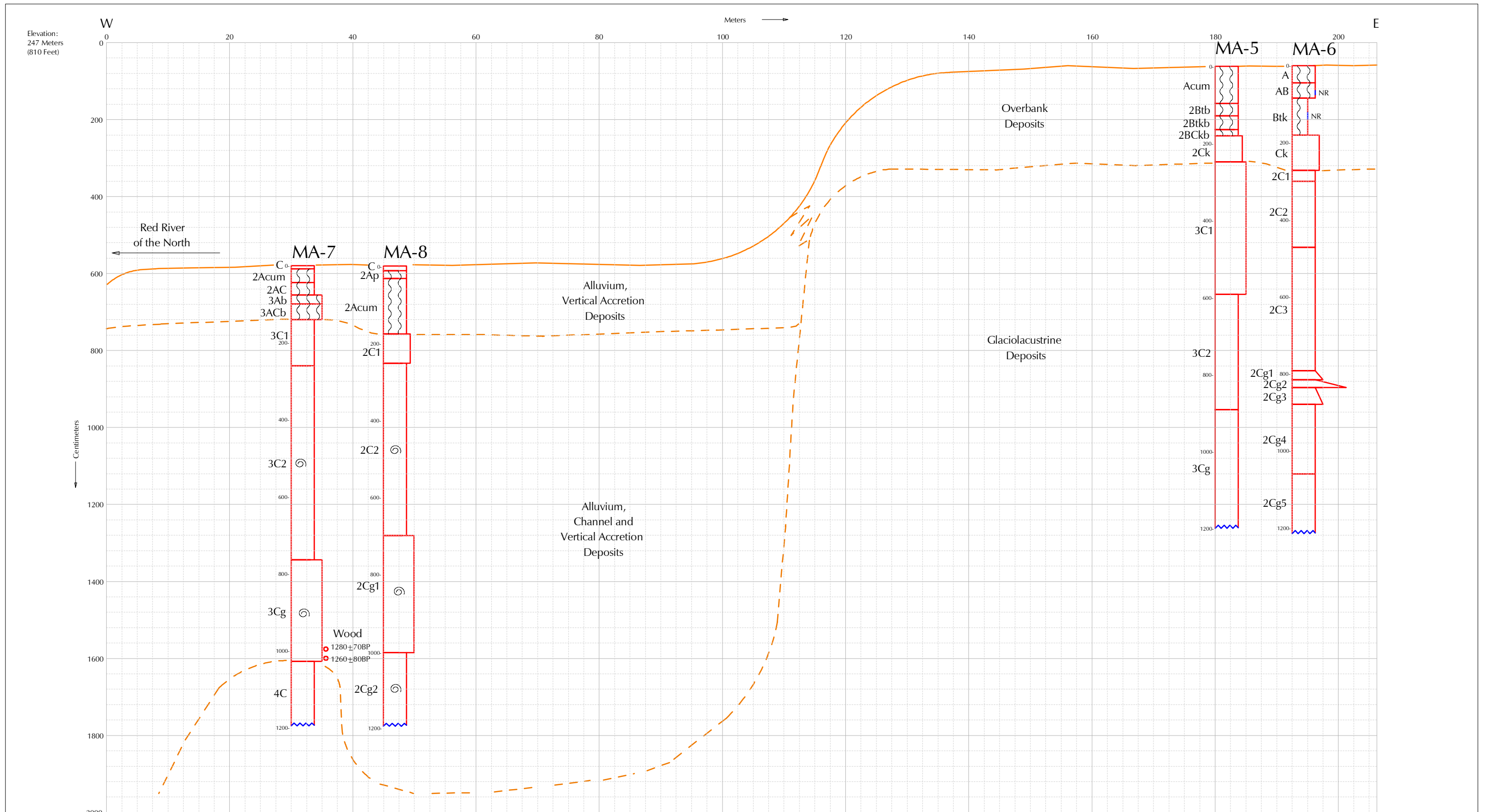
T.H. 220/1 OVER SNAKE RIVER
SECTION 31, T155N, R49W

DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

Scale: AS SHOWN

Date: 4/97

By: KEB



Elevation:
247 Meters
(810 Feet)

W

Meters

E

Red River
of the North

Overbank
Deposits

Alluvium,
Vertical Accretion
Deposits

Glaciolacustrine
Deposits

Alluvium,
Channel and
Vertical Accretion
Deposits

MA-5

MA-6

MA-7

MA-8

Centimeters



TEXTURE

- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

- Solum
- Peat/Organic Soil
- Textures (See Chart at Left)
- Break for Graphic Representation
- Shells
- No Recovery
- Plant Matter for C-14

MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-50

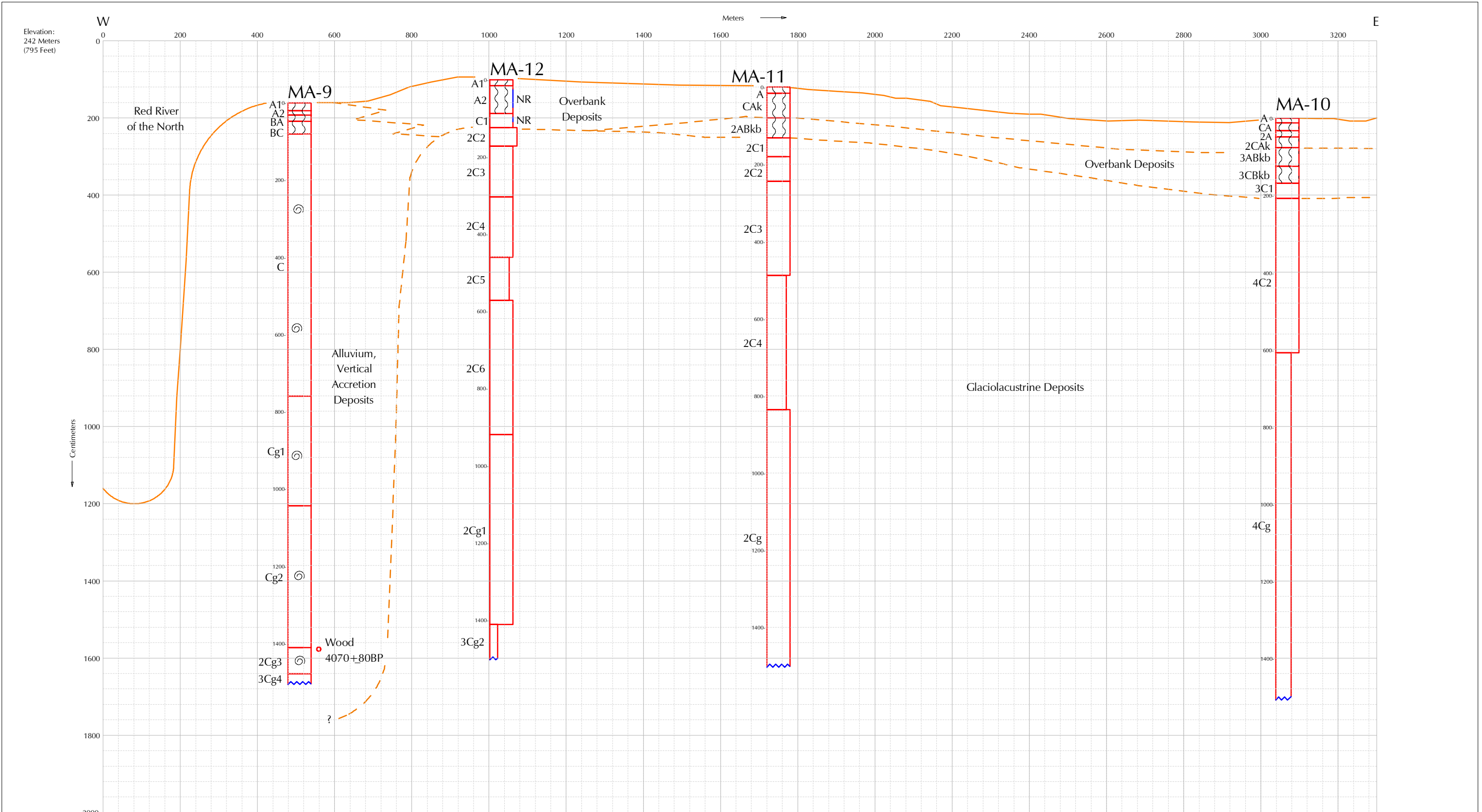
T.H. 1 OVER RED RIVER OF THE NORTH
SECTION 6, T154N, R50W

DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

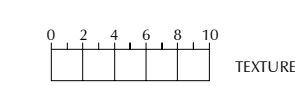
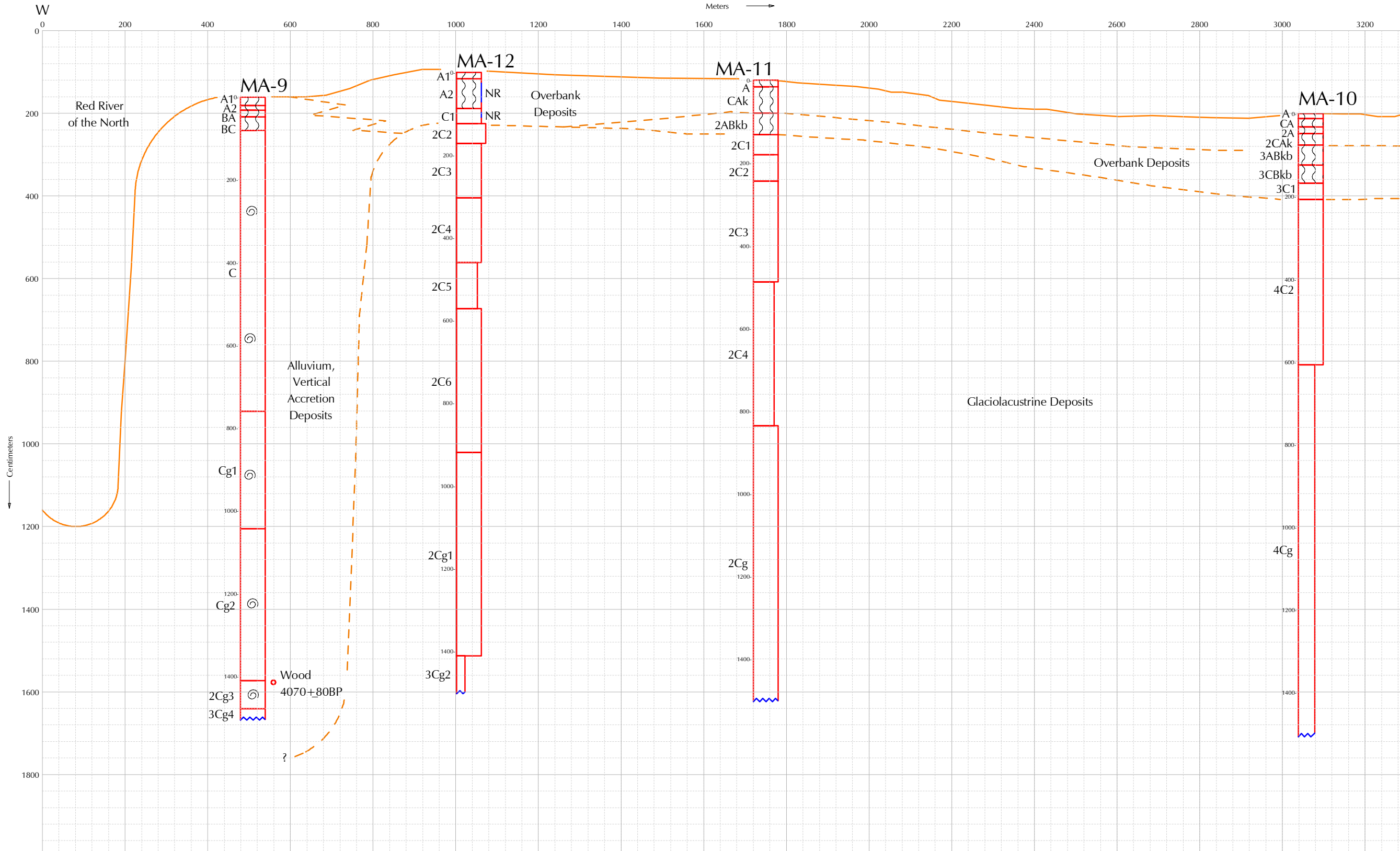
Scale: AS SHOWN

Date: 5/97

By: KEB



Elevation:
242 Meters
(795 Feet)



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

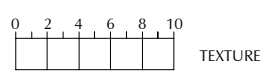
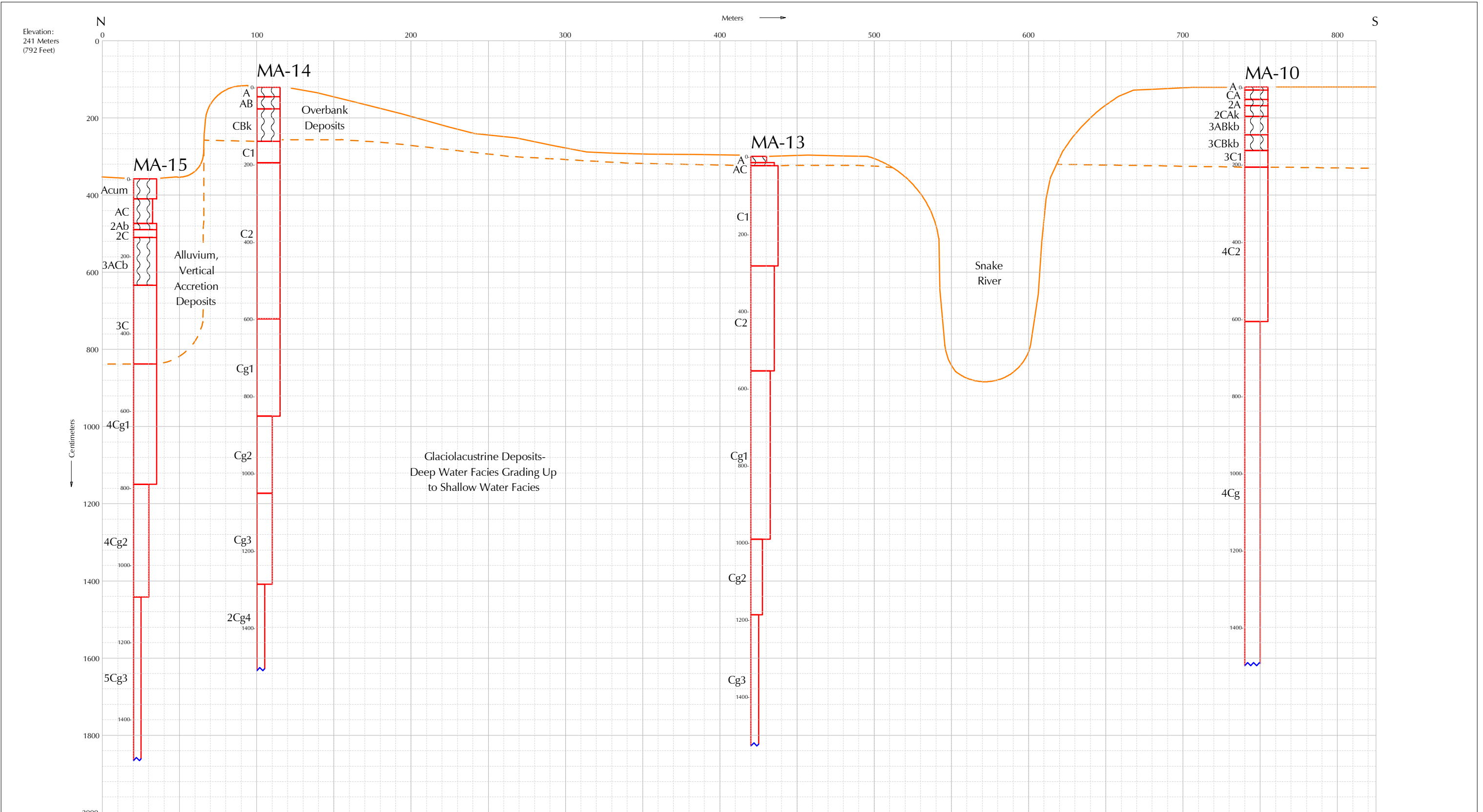
Solum	Peat/ Organic Soil	Textures (See Chart at Left)
NR No Recovery	Break for Graphic Representation	Shells
Plant Matter for C-14		

MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-51
T.H. 317 OVER RED RIVER
SECTIONS 16,17,20,21, T157N, R50W

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA	Scale: AS SHOWN
	Date: 4/97

By: KEB



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

	Solum		Peat/ Organic Soil		Textures (See Chart at Left)
NR	No Recovery				Break for Graphic Representation
	Plant Matter for C-14				Shells

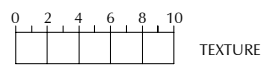
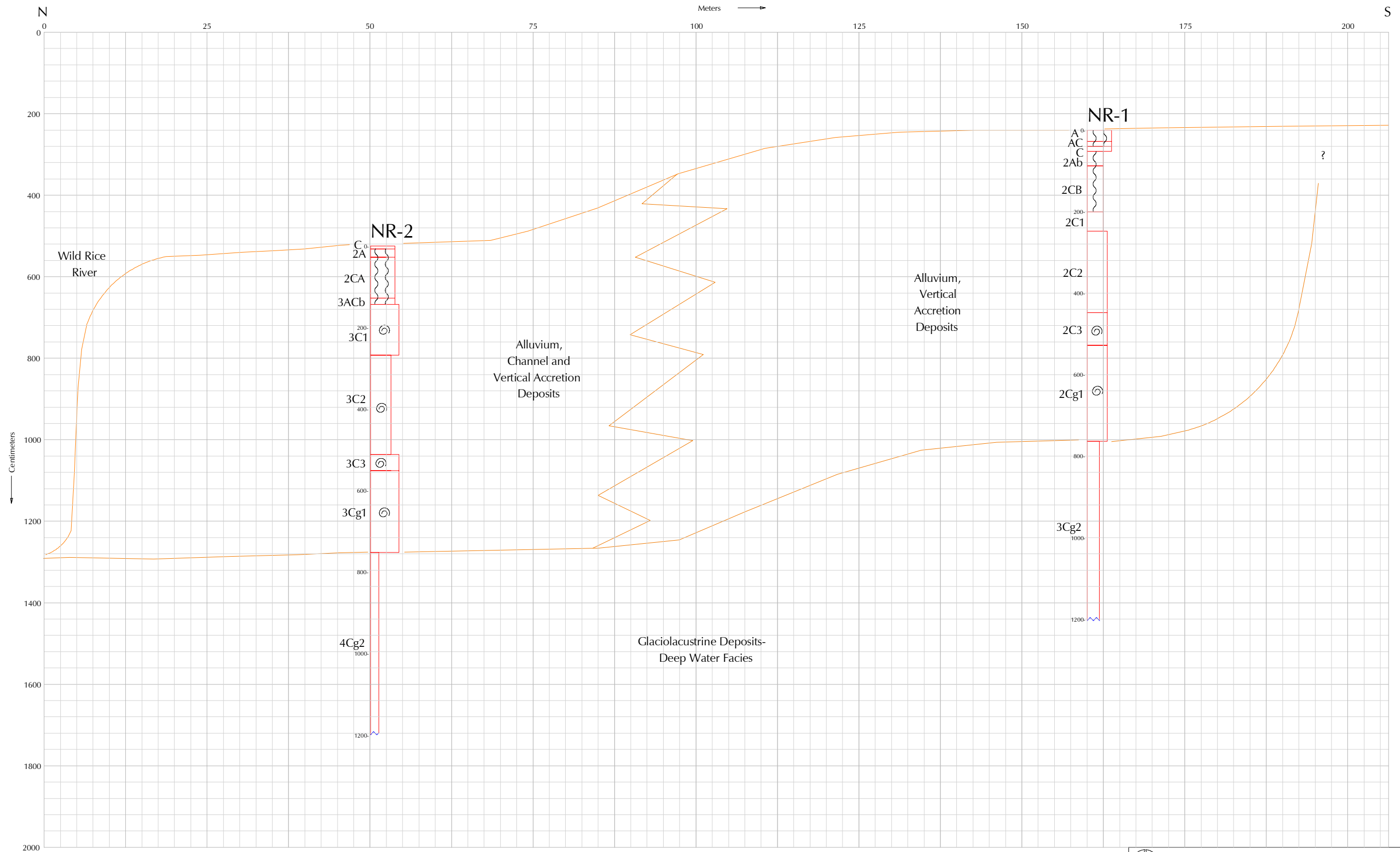
MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-52

T.H. 220 OVER SNAKE RIVER
SECTIONS 16&21, T157N, R50W

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA	Scale: AS SHOWN	
	Date: 4/97	By: KEB

Elevation:
266 Meters
(874 Feet)



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

- Solum
- Peat/Organic Soil
- Textures (See Chart at Left)
- Break for Graphic Representation
- Shells
- No Recovery
- Plant Matter for C-14

MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-53

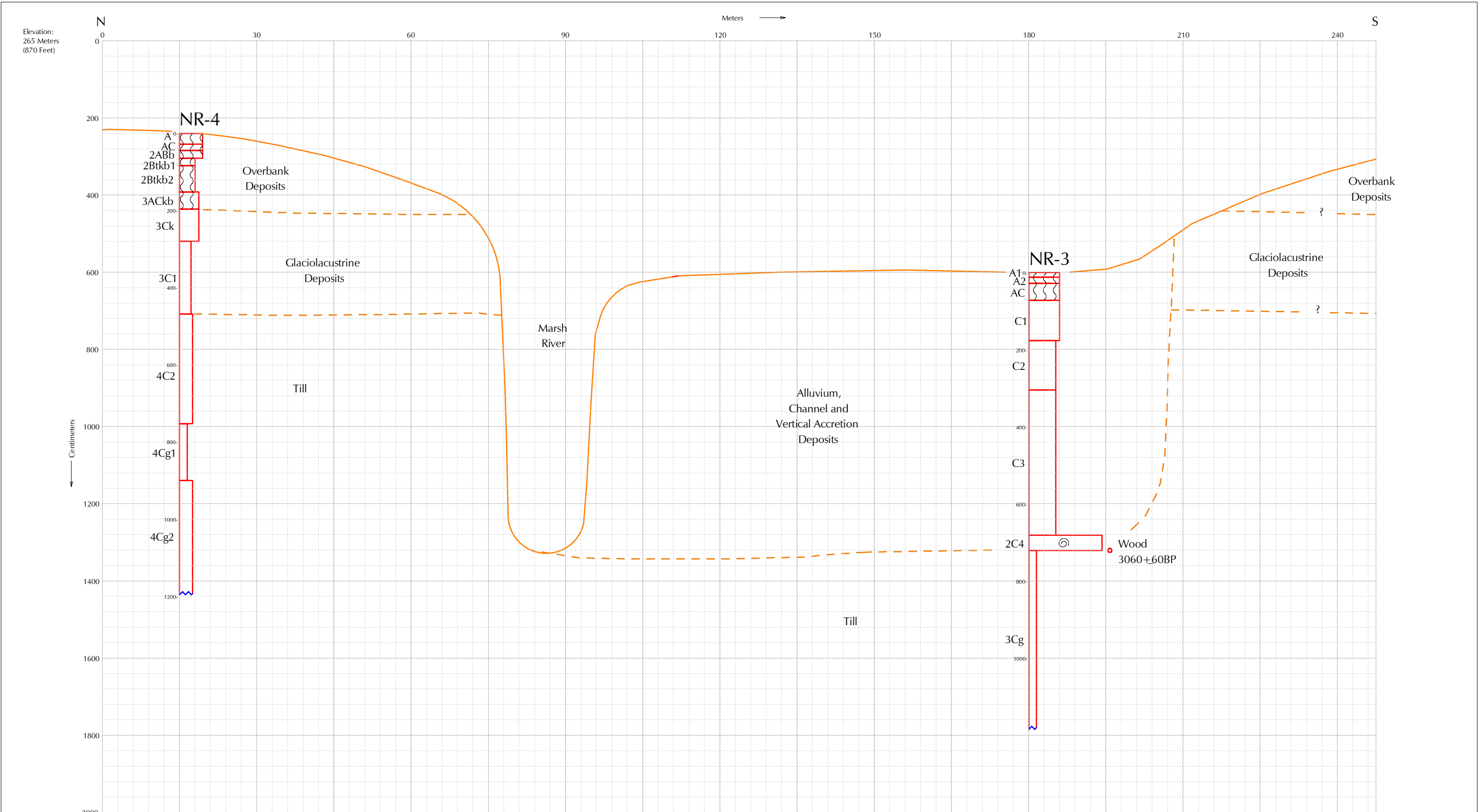
US 75 OVER WILD RICE RIVER
SECTION 18, T144N, R48W

DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

Scale: AS SHOWN

Date: 4/97

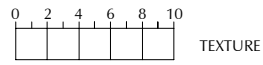
By: KEB



Elevation:
265 Meters
(870 Feet)

N 0 30 60 90 120 150 180 210 240 S

Centimeters
↓



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

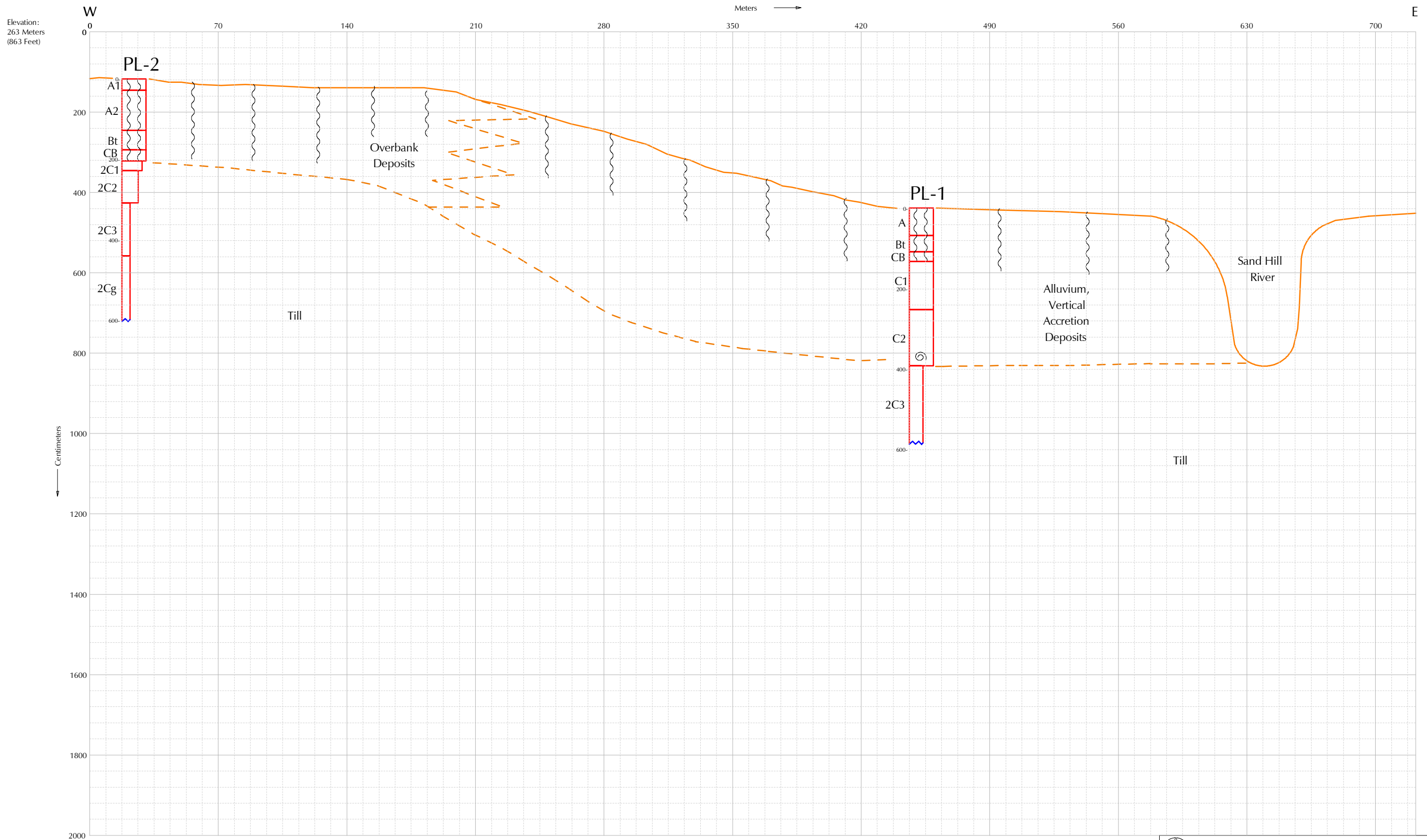
LEGEND

	Solum		Peat/ Organic Soil		Textures (See Chart at Left)
NR	No Recovery		Break for Graphic Representation		Shells
	Plant Matter for C-14				

MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-54
US 75 OVER MARSH RIVER
SECTION 19, T146N, R48W

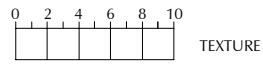
	Scale: AS SHOWN	
	Date: 4/97	By: KEB



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

	Solum		Peat/ Organic Soil		Textures (See Chart at Left)
NR	No Recovery				Break for Graphic Representation
	Plant Matter for C-14				Shells



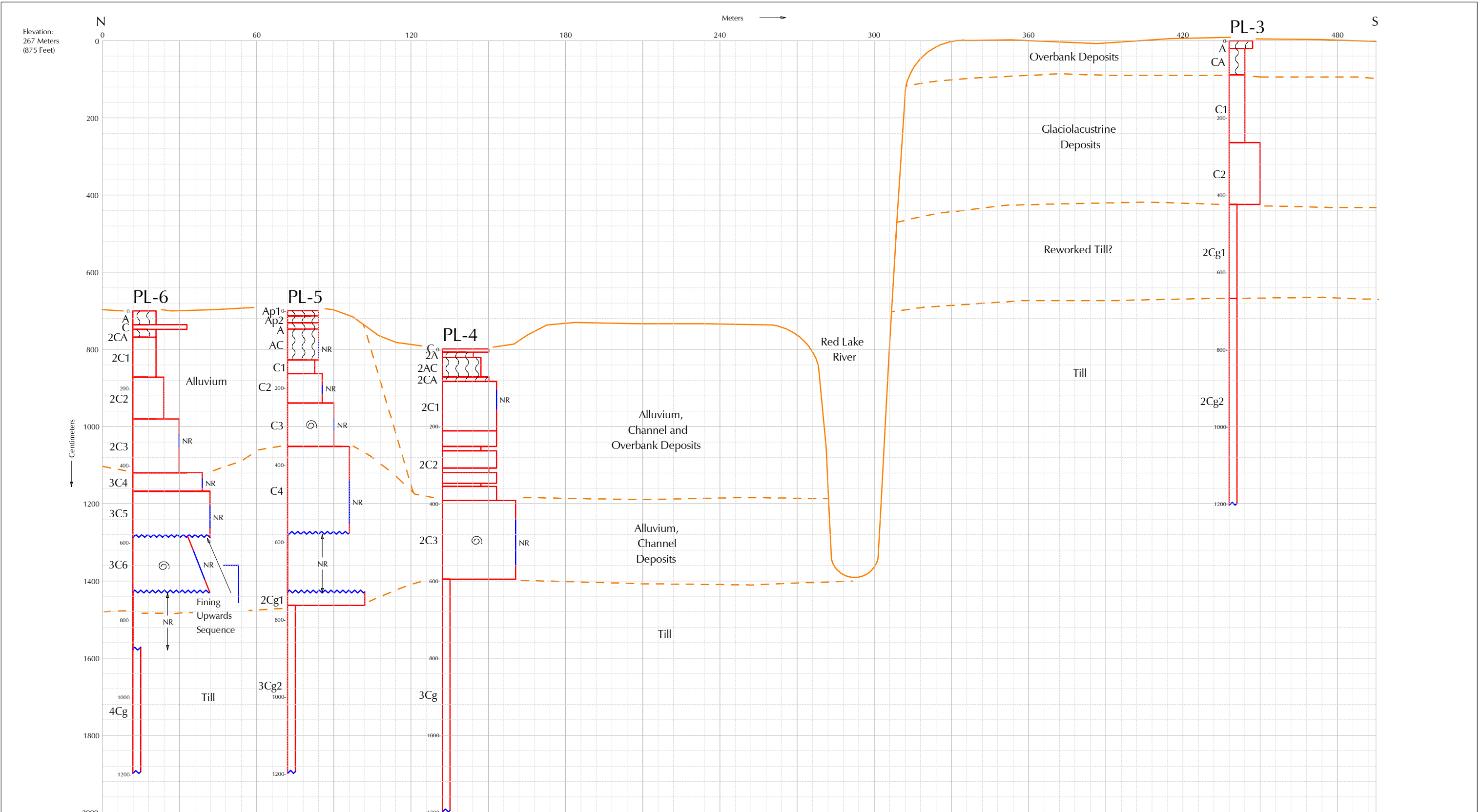
MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-55

T.H. 220 OVER SAND HILL RIVER
SECTION 30, T148N, R48W

	Scale: AS SHOWN
	Date: 4/97

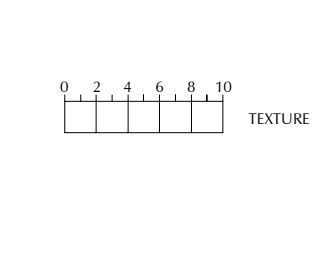
By: KEB



Elevation:
267 Meters
(875 Feet)

Centimeters

Meters



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

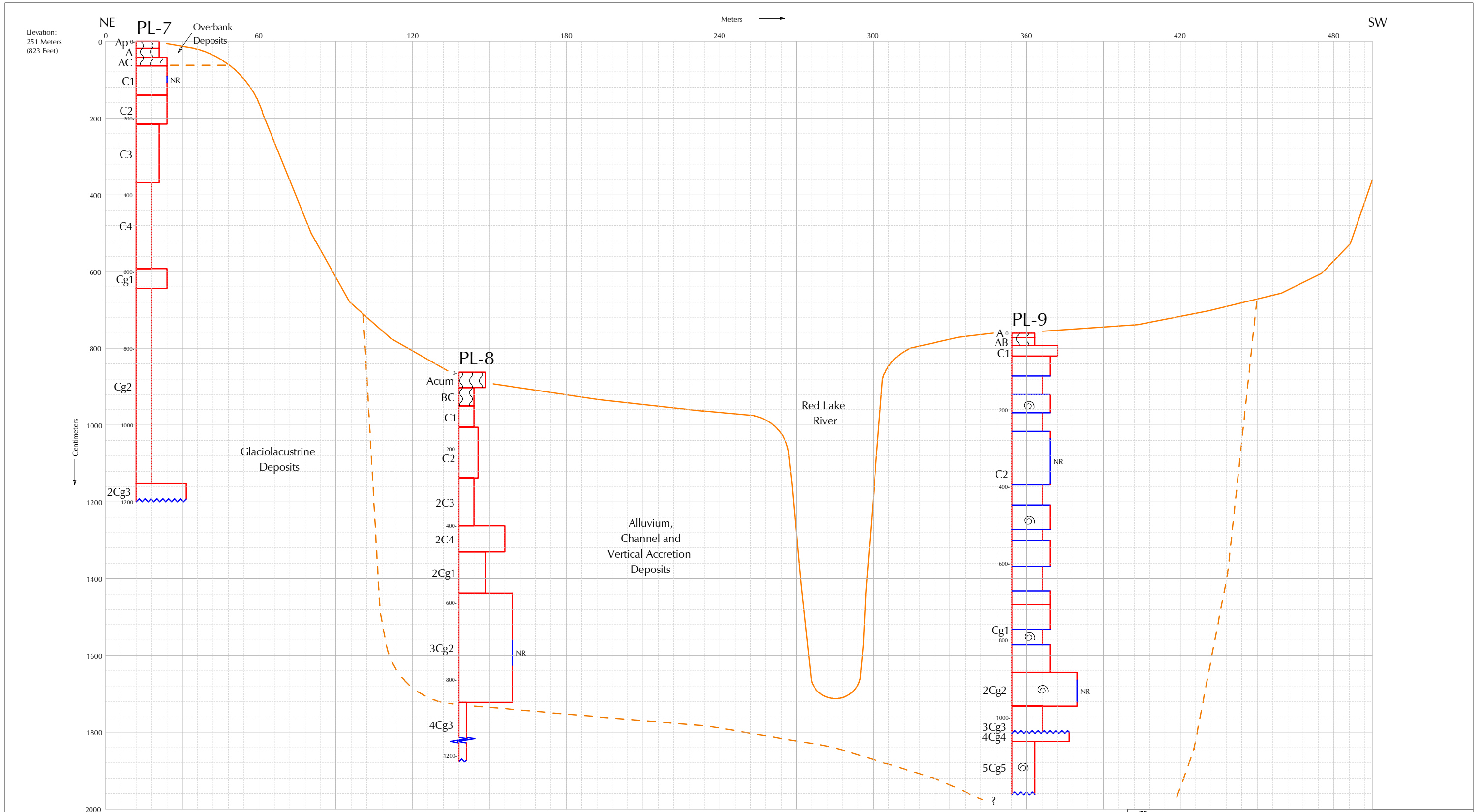
	Solum		Peat/ Organic Soil		Textures (See Chart at Left)
NR	No Recovery				Break for Graphic Representation
	Plant Matter for C-14				Shells

MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-56

ALTERNATE 75 OVER RED LAKE RIVER
SECTIONS 25&36, T150N R47W

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA	Scale: AS SHOWN	
	Date: 5/97	By: KEB



Elevation:
251 Meters
(823 Feet)

Meters →

SW

NE

PL-7

Overbank
Deposits

Ap⁰

A

AC

C1

C2

C3

C4

Cg1

Cg2

2Cg3

1200

1000

800

600

400

200

0

Centimeters

↓

Glaciolacustrine
Deposits

PL-8

Acum

BC

C1

C2

2C3

2C4

2Cg1

3Cg2

4Cg3

1200

800

600

400

200

0

Centimeters

↓

Alluvium,
Channel and
Vertical Accretion
Deposits

Red Lake
River

PL-9

A⁰

AB

C1

C2

Cg1

2Cg2

3Cg3

4Cg4

5Cg5

1000

800

600

400

200

0

Centimeters

↓



TEXTURE

- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

- Solum
- Peat/
Organic
Soil
- Textures
(See Chart at Left)
- Break for Graphic
Representation
- Shells
- NR No Recovery
- Plant Matter for C-14

MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-57

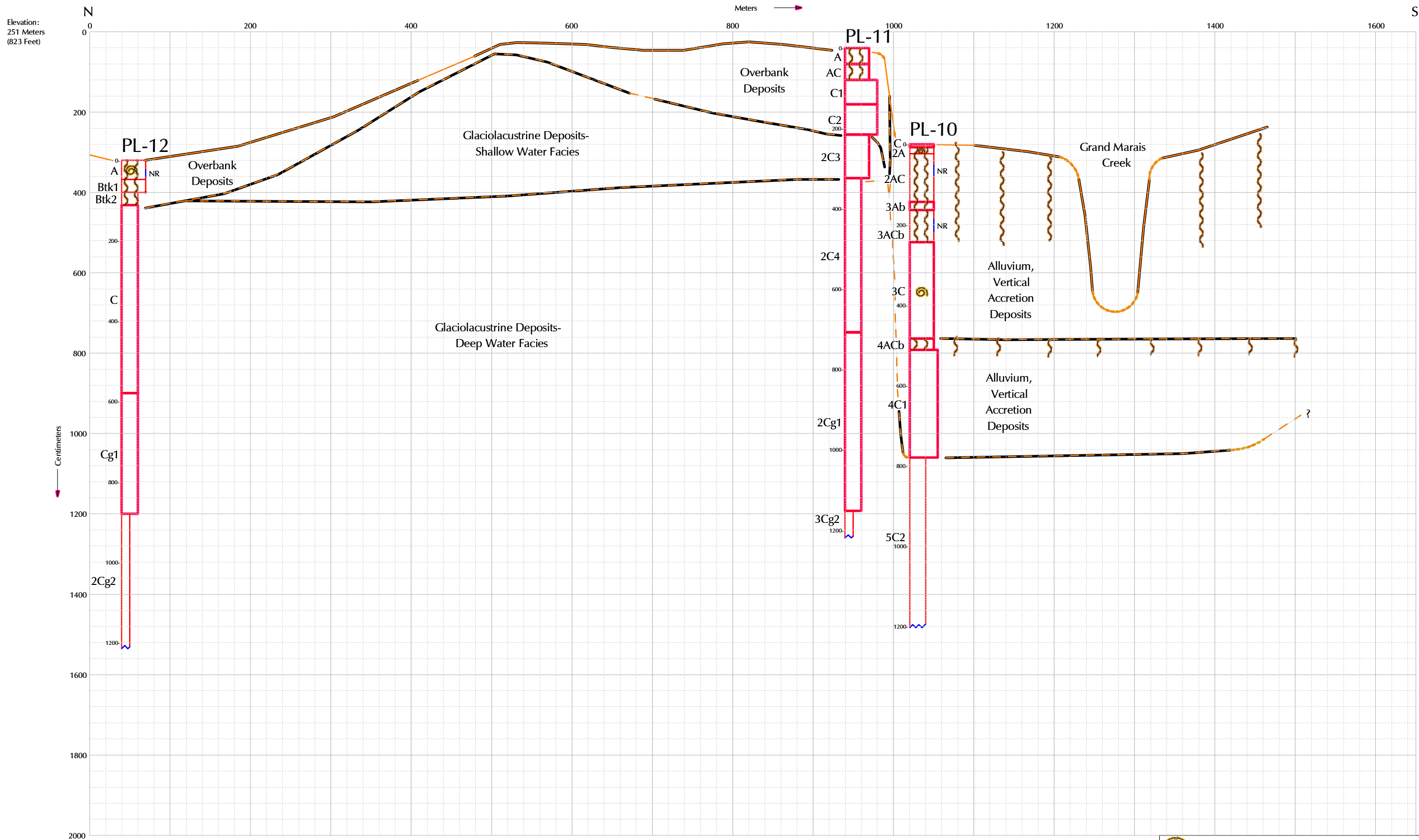
T.H.220 OVER RED LAKE RIVER
SECTION 17, T151N, R49W

DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

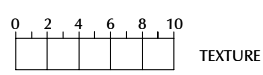
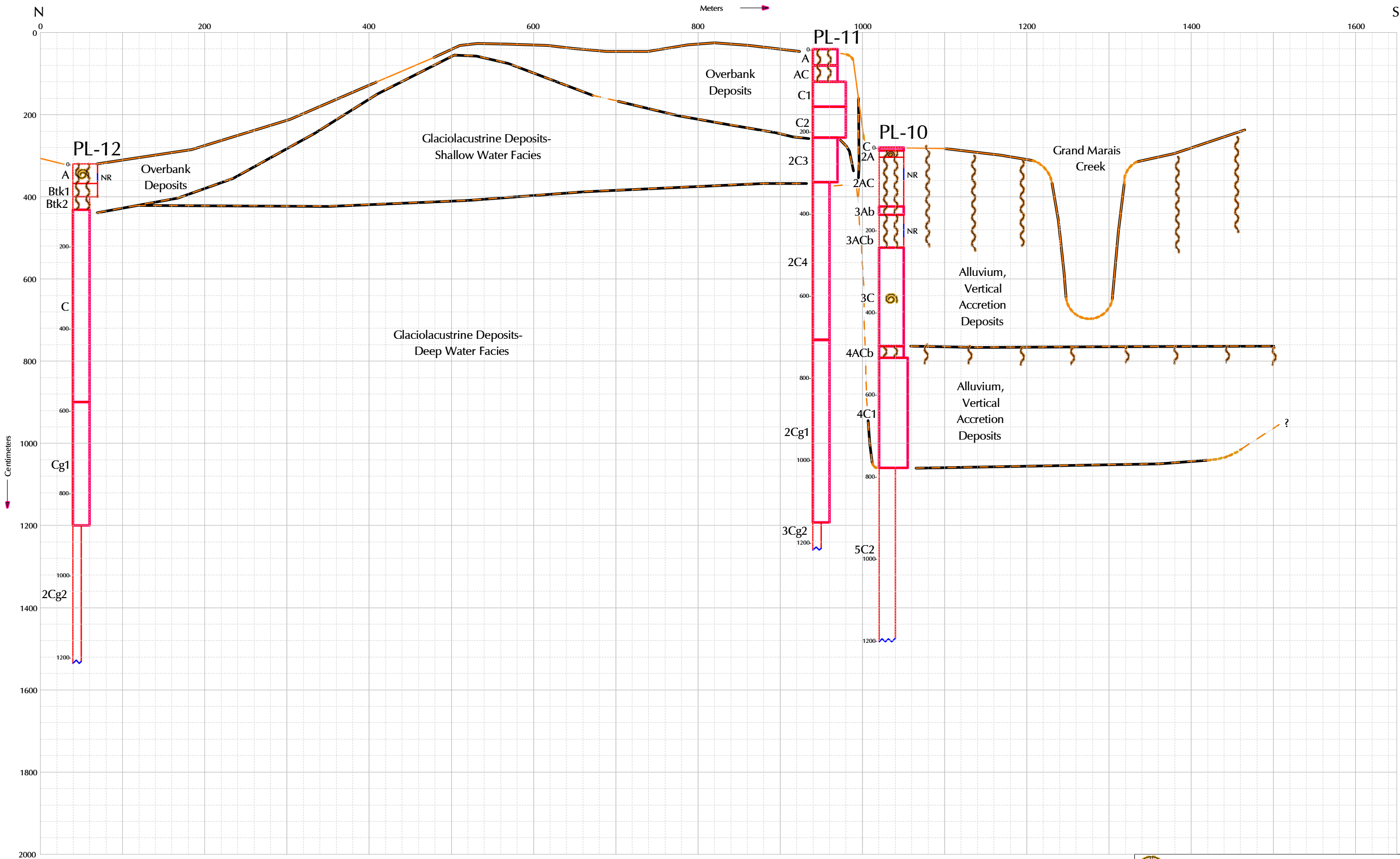
Scale: AS SHOWN

Date: 5/97

By: KEB



Elevation:
251 Meters
(823 Feet)



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

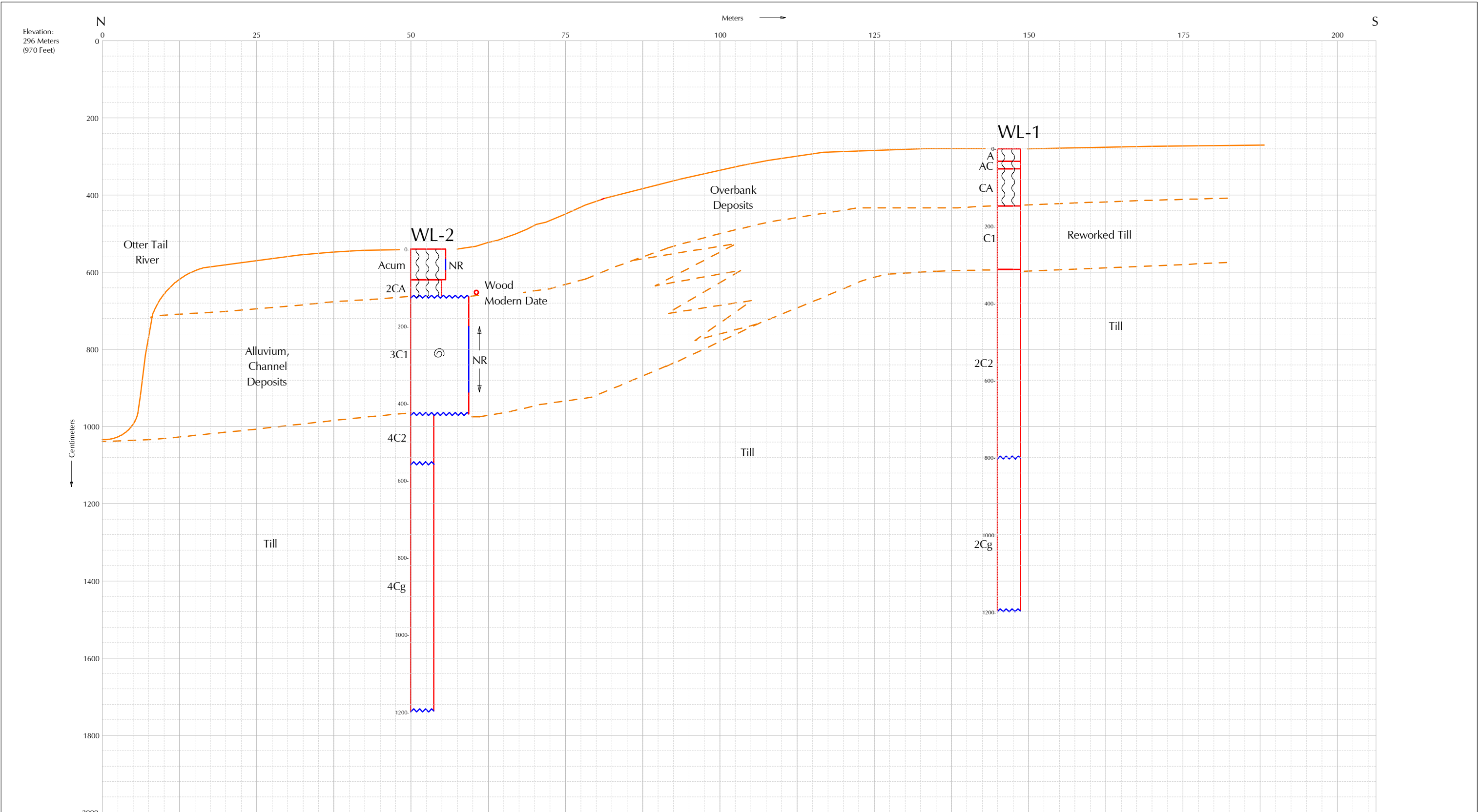
- LEGEND**
- Solum
 - Peat/Organic Soil
 - Textures (See Chart at Left)
 - Break for Graphic Representation
 - Shells
 - No Recovery
 - Plant Matter for C-14

MINNESOTA DEPARTMENT OF TRANSPORTATION

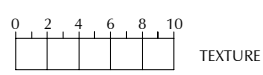
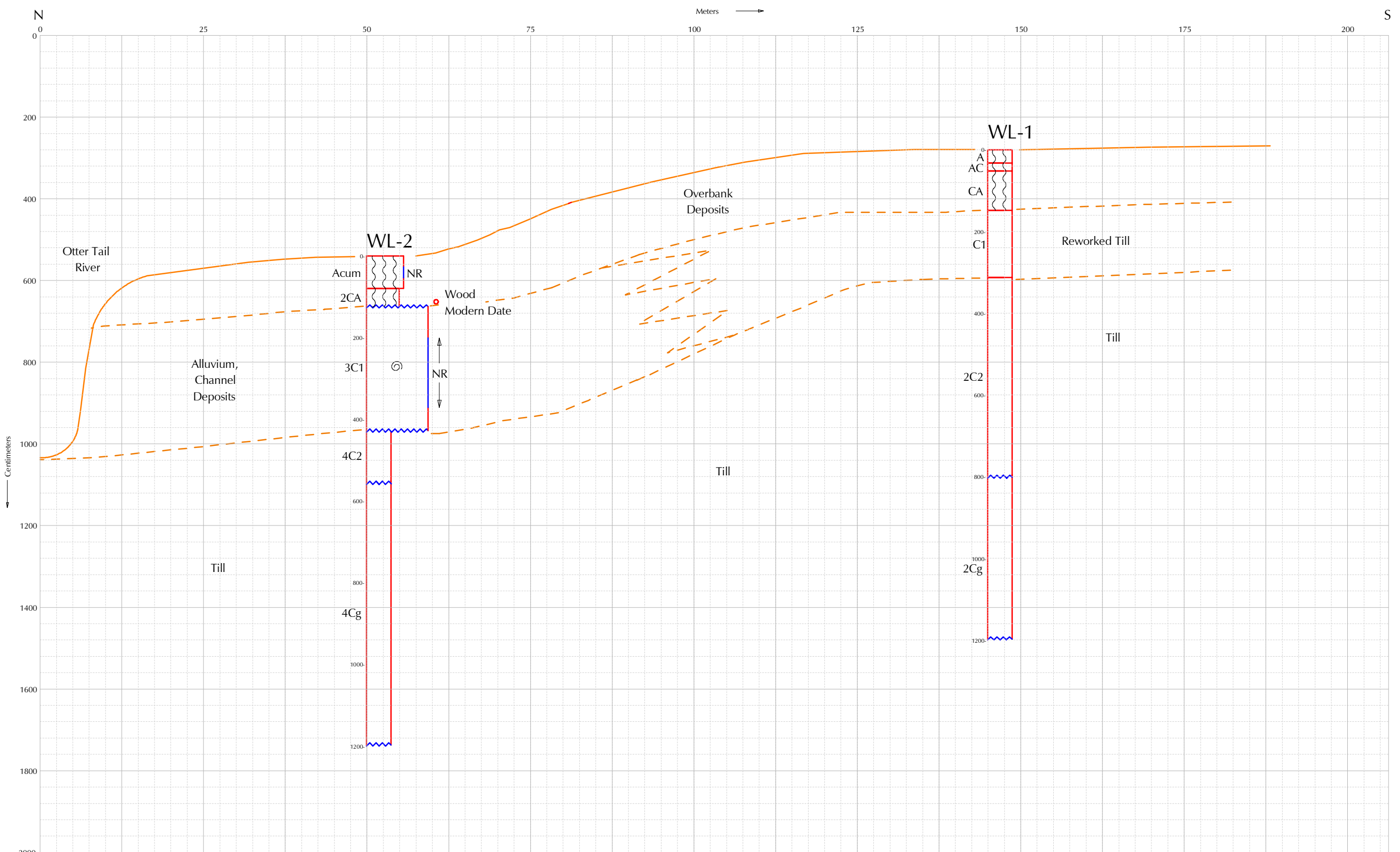
FIGURE E-58
TH 220 OVER GRAND MARAIS CREEK
SEC.1, T152N, R50W; SEC.31, T153N, R49W

DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

Scale: AS SHOWN
Date: 5/97
By: KEB



Elevation:
296 Meters
(970 Feet)



- 1 Clay or Sandy Clay
- 2 Silty Clay
- 3 Sandy Clay Loam, Silty Clay Loam, or Clay Loam
- 4 Silt Loam, Silt, Loam, or Peat
- 5 Sandy Loam
- 6 Loamy Sand
- 7 Very Fine to Fine Sand
- 8 Medium Sand
- 9 Coarse Sand
- 10 Gravel

LEGEND

	Solum		Peat/ Organic Soil		Textures (See Chart at Left)
NR	No Recovery				Break for Graphic Representation
	Plant Matter for C-14				Shells

MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE E-59

US 75 OVER OTTER TAIL RIVER
SECTION 4, T132N, R47W

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA	Scale: AS SHOWN	Date: 4/97	By: KEB
--	-----------------	------------	---------