MATERIALS SITE REPORT

MATERIALS SITE REPORT

M.S. 21-2-400-1

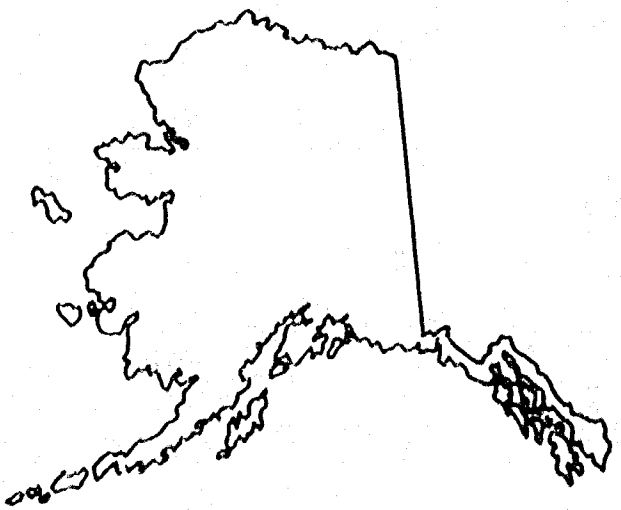
Sterling Highway, Kenai C-3

Project Number: RF-021-2(19)

Code Number: A36762

Central Region

February 1982



PREPARED BY

ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES

STANDARDS AND TECHNICAL SERVICES DIVISION

MATERIALS SECTION

ANCHORAGE, ALASKA

MATERIALS SITE REPORT

M.S. 21-2-400-1

Sterling Highway, Kenai C-3

Project Number: RF-021-2(19)

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Central Region

February 1982

Approved by:

W.H. Slater by mw

W.H. Slater,
Chief Geologist

STATE OF ALASKA
49TH
2156-E
Feb. 6, 1971
PROFESSIONAL ENGINEER

F.P. Narusch,
Central Region Materials Engineer

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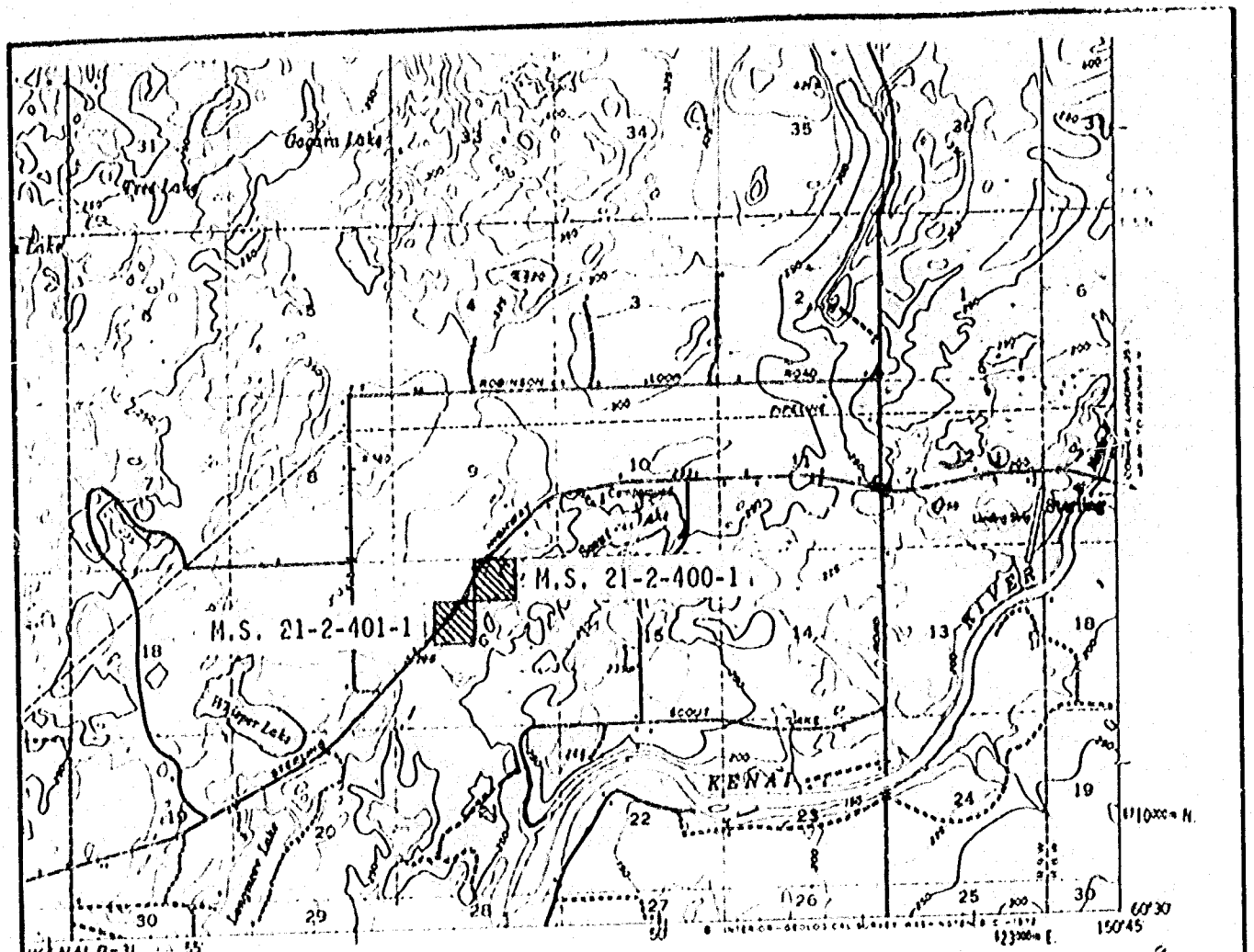
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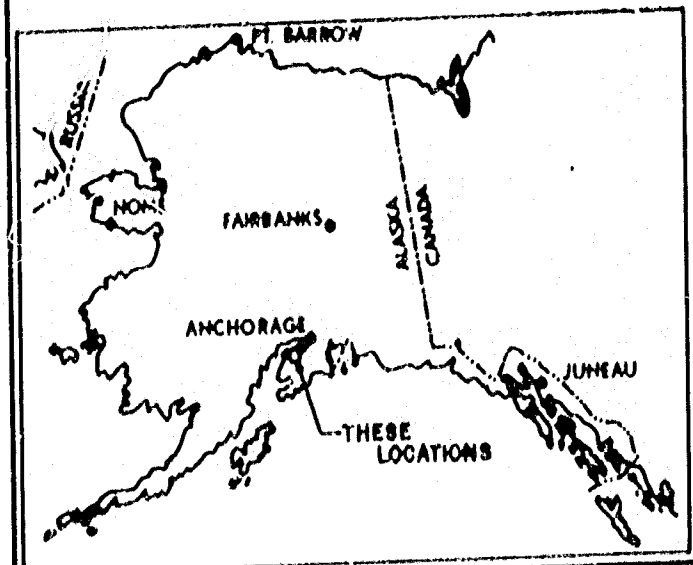
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M.S. 21-2-400-1

M.S. 21-2-401-1

LOCATION MAP

Scale 1"=1 MILE Date U.S.G.S.

MATERIAL SITE NUMBER: 21-2-400-1

LEGAL DESCRIPTION: NW ¼, NE ¼, Sec. 16, T6N, R9W, Seward Meridian, Kenai C-3 Quadrangle. (Excluding the right of way for the Sterling Highway, and the section and power lines.)

APPARENT OWNER: Alaska State Division of Lands, Department of Natural Resources.

INVESTIGATED BY: D. Rasmusen, March 1979
R. Lewis, September 1981

TOTAL ACREAGE: ± 40

ACREAGE TO BE WORKED: ± 14.5

AVERAGE OVERBURDEN THICKNESS: 2.2 Feet

LOCATION, ACCESS, AND GEOLOGY:

This material site is located at approximately mile 86.5 of the Sterling Highway, approximately 5.5 miles west of Sterling and 8.7 miles east of Soldotna. The Sterling Highway cuts through the northeast corner of the site, providing access directly to the highway system.

Near the intersection of the northern boundry of the site and the Sterling Highway is a small area where material has previously been removed. This area is directly adjacent to the highway (no vegetation screen), and presently serves as a pull-off. However, because of the loose sand in the floor of the area, it is not frequently used and vegetation (small brush) is re-establishing itself.

The material site is located within the geological province known as the Nikiska Lowland. This area is characterized by poorly drained swamps, with associated dwarf trees, commonly underlain by peat and/or organic silt; and higher, generally well-drained, forested areas consisting of material ranging from fine sand to coarse gravel.

This terrain was produced by the depositing and/or reworking of glacial, and associated proglacial deposits by streams, rivers and lakes of the late Pleistocene and early Recent geological time periods.

Materials Site 21-2-400-1 consists primarily of sand, generally medium grained and slightly moist. Occasional layers/lenses of gravelly sand and sandy gravel were also encountered in the investigation, which was conducted using a Case 1150 Dozer with rear mounted backhoe.

The overburden in the material site averages 2.2 feet and is generally comprised of approximately six inches of organic debris and roots, one foot of brown organic silt, with the remainder consisting of gray silt.

TOPOGRAPHY, VEGETATION, AND DRAINAGE:

The topography of the immediate material site is considered to be hummocky, while for the provincial Nikiska Lowland, the topography is considered to be flat to gently rolling.

TOPOGRAPHY, VEGETATION, AND DRAINAGE CONTINUED:

Vegetation in the material site consists of a dense, second growth of small spruce and birch trees approximately 0.2-0.3 feet in diameter. Occasional larger spruce, birch, and cottonwood trees up to approximately 1.5 feet in diameter are also present. This second growth is the result of a forest fire that swept the area some years ago. Numerous downed trees and logs, remanents of the first growth, criss-cross the forest floor creating a maze for men and equipment.

A water table was not encountered in any of the test pits. As a result of the hummocky terrain, there does not appear to be a defined surface drainage pattern. Excess surface water appears to collect in the low swampy areas. The drainage for the general area of the Nikiska Lowland is west toward Cook Inlet.

COMMENTS:

The east 1/16th corner monument on the north section line of Section 16 was used as control for the pocket transit and pace survey used to locate the test pits.

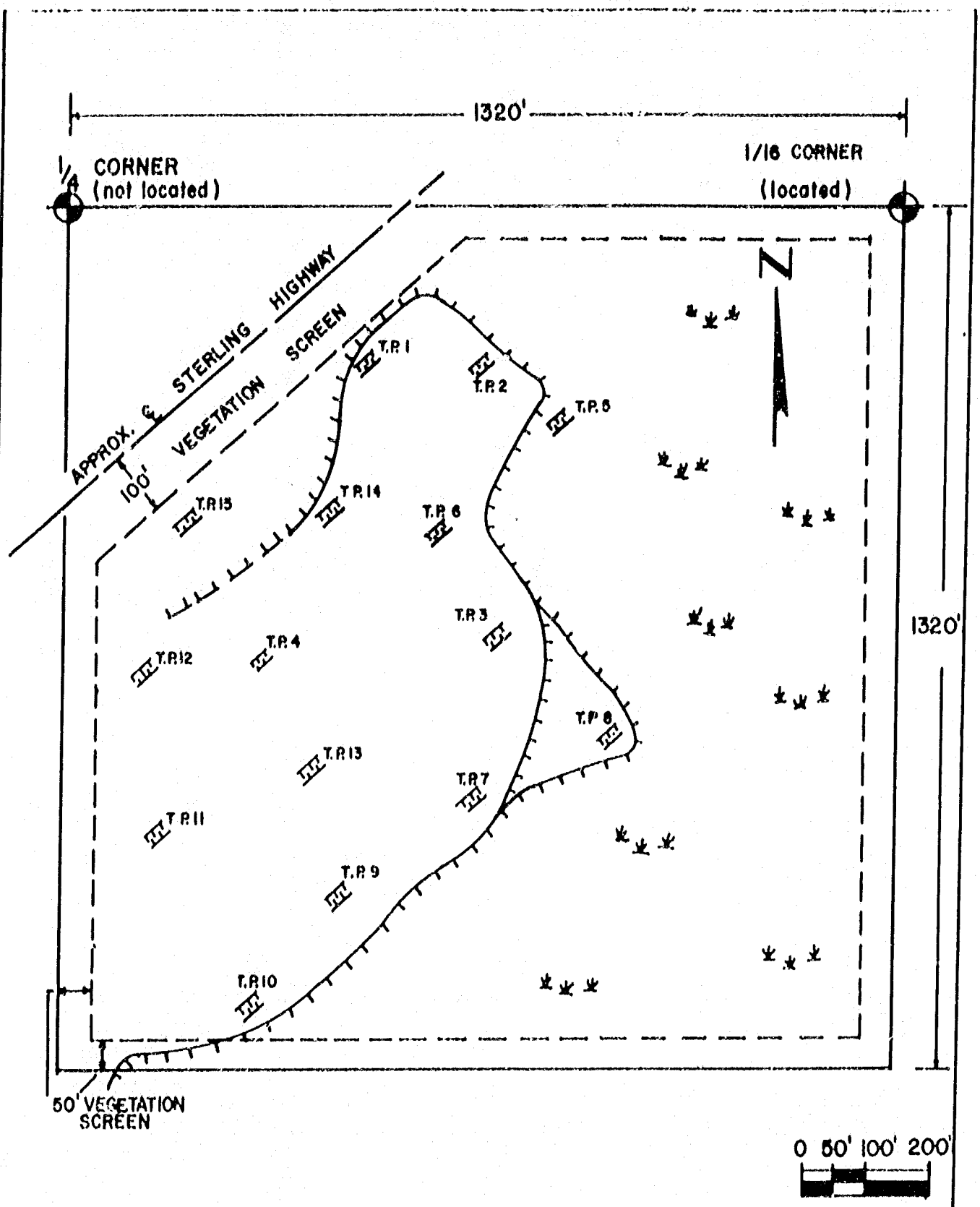
An acceptable mining plan shall be submitted to the State of Alaska, Department of Transportation, Materials Section prior to any contractor use of this pit.

Materials size definitions as used for this report are as follows:

Plus 10 inches	Boulders
3 to 10 inches	Cobbles
#10 sieve to 3 inches	Gravel (Pebbles)
#200 to #10 sieve	Sand
Minus #200 sieve	Silt/Clay

Warren B. Hays
Central Region Geologist

Robert F. Lewis
Engineering Geologist

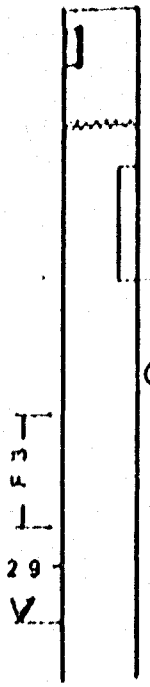


TEST PIT LOCATION MAP		M.S. 21-2-400-1	
DESIGNED R.F.L.	DRAWN B.L.H.	SCALE 1"=200'	NW 1/4 NE 1/4 Sec. 16
STATE OF ALASKA	DEPARTMENT OF TRANSPORTATION		MATERIALS

BORING LOG SYMBOLS



A-1	Gravel
A-1	Sandy Gravel
A-1	Gravelly Sand
A-3	Sand
A-2	Silty Sand
A-2	Silty Gravel
A-2	Clayey Sand
A-2	Clayey Gravel
A-4	Gravelly or Sandy Silt
A-4	Silt
A-5	Silt
A-6	Clay
A-7	Clay
	Organic Soil
	Bedrock (undiff.)
	Broken Rock



Note: No water encountered at time of boring unless indicated.

NOTE:
DESCRIPTIONS, SOIL CLASSIFICATIONS AND FROST CLASSIFICATIONS SHOWN ON TEST BORING LOGS, WHERE NOT SUPPORTED BY FIELD SAMPLES, ARE VISUAL ESTIMATES ONLY.

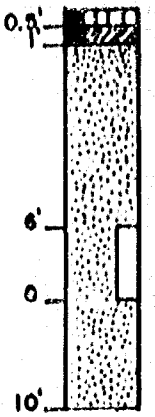
MATERIALS DESCRIPTION EXPLANATION

grl	= gravel	grn	= green
sa	= sand	bl	= blue
sl	= silt	gr	= gray
cl	= clay	blk	= black
pt	= peat	br	= brown
fib	= fibrous	y	= yellow
coa	= coarse	wh	= white
fi	= fine	wt	= water table
cob	= cobble	bkn	= broken
peb	= pebble	rk	= rock
bld	= boulder	org	= organic

PLAN VIEW SYMBOLS

- Power Auger or Drill
- Hand Auger
- Exposed Material
- Probe
- Hand Dug Test Pit
- Blasted Test Pit
- Dozer Trench
- XXXXX Berm
- Terrace or Bank
- Swamp
- Treeline

T.P.-1
3/6/79

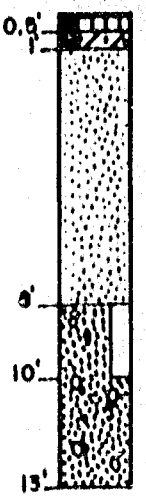


ORGANICS
SILTY SAND, DENSE, DAMP.

SAND, CLEAN, MED. DENSE-LOOSE, DAMP.

FS-1, A-3, NFS.

T.P.-2
3/6/79



ORGANICS
SANDY SILT, DENSE.

SAND, MED. DENSE, DAMP.

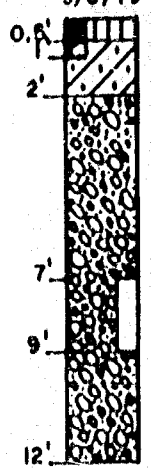
● SFS-1

FS-2 A-1-b, NFS

GRAVELLY SAND W/OCC. COBBLES, MED. DENSE, DAMP

3"-10" = 1-5%

T.P.-3
3/6/79

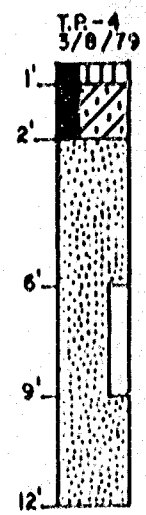


ORGANICS
SANDY SILT, DENSE.

SANDY GRAVEL W/OCC. SAND LAYERS, MED. DENSE, DAMP.

FS-3, A-1-a, NFS.

T.P.-4
3/6/79



ORGANICS
SANDY SILT, DENSE.

SAND, MED. DENSE, DAMP.

FS-4, A-3, F2.

NOTE: Plus 3" percentages are visual estimations only

FIELD TESTHOLE LOG		M.S. 21-2-400-1	
DATA R.F.L.	DRAWN B.L.H.	SCALE 1" = 5'	SHEET 1 OF 4
STATE OF ALASKA	DEPARTMENT OF TRANSPORTATION		MATERIALS

T.P.-5
9/1/81



BROWN ORGANIC SILT

GRAY GRAVELLY SAND W/ THIN LAYERS/ LENSES OF GRAVEL, WELL ROUNDED PEBBLES & COBBLES, MAX. SIZE = 4" PLUS 3"=1%

FS-5 NOT TESTED

T.P.-6
9/1/81



BROWN ORGANIC SILT

GRAY SAND, SLIGHTLY MOIST

FS-6, A-3, NFS

T.P.-7
9/1/81



BROWN ORGANIC ROOT MAT

BROWN ORGANIC SILT

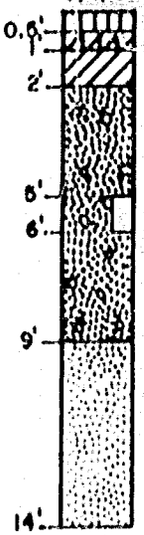
GRAY SILT

GRAY GRAVELLY SAND W/ ROUNDED TO W. ROUNDED PEBBLES, MAX. SIZE = 3" SLIGHTLY MOIST.

FS-7, A-1-b, NFS

GRAY SAND

T.P.-8
9/1/81



BROWN ORGANIC ROOT MAT
RUST BROWN ORGANIC SILT
GRAY SILT

GRAY GRAVELLY SAND W/ SUB ANGULAR TO W. ROUNDED PEBBLES & COBBLES, MAX. SIZE = 6" PLUS 3"=2% SLIGHTLY MOIST

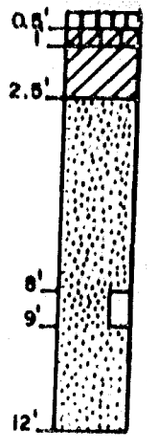
FS-8, A-1-b, NFS

GRAY SAND, SLIGHTLY MOIST.

NOTE: Plus 3" percentages are visual estimations only

FIELD TESTHOLE LOG		M.S. 21-2-400-1	
DATA R.F.L.	DRAWN B.L.H.	SCALE 1"=5"	SHEET 2 OF 4
STATE OF ALASKA	DEPARTMENT OF TRANSPORTATION		MATERIALS

T.P.-9
9/2/81

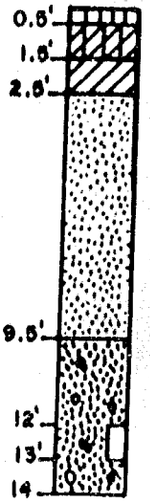


DARK BROWN ORGANIC ROOT MAT
BROWN ORGANIC SILT
BROWN SILT

GRAY SAND, MEDIUM TO COARSE GRAINED W/OCC. W ROUNDED PEBBLES. SLIGHTLY MOIST.

FS-9, NOT TESTED

T.P.-10
9/2/81

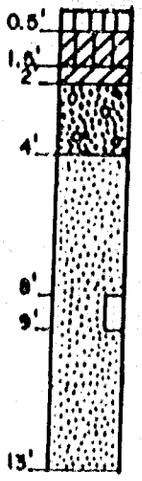


DARK BROWN ORGANIC ROOT MAT
RUST BROWN ORGANIC SILT
GRAY SILT

GRAY SAND, MED. TO COARSE GRAINED W/OCC. W ROUNDED PEBBLES. SLIGHTLY MOIST.

GRAY GRAVELLY SAND W/ ROUNDED TO W. ROUNDED PEBBLES & COBBLES. MAX. SIZE=4", PLUS 3" < 1%
FS-10, A-1-b, NFS.

T.P.-11
9/2/81

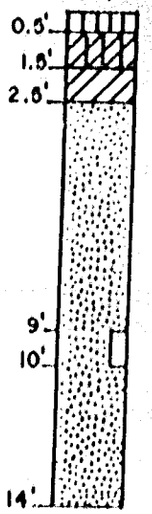


DARK BROWN ORGANIC ROOT MAT
RUST BROWN ORGANIC SILT
GRAY SILT
GRAY SANDY GRAVEL W/ SUB-ANGULAR TO W. ROUNDED PEBBLES & COBBLES. MAX. SIZE=6", PLUS 3"=8%

GRAY SAND, MED. GRAINED W/ THIN (< 6") BANDS OF GRAVEL. SLIGHTLY MOIST.

FS-11, A-1-b, NFS.

T.P.-12
9/2/81



DARK BROWN ORGANIC ROOT MAT
BROWN ORGANIC SILT
GRAY SILT

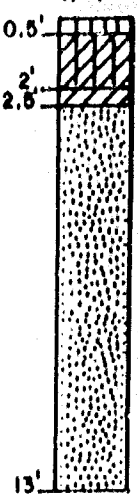
GRAY SAND, MED. GRAINED W/OCC. SUB-ROUNDED PEBBLES. SLIGHTLY MOIST.

FS-12', NOT TESTED

NOTE: Plus 3" percentages are visual estimations only

FIELD TESTHOLE LOG		M.S. 21-2-400-1	
DATA R.F.L.	DRAWN B.L.H.	SCALE 1"= 5'	SHEET 3 OF 4
STATE OF ALASKA	DEPARTMENT OF TRANSPORTATION	MATERIALS	

T.P.-13
9/2/81

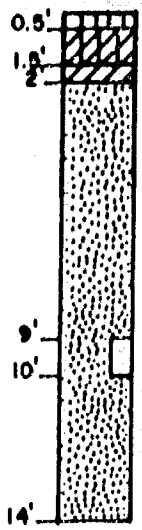


DARK BROWN ORGANIC ROOT MAT
BROWN ORGANIC SILT
GRAY SILT

GRAY SAND, MED. GRAINED W/ OCC. W. ROUNDED PEBBLES. SLIGHTLY MOIST.

● SFS-12

T.P.-14
9/3/81

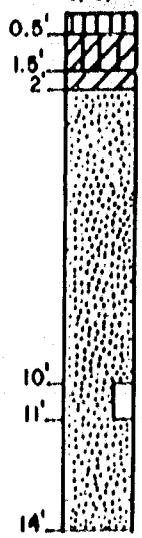


DARK BROWN ORGANIC ROOT MAT
BROWN ORGANIC SILT
GRAY SILT

GRAY SAND, FINE TO MED. GRAINED, SLIGHTLY MOIST.

FS-13, A-3, NFS.

T.P.-15
9/3/81



DARK BROWN ORGANIC ROOT MAT
BROWN ORGANIC SILT
GRAY SILT

GRAY SAND FINE TO MED. GRAINED, SLIGHTLY MOIST

FS-14, NOT TESTED

NOTE: Plus 3" percentages are visual estimations only

FIELD TESTHOLE LOG		M.S. 21-2-400-1	
DATA R.F.L.	DRAWN B.L.H.	SCALE 1"= 5'	SHEET 4 OF 4
STATE OF ALASKA	DEPARTMENT OF TRANSPORTATION		MATERIALS

Rev.

Jan. 13, 1981

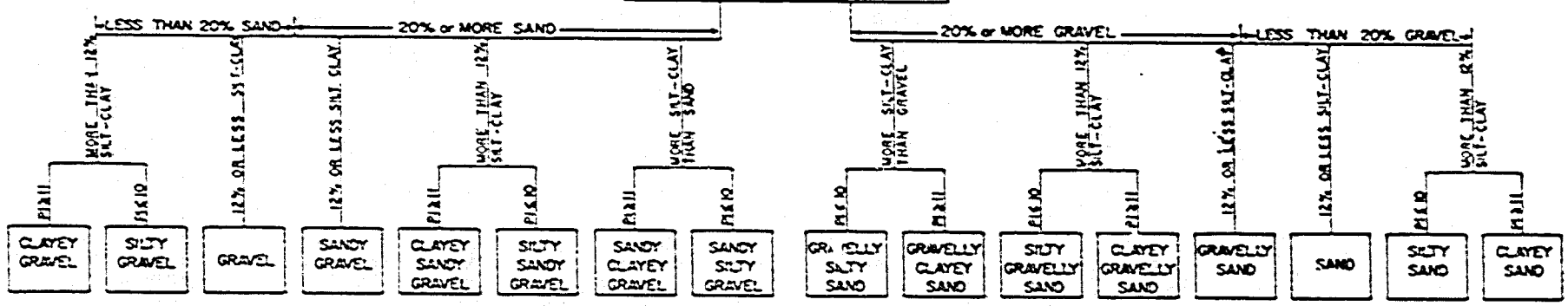
ALASKA DEPARTMENT OF TRANSPORTATION ENGINEERING SOIL CLASSIFICATIONS

NOTE: All silts with a plastic index > 4 shall be termed "clayey".

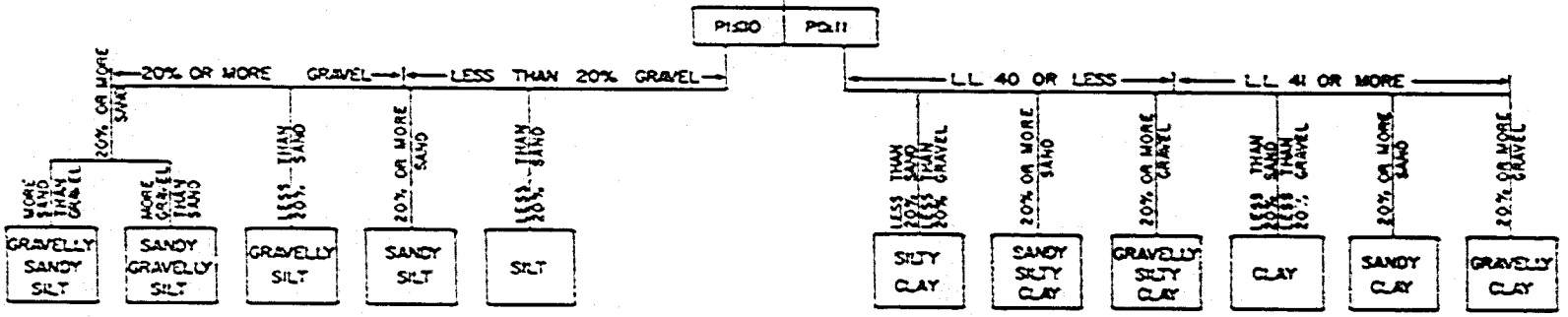
NOTE: Sands and gravels with 7% thru 12% silt and/or clay (#200) shall be termed slightly silty or if plastic (PI > 4), slightly clayey sand or gravel.

(CLAYS—#200)
(SILTS—#200)
(SAND—#200 TO #10)
(GRAVEL—#10 TO 3" DIAMETER)

COARSE—GRAINED SOILS
35% OR LESS SILT—CLAY



FINE—GRAINED SOILS
36% OR MORE SILT—CLAY



-01-

SOILS TESTING REPORT

Sheet 1 of 2

PROJECT NAME M.S. 21-2-400-1 PROJECT NO. RF-021-2(19) CODE NO. A36762

CENTERLINE MATERIAL SITE Soils SAMPLED BY Lewis

STATION									
OFFSET (FEET)									
DEPTH (FEET)		6-8	8-10	7-9	6-9	7-8	9-10	5-6	12-13
TEST HOLE NO.		1	2	3	4	6	7	8	10
FIELD NO.		1	2	3	4	6	7	8	10
DATE SAMPLED		3-8-79	3-8-79	3-8-79	3-8-79	8-1-81	8-1-81	8-1-81	8-1-81
LAB NO. 79A-		194	195	196	197	81A-1679	81A-1680	81A-1681	81A-1682
ESTIMATED %+10"									
ESTIMATED %+ 3"								2	1
PERCENT PASSING	3"		100	100			100		100
	2"		91	93			98	100	99
	1"		87	86			88	92	85
	3/4"		82	81		100	82	87	81
	1/2"		77	75		99	75	80	76
	3/8"		73	70		99	70	76	72
	# 4		64	57		99	62	66	65
	#10	100	57	45	100	99	54	55	59
	#40	91	32	18	92	94	27	8	31
	#50	27	15	9	72		14	3	16
	#100	2	4	5	20		4	1	4
	#200	1	2	4	6	4	2	1	1
	.02mm				4				
	.005mm								
LIQUID LIMIT		NA	NA	NA	NP	NA	NA	NA	NA
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP	NP
NAT. MOISTURE									
AASHO CLASS		A-3	A-1-b	A-1-a	A-3	A-3	A-1-b	A-1-b	A-1-b
F.S.V.		NFS	NFS	NFS	F2	NFS	NFS	NFS	NFS
SOILS DESCRIPTION		SA	GRL SA	SA GRL	SA	SA	GRL SA	GRL SA	GRL SA
SP. G., FINE				2.57				2.71	
SP. G., COARSE				2.66				2.72	
SULFATE SOUNDNESS				1				1	
L.A. ABRASION LOSS				14				12	
Degradation Value				66				75	

DH-215 2/73

SOILS TESTING REPORT

PROJECT NAME M.S. 21-2-400-1 PROJECT NO. RF-021-2(19) CODE NO. A36762

CENTERLINE _____ MATERIAL SITE Soils SAMPLED BY Lewis

STATION			
OFFSET (FEET)			
DEPTH (FEET)		8-9	9-10
TEST HOLE NO.		11	14
FIELD NO.		11	13
DATE SAMPLED		8-2-81	8-3-81
LAB NO.	81A-	1683	1684
ESTIMATED %+10"			
ESTIMATED %+ 3"			
PERCENT PASSING	3"		
	2"		
	1"	100	
	3/4"	98	
	1/2"	97	
	3/8"	95	
	# 4	92	
	#10	89	100
	#40	40	93
	#50		59
	#100		8
	#200	0	2
	.02mm		
	.005mm		
LIQUID LIMIT		NA	NA
PLASTIC INDEX		NP	NP
NAT. MOISTURE			
AASHO CLASS		A-1-b	A-3
F.S.V.		NFS	NFS
SOILS DESCRIPTION		SA	SA
SP. G., FINE			
SP. G., COARSE			
SULFATE SOUNDNESS			
L.A. ABRASION LOSS			

DH-215 2/73

25-220
11-8/78
CHIEF MATERIALS ENGINEER

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

LAB REPORT

PRECONSTRUCTION [X] CONSTRUCTION [ ]
ACCEPTANCE [ ] QUALITY [X]
ASSURANCE [ ] INFORMATION [ ]
FINAL RECORD [ ]

TEST OF Aggregate ITEM NO.

PROJECT NO. RF-008(14) PROJECT NAME Central Region Matrl. Site Invest. LABORATORY NO. 79A-196
SAMPLED FROM Pit SUBMITTED BY Rasmussen FIELD NO 3
SOURCE 21-2-400-1 QUANTITY REPRESENTED DATE 4-20-79
LOCATION (RDWY.) TH 3 DEPTH 7-9' DATE SAMPLED 3-8-79
EXAMINED FOR Quality SPECIFICATION DATE RECEIVED 3-12-79

% PASSING SIEVE	AS RECEIVED		SPEC.
4"			
3"	100		
2"	93		
1 1/2"	91		
1"	86		
3/4"	81		
1/2"	75		
3/8"	70		
#4	57		
#8	47		
#10	45		
#16	38		
#20			
#30	26		
#40	18		
#50	9		
#80			
#100	5		
#200	4		
.02MM			
.005MM			
DUST RATIO			

	SPEC.
OPTIMUM MOISTURE	
MAX. DRY DENSITY	
MAX. DENSITY NUMBER	
CORR. MAX. DRY DENSITY	
FIELD DENSITY	
FIELD MOISTURE	
% COMPACTION	
% + ¾"	
% + NO. 4	
AASHO T1000 [ ] ALASKA T-12 [ ]	
% FRACTURE	
DEGRADATION VALUE 66	
NATURAL DENSITY	
NATURAL MOISTURE	
WEIGHT LOOSE	
WEIGHT RODDED	
MISCELLANEOUS	

Bitumen: *Chev. AC-5.
Add.: Pave Bond
Special (Unilacron).
STATIC IMMERSION
BRAND * 0% 100. ½% 100.
1% 1½% 2%

	SPEC
% + 10"	
% + 3"	
% GRAVEL 55	
% SAND 41	
% SILT 4	
% CLAY	
FSV NFS	
LL NV	
PL NV	
PI NP	
SOIL CLASS A-1-a	
Sa Grl	

DELETERIOUS MATERIALS:

	COURSE	SPEC	FINE	SPEC
MINUS #200 MESH				
SOFT FRAGMENTS				
COAL & LIG. OR LT. WT. PART.	0.0			
CLAY LUMPS				
STICKS & ROOTS	0.0			
FRIABLE PARTICLES	0.0			
SPECIFIC GRAVITY (Bulk)	2.66		2.57	
ABSORPTION	0.7		2.0	
FINENESS MODULUS				
SULFATE SOUNDNESS	1		1	
FREEZE-THAW RATIO				

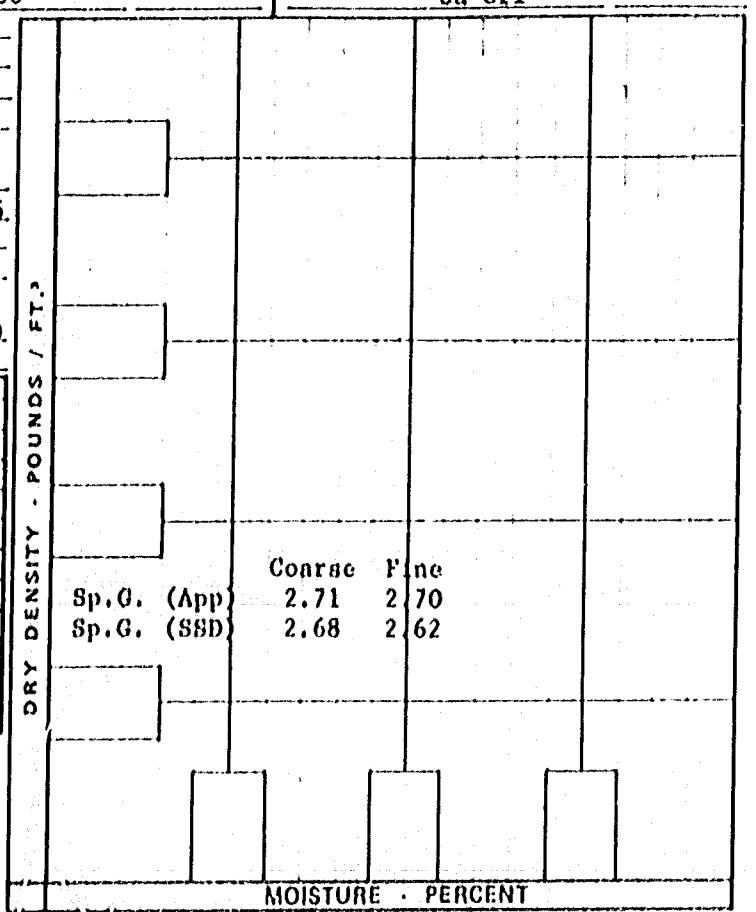
L.A. ABRASION LOSS 14 GRADE A
THIN/ELONGATED
ORGANIC COLOR More THAN 500 PPM

	Coarse	Fine
Sp.G. (App)	2.71	2.70
Sp.G. (SSD)	2.68	2.62

MORTAR COMPRESSION STRENGTH:

	STANDARD	SAMPLE	RATIO	SPEC
7 DAY, PSI	2670	2860	107	95 min.
DAY, PSI				

DESCRIPTION OF MATERIALS
REMARKS



FOR ROAD MATERIALS LABORATORY USE ONLY

WHEN PROCESSED TO CONFORM TO GRADING REQUIREMENTS MATERIAL IS SATISFACTORY FOR

Subbase, BaseCourse, Bituminous Surfacing, Fine and Coarse Concrete Aggregate.

CONFORM TO SPECIFICATIONS:
YES [ ] NO [ ] N.A. [X]

SIGNATURE Dan W. Herman, C.R.M.E.
TITLE

26-270
R-8/78
CHIEF MATERIALS ENGINEER

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

LAB REPORT

PRECONSTRUCTION [X] CONSTRUCTION [ ]
ACCEPTANCE [ ] QUALITY [ ]
ASSURANCE [ ] INFORMATION [ ]
FINAL RECORD [ ]

TEST OF Soil ITEM NO.
PROJECT NO F-021-2(19) PROJECT NAME Sterling Hwy, Mi. 84 to Soldotna
SAMPLED FROM Combo, FS 7, 8, & 10 SUBMITTED BY Lewis
SOURCE QUANTITY REPRESENTED
LOCATION (HWY.) MS-21-2-400-1 DEPTH
EXAMINED FOR Quality SPECIFICATION

LABORATORY NO. 81A-1685
FIELD NO 7, 8 AND 10
DATE 10/01/81
DATE SAMPLED
DATE RECEIVED 9/14/81

% PASSING SIEVE	AS RECEIVED		SPEC
4"			
3"			
2"			
1 1/2"			
1"			
3/4"			
1/2			
3/8"			
#4			
#8			
#10			
#16			
#20			
#30			
#40			
#50			
#80			
#100			
#200			
.02MM			
.005MM			
DUST RATIO			

	SPEC
OPTIMUM MOISTURE	
MAX. DRY DENSITY	
MAX. DENSITY NUMBER	
CORR. MAX. DRY DENSITY	
FIELD DENSITY	
FIELD MOISTURE	
% COMPACTION	
% + 3"	
% + NO. 4	
AASHO T180 [ ] ALASKA T-12 [ ]	
% FRACTURE	
DEGRADATION VALUE 75	
NATURAL DENSITY	
NATURAL MOISTURE	
WEIGHT LOOSE	
WEIGHT RODDED	
MISCELLANEOUS	

	SPEC
% + 10"	
% + 3"	
% GRAVEL	
% SAND	
% SILT	
% CLAY	
FSV	
LL	
PL	
PI	
SOIL CLASS	

STATIC IMMERSION
BRAND ___ 0% ___ ½% ___
1% ___ 1½% ___ 2% ___

DELETERIOUS MATERIALS:

	COURSE	SPEC	FINE	SPEC
MINUS #200 MESH				
SOFT FRAGMENTS				
COAL & LIG OR LT WT PART.	0		0	
CLAY LUMPS				
STICKS & ROOTS	0			
FRIABLE PARTICLES	0		0.2	
SPECIFIC GRAVITY App.	2.72		2.71	
ABSORPTION	0.5		1.1	
FINENESS MODULUS				
SULFATE SOUNDNESS	1		2	
FREEZE-THAW RATIO				

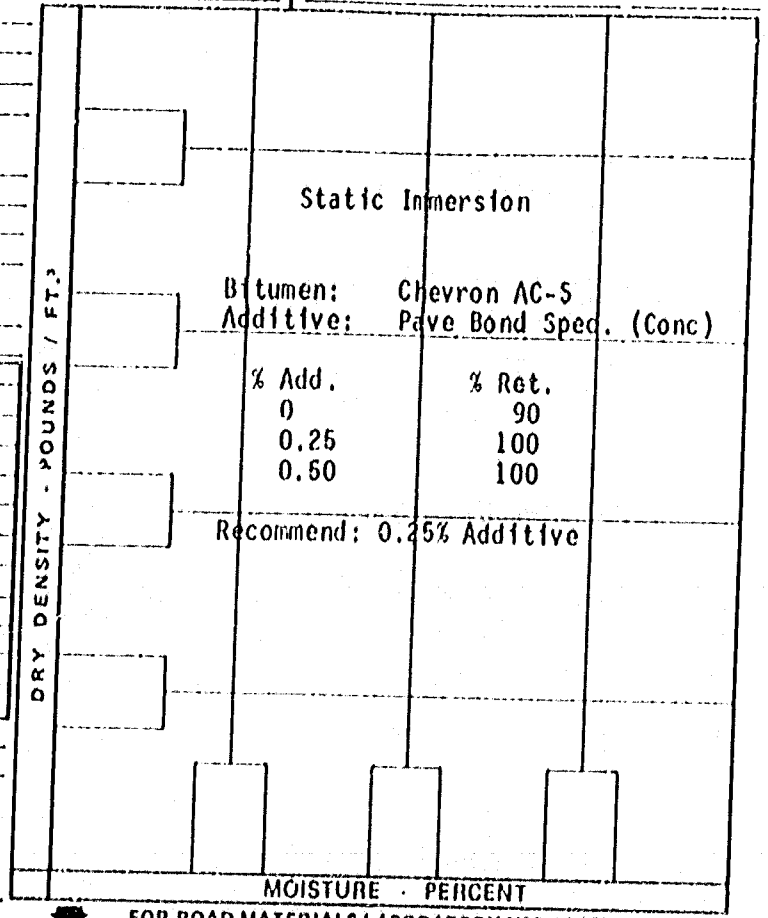
L.A. ABRASION LOSS 12 GRADE A
THIN ELONGATED
ORGANIC COLOR Less THAN 500 PPM

MORTAR COMPRESSION STRENGTH:

	STANDARD	SAMPLE	RATIO	SPEC
___ DAY, PSI				
___ DAY, PSI				

DESCRIPTION OF MATERIALS

REMARKS	Coarse	Fine
Bulk	2.68	2.63
S.S.D.	2.69	2.66



FOR ROAD MATERIALS LABORATORY USE ONLY

WHEN PROCESSED TO CONFORM TO GRADING REQUIREMENTS THE MATERIAL IS SATISFACTORY FOR
Subbase, Base Course, Bituminous and Concrete Aggregate

CONFORM TO SPECIFICATIONS
YES [ ] NO [ ] N.A. [X]

SIGNATURE Frank P. Narusch for

TITLE Frank P. Narusch CRME sd