SOUTH DAKOTA WATER WELL COMPLETION REPORT 11-02

Location NE ¼ SW ¼ Sec 18 Twp 2N Rg 9E

County Pennington

See inclosed Site Plan - PMW6

North

Please mark well location with an "X"

W E

1 Mile

Well completion Date 11/07/14

Distance from nearest potential pollution source (Septic tank, abandoned well, feed lot, etc.)

? 30 ft. from former Underground Tank (identify source)

PROPOSED USE:
☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test Holes
☐ Irrigation ☐ Industrial ☐ Institutional ☒ Monitoring well

METHOD OF DRILLING: 3 1/4" HSA

CASING DATA: ☐ Steel ☐ Plastic ☒ Other
If other describe Sch 40 PVC

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
Sch 40 LB/FT	2 IN	15 FT	0.5 FT	7 7/8 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Portland	1	94/lo Lb/gal	2 Ft	Surface Ft
		Lb/gal	Ft	Ft

Describe grouting procedure Hand mixed and placed

SCREEN: ☐ Perforated pipe ☒ Manufactured
Diameter 2 Inches Length 25 Feet
Material Sch 40 PVC
Slot Size 10 Set From 35 Feet to 10 Feet
Other information

WAS A PACKER OR SEAL USED? ☒ Yes ☐ No
If so, what material? Bentonite
Describe packer(s) and location Bentonite Chips 7' to 4'

DISINFECTION: Was well disinfected upon completion?
☐ Yes, How?
Lab sample sent to for water quality analysis ☒ No, Why Not? Monitoring Well

Well Owner: Jens S. Christensen, P.E.
Business Name: Ellsworth Air Force Base
Address1: 28 CES/CEIEC
Address2: 2125 Scott Drive
City, State, Zip: Ellsworth AFB, SD 57706

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
See inclosed log		

STATIC WATER LEVEL 24 FEET
If flowing, closed in pressure ~~NA~~ PSI
GPM flow ~~NA~~ through ~~NA~~ Inch pipe
Controlled by ☐ Valve ☐ Reducers ☐ Other
Reduced flow rate GPM
Can well be completely shut in?

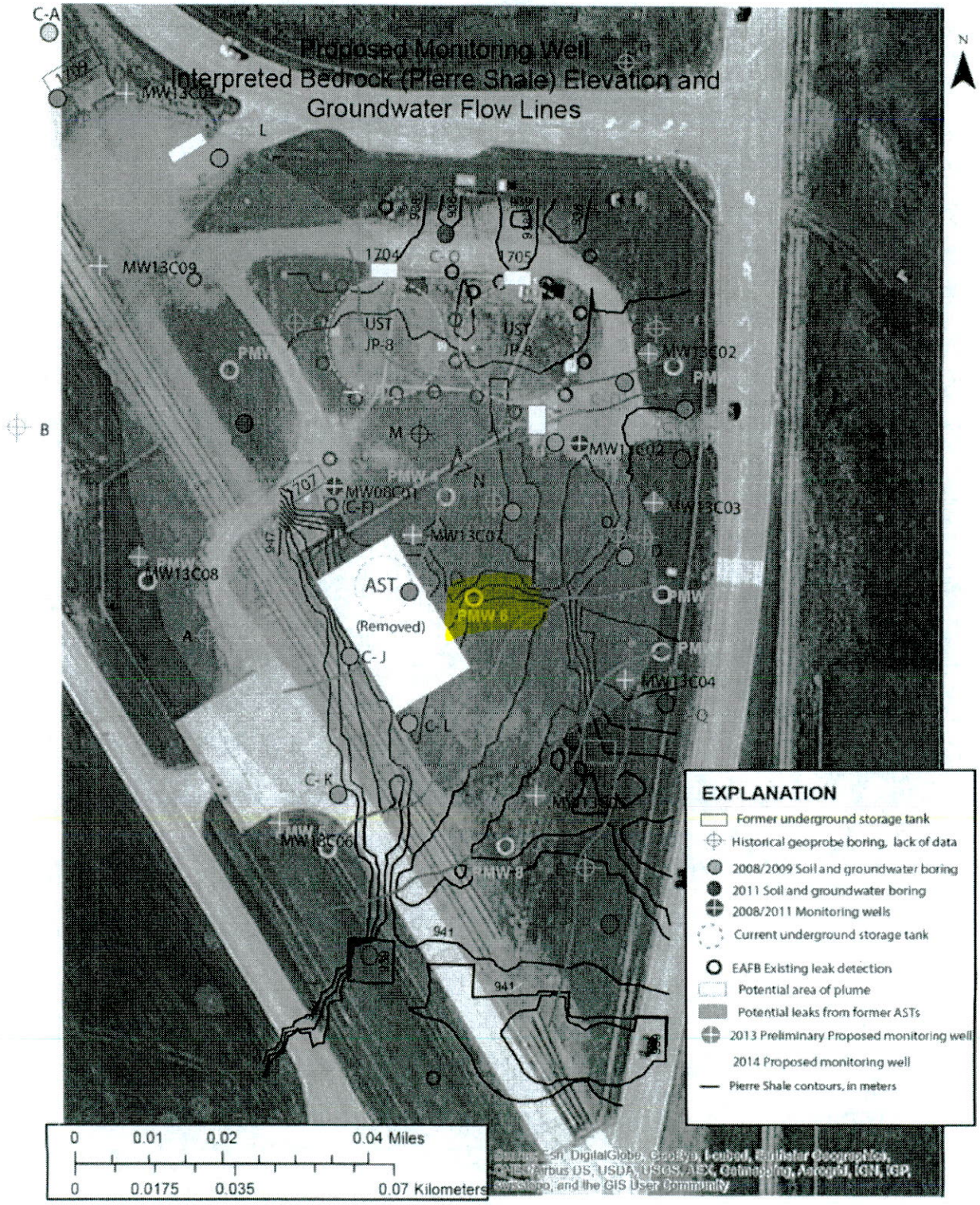
WELL TEST DATA:
☐ Pumped Describe: ~~NA~~
☐ Bailed
☐ Other
Pumping Level Below Land Surface
Ft. After Hrs. pumped GPM
Ft. After Hrs. pumped GPM
If pump installed, pump rate: GPM

REMARKS

RECEIVED
JAN 07 2015
WATER RIGHTS PROGRAM

This well was drilled under license # 617
And this report is true and accurate.
Drilling firm: American Technical Services
Signature of License Representative:
Signature of Well Owner or Equitable Property Holder:
Date 12/22/14

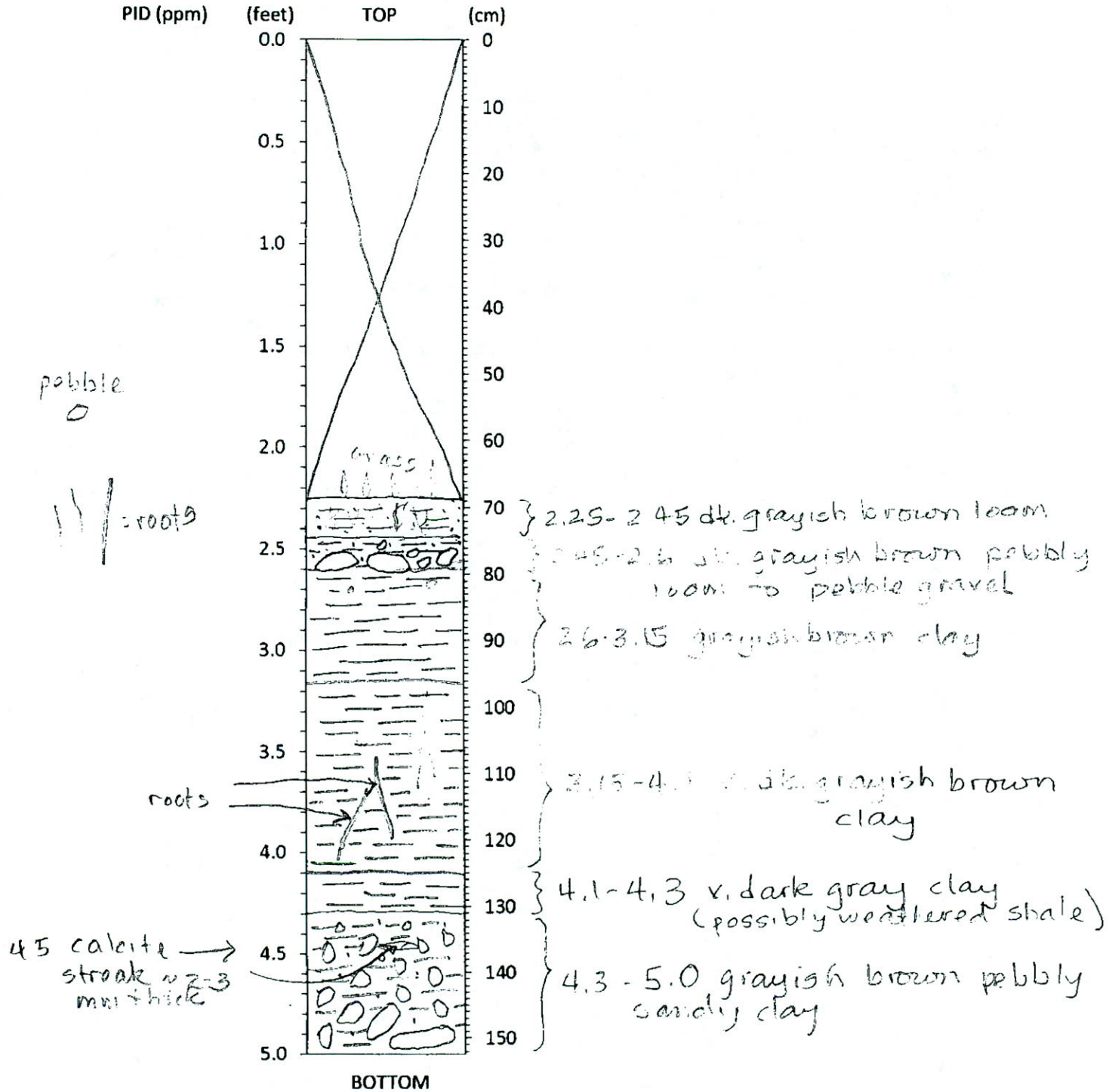
Please return White Copy to DENR Water Rights **523 E. Capitol Ave., Pierre SD 57501**



Proposed Monitoring Well
Interpreted Bedrock (Pierre Shale) Elevation and
Groundwater Flow Lines
N
C-A
MW13C01
L
MW13C09
1704
1705
UST
JP-8
UST
JP-8
MW13C02
B
M
MW13C02
MW08C01
(C-F)
MW13C03
MW13C07
MW13C08
AST
(Removed)
PMW 6
A
C-J
MW13C04
C-L
C-K
MW13C06
PMW 8
941
941
EXPLANATION
Former underground storage tank
Historical geoprobe boring, lack of data
2008/2009 Soil and groundwater boring
2011 Soil and groundwater boring
2008/2011 Monitoring wells
Current underground storage tank
EAFB Existing leak detection
Potential area of plume
Potential leaks from former ASTs
2013 Preliminary Proposed monitoring well
2014 Proposed monitoring well
Pierre Shale contours, in meters
0 0.01 0.02 0.04 Miles
0 0.0175 0.035 0.07 Kilometers
Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

USGS Soil/WG Monitoring EAFB
NT00FGM0000
Site: Elsworth AFB
Core ID: MW-06-0-5
Described by: John Stamm and David Bender

Date and Time: 11/7/2014 7:55
Core depth range: 0-5
Core recovery range: 2.25-5

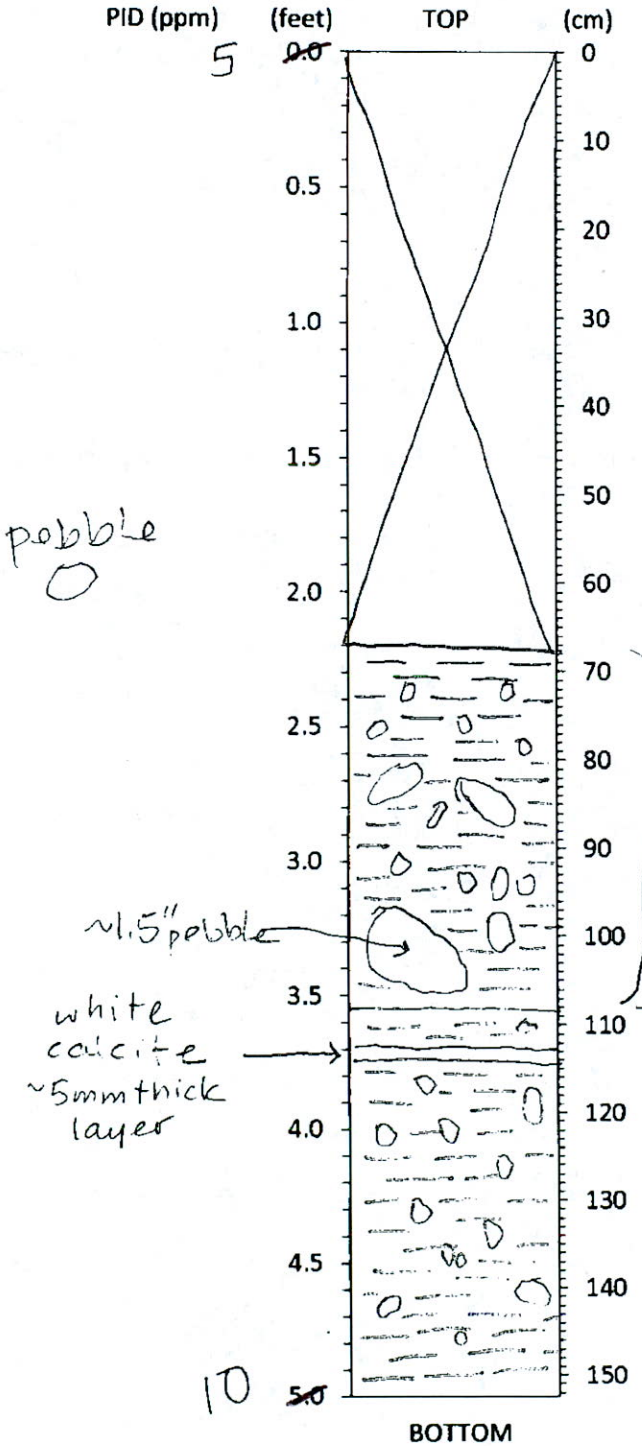


Photos:

USGS Soil/WG Monitoring EAFB
NT00FGM0000

Site: Ellsworth AFB
Core ID: MW_06-5-10
Described by: John Stamm and David Bender

Date and Time: 11/7/2014 8:50
Core depth range: 5-10
Core recovery range: 7.2-10



driller indicated sample lost from 5-7.2 rocky

7.2-8.55 brown pebbly clay

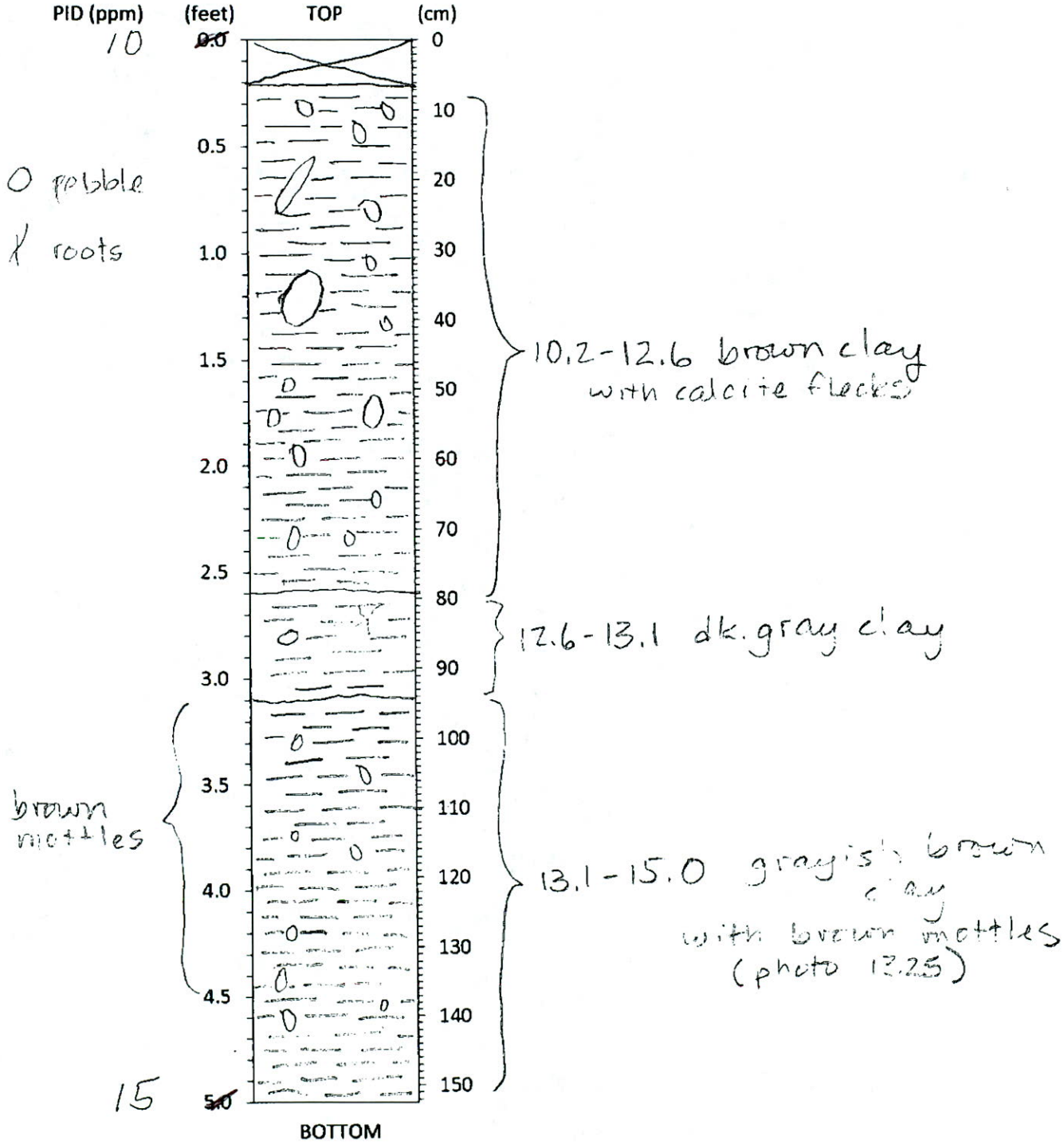
8.55-10 grayish brown pebbly clay

Photos:

USGS Soil/WG Monitoring EAFB
NT00FGM0000

Site: Ellsworth AFB
Core ID: MW_06_10-15
Described by: John Stamm and David Bender

Date and Time: 11/7/2014 9:20
Core depth range: 10 - 15
Core recovery range: 10.2 - 15

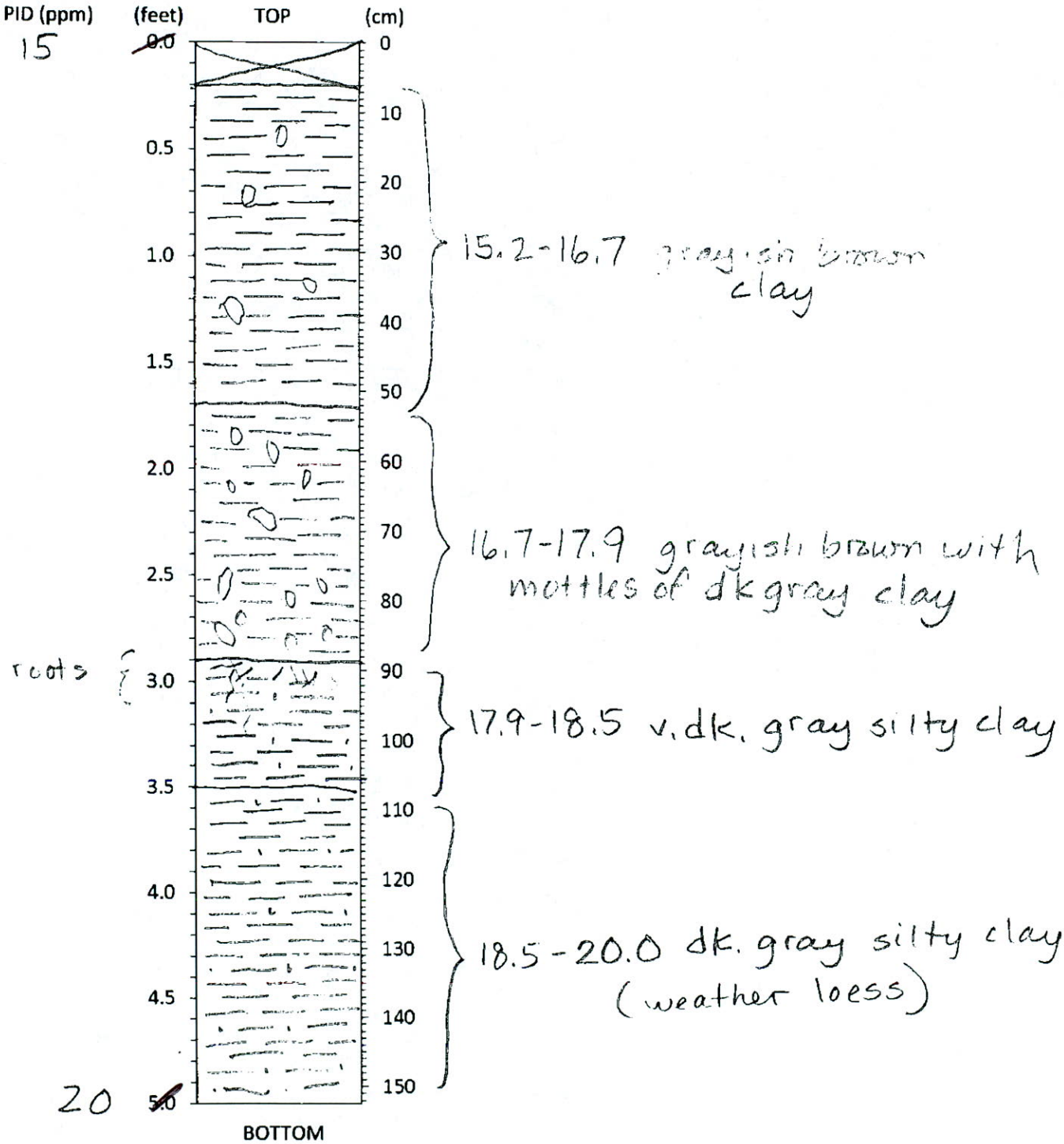


Photos:

USGS Soil/WG Monitoring EAFB
NT00FGM0000

Site: Ellsworth AFB
Core ID: MW_06_15-20
Described by: John Stamm and David Bender

Date and Time: 11/7/2014 9:55
Core depth range: 15-20
Core recovery range: 15.2-20

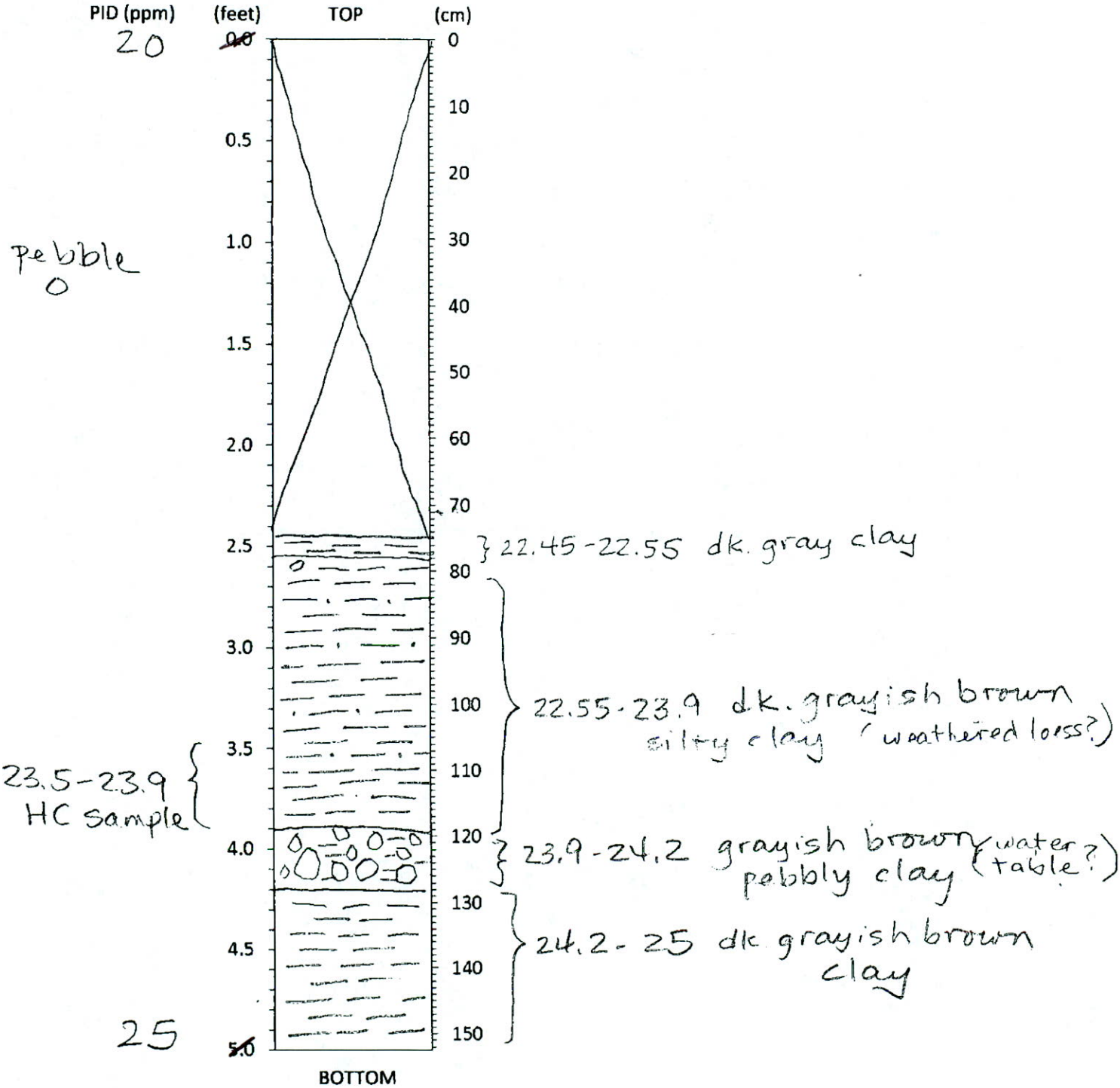


Photos:

USGS Soil/WG Monitoring EAFB
NT00FGM0000

Site: Ellsworth AFB
Core ID: MW-06_20-25
Described by: John Stamm and David Bender

Date and Time: 11/7/2014 10:30
Core depth range: 20-25
Core recovery range: 22.45-25

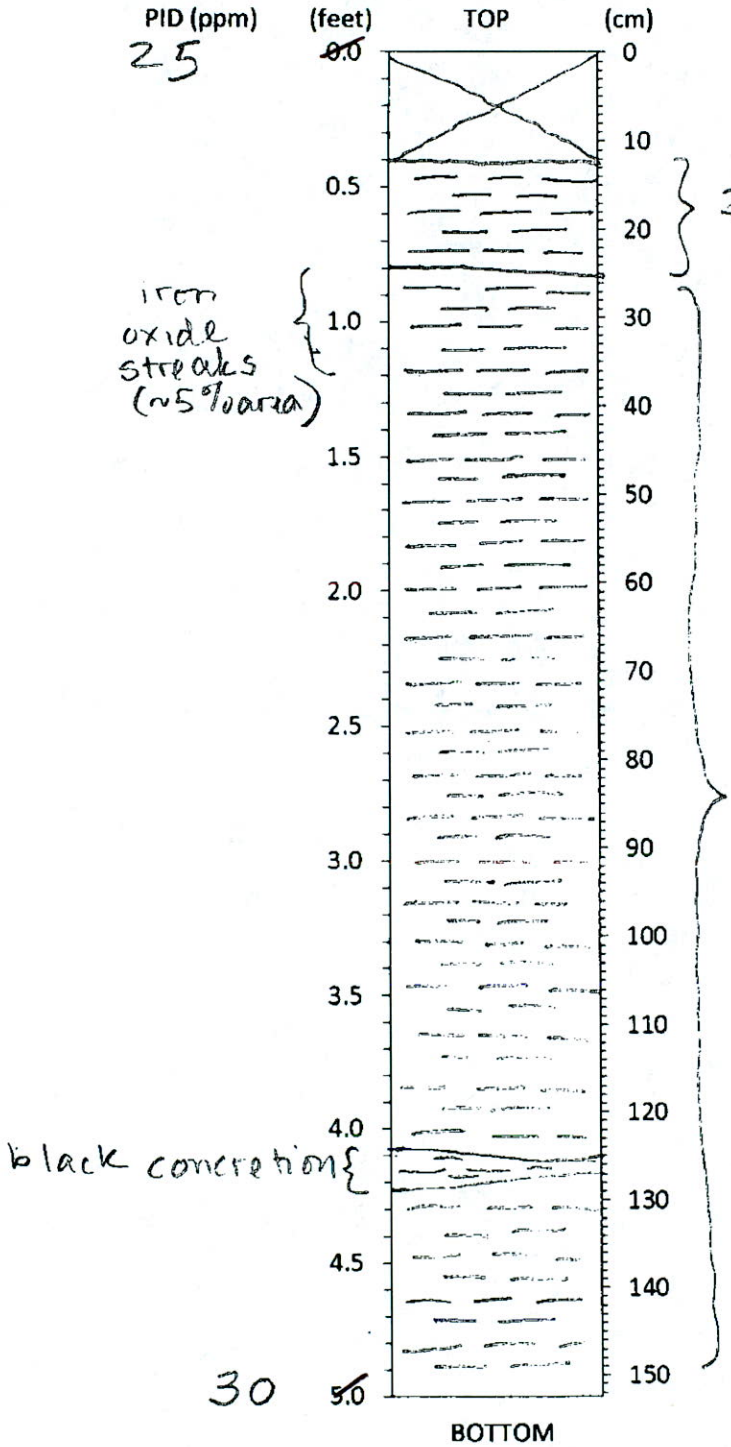


Photos:

USGS Soil/WG Monitoring EAFB
NT00FGM0000

Site: Ellsworth AFB
Core ID: MW_06_25-30
Described by: John Stamm and David Bender

Date and Time: 11/7/2014 11:15
Core depth range: 25-30
Core recovery range: 25.4-30



25.4 -25.8 dk. grayish brown (saturated) clay

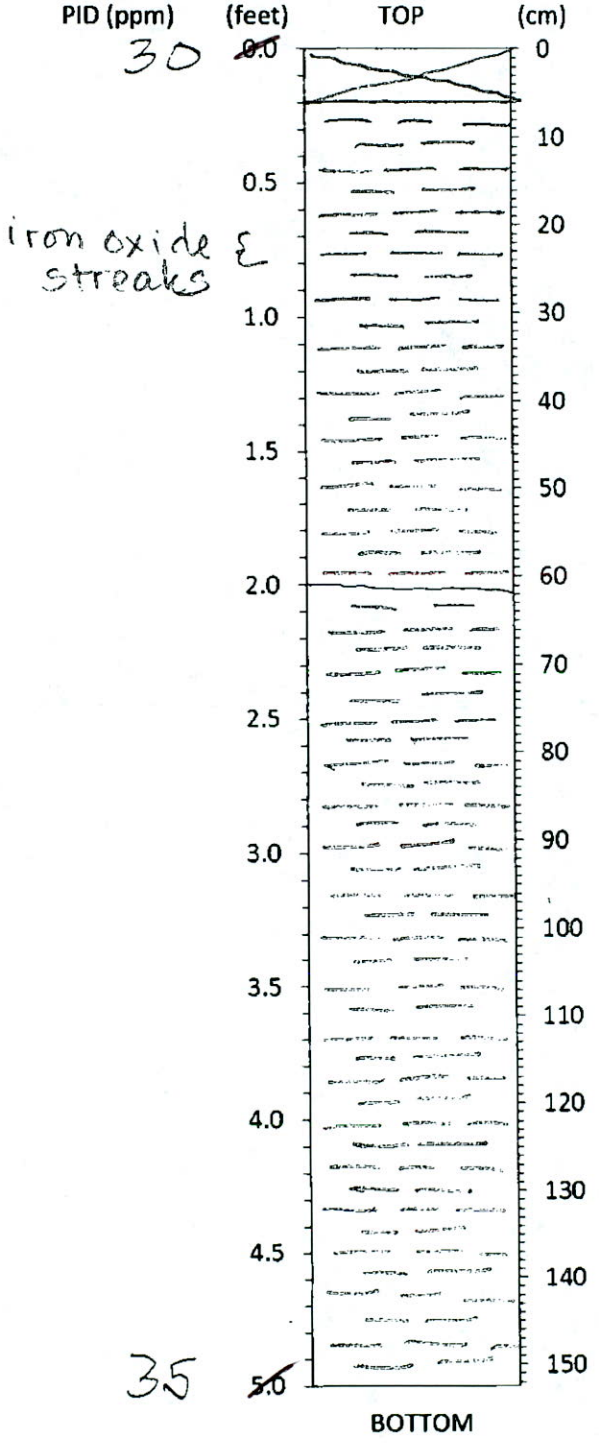
25.8 -30 olive brown clay with dk gray shale fragments

Photos:

USGS Soil/WG Monitoring EAFB
NT00FGM0000

Site: Ellsworth AFB
Core ID: MW-06-30-35
Described by: John Stamm and David Bender

Date and Time: 11/7/2014 11:30
Core depth range: 30-35
Core recovery range: 30.2-35



30.2-32 olive gray clay to v dk. gray shale moist to wet (Pierre Shale)

32-35 dk. grayish brown clay and weathered shale Pierre Shale moist to dry (drier with depth)

Photos: