485127

U.S. Department
of Transportation

Research and
Special Programs
Administration

John A. Volpe
National Transportation
Systems Center

Kendall Square
Cambridge, Massachusetts 02142

October 30, 2000

Mr. Mel Parker
472 River View
Libby, MT 59923

Re: Backfill for 5000 Hwy 37N Property

Dear Mr. Parker,

Per our discussions and recent correspondence, we have finalized the sampling and selection of backfill material for your property in accordance with your and the Government's selection criteria. The selected borrow-source for your property is the Nixon property located adjacent to Highway 37. The Government has surveyed the Nixon property borrow-source boundaries and has collected environmental and soil property (i.e., agronomic and geotechnical) samples from the borrow-source. The purpose of the sampling activities was to determine that the borrow-source contained the required quantity of backfill, met EPA standards for allowable limits for regulated materials of environmental concern, and met your and the Government's other backfill specifications.

Attached for your review are the results of the environmental and soil property sampling conducted by the Government (Attachment A and B respectively) on the common fill. The soil is clean with respect to EPA standards. With respect to the soil's properties, the borrow-source was ultimately selected in consultation with you based primarily upon its agronomic characteristics. These agronomic characteristics differ from the engineering characteristics of the specified common fill in the following ways:

1. The common fill specified in the construction specifications was an "all purpose" relatively well graded granular material with less than 10 percent fines. The specified common fill would accommodate compaction, allow free drainage, provide frost resistance, and avoid erosion.

2. The material from the Nixon borrow source, for which you have expressed a preference, is more silty than the specified common fill. Based on grain size distribution tests performed on common fill samples obtained from the Nixon source, this material contained between 33.6 and 77.1 percent fines, i.e., sand, silt and clay.

The description of the common fill material from the Nixon source ranged from a silty sand to a silty clayey gravel with sand. Due to the higher content of fines in the material, the soil may require more effort to compact and closer adherence to moisture control.

3. The common fill material from the Nixon source is not as free draining as the specified common fill and is more susceptible to freezing and erosion. Therefore, the common fill material from the Nixon source should not be used below gravel roadways. Below roadways, a more structural gravel material, not as susceptible to freezing should be used. A specification is being prepared for the roadway subbase.

4. The common fill from the Nixon source is not suitable for support of structures such as a house, garage, or other type of load bearing building. If such construction is planned for this property, engineering issues will need to be addressed prior to construction of such structures.

During the backfilling process, the Government will periodically collect soil samples for environmental and geotechnical characteristics testing. Analytical test results will be reviewed to confirm that the common fill material from the Nixon source continues to meet EPA environmental standards for clean fill and your criteria for which this material was selected. This verification process will continue at predetermined intervals throughout the backfilling process. At your request we will provide you with any available data.

For your use we have included the results of the environmental and soil property sampling along with this correspondence. During our site visit planned for November 1-4, 2000, we would like to walk the site with you to determine areas where more structural fill may be required. If you have any questions or require additional information, please do not hesitate to call me at 617-494-2574. Thank you.

Sincerely,

John McGuiggin, PE
Project Manager

C:\Libby\comfill1.doc

ATTACHMENT A – Environmental Sample Results, Nixon Borrow-Source

Libby MT: Borrow Source Materials

Results For L0008939

Account:CDM-MT - Camp Dresser & McKee, Inc.
Project: 2603-006-002-FLD
Samples Received by Alpha on 05-OCT-00

LOCATION	IR-02541		IR-02543		IR-02544		IR-02547 (Nixon)		IR-02548 (Nixon)		IR-02549 (Nixon)		IR-02550 (Nixon)	
SAMPLING DATE	3-Oct-00		3-Oct-00		3-Oct-00		3-Oct-00		3-Oct-00		3-Oct-00		3-Oct-00	
LAB SAMPLE ID	L0008939-01	Units	L0008939-02	Units	L0008939-03	Units	L0008939-04	Units	L0008939-05	Units	L0008939-06	Units	L0008939-07	Units
PARAMETER														
Antimony, Total	<2	mg/kg	<2	mg/kg	<2	mg/kg	<2	mg/kg	<2	mg/kg	370	mg/kg	<2	mg/kg
Arsenic, Total	4.4	mg/kg	5.7	mg/kg	4.2	mg/kg	2.6	mg/kg	3.6	mg/kg	110	mg/kg	2.5	mg/kg
Beryllium, Total	<0.2	mg/kg	<0.2	mg/kg	<0.2	mg/kg	0.34	mg/kg	0.41	mg/kg	0.3	mg/kg	0.38	mg/kg
Cadmium, Total	<0.4	mg/kg	<0.4	mg/kg	<0.39	mg/kg	<0.4	mg/kg	<0.4	mg/kg	<0.4	mg/kg	<0.4	mg/kg
Chromium, Total	1.5	mg/kg	3.1	mg/kg	2	mg/kg	7.1	mg/kg	10	mg/kg	7.3	mg/kg	8	mg/kg
Copper, Total	12	mg/kg	20	mg/kg	14	mg/kg	20	mg/kg	20	mg/kg	22	mg/kg	23	mg/kg
Lead, Total	5.1	mg/kg	9.1	mg/kg	7.2	mg/kg	13	mg/kg	12	mg/kg	990	mg/kg	19	mg/kg
Mercury, Total	<0.25	mg/kg	<0.25	mg/kg	<0.25	mg/kg	<0.25	mg/kg	<0.25	mg/kg	<0.25	mg/kg	<0.25	mg/kg
Nickel, Total	3.2	mg/kg	6.1	mg/kg	3.9	mg/kg	6.5	mg/kg	11	mg/kg	7.8	mg/kg	7.7	mg/kg
Selenium, Total	<0.79	mg/kg	<0.79	mg/kg	<0.79	mg/kg	<0.8	mg/kg	<0.8	mg/kg	<0.8	mg/kg	<0.8	mg/kg
Silver, Total	<0.4	mg/kg	<0.4	mg/kg	<0.39	mg/kg	<0.4	mg/kg	<0.4	mg/kg	<0.4	mg/kg	<0.4	mg/kg
Thallium, Total	<0.79	mg/kg	<0.79	mg/kg	<0.79	mg/kg	<0.8	mg/kg	<0.8	mg/kg	<0.8	mg/kg	<0.8	mg/kg
Zinc, Total	16	mg/kg	27	mg/kg	19	mg/kg	31	mg/kg	39	mg/kg	30	mg/kg	31	mg/kg

LIBBY MT: BORROW SOURCE SAMPLES

Results For L0008986

Account:CDM-MT - Camp Dresser & McKee, Inc.
Project: 2603-006-002-FLD
Samples Received by Alpha on 06-OCT-00

	Nixon Property Area 1		Nixon Property Area 1		Nixon Property Area 1			
LOCATION	IR-02565		IR-02566		IR-02567		IR-02572	
SAMPLING DATE	5-Oct-00		5-Oct-00		5-Oct-00		5-Oct-00	
LAB SAMPLE ID	L0008986-01	Units	L0008986-02	Units	L0008986-03	Units	L0008986-08	Units
PARAMETER								
Hydrocarbons, Total(IR)	<50	mg/kg	<50	mg/kg	<50	mg/kg		
VOCs (retested):								
Methylene chloride	<26	ug/kg	<25	ug/kg	<25	ug/kg	8	ug/l
1,1-Dichloroethane	<7.6	ug/kg	<7.6	ug/kg	<7.6	ug/kg	<1.5	ug/l
Chloroform	<7.6	ug/kg	<7.6	ug/kg	<7.6	ug/kg	<1.5	ug/l
Carbon tetrachloride	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
1,2-Dichloropropane	<18	ug/kg	<18	ug/kg	<18	ug/kg	<3.5	ug/l
Dibromochloromethane	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
1,1,2-Trichloroethane	<7.6	ug/kg	<7.6	ug/kg	<7.6	ug/kg	<1.5	ug/l
Tetrachloroethene	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
Chlorobenzene	<18	ug/kg	<18	ug/kg	<18	ug/kg	<3.5	ug/l
Trichlorofluoromethane	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
1,2-Dichloroethane	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
1,1,1-Trichloroethane	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
Bromodichloromethane	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
trans-1,3-Dichloropropene	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
cis-1,3-Dichloropropene	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
1,1-Dichloropropene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
Bromoform	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
1,1,2,2-Tetrachloroethane	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
Benzene	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
Toluene	<7.6	ug/kg	<7.6	ug/kg	<7.6	ug/kg	<1.5	ug/l
Ethylbenzene	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
Chloromethane	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
Bromomethane	<10	ug/kg	<10	ug/kg	<10	ug/kg	<2	ug/l
Vinyl chloride	<10	ug/kg	<10	ug/kg	<10	ug/kg	<2	ug/l
Chloroethane	<10	ug/kg	<10	ug/kg	<10	ug/kg	<2	ug/l
1,1-Dichloroethene	<7.6	ug/kg	<7.6	ug/kg	<7.6	ug/kg	<1.5	ug/l
trans-1,2-Dichloroethene	<7.6	ug/kg	<7.6	ug/kg	<7.6	ug/kg	<1.5	ug/l
Trichloroethene	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
1,2-Dichlorobenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
1,3-Dichlorobenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
1,4-Dichlorobenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
Methyl tert butyl ether	<20	ug/kg	<20	ug/kg	<20	ug/kg	<4	ug/l
p/m-Xylene	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
o-Xylene	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l

cis-1,2-Dichloroethene	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
Dibromomethane	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
1,4-Dichlorobutane	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
Iodomethane	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
1,2,3-Trichloropropane	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
Styrene	<5.1	ug/kg	<5	ug/kg	<5	ug/kg	<1	ug/l
Dichlorodifluoromethane	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
Acetone	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
Carbon disulfide	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
2-Butanone	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
Vinyl acetate	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
4-Methyl-2-pentanone	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
2-Hexanone	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
Ethyl methacrylate	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
Acrolein	<130	ug/kg	<130	ug/kg	<130	ug/kg	<25	ug/l
Acrylonitrile	<51	ug/kg	<50	ug/kg	<50	ug/kg	<10	ug/l
Bromochloromethane	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
Tetrahydrofuran	<100	ug/kg	<100	ug/kg	<100	ug/kg	<20	ug/l
2,2-Dichloropropane	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
1,2-Dibromoethane	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
1,3-Dichloropropane	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
1,1,1,2-Tetrachloroethane	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
Bromobenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
n-Butylbenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
sec-Butylbenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
tert-Butylbenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
o-Chlorotoluene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
p-Chlorotoluene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
1,2-Dibromo-3-chloropropan	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
Hexachlorobutadiene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
Isopropylbenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
p-Isopropyltoluene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
Naphthalene	<500	ug/kg	<500	ug/kg	<500	ug/kg	<5	ug/l
n-Propylbenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
1,2,3-Trichlorobenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
1,2,4-Trichlorobenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
1,3,5-Trimethylbenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
1,2,4-Trimethylbenzene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
trans-1,4-Dichloro-2-butene	<26	ug/kg	<25	ug/kg	<25	ug/kg	<5	ug/l
Ethyl ether	<130	ug/kg	<130	ug/kg	<130	ug/kg	<25	ug/l
Acenaphthene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
2-Chloronaphthalene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Fluoranthene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Naphthalene	<500	ug/kg	<500	ug/kg	<500	ug/kg	<5	ug/l
Benzo(a)anthracene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Benzo(a)pyrene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Benzo(b)fluoranthene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Benzo(k)fluoranthene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Chrysene	<500	ug/kg	<500	ug/kg	<500	ug/kg		

Acenaphthylene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Anthracene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Benzo(ghi)perylene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Fluorene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Phenanthrene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Dibenzo(a,h)anthracene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Indeno(1,2,3-cd)pyrene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Pyrene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Benzo(e)pyrene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Biphenyl	<500	ug/kg	<500	ug/kg	<500	ug/kg		
Perylene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
1-Methylnaphthalene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
2-Methylnaphthalene	<500	ug/kg	<500	ug/kg	<500	ug/kg		
PESTICIDES:								
Delta-BHC	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Lindane	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Alpha-BHC	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Beta-BHC	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Heptachlor	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Aldrin	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Heptachlor epoxide	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Endrin	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Endrin aldehyde	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Endrin ketone	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Dieldrin	<20	ug/kg	<20	ug/kg	<20	ug/kg		
4,4'-DDE	<20	ug/kg	<20	ug/kg	<20	ug/kg		
4,4'-DDD	<20	ug/kg	<20	ug/kg	<20	ug/kg		
4,4'-DDT	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Endosulfan I	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Endosulfan II	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Endosulfan sulfate	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Methoxychlor	<20	ug/kg	<20	ug/kg	<20	ug/kg		
Toxaphene	<80	ug/kg	<80	ug/kg	<80	ug/kg		
Chlordane	<80	ug/kg	<80	ug/kg	<80	ug/kg		
cis-Chlordane	<20	ug/kg	<20	ug/kg	<20	ug/kg		
trans-Chlordane	<20	ug/kg	<20	ug/kg	<20	ug/kg		
PCBs:								
Aroclor 1221	<200	ug/kg	<200	ug/kg	<200	ug/kg		
Aroclor 1232	<200	ug/kg	<200	ug/kg	<200	ug/kg		
Aroclor 1242/1016	<200	ug/kg	<200	ug/kg	<200	ug/kg		
Aroclor 1248	<200	ug/kg	<200	ug/kg	<200	ug/kg		
Aroclor 1254	<200	ug/kg	<200	ug/kg	<200	ug/kg		
Aroclor 1260	<200	ug/kg	<200	ug/kg	<200	ug/kg		

ATTACHMENT B – Soil Property Sample Results, Nixon Borrow-Source

Fill Source Breakdown of Fines - Government Analysis

Source	Gravel		Total Fines	Sand			Fines	
	Coarse	Fine		Coarse	Med	Fine	Silt	Clay
Nixon Area 1	6	21	66	7	8	10	29	20
Nixon Deep Soil (5.5-6.0 ft)	0	1	98	1	5	16	54	24

Source	Percentages			Classification
	Sand	Clay	Silt	
Nixon Area 1	27%	30%	43%	Clay Loam
Nixon Deep Soil (5.5-6.0 ft)	***22%***	***24%***	***54%***	***Silt Loam***

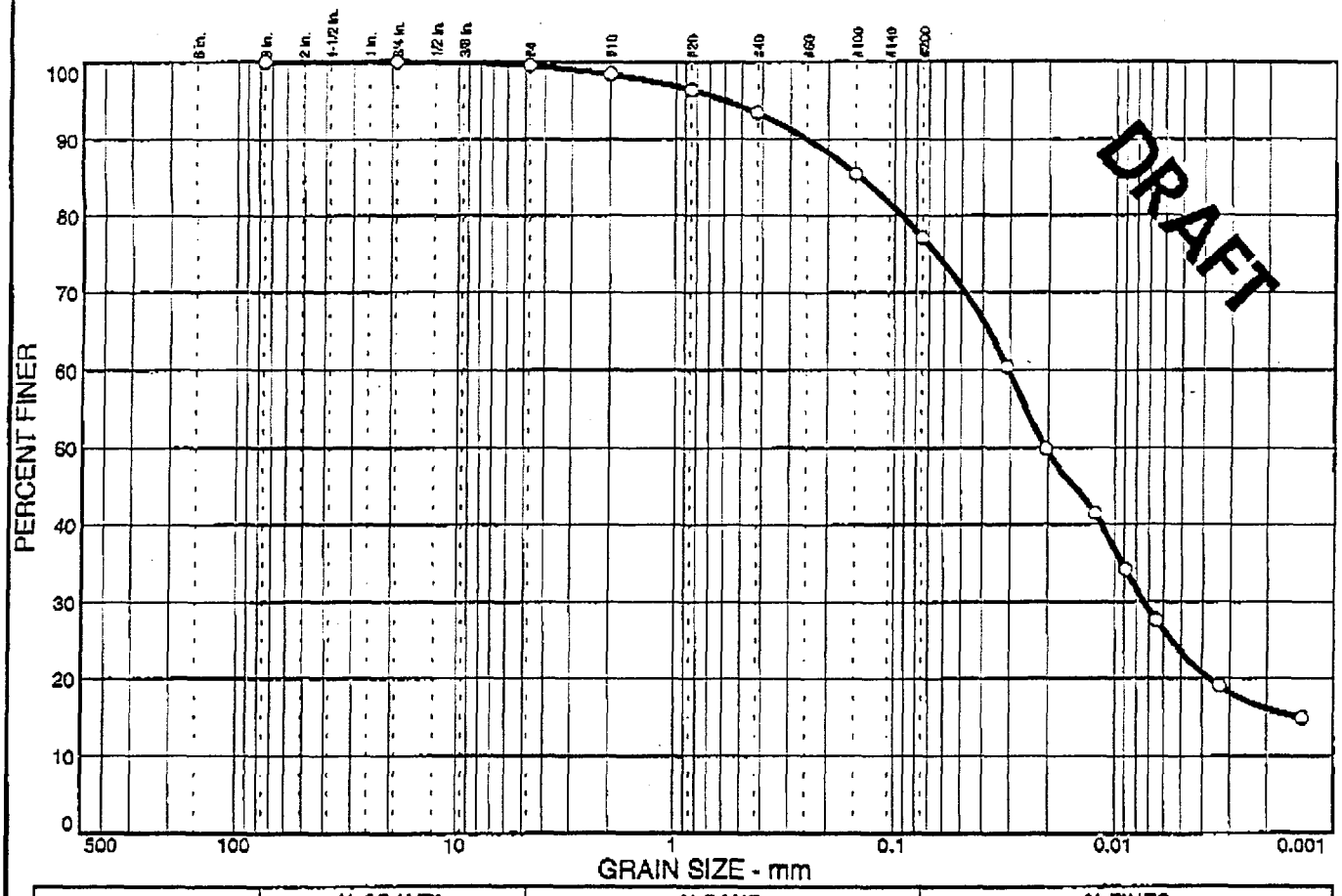
← ***Government Selected Fill Material***

Fill Source Breakdown of Fines - Mel Parker Analysis

Source	Percentages			Classification
	Sand	Clay	Silt	
Nixon #6998	39.0%	10.0%	51.0%	Silt Loam/Loam
Nixon #6999	***26.5%***	***20.8%***	***52.6%***	***Silt Loam***

← ***Parker Selected Fill Material***

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.5	1.1	5.0	16.3	53.6	23.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
3/4	100.0		
#4	99.5		
#10	98.4		
#20	96.3		
#40	93.4		
#100	85.5		
#200	77.1		

* (no specification provided)

Soil Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.143 D_{60}= 0.0305 D_{50}= 0.0207
D_{30}= 0.0074 D_{15}= 0.0014 D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

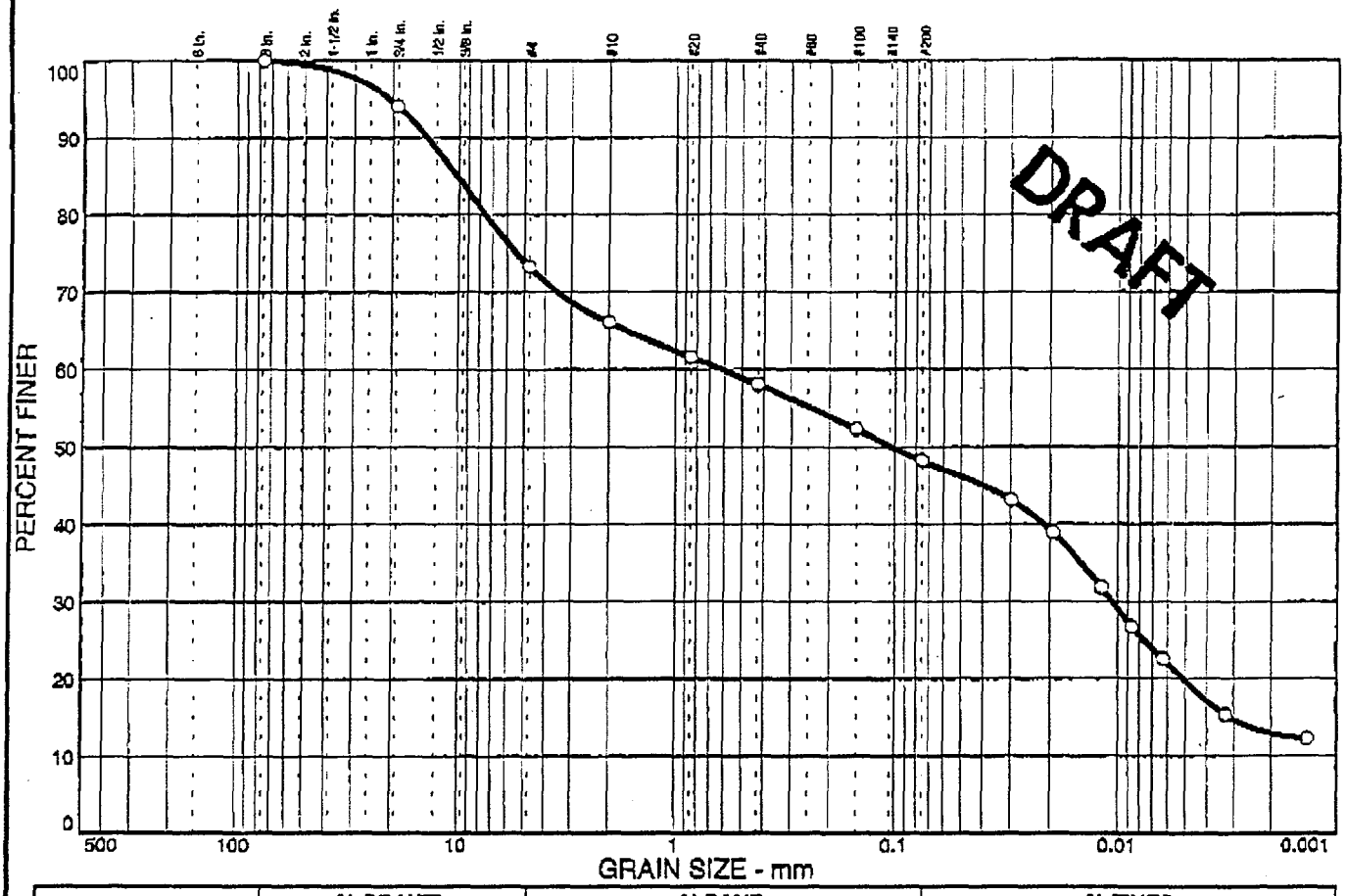
Remarks

As received moisture content = 13.8%

Sample No.: 1R-02691 **Source of Sample:** --- **Date:** 10-13-00
Location: --- **Elev./Depth:** 5.5-6.0FT

CDM Jessberger Geotechnical Engineering Laboratory	**Client:** Volpe Center/CDM **Project:** Libby Asbestos Project Libby, MT **Project No:** 4000-29258-006.002.FLD **Plate**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	5.9	20.8	7.2	8.0	9.9	28.5	19.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
3/4	94.1		
#4	73.3		
#10	66.1		
#20	61.6		
#40	58.1		
#100	52.3		
#200	48.2		

* (no specification provided)

Soil Description

~~Gravelly clayey silty sand~~

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 10.2 D_{60}= 0.617 D_{50}= 0.103
D_{30}= 0.0106 D_{15}= 0.0031 D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

As received moisture content = 3.9%

Sample No.: 1R-02551 Source of Sample: — Date: 10-6-00
Location: — Elev./Depth: Vary

CDM Jessberger Geotechnical Engineering Laboratory	Client: Volpe Center/CDM Project: Libby Asbestos Project Libby, MT Project No: 4000-29258-006.002.FLD Plate

ATTACHMENT C – Soil Property Sample Results, Nixon Borrow-Source

(Mel Parker's Analysis)

Sandberg Laboratories Ltd.

3510 - 6th Avenue North, Lethbridge, Alberta T1H 5C3
Phone (403) 328-1133
Fax (403) 320-1033

REPORT # _____

ACCOUNT # _____

RECOMMENDATION INFORMATION FORM

DEALER / REP: Mel Parker

ADDRESS: Thursday

	1		3	4
GROWER	1805 - 1st Ave A North Leth			
FIELD I.D. #	T1H 0A9		403-327-5128 phone	
# OF ACRES				
IRRIGATION	___ PIVOT ___ WHEEL ___ DRYLAND ___ OTHER	___ PIVOT ___ WHEEL ___ DRYLAND ___ OTHER	___ PIVOT ___ WHEEL ___ DRYLAND ___ OTHER	___ PIVOT ___ WHE ___ DRYLAND ___ OTH
FERTILIZER USED				
SAMPLING DATE				
TESTS REQUIRED		3000 3210		
BAG # AND DEPTH				
BAG # AND DEPTH				
BAG # AND DEPTH				
BAG # AND DEPTH				
LAST YEAR'S CROP				
ACTUAL YIELD				
CROP TO BE GROWN				
TARGET YIELD				
VARIETY				
STRAW?				

SEND YELLOW COPY TO THE LAB, KEEP THE OTHER FOR YOUR RECORDS

Fill - Loam Top Soil - Loam

SANDBERG LABORATORIES LTD.

3510 - 6th AVENUE NORTH
LETHBRIDGE, ALBERTA T1H 5C3
PHONE 328-1133
FAX 320-1033

Mel Parker

Report 1881
6998-7000

Sample 26Sept2000

Date

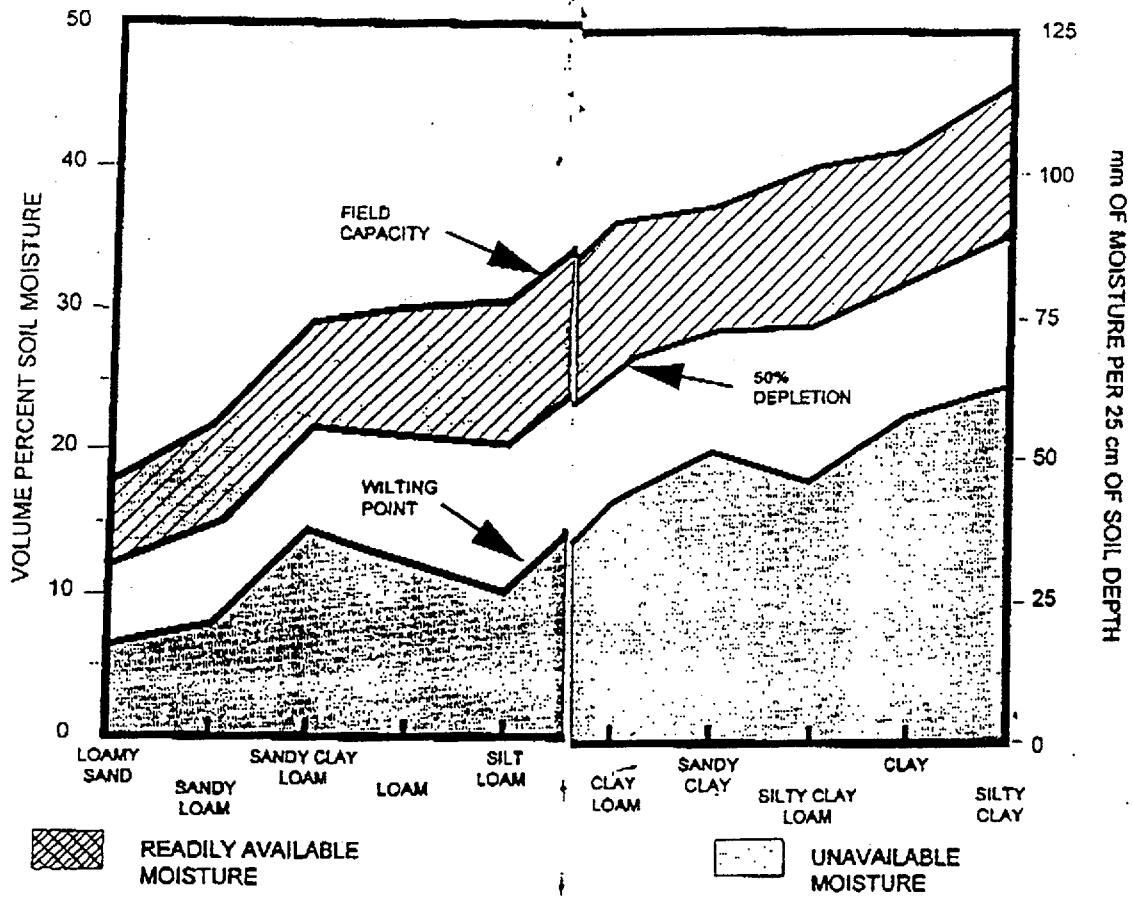
phone fax

Sample	Location	% Sand	% Clay	%Silt	Texture
6998	Nixon-Top	39.0	10.0	51.0	SiL/L
6999	Nixon-Fill	26.6	~~20.8~~	52.6	SiL
7000	Ken Ward Top	38.4	6.6	55.0	SiL

Please pay $ 30.00 plus G.S.T. 120734389 $ 2.10 = $ 32.00

fees were paid in advance

RELATIVE AMOUNTS OF AVAILABLE AND UNAVAILABLE SOIL MOISTURE



NOTE: ALL MOISTURE BETWEEN FIELD CAPACITY AND WILTING POINT IS CONSIDERED AVAILABLE MOISTURE

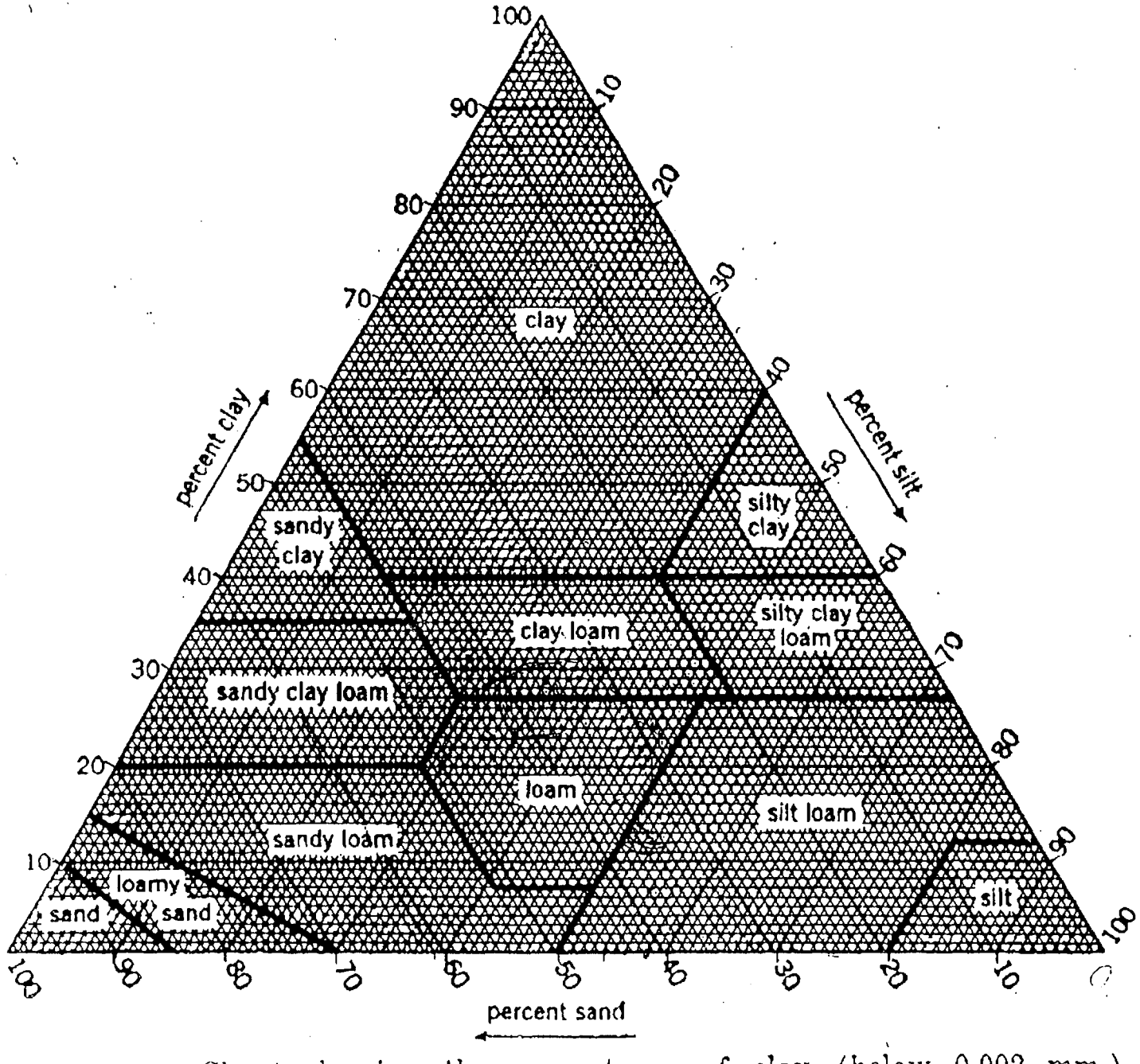


Chart showing the percentages of clay (below 0.002 mm.), silt (0.002 to 0.05 mm.), and sand (0.05 to 2.0 mm.) in the basic soil