

NATIONAL GUARD ARMORY
SITE CIVIL ENGINEERING
(RECONNAISSANCE) ANALYSIS
JUNEAU, ALASKA

Prepared for:

STATE OF ALASKA
DEPARTMENT OF MILITARY AFFAIRS
Facility Management Division
P.O. Box 5-549
Richardson, AK 99505

Prepared by:

R&M ENGINEERING, INC.
6205 Glacier Highway
P.O. Box 34278
Juneau, AK 99803

R&M Project No. 961483

TABLE OF CONTENTS

INTRODUCTION	1
SITE LOCATION	1
SITE ZONING	1
SITE LEGAL DESCRIPTION	1
PLANNED SITE FACILITIES (15,000 SF ARMORY; 7,000 SF OMS)	1
SITE GEOLOGY	2
SOILS PROBES	2
EXISTING CONDITIONS	2
VEGETATION	2
DRAINAGE	2
UTILITIES	2
WETLANDS	3
HABITAT	3
HEINTZLEMAN TRAIL	3
ADJACENT PROPERTIES	3
SITE DEVELOPMENT	4
SITE DOCUMENTS	4
TOPOGRAPHIC (PHOTOGRAMMETRIC) MAPPING (HORIZ. SCALE 1"=100' W/5'C.I.)	4
GEOLOGICAL MAP W/PROBES	4
SITE PLAN	5
ADJACENT PROPERTY PLANS	5
ESTIMATE SITE (CIVIL) DEVELOPMENT COST	5
AERIAL PHOTOGRAPHY	5
WETLANDS MAPPING	5
LETTER AGREEMENT	5
REQUIRED DEVELOPMENT PERMITS	5
CLOSURE	6
APPENDIX A	SITE DEVELOPMENT DRAWINGS
	Topographic Mapping - Sheet 1 of 3
	Site Soils & Geology - Sheet 2 of 3
	Site Concept Drawing - Sheet 3 of 3
	Adjacent Lands "Approved" Subdivision
APPENDIX B	COST ESTIMATES
	COST ESTIMATE LIMITATIONS
APPENDIX C	AERIAL PHOTOGRAPHY
APPENDIX D	WETLANDS MAPPING (CBJ)
APPENDIX E	LETTER AGREEMENT

INTRODUCTION

Per the letter of agreement received on 12/23/96, R&M Engineering Inc. has prepared this site analysis report for a future National Guard Armory and OMS (vehicle maintenance shop) facility to be constructed in Juneau, Alaska. The work to be performed was outlined in a one page letter of agreement with an attached drawing. That document outlined the desired parameters of the Alaska Army National Guard. It is included in Appendix E.

SITE LOCATION

The study site consists of Lots 2, 3 & 4; and Lots 21, 22 & 23, U.S. Survey No. 3258. The site is located 7 miles west-northwest of Juneau's Capital building and 2 miles east of Juneau International Airport. The site fronts Glacier Highway. The site is 0.25 of a mile west of the Alaska Department of Transportation and Public Facilities, Southeast Regional Complex. The site is "central" to Juneau's population centers.

SITE ZONING

The study site is zoned "LC" (light commercial). The LC district is intended to accommodate commercial development that is less intensive than the general commercial district. Light commercial districts are primarily located adjacent to existing residential areas. Although many of the uses allowed in this district are also allowed in the GC (general commercial) district, they are listed as "conditional uses" and therefore require planning commission review to determine compatibility with surrounding land uses.

A lower level of intensity of development is also achieved by stringent height and setback restrictions.

SITE LEGAL DESCRIPTION

The site's legal description is;

All of Lots 2, 3, 4, 21, 22, and 23, U.S. Survey No. 3258, (within protracted Section 33, T.40S., R.66E., Copper River Meridian), First Judicial District, City and Borough of Juneau, State of Alaska.

Containing 7.26 Acres.

As shown on the topographic mapping drawings prepared for the site feasibility study, the individual lot areas vary between 1.05 acres and 1.3 acres. Please refer to said drawings within Appendix A, sheets 1 of 3.

PLANNED SITE FACILITIES

The letter of agreement (Appendix E) outlined in item 3 that;

Number of Buildings and Type: Two building, 15,000 square foot armory and a 7,000 square foot OMS (Vehicle Maintenance Shop).

.....

Additionally, a map of the lands to be reviewed was attached. Two rectangular buildings were shown on said map in an appropriate/approximate arrangement. R&M has modified that suggested arrangement to meet the site conditions as we found them.

SITE GEOLOGY

The study site is located at the base of Heintzleman Ridge north of Sunny Point. The area soils reflect post glacial geologic events. Three types of surficial soil units are identified. These soil units are colluvium, peat and glacial marine deposits.

Soils Probes

Site Analysis Sheet 2 of 3 (Appendix A) reflects the area geology. In addition, soils probes were conducted in the past on adjacent properties (USS No. 2476) and on this study's subject lands. The locations of the probes and two tables of soil probe with descriptions are on the drawing. Soils probes indicate that a thick (4' to 10') layer of peat covers most of lots 2-4 and extends into lots 21 through 23. Peat generally extends until the terrain begins to steepen towards Heintzleman Ridge. At this slope break, colluvial deposits which include angular rock to 3' in diameter exists.

Geological mapping and our area experience indicate that the peat is probably underlain by glacial marine silts and sand. The depth to bedrock is unknown, however, bedrock outcrops are exposed at Sunny Point, 1/4 mile to the south.

EXISTING CONDITIONS

The following is a summary of existing site conditions.

Vegetation: The site is an old growth forest, predominantly hemlock and spruce trees with blueberry and devils club understory. The forest density is shown by the aerial photography included within Appendix C.

Drainage: The site drains from north to south. One distinct drainage (seasonal) creek passes through the site. The drainage "gully" is at a maximum 3' deep and 8' wide. During the time of the study and prior to snow cover, the stream was dry. It is our belief that the stream is probably seasonal, handling runoff from Heintzleman Ridge to the north.

Two roadway culverts exist. One culvert is a roadway cross drainage culvert (most westerly) while the other culvert handles the existing drainage stream described above. Both culverts are 24" in diameter and do not appear to have any problems handling the surface drainage flow.

Utilities: Site utilities were taken from both as-built "record" drawings and the photogrammetric mapping conducted from aerial photography taken in September, 1996 by R&M (see Appendix C).

Below ground utilities were obtained from as-built drawings provided our firm by ADOT/PF and the City and Borough of Juneau - Engineering Department. Existing at the north side of Glacier Highway is a ductile iron water main. It is reported as both 20" D.I. (DOT drawings) and a 18" D.I. Main (CBI drawings). It is buried at least 5.5' below the ground surface. Located on the south side of Glacier

.....

Highway is a sewer interceptor. A manhole for the sewer interceptor is located near the westerly tract boundary on the south side of the roadway improvements. The line is gravity. It is reported as 12" PVC by CBJ records and 12" D.I. by DOT records.

Alaska Electric Light & Power Company (AEL&P) have a system of utility poles on the south side of Glacier Highway. The utility pole locations are shown on the topographic mapping (sheet 1 - Appendix A). These utility poles include;

- A 69 KV high voltage transmission main;
- PTI Communications telephone line;
- A 220 electric service lines;
- BC Cable television line.

Wetlands: The City and Borough of Juneau has completed a wetlands study. A copy of CBJ's wetland evaluation mapping; wetlands evaluation results and land use information is attached by Appendix D. It reflects that wetlands are within the site area. Shown on our geological mapping (sheet 2 - Appendix A) is our interpretation of the "designated wetland" area.

We have discussed these wetlands with local Corps of Engineers representatives (Ralph Thompson and Terry Stone). They feel a COE permit for site development will be required. They will delineate the exact limits of the wetlands in the spring. In the meantime, a letter with similar mapping is being prepared by the COE.

Habitat: We have obtained from the Alaska Department of Fish & Game area habitat mapping. The site stream is not considered a fish stream. Deer and bear habitat exist in this area.

Heintzleman Trail: The trailhead for Heintzleman Ridge trail is located on the boundary of Lot 2/3, U.S.S. #3258. It meanders through lots 2, 3 and 22, U.S.S. #3258. We conducted a crude compass/hip tape survey of the trail. Trailhead parking is across (south side) Glacier Highway. See the site topographic mapping (sheet 1 -Appendix A) for the trail and trailhead parking locations.

ADJACENT PROPERTIES

Adjacent to this land is the following;

To the East: The Alaska Department of Transportation and Public Facilities complex lies to the east. ADOT/PF encompass lots 14 - 21 and lots 4 - 11 of USS No. 3258. ADOT/PF facilities *encroach* on two of the lots (lots 4 & 21) under study consideration by the Alaska National Guard.

To the North: Vacant lands lie to the north. These lands are currently owned by State of Alaska Mental Health Trust. The City and Borough of Juneau is considering a land trade for these lands.

To the West: Two parcels lie to the west. Lot 33, USS No. 3258. This parcel is owned by the State of Alaska Mental Health Trust. It too is being considered in a land trade with the City and Borough of Juneau.

U.S.S. No. 2476 also lies to the west. It is privately owned. Our firm developed a subdivision for this land in 1985. That subdivision expired without construction. During 1996, others submitted a

preliminary and final plat for subdivision development for this land parcel. That subdivision plat was approved for development (see Appendix A). Mr. Bill Smith of CBJ's Community Development Department stated the subdivision is "stalled" due to a lack of financial guarantees (bonds) and bank commitments.

SITE DEVELOPMENT

Part of our charge was recommending building locations. On our sheet 3 of 3, we show our building placement recommendations which we feel "fit" the land. We are taking into consideration the natural existing drainage feature at the east side of Lot 3 and west side of Lot 4. We are taking into account area wetlands. We are taking into account Heintzleman Ridge trail by including a trail relocation. We are taking into account CBJ's required vehicle parking ordinances. We are allowing an area for a field training obstacle course to the north and the future expansion area to the east (lot 4). We are also taking into account the National Guard desire to be *visual*.

The building configurations are similar for the armory as outlined in the National Guard provided sketch. The arrangement of the OMS building is different.

A project site development cost estimate analysis has been completed. It is within Appendix B. We have compared the cost of two site development methods, overexcavation and backfill vs. pile construction. This was due to the lack of a complete soils analysis. It is our estimate that overexcavation and backfill methods of site development are more cost effective for this site. This analysis does not take into account possible earthquake concerns of the Alaska National Guard. However, we must state that this analysis was accomplished based on a preliminary (reconnaissance) soil study, photogrammetric survey data and an assumed development configuration. This analysis in no way diminishes the need for an accurate site topographic survey; a complete subsurface soils exploration study, a Level 1 site analysis and other details required for development plans and site costing purposes.

It is our opinion that the site civil development construction costs (excluding buildings and electrical, telephone and cable TV services) is estimated to range between \$1,019,195 and \$1,128,925, including a 15% estimating contingency factor. We estimate other directly related costs between \$191,700 and \$208,705 (includes land and engineering surveys; soils investigations; site civil design; administration; legal and inspection services).

SITE DOCUMENTS

98-99 survey

The following site documents are included within project Divisions.

Topographic Mapping: The site and adjacent property topographic mapping by photogrammetric methods is included within Appendix A. This mapping is at a direct horizontal scale of 1"=100'. This mapping has a 5' contour interval. The mapping was accomplished photogrammetrically, therefore, its accuracy does not conform to National Mapping Standards because of vegetation cover.

Geological Mapping with Probes: Included on sheet 2 of 3 in Appendix A is a geological map of the area. Two tables of soils probes are included on this drawings.

Site Plan: We developed a conceptual site plan. The site plan includes a "typical" cross section. This site plan was used to base our site development costs on. It is in Appendix A on sheet 3 of 3.

Adjacent Property Plans: U.S.S. No. 2476 has an approved subdivision that has yet to be developed. A print to the approved subdivision plat is in Appendix A.

Estimated Site (Civil) Development Costs: Site civil development costs (excluding electrical services and building foundation consideration - save and except piles) is included within Appendix B.

Aerial Photography: A recent aerial photograph taken on September 3, 1996 is included within Appendix C.

Wetlands Mapping: Copies of CBJ Wetlands mapping is included in Appendix D.

Letter Agreement: A copy of our letter agreement is included in Appendix E.

REQUIRED DEVELOPMENT PERMITS

The following is a listing of development permits that will be required from the City and Borough of Juneau and others to construct the facility;

- | | |
|---------------------------------|---|
| ▶ Conditional Use Permit | ▶ COE 401 Permit |
| ▶ Allowable Use Permit | ▶ DEC 404 Permit |
| ▶ Design Board Approval | ▶ ADF&G Title 16 Permit(?)* |
| ▶ Wetlands Board Approval | ▶ ADOT/PF Driveway Permit |
| ▶ CBJ Grading & Drainage Permit | ▶ CBJ Building Permit (including plan review approval). |
| ▶ Hillside Endorsement(?)* | ▶ ADOT/PF Utility Permit |
| ▶ DNR Permit(?)* | |

*These permits are questionable as they may not be required. The State of Alaska, Office of the Governor, Division of Government Coordination will determine their need.

CLOSURE

This document and its attached Appendices conclude our site (reconnaissance) analysis for the State of Alaska, Department of Military and Veterans Affairs - Facilities Management Division. The site analysis includes all items outlined in the letter of agreement, plus additional work documents that we have prepared and/or provided.

The project analysis reflects that the total site development costs are estimated between \$1,210,895 and \$1,337,630. It also reflects that the most economical means of developing the site is by overexcavation and backfill methods.

The costs submitted in this report should be considered preliminary, for budgetary purposes.

Should questions arise regarding the submitted data, please contact our office at your convenience.

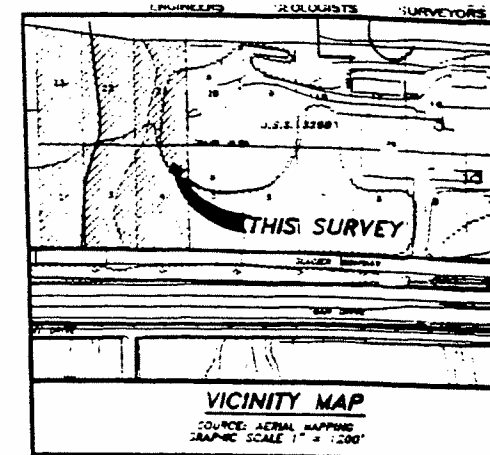
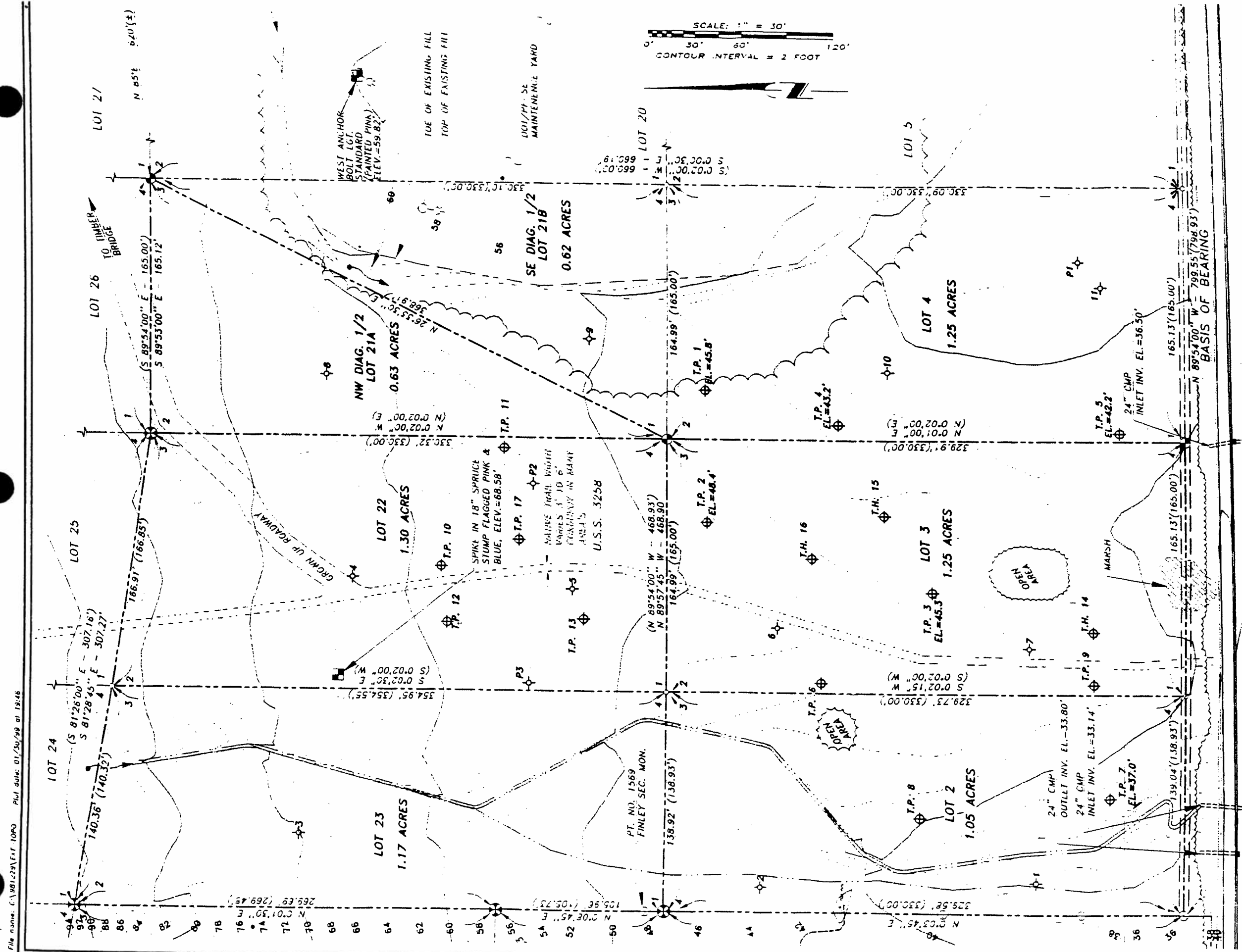
Sincerely,

R & M ENGINEERING, INC.



Malcolm A. Menzies, P.E., L.S.

ysh



- ## SURVEY SYMBOLS
- | | |
|-------------|--|
| • | 1410-S SECONDARY MONUMENT ESTABLISHED THIS SURV |
| ⊗ | G.L.O./B.L.M. MONUMENT RECOVERED THIS SURVEY |
| ⊕ | G.L.O./B.L.M. MONUMENT OF RECORD |
| ⊙ | G.O.T./P.F. CENTERLINE MONUMENT RECOVERED THIS S |
| ⊖ | PRIMARY MONUMENT BY OTHERS RECOVERED THIS SURV |
| ⊗ | SECONDARY MONUMENT BY OTHERS RECOVERED THIS S |
| ⊕ | TEMPORARY BENCH MARK (T.B.M.) ESTABLISHED THIS S |
| ⊙ | 1410-S PRIMARY MONUMENT ESTABLISHED THIS SURVE |
| ○ | MONUMENT NOT RECOVERED/ ESTABLISHED |
| --- | PROPERTY/BOUNDARY LINE |
| --- | CENTERLINE |
| --- | EASEMENT LINE |
| ---○--- | FENCELINE |
| ---S---S--- | SANITARY SEWER GRAVITY MAIN |
| ---FW<--- | SANITARY SEWER FORCE MAIN |
| --- | WATER LINE |
| ---E--- | ELECTRIC LINE |
| ---C--- | CABLE TELEVISION LINE |
| --- | TELEPHONE LINE |
| ===== | CULVERT |
| 20 | CONTour LINE |
| ~~~~~ | TREE LINE |
| --- | TREE |
| -5.7 | SPOT ELEVATION |
| ⊙ | MANHOLE (AS NOTED) |
| ⊖ | CATCHBASIN |
| --- | WATER VALVE |
| --- | FIRE HYDRANT |
| ○ | UTILITY POLE |
| ○-○ | UTILITY POLE WITH STREET LIGHT |
| ⊕ | ELECTRIC TRANSFORMER |
| ⊕ | ELECTRIC PEDESTAL |
| ⊕ | TELEPHONE PEDESTAL |
| ⊕ | TELEPHONE PEDESTAL |
| • | TRAFFIC CONTROL SIGN |
| T.P. 13 ⊕ | TEST PIT LOCATION |
| ⊕ P3 | 1996 TEST PROBE LOCATION |
| ⊕ 5 | 1996 TEST PROBE LOCATION |

TOPOGRAPHIC MAP WITH TEST
PIT/BORING LOCATIONS

LOTS 2, 3, 4, 21, 22 & 23,
U.S. SURVEY No.325B
5 3/4 MILE - GLACIER HWY (LEMON ROAD),
CITY & BOROUGH OF UNEAU, ALASKA

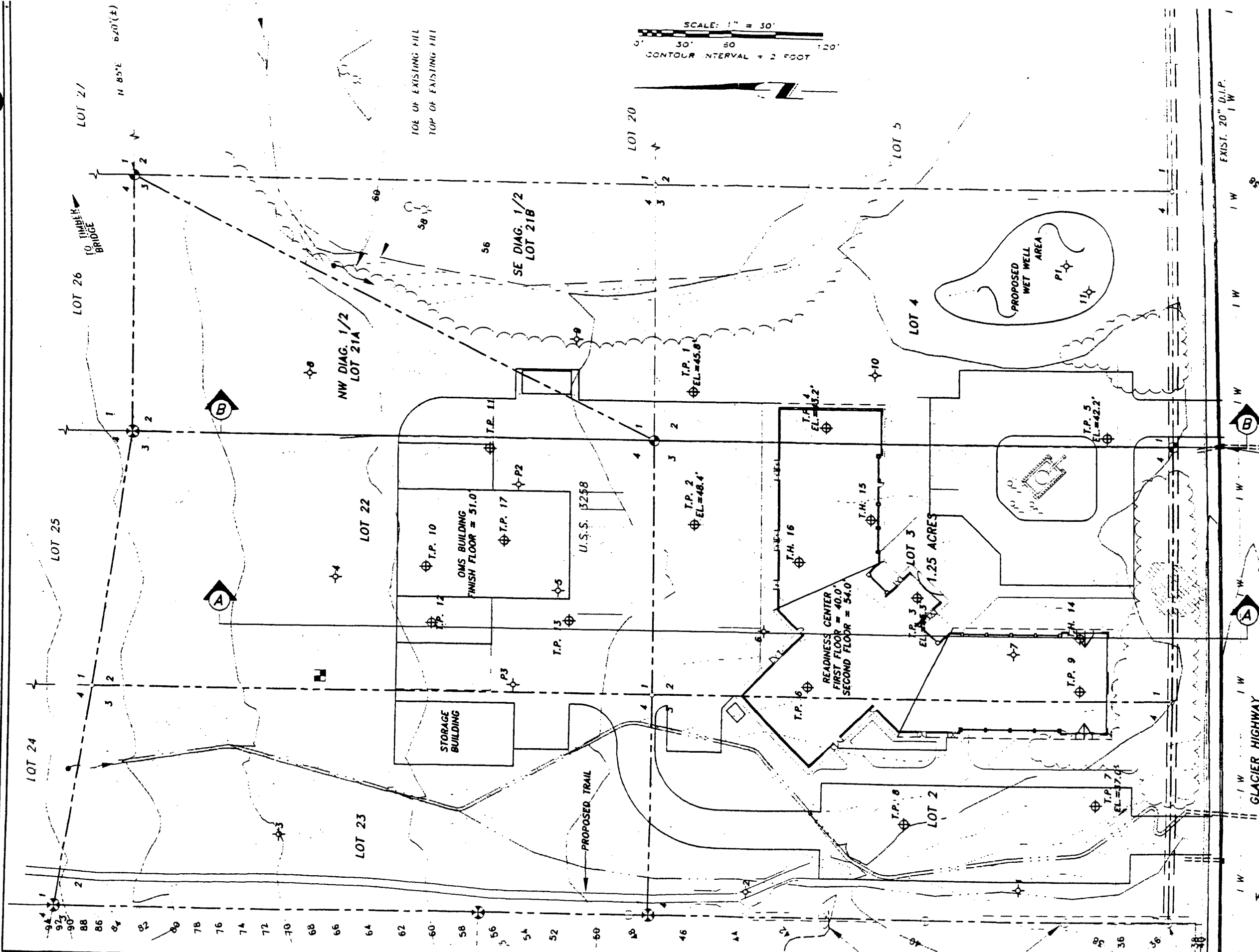
CLIENT:
 JENSEN FORMS LTD, ARCH.
 522 W 13TH STREET
 UMEAU, ALASKA 99801

SUBJECT:
 RBM ENGINEERING,
 P.O. BOX 34278
 UMEAU, ALASKA 9

DATE: JANUARY, 1999

SHEET 1 OF 3

RBM PROJ. NO.: 381



SYMBOLS
SEE SHEET 1

(B) CROSS SECTION

SPECIAL NOTE:
THIS SITE PLAN AND FLOOR ELEVATIONS
BY J.Y.L. ON THE WEEK ENDING 1/24/99.

ALASKA ARMY NATIONAL GUARD (JUNEAU,
PROPOSED SITE PLAN
W/SOILS PROFILE CROSS SECTION LOCATION
6 3/4 MILE - GLACIER HWY (LEMON ROAD)
CITY & BOROUGH OF JUNEAU, ALASKA

DESIGNED BY
JENSEN TERRA CONSULTING ARCH.
322 W. 10TH STREET
JUNEAU, ALASKA 99801

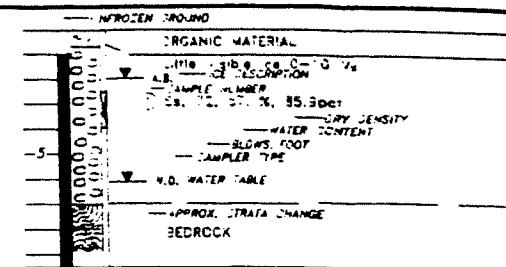
ENGINEERED BY
JRM ENGINEERING, INC.
P.O. BOX 54278
JUNEAU, ALASKA 99801

DATE: JANUARY, 1999

SHEET 2 OF 3

PROJ. NO.: 98122

TEST LOG EXPLANATION



TYPICAL SOILS LOG

S1 1.4' SPLIT SPOON WITH 140 L.B. HAMMER
 S2 1.4' SPLIT SPOON WITH 140 L.B. HAMMER
 S3 2.5' SPLIT SPOON WITH 240 L.B. HAMMER
 SP 2.5' SPLIT SPOON, PUSHED
 A AUGER SAMPLE
 S SHELBY TUBE
 TM MODIFIED SHELBY TUBE
 B9 BULK SAMPLE

SAMPLER TYPE SYMBOLS

ORGANIC MATERIAL
 CLAY
 SILT
 SAND
 GRAVEL
 COBBLES & BOULDERS
 BEDROCK
 ICE MASSIVE

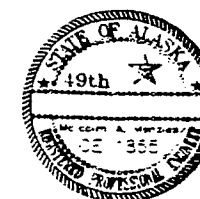
SOIL SYMBOLS

LEGEND

TEST PIT-1 - EXCAVATOR TEST PIT
 TEST HOLE-17 - SOIL TEST "A-FRAME" PENETROMETER
 #7 - HAND PROBE 1/1997

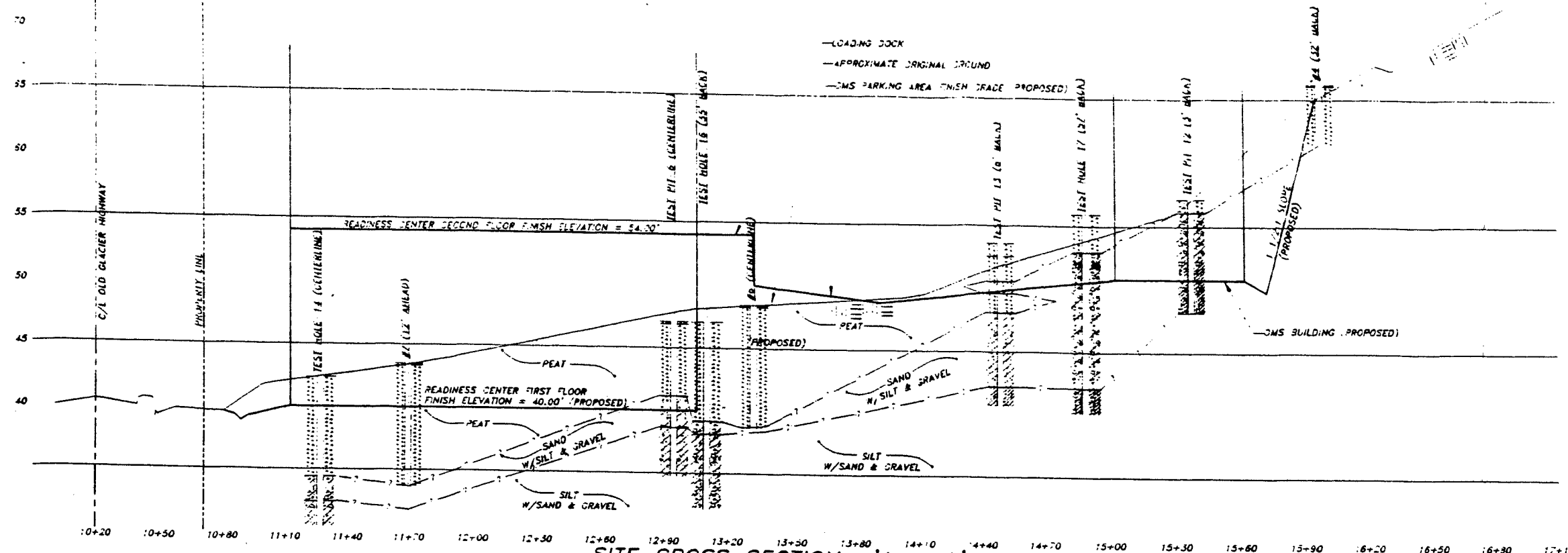
NOTE:

1. SITE DEVELOPMENT ELEVATIONS SHOWN ARE FOR THE WEEK ENDING 1/24/99 AND ARE SUBJECT TO CHANGE.
2. REFER TO SHEET 1 & 2 FOR TEST BORING/PIT/PROBE LOCATIONS WITH RESPECT TO SOILS PROFILE.
3. SOILS PROFILE INTERPRETATION IS BY "STRAIGHT LINE" METHODS.
4. REFER TO SOILS REPORT LABORATORY TEST RESULTS FOR SOILS MOISTURE CONTENT, GRADATION & CLASSIFICATION.



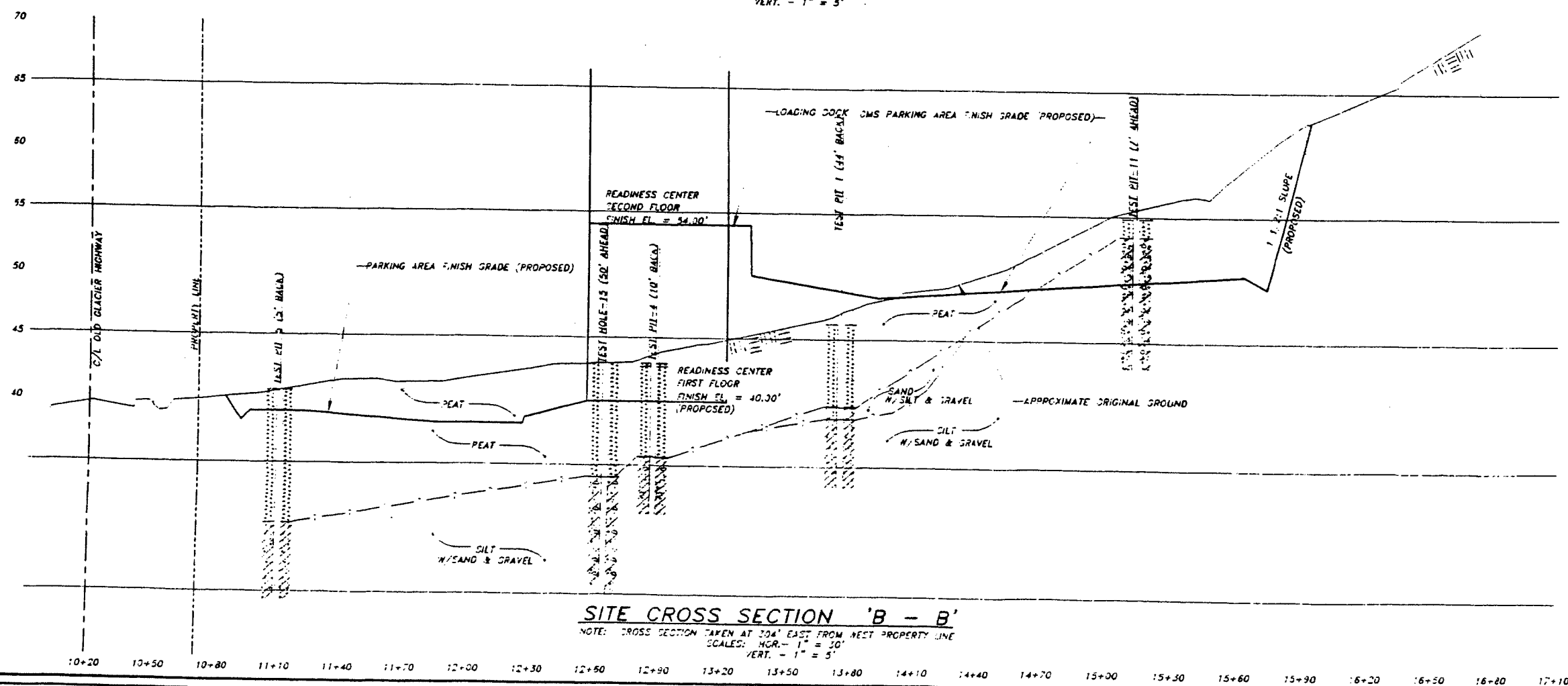
SOILS PROFILES
 OF
 ALASKA ARMY NATIONAL GUARD
 READINESS CENTER & OMS-JUNEAU
 6 1/4 MILE - GLACIER HWY (LENGEN ROAD)
 CITY & BOROUGH OF JUNEAU, ALASKA

DESIGNED BY: J. R. L. ARCH
 122 W. 10th STREET
 JUNEAU, ALASKA 99801
 DATE: JANUARY, 1999
 SHEET 3 OF 3
 P&M PROJ. NO. 981221



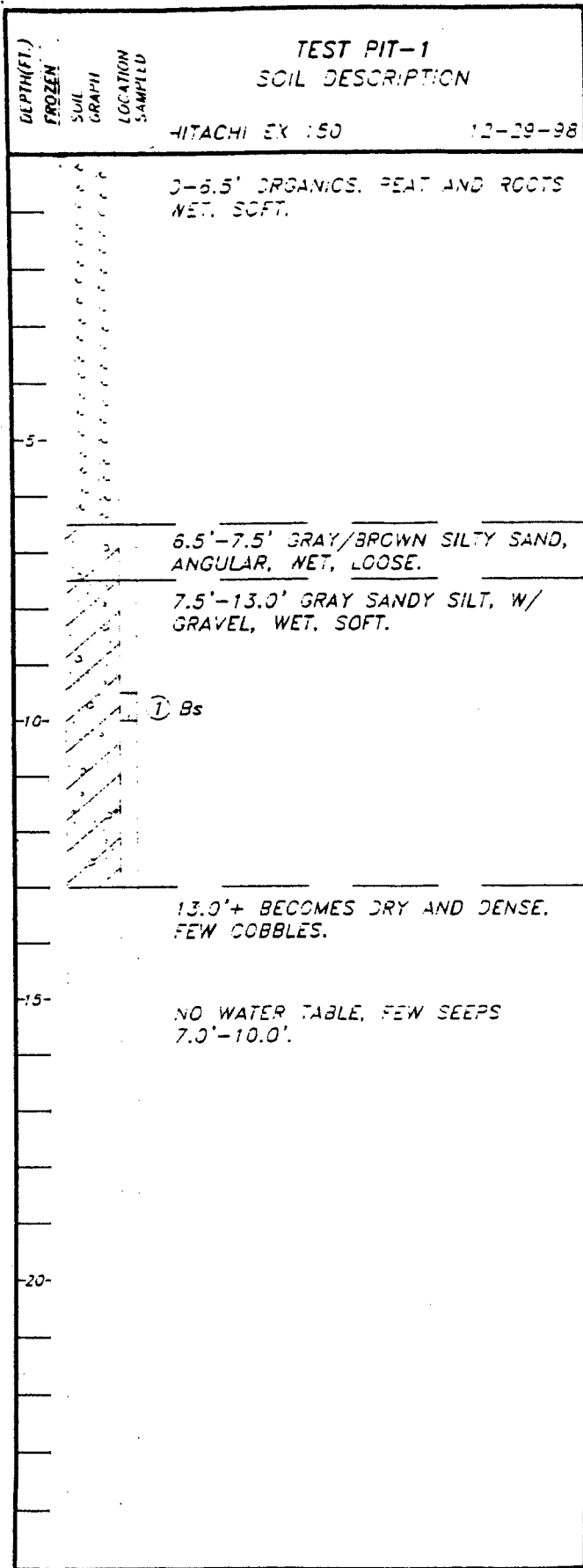
SITE CROSS SECTION 'A - A'

NOTE: CROSS SECTION TAKEN AT 180' EAST FROM WEST PROPERTY LINE
 SCALES: HOR. - 1" = 30'
 VERT. - 1" = 5'



SITE CROSS SECTION 'B - B'

NOTE: CROSS SECTION TAKEN AT 104' EAST FROM WEST PROPERTY LINE
 SCALES: HOR. - 1" = 30'
 VERT. - 1" = 5'

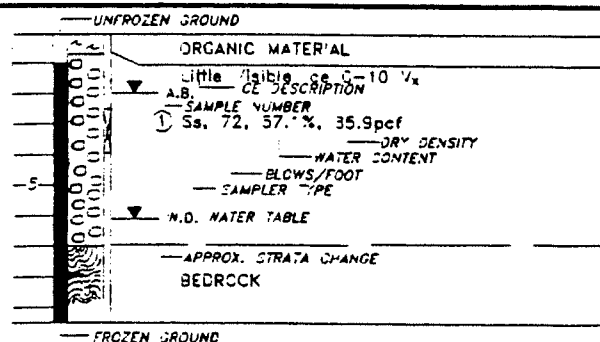


LOCATION SKETCH

No Scale

SEE SHEET 10 OF 10 FOR
LOCATION SKETCH

EXPLANATION



TYPICAL SOILS LOG

Ss 1.4" SPLIT SPOON WITH 140 LB. HAMMER
Sz 1.4" SPLIT SPOON WITH 340 LB. HAMMER
Sp 2.5" SPLIT SPOON WITH 340 LB. HAMMER
Sp 2.5" SPLIT SPOON, PUSHED
A AUGER SAMPLE
Ts SHELBY TUBE
Tm MODIFIED SHELBY TUBE
Bs BULK SAMPLE

SAMPLER TYPE SYMBOLS

ORGANIC MATERIAL	GRAVEL
CLAY	COBBLES & BOULDERS
SILT	BEDROCK
SAND	ICE, MASSIVE

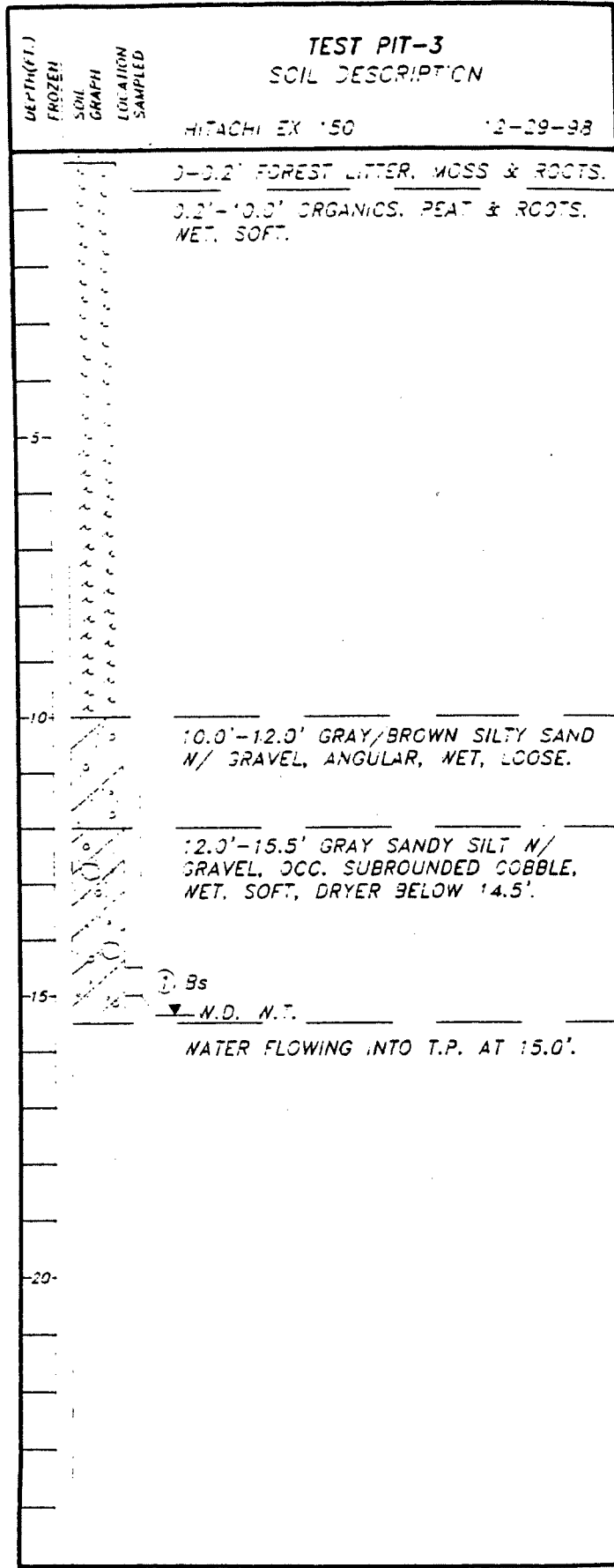
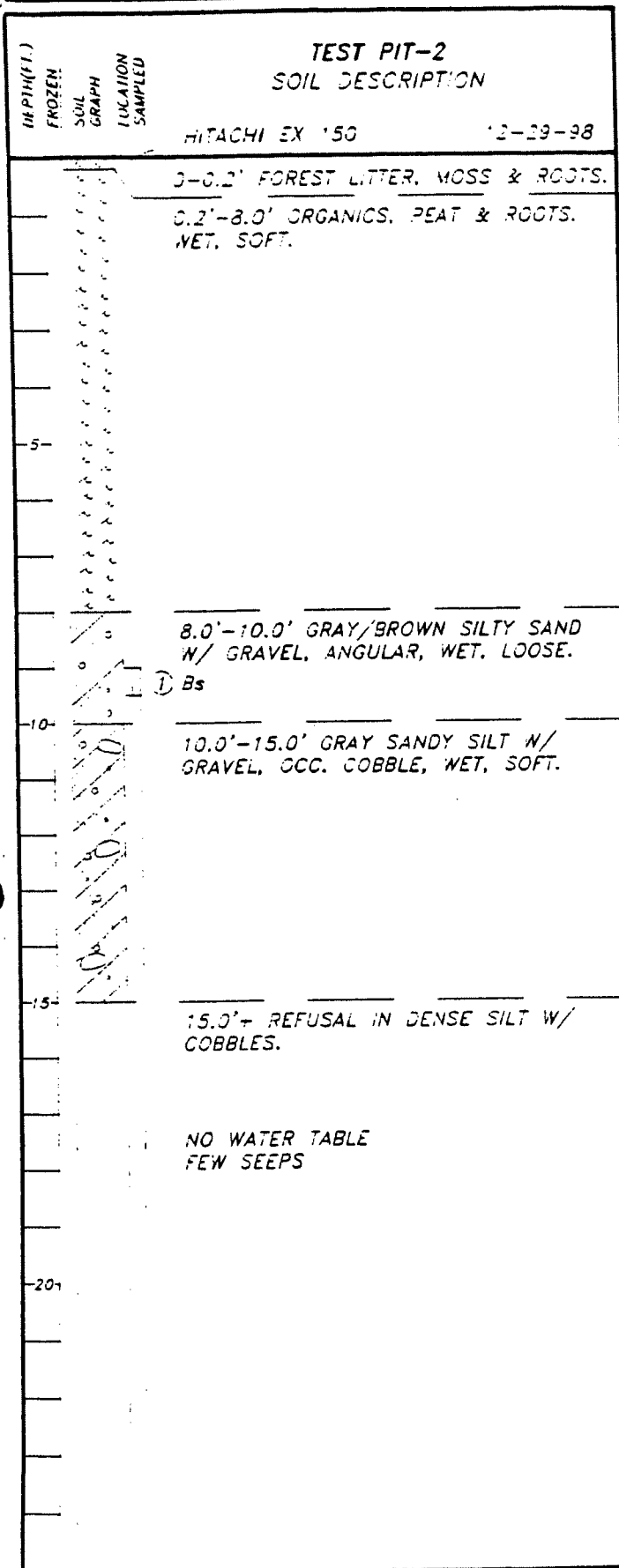
SOIL SYMBOLS

DWN. K.P.
CKD. R.S.
DATE. 1/7/99
SCALE. 1" = 3'

R & M ENGINEERING, INC.
ENGINEERS GEOLOGISTS SURVEYORS
SOILS LOG

NATIONAL GUARD ARMORY
GEOTECHNICAL INVESTIGATION

ARMORY DWG
GRID.
PROJ. NO. 33-229.1
DWG. NO. 1 OF 10

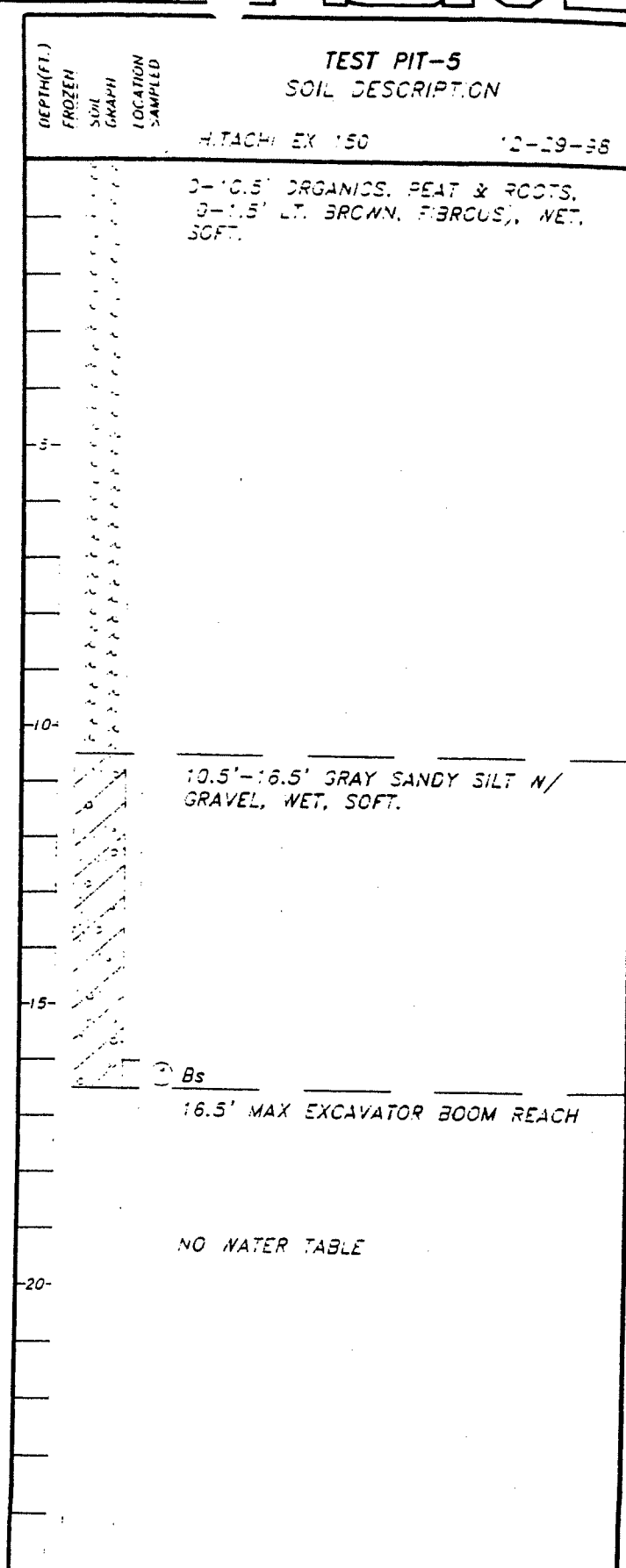
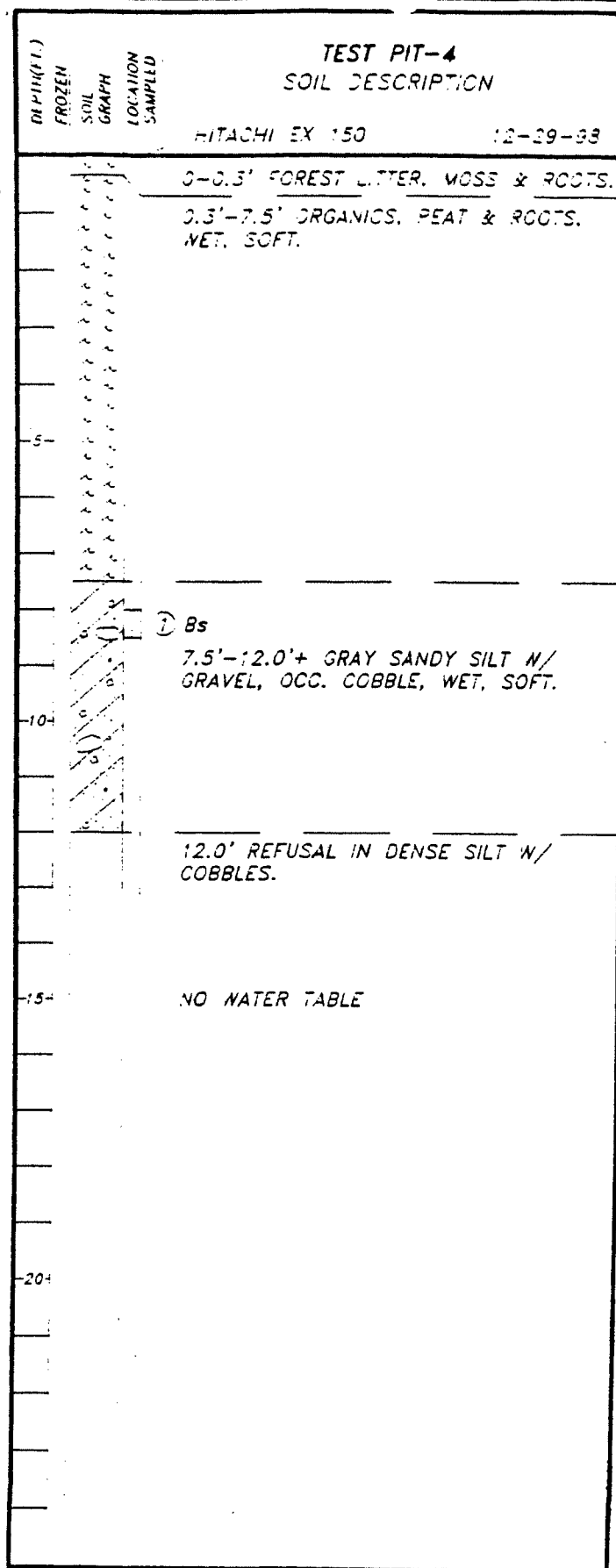


DWN. K.P.
CKD. R.S.
DATE. 1/7/99
SCALE. 1" = 3'

R & M ENGINEERING, INC.
ENGINEERS GEOLOGISTS SURVEYORS
SOILS LOG

NATIONAL GUARD ARMORY
GEOTECHNICAL INVESTIGATION

ARMORY.DWG
GRID.
PROJ.NO. 981229.1
DWG.NO. 2 OF 10

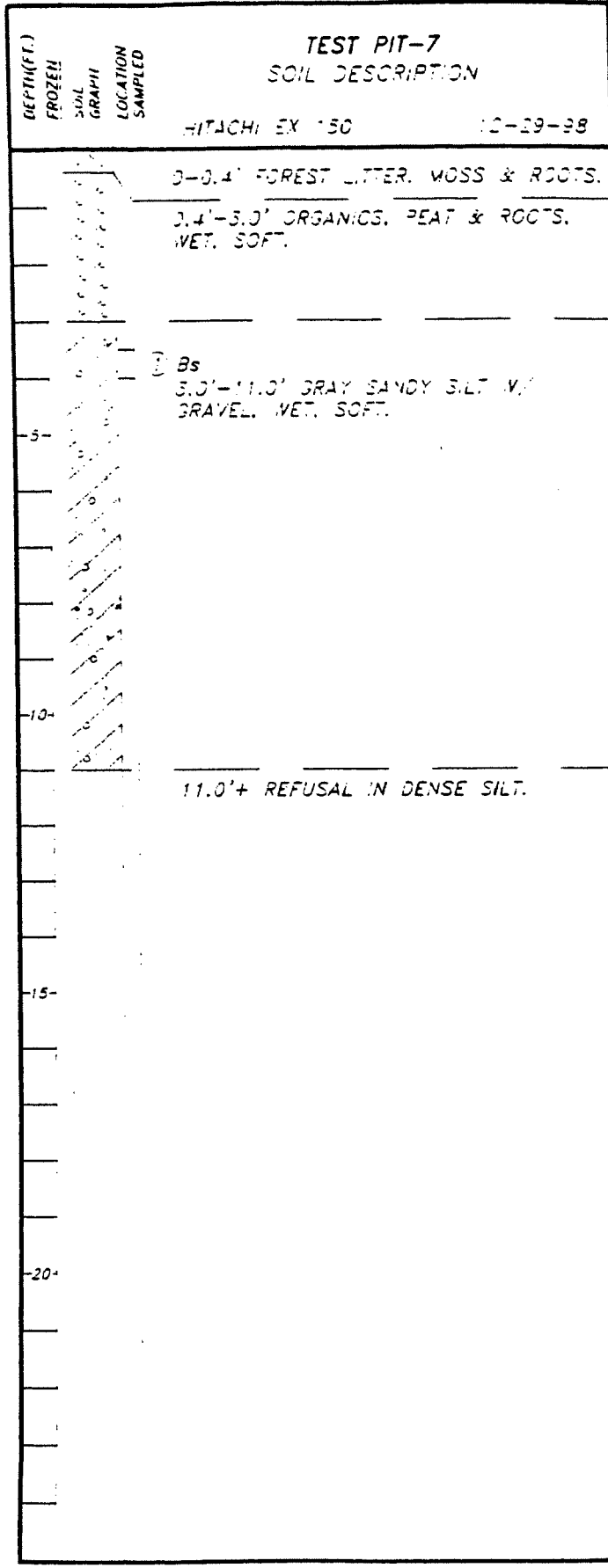
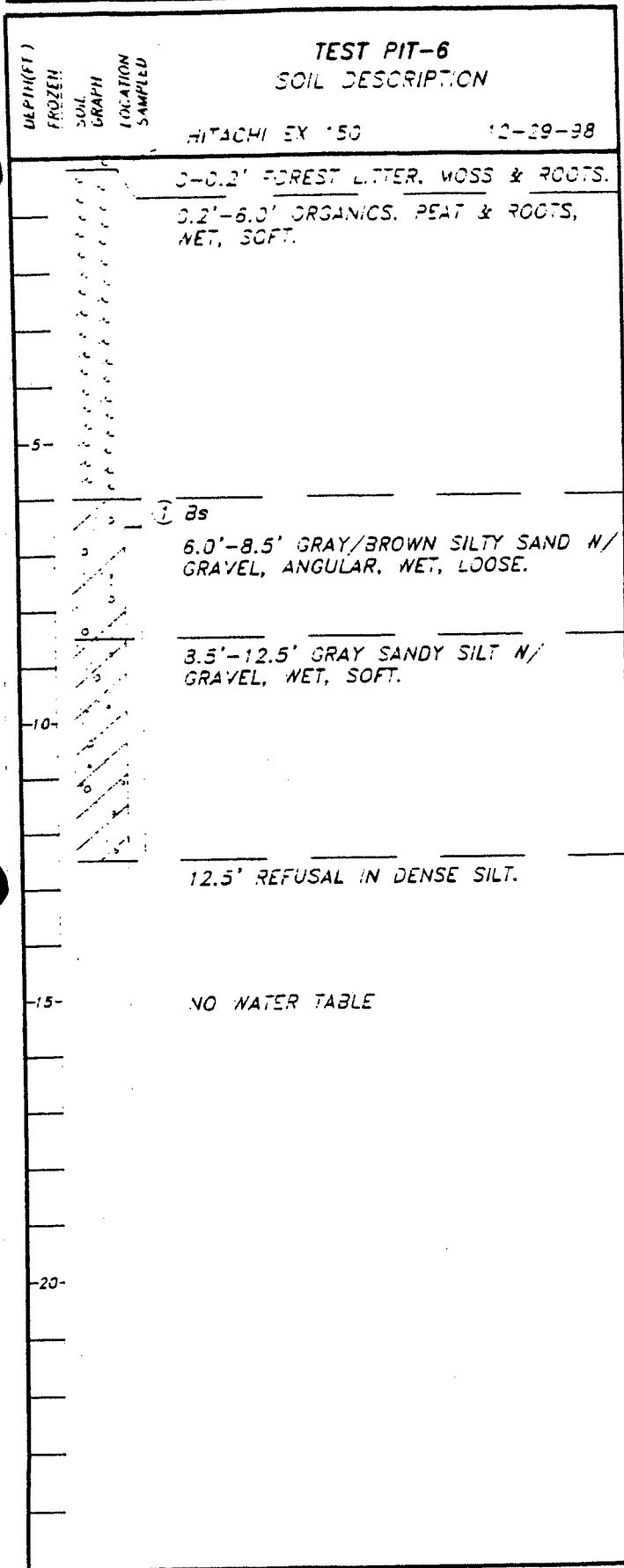


DWN. K.P.
CKD. R.S.
DATE. 1/7/99
SCALE. 1" = 3'

R & M ENGINEERING, INC.
ENGINEERS GEOLOGISTS SURVEYORS
SOILS LOG

NATIONAL GUARD ARMORY
GEOTECHNICAL INVESTIGATION

ARMORY.DWG
GRID.
PROJ.NO. 981229.1
DWG.NO. 3 OF 10

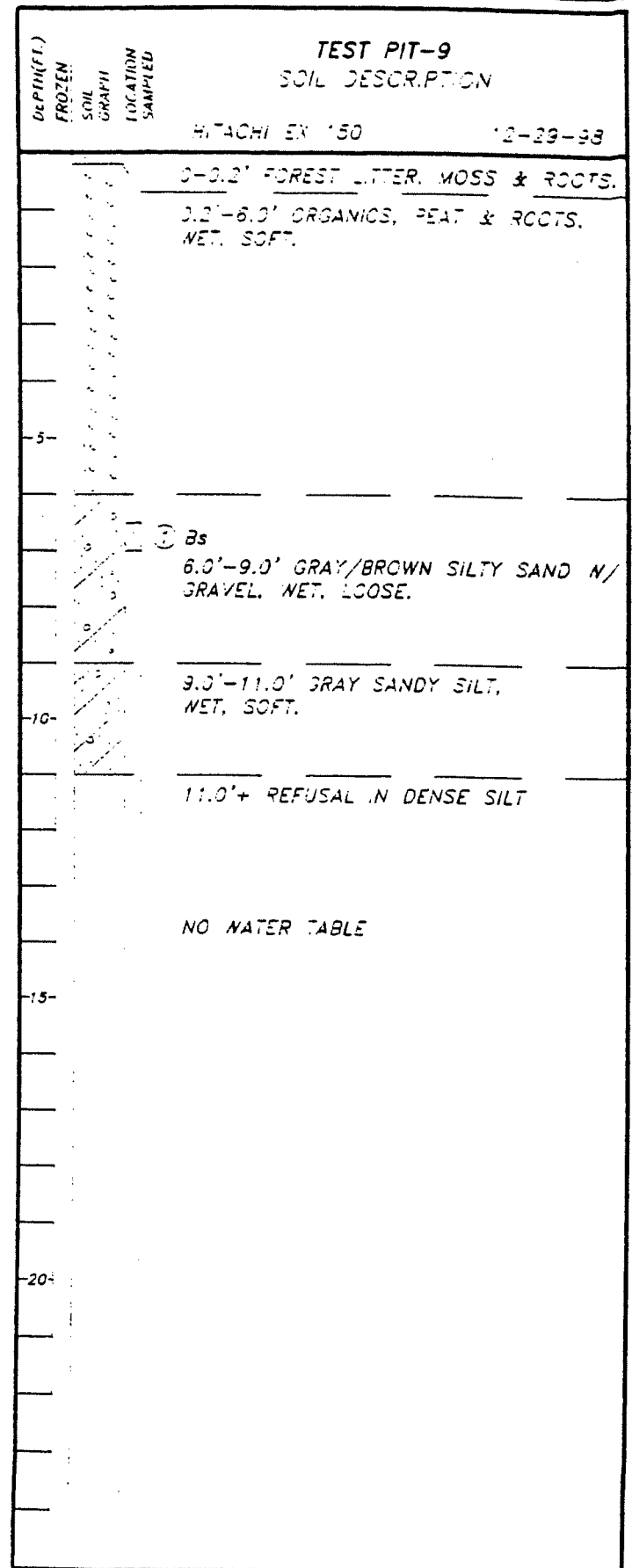
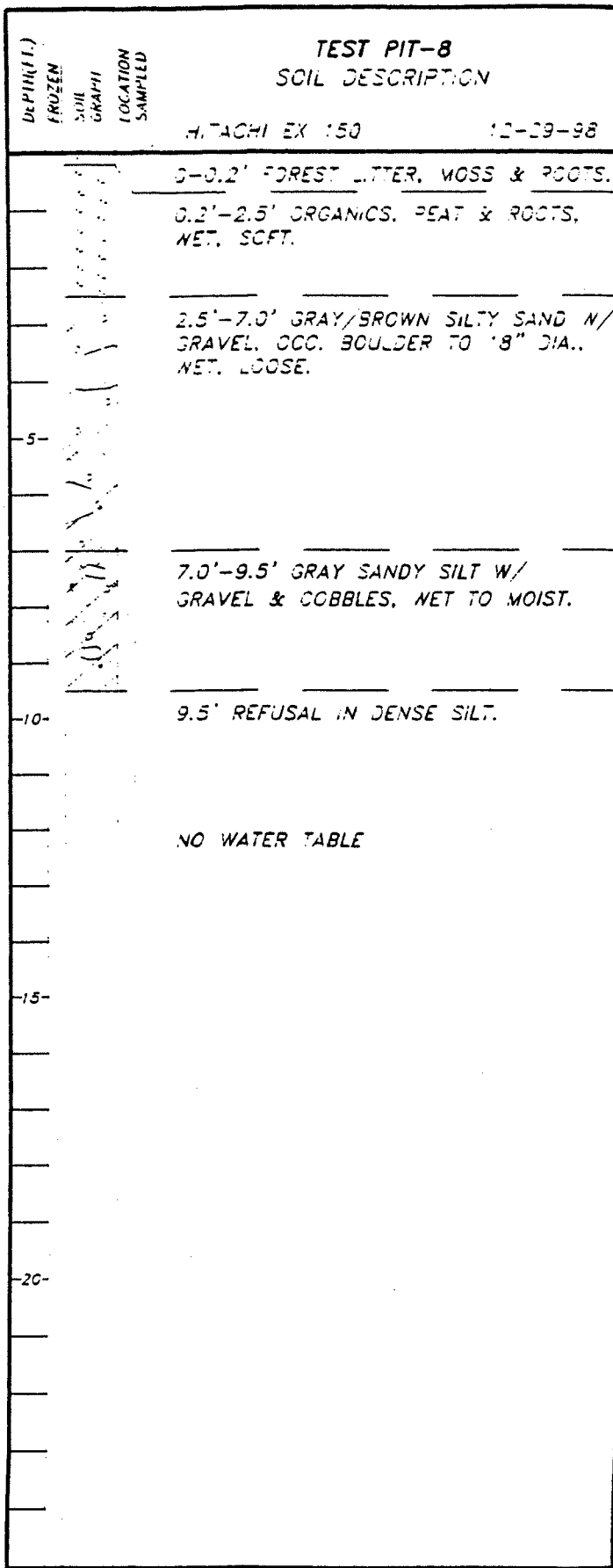


DWN. K.P.
CKD. R.S.
DATE. 1/7/99
SCALE. 1" = 3'

R & M ENGINEERING, INC.
ENGINEERS GEOLOGISTS SURVEYORS
SOILS LOG

NATIONAL GUARD ARMORY
GEOTECHNICAL INVESTIGATION

ARMORY.DWG
SPID.
PROJ.NO. 931229.1
DWG.NO. 4 OF 10

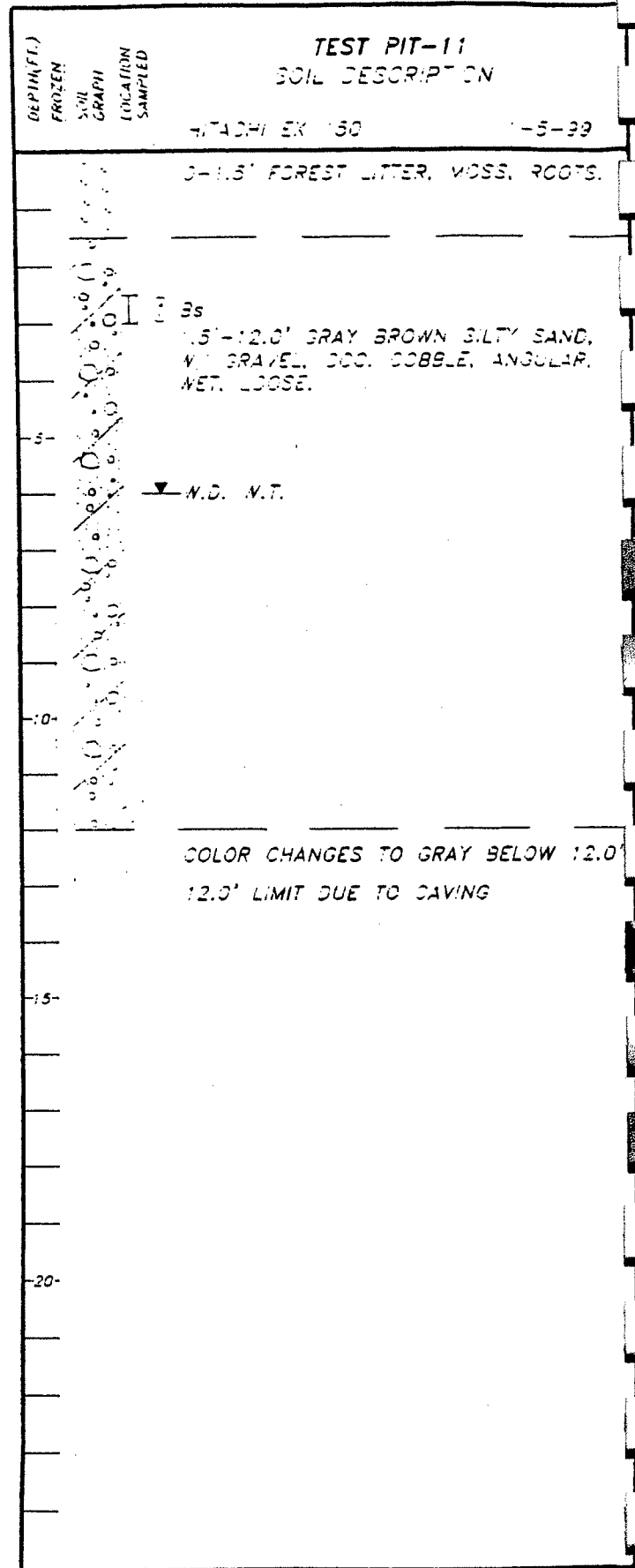
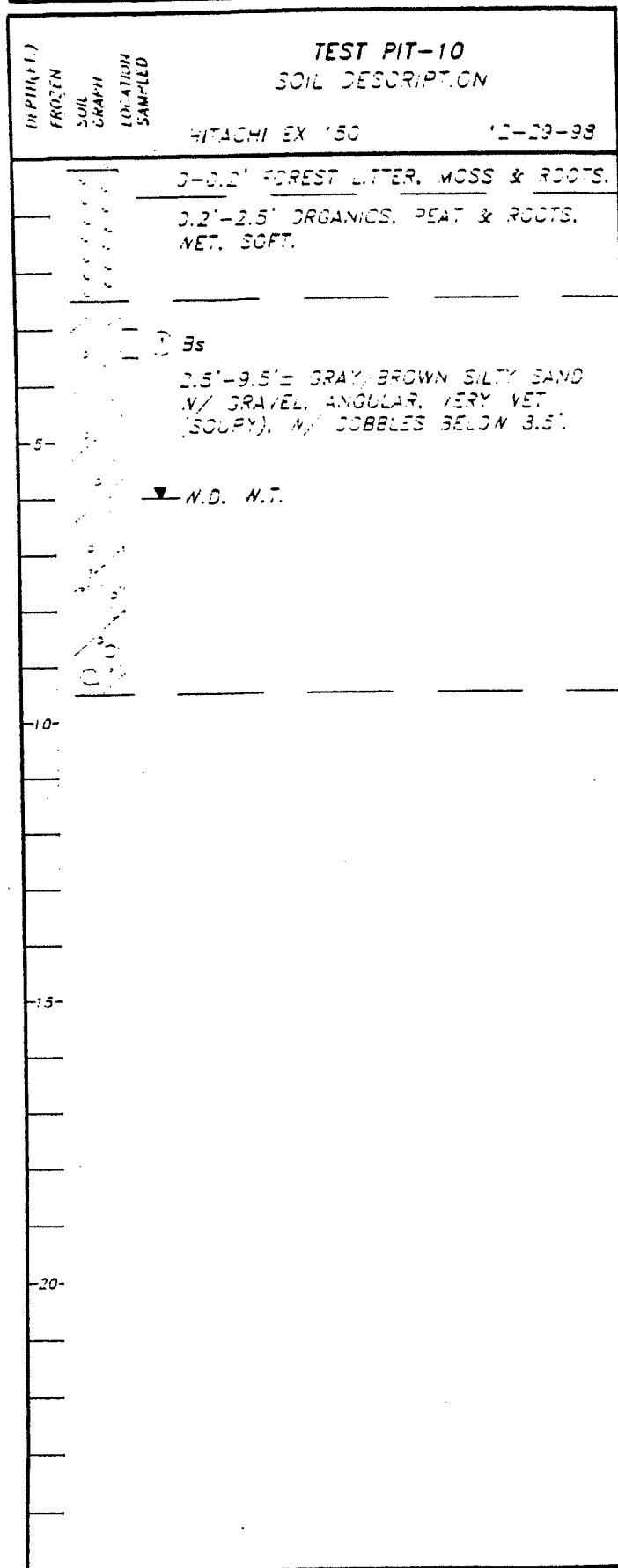


DWN. K.P.
CKD. R.S.
DATE. 1/7/99
SCALE. 1" = 3'

R & M ENGINEERING, INC.
ENGINEERS GEOLGISTS SURVEYORS
SOILS LOG

NATIONAL GUARD ARMORY
GEOTECHNICAL INVESTIGATION

ARMORY.DWG
GRID.
PROJ.NO. 981229.1
DWG.NO. 5 OF 10

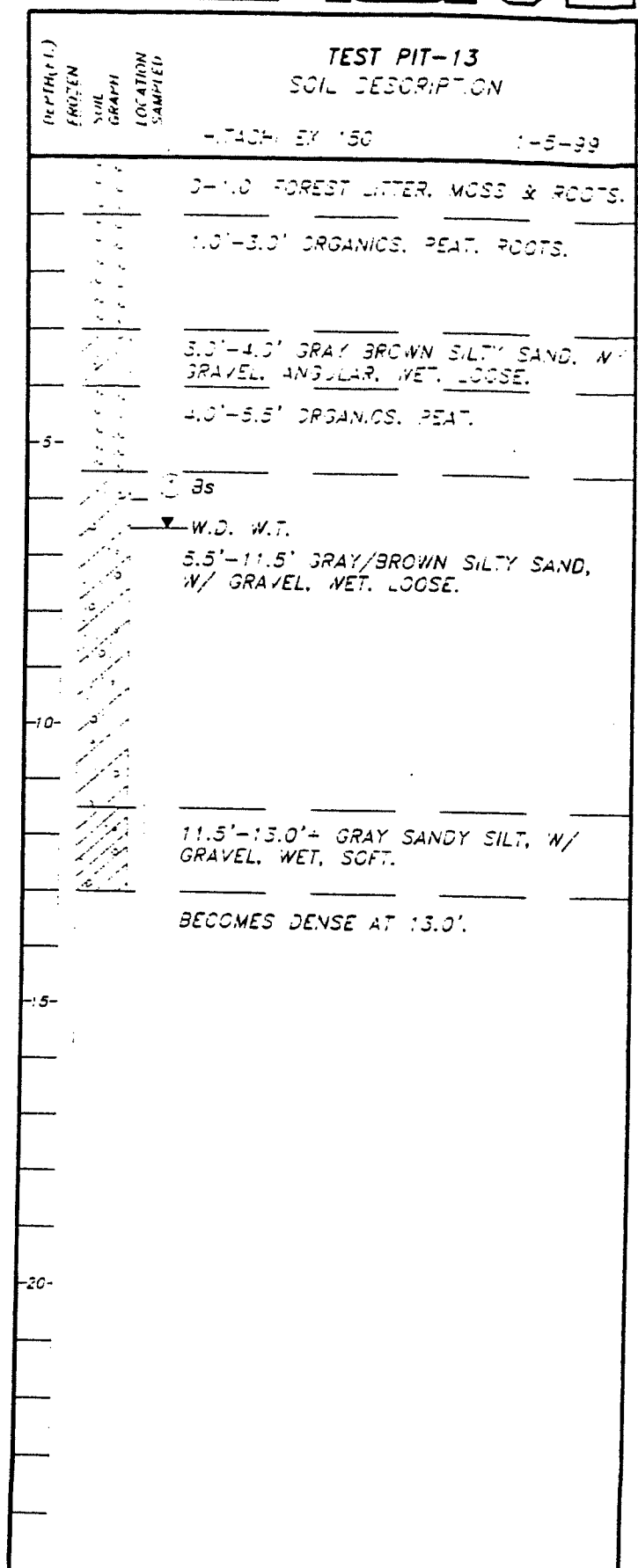
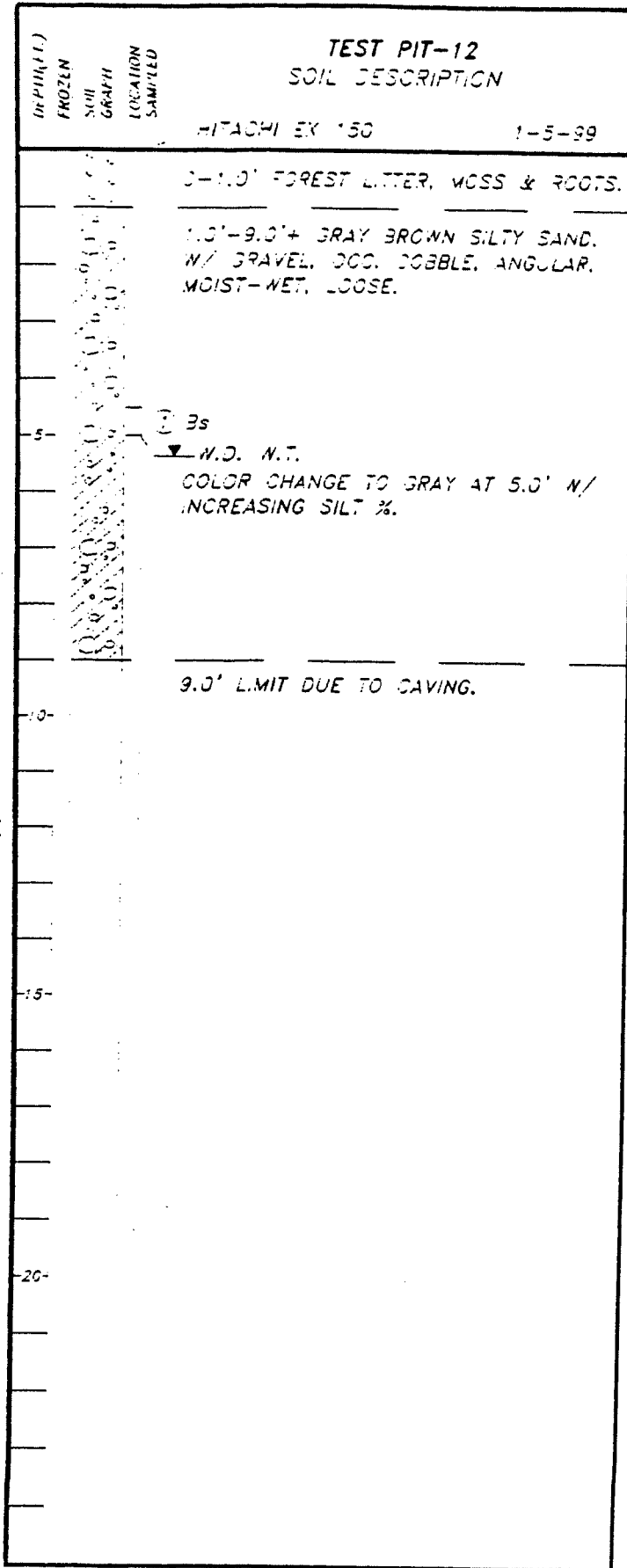


DWN. K.P.
CKD. R.S.
DATE. 1/7/99
SCALE. 1" = 3'

R & M ENGINEERING, INC.
ENGINEERS GEOLOGISTS SURVEYORS
SOILS LOG

NATIONAL GUARD ARMORY
GEOTECHNICAL INVESTIGATION

ARMORY.DWG
SPID.
PROJ.NO. 981229
DWG.NO. 6 OF

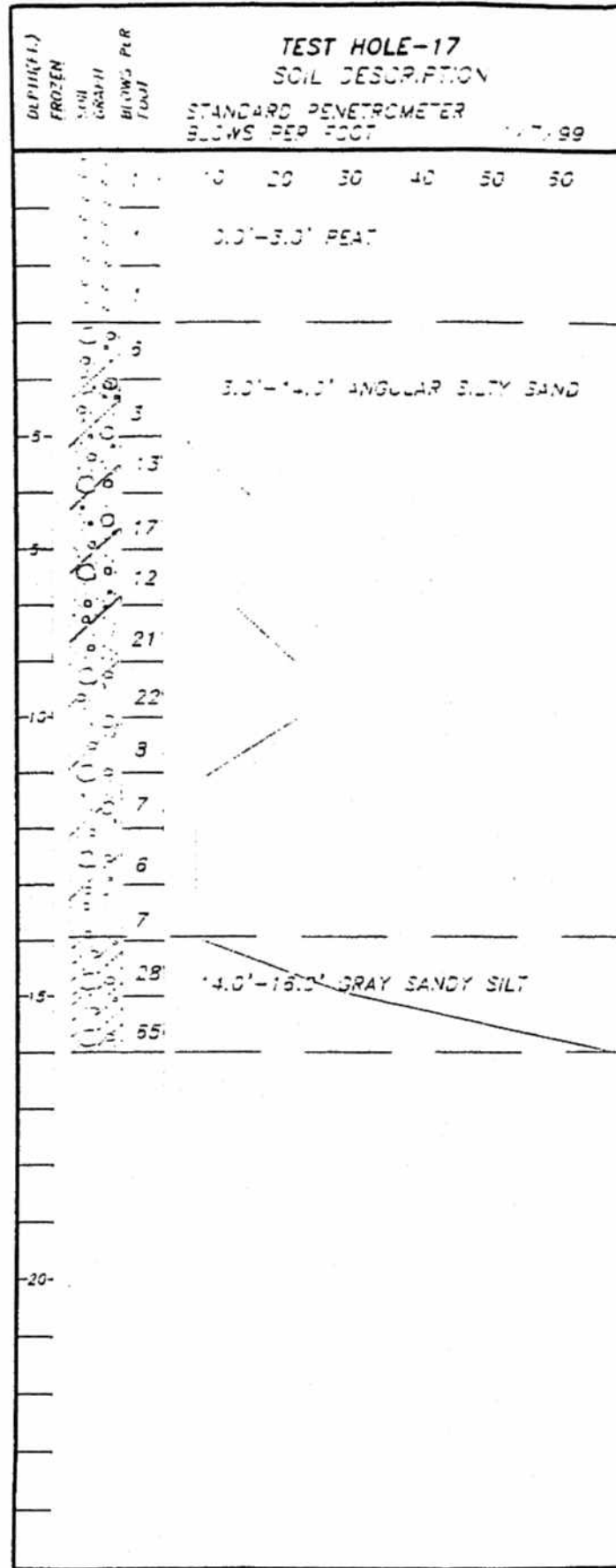
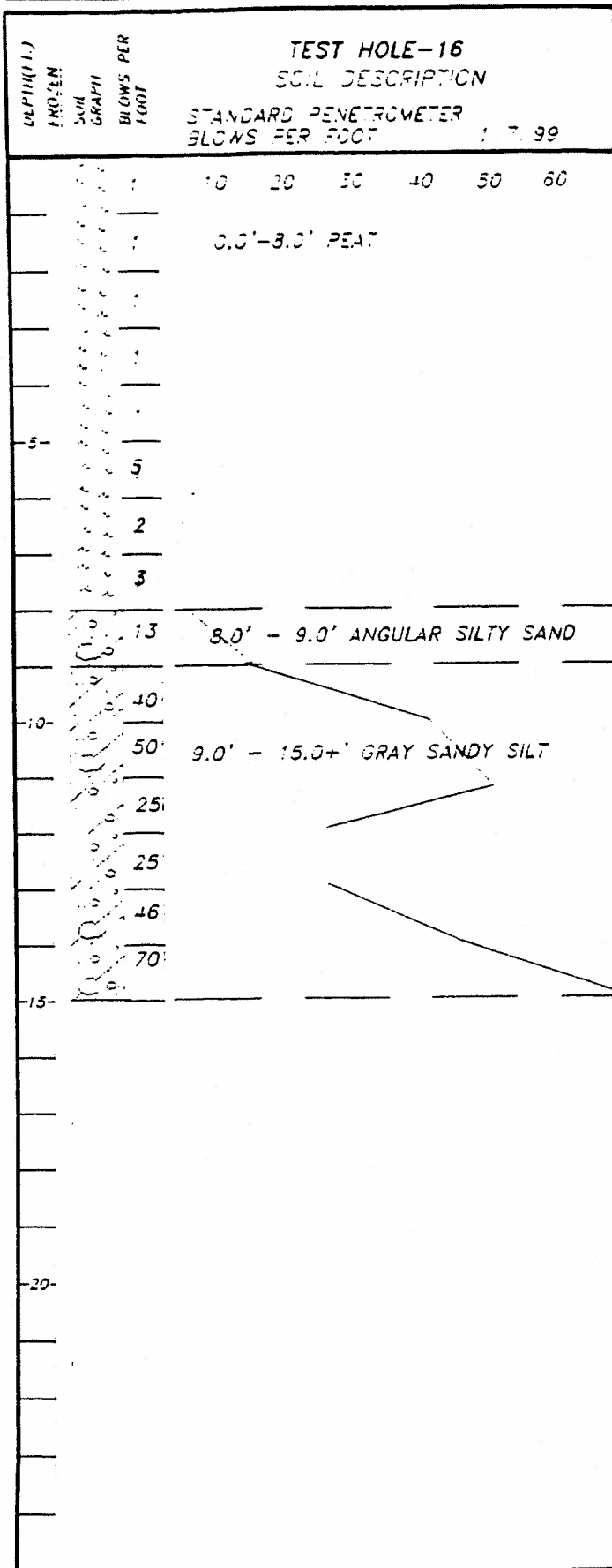


DWN. K.P.
CKD. R.S.
DATE. 1/7/99
SCALE. 1" = 3'

R & M ENGINEERING, INC.
ENGINEERS GEOLOGISTS SURVEYORS
SOILS LOG

NATIONAL GUARD ARMORY
GEOTECHNICAL INVESTIGATION

ARMORY.DWG
GRID.
PROJ.NO. 981229.1
DWG.NO. 7 OF 10

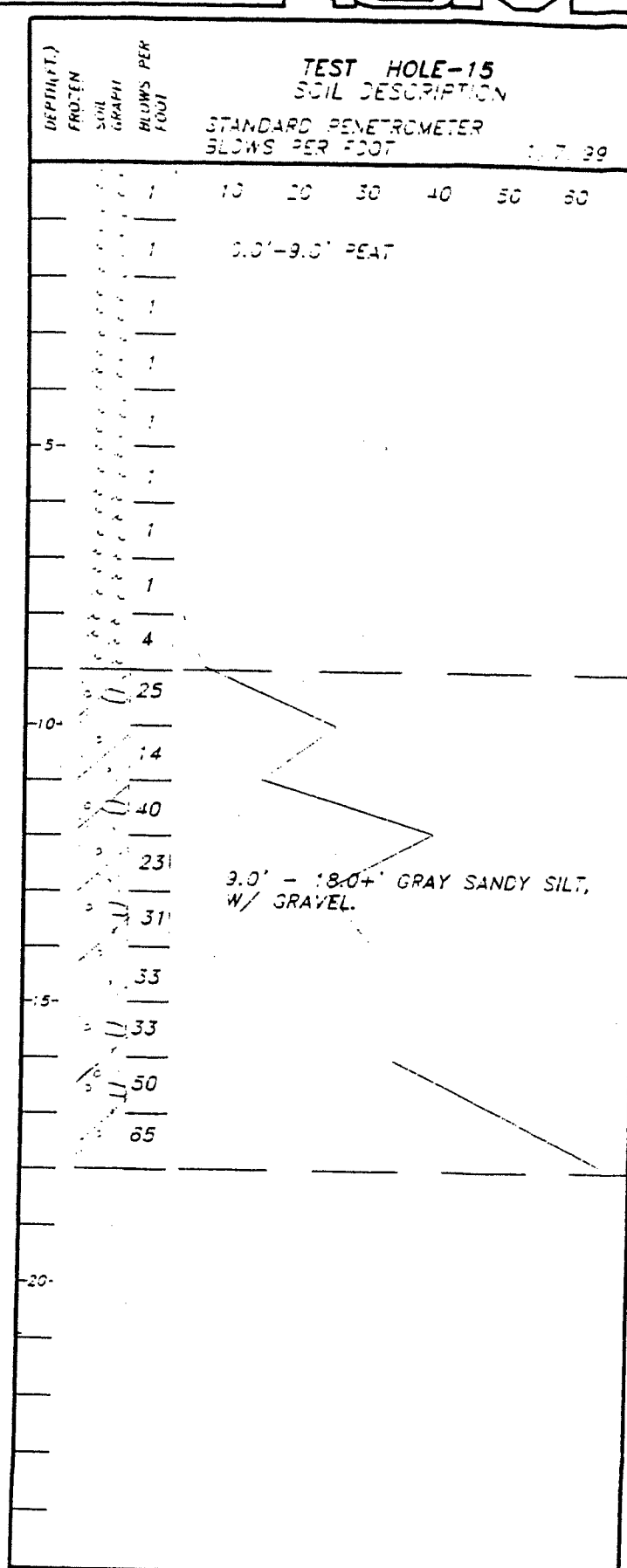
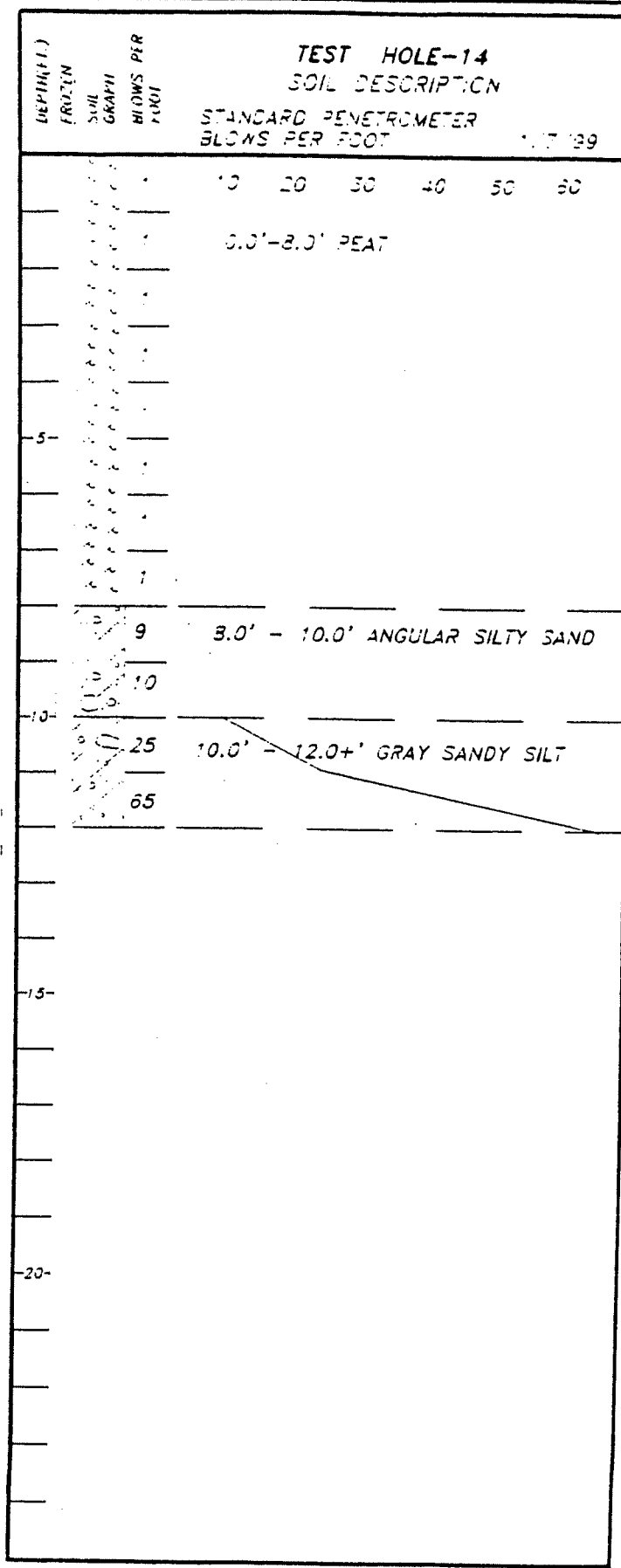


OWN. R.S.
CKD. R.S.
DATE. 1/11/99
SCALE. 1" = 3'

R & M ENGINEERING, INC.
ENGINEERS GEOLOGISTS SURVEYORS
SOILS LOG

NATIONAL GUARD ARMORY
GEOTECHNICAL INVESTIGATION

ARMORY.DWG
G.R.C.
PROJ.NO. 981229.1
DWG.NO. 9 OF 10



DWN. P.S.
CKD. P.S.
DATE. 1/11/99
SCALE. 1" = 3'

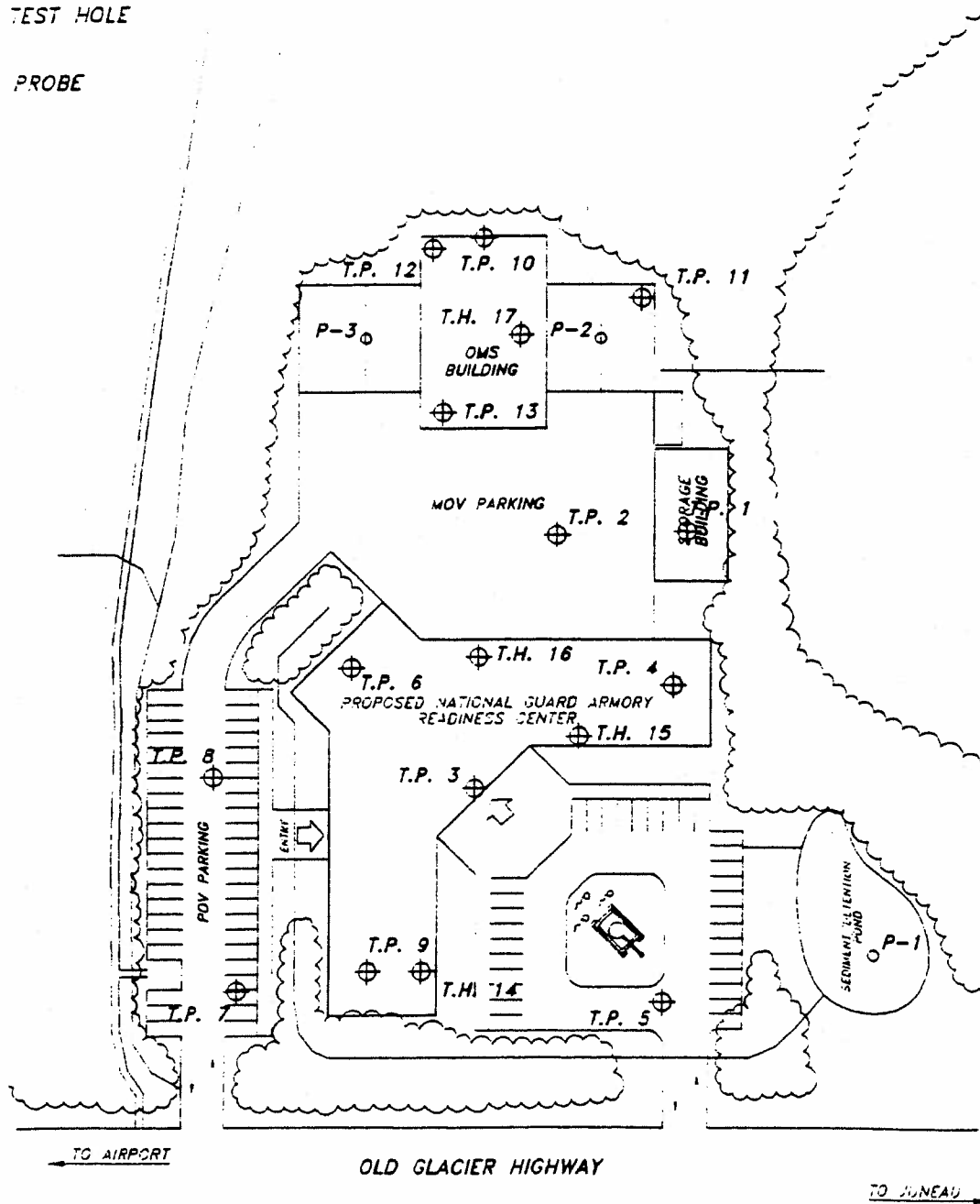
R & M ENGINEERING, INC.
ENGINEERS GEOLOGISTS SURVEYORS
SOILS LOG

NATIONAL GUARD ARMORY
GEOTECHNICAL INVESTIGATION

ARMORY.DWG
GRID.
PROJ.NO. 981229.
DWG.NO. 8 OF 10

LEGEND:

- T.P. 6  MACHINE DUG TEST PIT
- T.H. 17  TEST HOLE
- P-3  PROBE



A LOCATION SKETCH FOR A
GEOTECHNICAL INVESTIGATION OF
NATIONAL GUARD ARMORY
READINESS CENTER AT OMS
LOCATED WITHIN
CITY & BOROUGH OF JUNEAU, ALASKA

DATE	SCALE	DRAWN BY	CHECKED BY	PROJECT NO.	DRAWING NO.
1-7-99	1" = 100'	K.P.	R.S.	981229.1	10 OF 10

PROJECT NO. 981279.1

PROJECT NAME H.C. ARMORY J.V.L.

R & M ENGINEERING, INC.

JUNEAU, ALASKA

DATE 12/31/98

REPORT NO. 1

SUMMARY OF LABORATORY TEST DATA

99S-4

LAB NO	ROUTING NO	DEPTH	102	1	3/4	1/2	3/8	1/4	10	40	200	.075	.005	.002	FINES SIV	11	PL	WET DENSITY	DRY DENSITY	MOIST COR	CLASS
98J-924	TP1 S#1	8.9 9.0		100	94	88	84	76	66	51	31					22	7			12	S-M
98J-930	TP2 S#1	9.0 9.5		100	95	89	85	75	66	28	8									27	SP-SM
98J-931	TP3 S#1	14.5-15.0	86	86	79	75	71	67	60	48	28									10	SM
98J-932	TP4 S#1	8.0-8.5	66	66	66	63	59	54	42	39	22					19	4			13	GM
98J-933	TP5 S#1	16.0-16.5	100	93	89	83	80	73	66	53	32									15	SM
98J-934	TP6 S#1	15.0-16.5	100	94	91	88	84	76	62	33	6									24	SV-SM
98J-935	TP7 S#1	3.5-4.0			100	96	93	85	76	61	37									15	SM
98J-936	TP9 S#1	6.5-7.0	100	100	96	94	90	79	71	53	22									25	SM
98J-937	TP10 S#1	3.0-3.5		100	98	96	93	84	60	31	9									28	SP-SM
99J-1	TP11 S#1	2.5-3.0			100	96	92	83	69	41	10									30	SP-SM
99J-2	TP12 S#1	4.5-5.0	100	89	83	74	67	58	39	14	5									22	SP-SM
99J-3	TP13 S#1	5.5-6.0	100	88	87	82	81	77	67	16	7									24	SP-SM

TABLE 5

MOISTURE ANALYSIS - PERCENT PASSING

NATIONAL GUARD ARMORY TABLE OF SOILS PROBES

PROBE NO.	PEAT & ORGANICS	SILT & SAND	GRAVEL	DATE
1	0-5.0'	5.0'+		1/97
2	0-4.0'	4.0'+		1/97
3	0-4.5'	4.5'+		1/97
4	0-4.0'		4.0'+	1/97
5	0-8.0'	8.0'+		1/97
6	0-9.0'	9.0'+		1/97
7	0-10.0'	10.0'+		1/97
8	0-3.0'		3.0'	1/97
9	0-4.0'	4.0'+		1/97
10	0-8.0'	8.0'+		1/97
11	0-8.0'	8.0'+		1/97
P-1	0-8.5'	8.5'+		12/98
P-2	0-10.5'		10.5'+	12/98
P-3	0-8.0'		8.0'+	12/98

Note: Probes number 1 thru 11 were accomplished in January 1997 for the AANG site feasibility study. Probes number P-1 thru P-3 were accomplished for this work effort.

SELECTED REFERENCES

- Barnwell, W. W. and Boning, C. W., 1968, Water Resources and Surficial Geology of the Mendenhall Valley, Alaska, Hydrologic Investigations Atlas HA-259.
- Coulter, H. W. and others, 1965, Map Showing Extent of Glaciation in Alaska, USGS Map I-415.
- Ford, A. B. and Brew, D. A., 1973, Preliminary Geologic and Metamorphic-Isograd Map of the Juneau B-2 Quadrangle, Alaska, USGS Map MF 527.
- Gehrels, G. E. and Berg, H. C., 1992, Geologic Map of Southeastern Alaska, USGS Map I-1876.
- Mann, A. C. and others, 1972, Geophysical Hazards Investigation for City and Borough of Juneau.
- Miller, R. D., 1973, Gastineau Channel Formation, A composite Glaciomarine Deposit, USGS Bulletin 1394-C.
- Miller, R. D., 1975, Surficial Geologic Map of the Juneau Urban Area and Vicinity, Alaska, USGS Map I-885.
- Schoephorster, D. B. and Furbush, C. E., 1974, Soils of the Juneau Area, Alaska, US Soil Conservation Service.
- Schroeder, W. L., 1983, Geotechnical Properties of Southeast Alaska Forest Soils, USDA Forest Service.
- Selkregg, L. L. and others, 1977, Alaska Regional Profiles, Southeast Region, University of Alaska.
- Wolff, E. N. and Heiner, L. E., 1971, Mineral Resources of Southeastern Alaska, University of Alaska MIREL Report No. 28.

NOTES

THE 15' WIDE DRAINAGE EASEMENT ALONG THE WESTERLY BOUNDARIES OF LOTS 1-4 IS A PRIVATE EASEMENT. DRAINAGE THEREIN WILL BE MAINTAINED BY INDIVIDUAL PROPERTY OWNERS.

NO ACCESS TO ANY LOT IN THIS SUBDIVISION SHALL BE TAKEN FROM GLACIER HIGHWAY.

ACTUAL BUILDINGS AND DRIVEWAYS CONSTRUCTED ON ALL LOTS WITHIN KELLY SUBDIVISION SHALL BE CONTAINED WITHIN SITES SHOWN ON THE APPROVED CONSTRUCTION PLANS ON FILE WITH THE JUNEAU DEPARTMENT OF COMMUNITY DEVELOPMENT. A DIFFERENT BUILDING PAD OR DRIVEWAY LOCATION OF EQUAL QUALITY MAY BE USED IF APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT PRIOR TO CONSTRUCTION.

U.S.S. 3259
STATE OF ALASKA

LINE	BEARING	DISTANCE
L. 1	S 89°11'03"W	18.72'
L. 2	N 89°27'10"W	88.35'
L. 3	N 89°33'07"W	58.35'
L. 4	N 87°42'04"W	88.35'
L. 5	N 87°11'03"W	34.85'
L. 6	S 89°00'44"E	12.00'
L. 7	NORTH	12.35'
L. 8	NORTH	23.82'

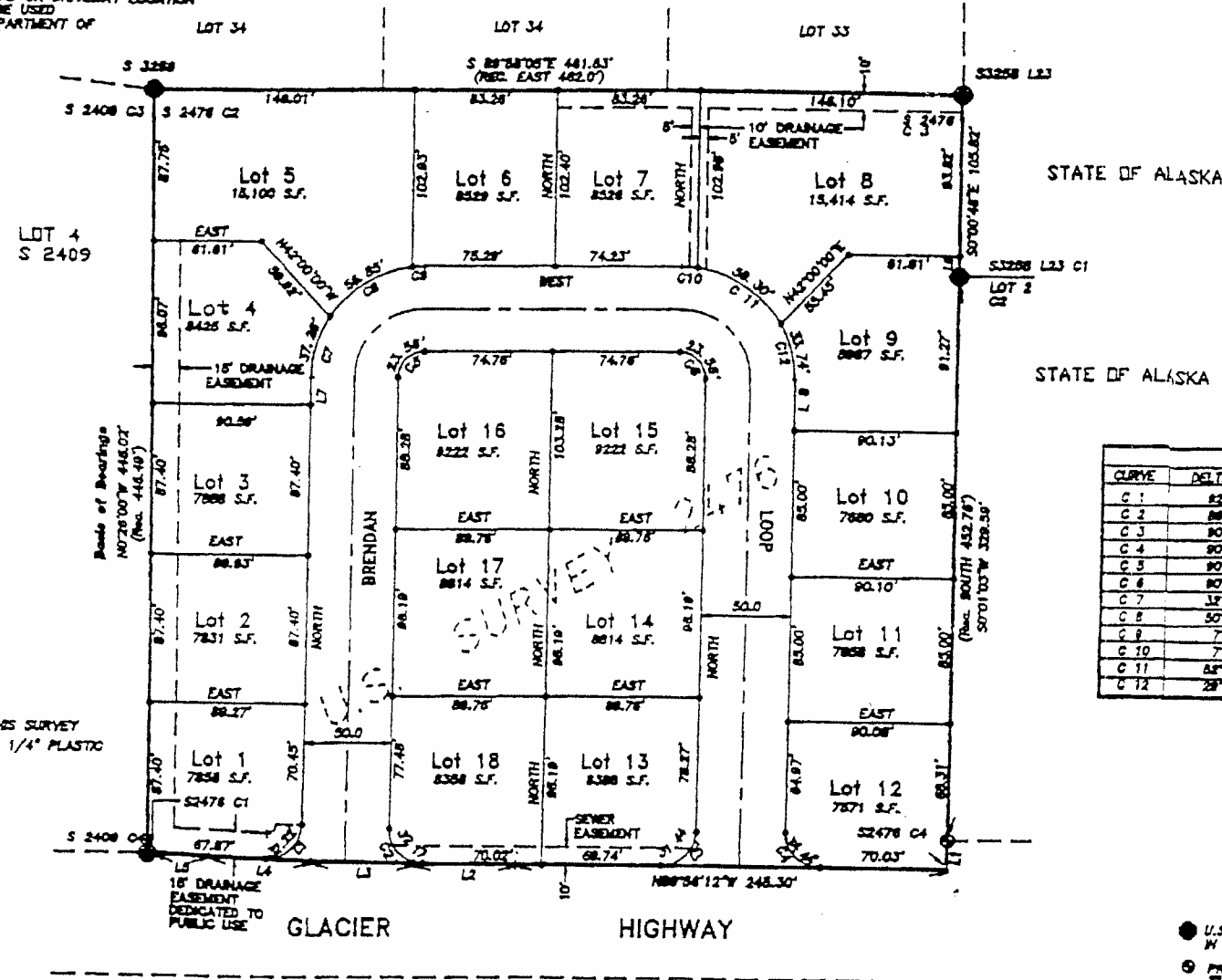
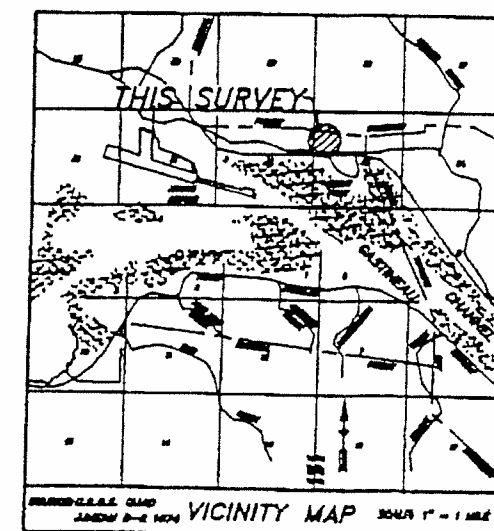
CERTIFICATE OF APPROVAL CITY & BOROUGH OF JUNEAU PLANNING COMMISSION

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREIN HAS BEEN FOUND TO COMPLY WITH THE SUBDIVISION REGULATIONS OF THE CITY & BOROUGH OF JUNEAU, ALASKA AND THAT SAID PLAT HAS BEEN APPROVED BY THE PLANNING COMMISSION BY PLAT RESOLUTION NO. _____ DATED _____ AND THAT THE PLAT SHOWN HEREIN HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE DISTRICT RECORDING OFFICE, JUNEAU, ALASKA.

DATED: _____

CHAIRMAN, CITY & BOROUGH OF JUNEAU PLANNING COMMISSION

ATTEST
CLERK, CITY & BOROUGH OF JUNEAU PLANNING COMMISSION



TYPICAL MONUMENTS SET THIS SURVEY
3/4" X 5/8" REBAR WITH 1 1/4" PLASTIC SURV-CAP.



CURVE	DELTA ANGLE	RADIUS	ARC	TANGENT	CHORD	CHORD BEARING
C. 1	82°18'00"	20.00'	32.82'	20.82'	28.80'	S 46°08'38"W
C. 2	88°16'45"	20.00'	31.17'	18.75'	28.11'	S 44°38'08"E
C. 3	90°03'48"	20.00'	31.44'	20.02'	28.30'	S 45°01'54"W
C. 4	90°03'48"	20.00'	31.44'	20.02'	28.30'	S 45°01'54"E
C. 5	90°00'00"	15.00'	23.55'	15.00'	21.21'	N 45°00'00"E
C. 6	90°00'00"	15.00'	23.55'	15.00'	21.21'	S 45°00'00"E
C. 7	32°50'39"	85.00'	37.29'	19.18'	34.75'	N 16°24'53"E
C. 8	50°06'48"	85.00'	54.85'	30.38'	55.06'	N 57°54'02"E
C. 9	7°02'35"	85.00'	7.99'	4.00'	7.85'	N 88°28'14"E
C. 10	7°58'08"	85.00'	9.06'	4.54'	9.05'	S 88°01'13"E
C. 11	85°16'23"	85.00'	58.50'	31.88'	57.27'	S 55°32'40"E
C. 12	28°44'25"	85.00'	33.74'	17.28'	33.38'	S 14°52'14"E

LEGEND

- U.S.B.L.M. PRIMARY MONUMENT, MARKED AND WITNESSED AS DESCRIBED IN THE OFFICIAL RECORDS, RECOVERED THIS SURVEY.
- PRIMARY MONUMENT BY TRYCK NYMAN HAYES, RECOVERED THIS SURVEY: 5" ALUMINUM CAP ON 2" ALUM PIPE
- 3/4" X 5/8" REBAR WITH 1 1/4" PLASTIC SURV-CAP SET THIS SURVEY

STATEMENT OF OWNERSHIP:

I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREIN AND THAT I (WE) HEREBY ADOPT THIS PLAT OF SUBDIVISION WITH MY (OUR) FREE CONSENT, AND THAT I (WE) DEDICATE ALL STREETS, ALLEYS, WALLS, PARKS AND OTHER OPEN SPACES TO PUBLIC OR PRIVATE USE AS INDICATED.

DATE: _____ 19 _____

WITNESS: _____ OWNER

WITNESS: _____ OWNER

NOTARY'S ACKNOWLEDGEMENTS:

UNITED STATES OF AMERICA)
STATE OF ALASKA) S.S.

THIS IS TO CERTIFY THAT ON THIS _____ DAY OF _____ 19 _____ BEFORE ME THE UNDERSIGNED, A NOTARY PUBLIC IN AND FOR THE STATE OF ALASKA, DULY COMMISSIONED AND SWORN, PERSONALLY APPEARED:

KNOWN TO ME TO BE THE PERSON (PERSONS) DESCRIBED IN AND WHO EXECUTED THE ABOVE AND FOREGOING INSTRUMENT, AND ACKNOWLEDGED TO ME THAT HE (SHE) (THEY) SIGNED AND SEALED THE SAME FREELY AND VOLUNTARILY FOR THE USES AND PURPOSES THEREIN MENTIONED.

WITNESS MY HAND AND OFFICIAL SEAL THE DAY AND YEAR IN THIS CERTIFICATE FIRST ABOVE WRITTEN.

NOTARY PUBLIC FOR ALASKA _____

MY COMMISSION EXPIRES _____

EGAN EXPRESSWAY



CERTIFICATE OF REGISTERED LAND SURVEYOR
I HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR, REGISTERED IN THE STATE OF ALASKA, AND THAT THIS PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, THAT THE ACCURACY OF THE SURVEY IS WITHIN THE LIMITS REQUIRED BY TITLE 4, COMMUNITY DEVELOPMENT REGULATIONS AND TITLE 48 OF THE CODE OF THE CITY AND BOROUGH OF JUNEAU, THAT ALL DIMENSIONAL AND RELATIVE BEARINGS ARE CORRECT AND THAT MONUMENTS ARE SET IN PLACE AND NOTED UPON THIS PLAT AS PRESENTED.

DOUGLAS FINLEY LS-8277

DATE

OWNERS

EASTERWOOD LIMITED PARTNERSHIP
2180 FRITZ COVE RD
JUNEAU, ALASKA 99801

A PLAT OF
KELLY SUBDIVISION
A SUBDIVISION OF U.S. SURVEY No. 2476

LOCATED IN THE CITY & BOROUGH OF JUNEAU, ALASKA

JUNEAU, ALASKA RECORDING DISTRICT

DOUGLAS FINLEY LAND SURVEYING

820 6TH STREET - JUNEAU, ALASKA (907) 586-4253

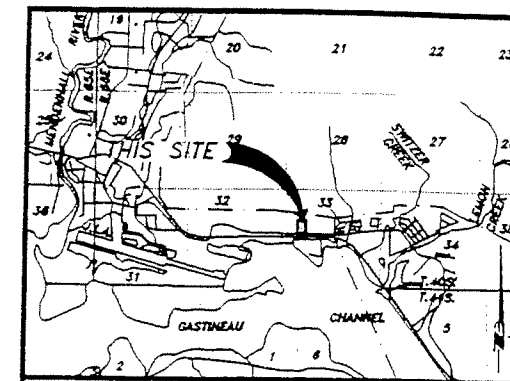
DATE: 8-19-85 DRAWN BY: GDM PROJ. No: 95-188-G144 SCALE: 1" = 50'

SHEET
1 OF 1

GENERAL NOTES:

1. THE TOPOGRAPHIC MAPPING SHOWN BY THIS PLAT WAS DERIVED PHOTOGRAMMETRICALLY FROM AERIAL PHOTOGRAPHY OBTAINED ON SEPTEMBER 3, 1996.
2. THE AERIAL PHOTOGRAPHY WAS FLOWN AT AN ELEVATION OF 8,000' A.G.L. EMPLOYING A WILD RC8-USGS CERTIFIED 5" F.L. CAMERA. THE RESULTING DIRECT PHOTOGRAMMETRIC MAPPING WAS TO A 5' CONTOUR INTERVAL. AT A HORIZONTAL SCALE OF 1"=200'. THE PHOTOGRAMMETRIC MAPPING STANDARDS IS TO THAT SCALE. PHOTOGRAMMETRIC MAPPING STANDARDS CANNOT BE COMPLIED WITH IN AREAS OF DENSE VEGETATION (TREE COVER). IN THESE AREAS CONTOURS SHOWN ARE "FORM LINES".
3. HORIZONTAL CONTROL WAS DERIVED FROM NATIONAL OCEAN SURVEY (N.O.S.) FIRST ORDER GPS (GLOBAL POSITIONING SATELLITE SURVEY) METHODS UTILIZING AS ITS BASE, STATIONS "EDDIE" (AT JUNEAU INTERNATIONAL AIRPORT) AND "TIDAL" AT JUNEAU'S SUPPORT. ALL GROUND CONTROL AND TIES TO PROPERTY LINES WERE ACCOMPLISHED UTILIZING GPS SURVEY METHODS.
4. VERTICAL CONTROL WAS TO NATIONAL OCEAN SURVEY (FORMERLY USC&GS) TIDAL BENCHMARKS IN GASTINEAU CHANNEL. THE VERTICAL DATUM IS BASED ON MEAN LOWER WATER EQUALLY 0.00' IN ELEVATION.
5. PROPERTY LINES SHOWN HEREON WERE INSERTED FROM DIRECT LAND MONUMENTATION TIES BOTH EAST AND WEST OF THIS PROPERTY. PROPERTY LINES ARE SHOWN FOR GRAPHIC PURPOSES ONLY.
6. SURVEY COURSES (BEARINGS AND DISTANCES) FOR THE SUBJECT LOTS IN QUESTION WERE DERIVED DIRECTLY FROM BUREAU OF LAND MANAGEMENT RECORD PLATS. NO FIELD BOUNDARY OR TOPOGRAPHIC SURVEYS HAVE BEEN CONDUCTED ON THIS LAND.
7. SEWER AND WATER UTILITIES SHOWN HEREON WERE DERIVED FROM AS-BUILT RECORD INFORMATION. NO FIELD VERIFICATION/LOCATION OF SUCH UTILITIES HAS BEEN MADE BY THIS SURVEY.

R & M ENGINEERING, INC.
ENGINEERS GEOLOGISTS SURVEYORS



VICINITY MAP

SOURCE: U.S.G.S. QUAD MAP JUNEAU (8-2), ALASKA
SCALE: 1" = 1 MILE

DATE: 1997

REV.: 1974

LEGEND:

- ORIGINAL G.L.O./B.L.M. MONUMENT RECOVERED.....
- 1410-S PRIMARY MONUMENT RECOVERED.....
- PRIMARY MONUMENT BY OTHERS RECOVERED.....
- APPROXIMATE PROPERTY LINE.....
- DEF. SHORELINE.....
- LAKE (POND).....
- STREAM.....
- PAVED/ASPHALT.....
- GRAVEL SURFACE.....
- FOOT PATH.....
- WOODED AREA.....
- BRUSH AREA.....
- FENCE LINE.....
- CULVERT.....
- SPOT HEIGHT..... 300.0
- GROUND CONTROL.....
- LIGHT STANDARD.....
- POWER POLE.....
- FLAG POLE.....
- RADIO/RADAR DISH.....
- MANHOLE.....
- EXIST. WATER LINE.....
- EXIST. SEWER LINE.....

- CONTOURS:
- INDEX..... 300
 - INTERMEDIATE..... 300
 - OBSCURED INDEX..... 300
 - OBSCURED INTERMEDIATE..... 300
 - DEPRESSION INDEX..... 300
 - DEPRESSION INTERMEDIATE..... 300

CORP OF ENGINEERS
DESIGNATED WETLANDS

CONTOUR INTERVAL: 5'
SCALE: 1" = 200'

TOPOGRAPHIC MAPPING
SITE ANALYSIS STUDY
FOR THE
**PROPOSED NATIONAL GUARD
ARMORY SITE**
WITHIN

LOTS 2-4 & LOTS 21-32
U.S. SURVEY NO. 3258

CITY & BOROUGH OF JUNEAU ALASKA

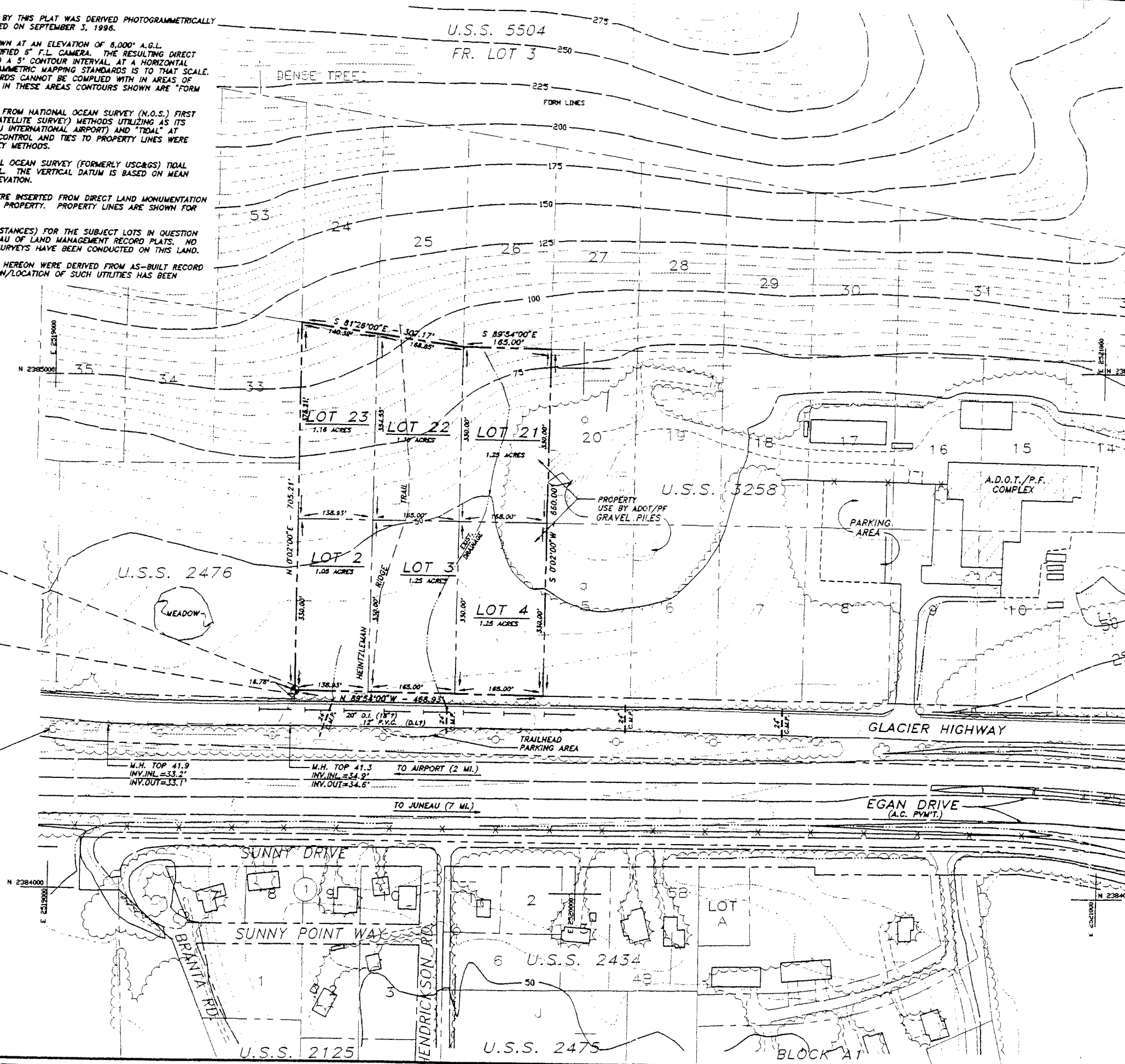
CLIENT:
DEPT. OF MILITARY &
VETERANS AFFAIRS
P.O. BOX 5-549
ANCHORAGE, ALASKA 99503

ENGINEER/SURVEYOR:
R & M ENGINEERING, INC.
P.O. BOX 54278
JUNEAU, ALASKA 99803

DATE: JAN. 1997

SHEET 1 OF 3

RAM PROJ. NO. 061483



A.E.L. & P. OVERHEAD
ELEC. (69KV, 220 SERVICE);
CABLE T.V. & P.T.I. TELEPHONE

M.H. TOP 41.9
INV. INL = 33.2'
INV. OUT = 33.1'

M.H. TOP 41.3
INV. INL = 34.9'
INV. OUT = 34.6'

TO AIRPORT (2 MI.)

TO JUNEAU (7 MI.)

EGAN DRIVE
(A.C. PYMT.)

SUNNY DRIVE

SUNNY POINT WAY

HENDRICKSON RD.

U.S.S. 2125

U.S.S. 2475

BLOCK A1

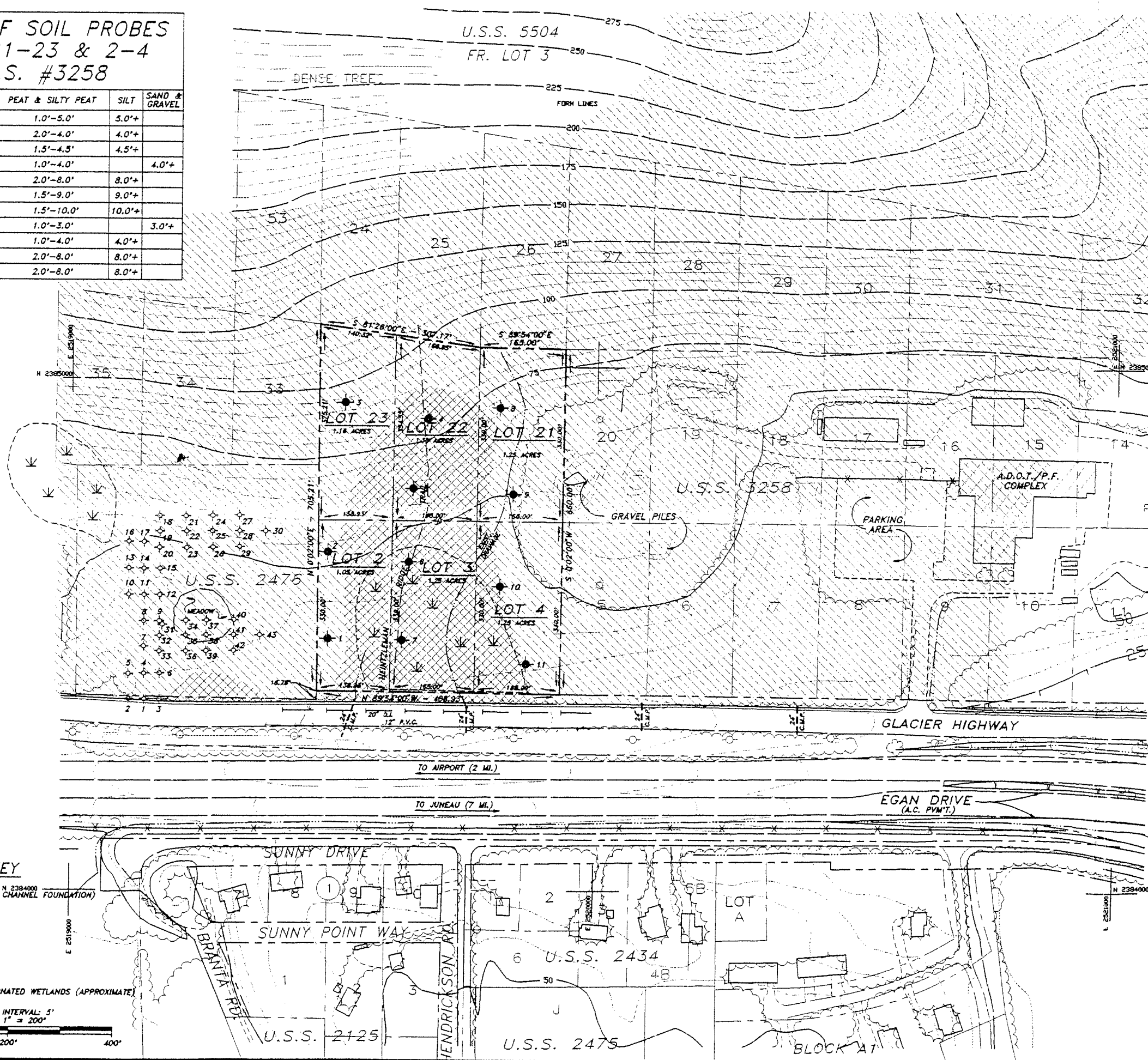
FILE: L-741

TABLE OF SOIL PROBES
LOTS 21-23 & 2-4
U.S.S. #3258

T.P. NO.	TREE, BRUSH ROOTS & MOSS	PEAT & SILTY PEAT	SILT	SAND & GRAVEL
1	0-1.0'	1.0'-5.0'	5.0'+	
2	0-2.0'	2.0'-4.0'	4.0'+	
3	0-1.5'	1.5'-4.5'	4.5'+	
4	0-1.0'	1.0'-4.0'		4.0'+
5	0-2.0'	2.0'-8.0'	8.0'+	
6	0-1.5'	1.5'-9.0'	9.0'+	
7	0-1.5'	1.5'-10.0'	10.0'+	
8	0-1.0'	1.0'-3.0'		3.0'+
9	0-1.0'	1.0'-4.0'	4.0'+	
10	0-2.0'	2.0'-8.0'	8.0'+	
11	0-2.0'	2.0'-8.0'	8.0'+	

TABLE OF SOIL PROBES
U.S.S. #2476

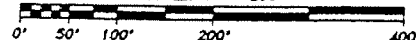
T.P. NO.	ORGANIC PEAT	SAND	GRAVELLY SAND	GRAVEL	GLACIAL TILL
1	0'-3.0'	3.5'-7.0'	3.0'-3.5'		10'-10'2"
2	1'-5.0'	5.0'-7.0'		0'-1.0'	
3	0.5'-6.0'	6.0'-7.0'	7.0'-7'10"	0'-0.5'	
4	0'-3.0'		3.0'-6.0'		6.0'-7.0'
5	0'-3.5'		3.5'-7'6"		
6	0'-7.0'				7.0'-7'2"
7	0'-6.0'	6.0'-7.0'			7.0'-7'2"
8	0'-10.0'	1.0'-3.0'			10'-10'+
9	0'-11.0'	1.0'-4.0'			
10	0'-10.0'	2.0'-8.0'			10'-11.0'
11	0'-10.0'	2.0'-8.0'			10'-10'2"
12	0'-9.0'				
13	0'-4.0'			4.0'-5'6"	
14	0'-6.0'	6.0'-9.0'		9.0'-10.0'	
15	0'-7.0'		7.0'-7'2"		
16	0'-5.0'	5.0'-5.5'			
17	0'-5.0'	5.0'-6.5'			
18	0'-6.0'		6.0'-7.0'		
19	0'-5.5'	5.5'-7.5'			
20	0'-7.0'				
21	0'-6.0'			6.0'-6.5'	
22	0'-7.0'		7.0'-8.0'		
23	0'-9.0'				
24	0'-6.5'				
25	0'-9.5'				
26	0'-9.5'				
27	0'-6.0'				
28	0'-6.5'		6.5'-7.0'		
29	0'-6.0'	6.0'-6'4"			
30	0'-6.0'				
31	0'-10.5'				
32	0'-8.0'				
33	0'-7.0'	7.0'-7.5'			
34	0'-11.0'				
35	0'-11.0'				
36	0'-11.0'				
37	0'-11.0'				
38	0'-11.0'				
39	0'-11.0'				
40	0'-11.0'				
41	0'-11.0'				
42	0'-11.0'				
43	0'-10.5'				



SOILS KEY

- GLACIOMARINE (GASTINEAU CHANNEL FOUNDATION)
- PEAT
- 1 SOILS PROBE 1996
- 1 SOILS PROBE 1984
- CORP OF ENGINEERS DESIGNATED WETLANDS (APPROXIMATE)

CONTOUR INTERVAL: 5'
SCALE: 1" = 200'



GEOLOGICAL MAPPING
SITE ANALYSIS STUDY
FOR THE
**PROPOSED NATIONAL GUARD
ARMORY SITE**
WITHIN

LOTS 2-4 & LOTS 21-32
U.S. SURVEY NO. 3258

CITY & BOROUGH OF JUNEAU, ALASKA

CLIENT:
DEPT. OF MILITARY &
VETERANS AFFAIRS
P.O. BOX 5-548
ANCHORAGE, ALASKA 99503

ENGINEER/SURVEYOR:
R&M ENGINEERING, INC.
P.O. BOX 54278
JUNEAU, ALASKA 99803

DATE: JAN, 1997

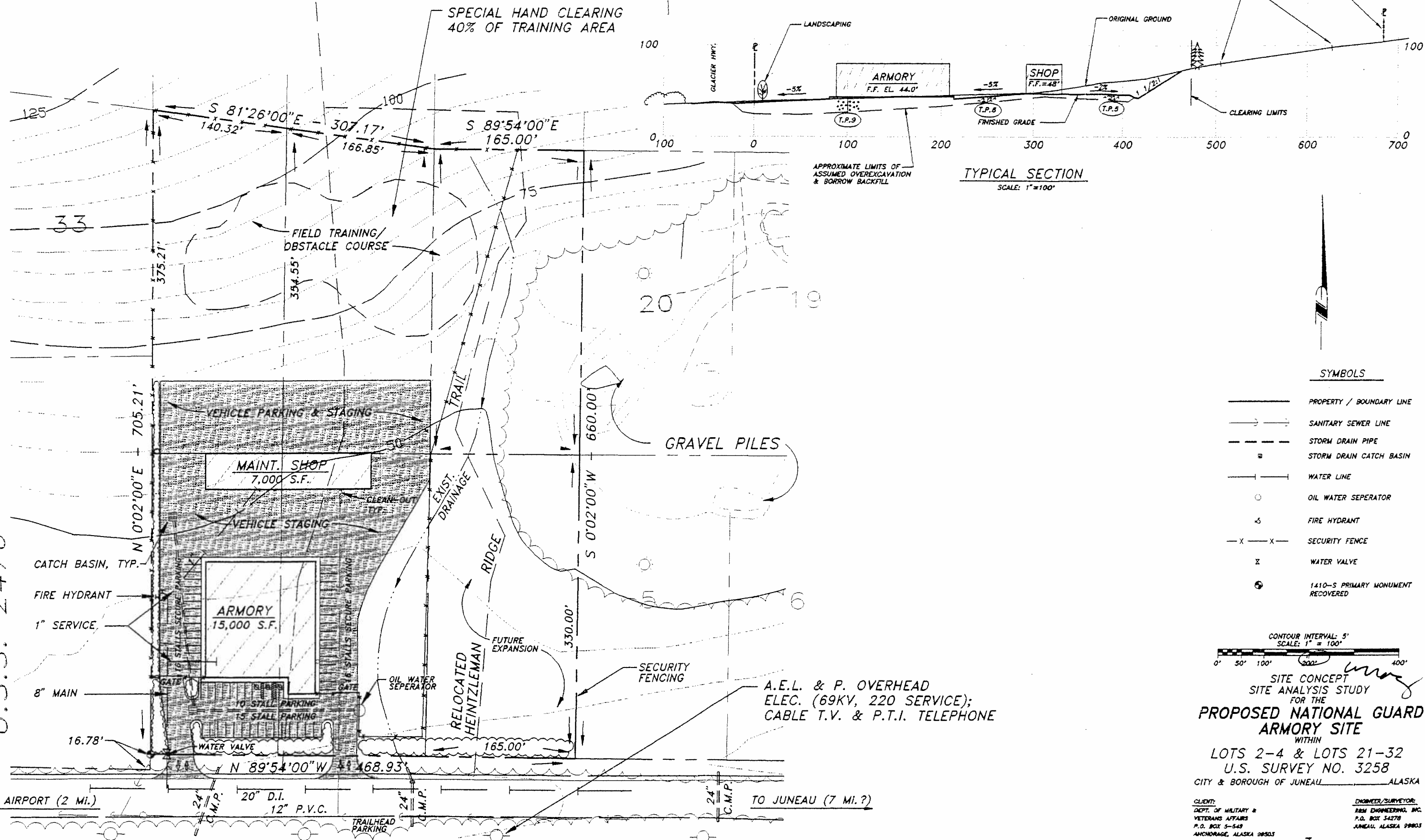
SHEET 2 of 3

R&M PROJ. NO. 961483

200

200

SPECIAL HAND CLEARING
40% OF TRAINING AREA



SYMBOLS

- — — — — PROPERTY / BOUNDARY LINE
- — — — — SANITARY SEWER LINE
- — — — — STORM DRAIN PIPE
- — — — — STORM DRAIN CATCH BASIN
- — — — — WATER LINE
- OIL WATER SEPERATOR
- ⊕ FIRE HYDRANT
- X — X — SECURITY FENCE
- ⊗ WATER VALVE
- ⊙ 1410-S PRIMARY MONUMENT RECOVERED

CONTOUR INTERVAL: 5'
SCALE: 1" = 100'

SITE CONCEPT
SITE ANALYSIS STUDY
FOR THE
**PROPOSED NATIONAL GUARD
ARMORY SITE**

WITHIN
LOTS 2-4 & LOTS 21-32
U.S. SURVEY NO. 3258
CITY & BOROUGH OF JUNEAU ALASKA

CLIENT:
DEPT. OF MILITARY &
VETERANS AFFAIRS
P.O. BOX 5-549
ANCHORAGE, ALASKA 99503

ENGINEER/SURVEYOR:
R&M ENGINEERING, INC.
P.O. BOX 34278
JUNEAU, ALASKA 99803

DATE: JAN., 1987

SHEET 3 OF 3

R&M PROJ. NO. 001483

U.S.S. 2476

APPENDIX B

COST ESTIMATE LIMITATIONS

Cost estimates for the proposed site developments of lots 2/3 and 22/23, USS No. 3258 is attached. These estimates are based on the site concept drawings outlined on sheets 3 of 3, Appendix A. The principal assumptions are;

- ▶ The site is to be developed prior to the building being built.
- ▶ The buildings configuration will be known during the site civil design process.
- ▶ Site civil development construction will take place approximately one year before the buildings are built to allow the site to "heal" prior to construction to begin.
- ▶ It is assumed that the soils sublying the peat will be stable and not subject to seismic movement or liquefaction during periods of a prolonged earthquake with low magnitude or a single earthquake of high magnitude.
- ▶ That the entire site yard will be paved during/after the building construction.
- ▶ That the site will meet all of the design review requirements of local government including a landscaping plan.
- ▶ That the Corps of Engineers and other appropriate wetlands permitting agencies will allow the Alaska Army National Guard to build on this site (even though it is a wetlands) because of "public need".
- ▶ Certain amenities for this development are assumed. They include, but are not limited to; fire control by both sprinkler and hydrant methods; stream sediment control; stream runoff control; parking area runoff control by oil/water separators into an enclosed drainage system; area security fencing and finally, a field training obstacle/course area to be partially cleared (see drawing).

All of these items are line items within the construction cost estimate and can be taken from or added to the cost estimate.

In addition to the construction costs, we have attempted to reflect all other costs involving site civil development. All other costs include but are not limited to;

- A land and engineering survey;
- A geotechnical (subsurface soils) investigation and foundation report;
- A Level 1 Site Assessment (this item is probably not needed due to the "wilderness" nature of the site but is desired by many owners/loan institutions/funding agencies. Also, ADOT/PF could have placed some undesirable material on the site.

- Site civil engineering design costs are taken from recommendations made by Manual 45 as prepared by the American Society of Civil Engineers.

SITE CONSTRUCTION COST ESTIMATE

The site construction cost estimate was provided by individual quantities as shown on the attached sheets. The individual unit costs, quantities and pay items are computed in the style and mannerisms of the State of Alaska, Department of Transportation and Public Facilities.

Added to these construction costs are all other related costs. We have included at 15% construction cost estimate contingency factor to this construction budget.

**SITE CIVIL CONSTRUCTION
COST ESTIMATE
ALASKA NATIONAL GUARD FACILITIES - LOTS 2-3 & 22-23, USS 3258**

**PRELIMINARY CONSTRUCTION COST ESTIMATE
OVEREXCAVATION & BACKFILL METHOD**

1/2

ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	QUANTITY	UNIT PRICE	TOTAL
120(1)	DBE ADJUSTMENT	C.S.	C.S.	\$3,000.00	3,000.00
201(3A)	CLEARING AND GRUBBING	AC.	3.2	\$7,500.00	24,000.00
201(4A)	HAND CLEARING	AC.	0.3	\$22,000.00	6,600.00
203(3)	UNCLASSIFIED EXCAVATION	C.Y.,	33,330	\$4.00	133,320.00
203(6)	BORROW	TON	44,690	\$7.00	312,830.00
203(12)	SPECIAL DITCH	L.F.	100	\$25.00	2,500.00
301(1)	CRUSHED AGG. BASE COURSE	TON	4,725	\$18.00	85,050.00
501(A)	CLASS A CONCRETE	L.S.	ALL REQ'D	\$500.00	500.00
603(18)	18" CMP	L.F.	410	\$30.00	12,300.00
603(24)	24" CMP	L.F.	20	\$45.00	900.00
611(28)	RIPRAP, CLASS II	C.Y.	40	\$55.00	2,200.00
615(1)	STANDARD SIGNS	EACH	2	\$250.00	500.00
615(2)	SPECIAL SIGN	EACH	1	\$2,000.00	2,000.00
618(1)	SEEDING	AC.	0.8	\$3,500.00	2,800.00
620(1)	TOP SOIL	S.Y.	380	\$8.00	3,040.00
621(1)	TREES	EACH	20	\$40.00	800.00
633(1)	GEOTEXTILE FABRIC	S.Y.	11,700	\$2.00	23,400.00
639(1)	DRIVEWAY	EACH	2	\$2,500.00	5,000.00
640(1)	MOB/DEMOB	L.S.	ALL REQ'D	\$7,500.00	7,500.00
641(1)	EROSION/POLLUTION ADMIN.	L.S.	ALL REQ'D	\$2,500.00	2,500.00
641(2)	EROSION/POLLUTION CONTROL	C.S.	C.S.	\$5,000.00	5,000.00
642(1)	CONSTRUCTION SURVEYING	L.S.	ALL REQ'D	\$29,500.00	29,500.00
401(1)	ASPHALT CONC. PVM'T, CLASS II B	TON	1155	\$80.00	92,400.00
604(8)	SANITARY SEWER CLEANOUT	EACH	2	\$750.00	1,500.00
604(5)	INLET, TYPE A	EACH	2	\$1,500.00	3,000.00
609(2)	CURB & GUTTER, TYPE 1	L.F.	260	\$20.00	5,200.00
608(1-4)	4" CONCRETE SIDEWALK	S.Y.	72.5	\$45.00	3,265.00

**SITE CIVIL CONSTRUCTION
COST ESTIMATE
ALASKA NATIONAL GUARD FACILITIES - LOTS 2-3 & 22-23, USS 3258**

**PRELIMINARY CONSTRUCTION COST ESTIMATE
OVEREXCAVATION & BACKFILL METHOD**

2/2

ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	QUANTITY	UNIT PRICE	TOTAL
626(1)	6" PVC SEWER SERVICE	L.F.	210	\$20.00	4,200.00
626(3)	8" PVC SEWER MAIN	L.F.	130	\$50.00	6,500.00
627(3)	VALVE BOX	EACH	2	\$250.00	500.00
627(5)	FIRE HYDRANT	EACH	1	\$3,500.00	3,500.00
627(8)	1" WATER SERVICE	EACH	3	\$1,500.00	4,500.00
627(8A)	8" WATER SERVICE	L.F.	220	\$65.00	14,300.00
627(9)	6" GATE VALVE	EACH	2	\$750.00	1,500.00
627(11)	AIR RELEASE VALVE	EACH	1	\$1,000.00	1,000.00
641(2)	SILT FENCE	L.F.	650	\$5.00	3,250.00
641(3)	HAY BALES	EACH	20	\$40.00	800.00
650(1)	SECURITY FENCING	L.F.	2100	\$27.50	57,750.00
604(9)	OIL/WATER SEPARATOR, M.H.	EACH	1	\$3,000.00	3,000.00
609(3)	CONCRETE WHEEL STOP	L.F.	270	\$5.00	1,350.00
660	TRAILHEAD RELOCATION	L.F.	900	\$15.00	\$13,500.00
SUBTOTAL					\$886,255.00
15% CONTINGENCY					132,940.00
TOTAL ESTIMATED CONSTRUCTION COST					\$1,019,195.00
OTHER COSTS LEVEL 1 SITE ASSESSMENT					\$2,500.00
LAND & TOPOGRAPHIC SURVEY					\$13,810.00
SOILS/FOUNDATION INVESTIGATION					\$17,410.00
6.5% SITE CIVIL ENGINEERING DESIGN*					\$66,250.00
6% CONSTRUCTION MANAGEMENT & INSPECTION					\$61,150.00
3% LEGAL & ADMINISTRATION					\$30,580.00
SUBTOTAL "OTHER" COSTS					\$191,700.00
GRAND TOTAL					\$1,210,895.00

1) EXCLUDES ELECTRIC, TELEPHONE & TELEVISION UTILITY CONDUITS, CABLE SYSTEMS, ENGINEERING & INSTALLATION COSTS.

* ASCE RECOMMENDATION

**SITE CIVIL CONSTRUCTION
COST ESTIMATE
ALASKA NATIONAL GUARD FACILITIES - LOTS 2-3 & 22-23, USS 3258**

**PRELIMINARY CONSTRUCTION COST ESTIMATE
OVER EXCAVATION/BACKFILL & PILE METHOD**

1/2

ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	QUANTITY	UNIT PRICE	TOTAL
120(1)	DBE ADJUSTMENT	C.S.	C.S.	\$3,000.00	3,000.00
201(3A)	CLEARING AND GRUBBING	AC.	3.2	\$7,500.00	24,000.00
201(4A)	HAND CLEARING	AC.	0.3	\$22,000.00	6,600.00
203(3)	UNCLASSIFIED EXCAVATION	C.Y.	33,330	\$4.00	133,320.00
203(6)	BORROW	TON	35,750	\$7.00	250,250.00
203(12)	SPECIAL DITCH	L.F.	100	\$25.00	2,500.00
301(1)	CRUSHED AGG. BASE COURSE	TON	4,725	\$18.00	85,050.00
501(A)	CLASS A CONCRETE	L.S.	ALL REQ'D	\$500.00	500.00
603(18)	18" CMP	L.F.	410	\$30.00	12,300.00
603(24)	24" CMP	L.F.	20	\$45.00	900.00
611(28)	RIPRAP, CLASS II	C.Y.	40	\$55.00	2,200.00
615(1)	STANDARD SIGNS	EACH	2	\$250.00	500.00
615(2)	SPECIAL SIGN	EACH	1	\$2,000.00	2,000.00
618(1)	SEEDING	AC.	0.8	\$3,500.00	2,800.00
620(1)	TOP SOIL	S.Y.	380	\$8.00	3,040.00
621(1)	TREES	EACH	20	\$40.00	800.00
633(1)	GEOTEXTILE FABRIC	S.Y.	11,700	\$2.00	23,400.00
639(1)	DRIVEWAY	EACH	2	\$2,500.00	5,000.00
640(1)	MOB/DEMOB	L.S.	ALL REQ'D	\$7,500.00	7,500.00
641(1)	EROSION/POLLUTION ADMIN.	L.S.	ALL REQ'D	\$2,500.00	2,500.00
641(2)	EROSION/POLLUTION CONTROL	C.S.	C.S.	\$5,000.00	5,000.00
642(1)	CONSTRUCTION SURVEYING	L.S.	ALL REQ'D	\$34,500.00	34,500.00
401(1)	ASPHALT CONC. PVM'T, CLASS II B	TON	1155	\$80.00	92,400.00
604(8)	SANITARY SEWER CLEANOUT	EACH	2	\$750.00	1,500.00
604(5)	INLET, TYPE A	EACH	2	\$1,500.00	3,000.00
609(2)	CURB & GUTTER, TYPE 1	L.F.	260	\$20.00	5,200.00
608(1-4)	4" CONCRETE SIDEWALK	S.Y.	72.5	\$45.00	3,265.00

**SITE CIVIL CONSTRUCTION
COST ESTIMATE
ALASKA NATIONAL GUARD FACILITIES - LOTS 2-3 & 22-23, USS 3258**

**PRELIMINARY CONSTRUCTION COST ESTIMATE
OVER EXCAVATION/BACKFILL & PILE METHOD**

2/2

ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	QUANTITY	UNIT PRICE	TOTAL
626(1)	6" PVC SEWER SERVICE	L.F.	210	\$20.00	4,200.00
626(3)	8" PVC SEWER MAIN	L.F.	130	\$50.00	6,500.00
627(3)	VALVE BOX	EACH	2	\$250.00	500.00
627(5)	FIRE HYDRANT	EACH	1	\$3,500.00	3,500.00
627(8)	1" WATER SERVICE	EACH	3	\$1,500.00	4,500.00
627(8A)	8" WATER SERVICE	L.F.	220	\$65.00	14,300.00
627(9)	6" GATE VALVE	EACH	2	\$750.00	1,500.00
627(11)	AIR RELEASE VALVE	EACH	1	\$1,000.00	1,000.00
641(2)	SILT FENCE	L.F.	650	\$5.00	3,250.00
641(3)	HAY BALES	EACH	20	\$40.00	800.00
650(1)	SECURITY FENCING	L.F.	2100	\$27.50	57,750.00
604(9)	OIL/WATER SEPARATOR, M.H.	EACH	1	\$3,000.00	3,000.00
609(3)	CONCRETE WHEEL STOP	L.F.	270	\$5.00	1,350.00
750(1)	TIMBER FURNISHED & INSTALLED	EACH	85	\$1,800.00	153,000.00
650(2)	RELOCATE TRAIL	L.F.	900	\$15.00	13,500.00
SUBTOTAL					\$981,675.00
15% CONTINGENCY					147,250.00
TOTAL ESTIMATED CONSTRUCTION COST					\$1,128,925.00
OTHER COSTS LEVEL 1 SITE ASSESSMENT					\$2,500.00
LAND & TOPOGRAPHIC SURVEY					\$13,810.00
SOILS/FOUNDATION INVESTIGATION					\$17,410.00
6.5% SITE CIVIL ENGINEERING DESIGN					\$73,380.00
6% CONSTRUCTION MANAGEMENT & INSPECTION					\$67,735.00
3% LEGAL & ADMINISTRATION					\$33,870.00
SUBTOTAL "OTHER" COSTS					\$208,705.00
GRAND TOTAL					\$1,337,630.00

1) EXCLUDES ELECTRIC, TELEPHONE & TELEVISION UTILITY CONDUITS, CABLE SYSTEMS, ENGINEERING & INSTALLATION COSTS.

RSM

SITE CIVIL CONSTRUCTION
ALASKA NATIONAL GUARD FACILITIES

TECHNICAL SERVICES COST ESTIMATE

LAND AND TOPO SURVEY

BOUNDARY 307+165+660+705/1300'/D + 469/2000'/D (10H/D)\$125/HR	\$ 2,060
CONTROL	300
PLATS, RESEARCH, ETC.	200
SET 4 PRIMARY MONS @ 2.5HR/MON (\$125/HR)	1,250
MONS 4(40)	160
OFFICE 30% FIELD	1,140
TOPO 750/75'C/C + 1 = 11X-SEC(2 SIDE) 22 SECS @ 300' DIST = 6600 6600/2000'/D(10)125(1.15)	4,745
SEWER/H2O/ELEC/DRAINAGE 10(125)	1,250
45% OFFICE	2,700
TOTAL	\$13,810

SOILS

FIELD 8 SOIL TEST "A" FRAME TEST HOLES @ 20' = 160' @ \$30/1	4,800
FIELD 2 SOIL TEST "A" FRAME TEST HOLES @ 40' = 80' @ \$35/1	2,800
8 HOLE SET-UP/TAKE-DOWN @ 3.5HR/(100/HR)	2,800
GEOLOGIST 7 DAY @ 8HR/D @ \$65/HR	3,640
OFFICE & LAB - 30% FIELD	3,370
TOTAL	\$17,410



JUNEAU WETLANDS MANAGEMENT PLAN ATLAS

WETLAND CATEGORIES



A

Maintain all individual functional values in the wetland unit.
One environmental function cannot be substituted for another.



B

Maintain all aggregate functional values in the wetland unit.
One environmental function can be substituted for another.



C

Maintain overall functional value on roaded system.
No net loss of aggregate value to region.



D

Minimize adverse impacts to functional values.



EP

Enhancement Potential



R

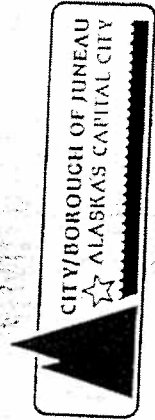
Wetlands generally restricted due to land ownership or management status.

(s)

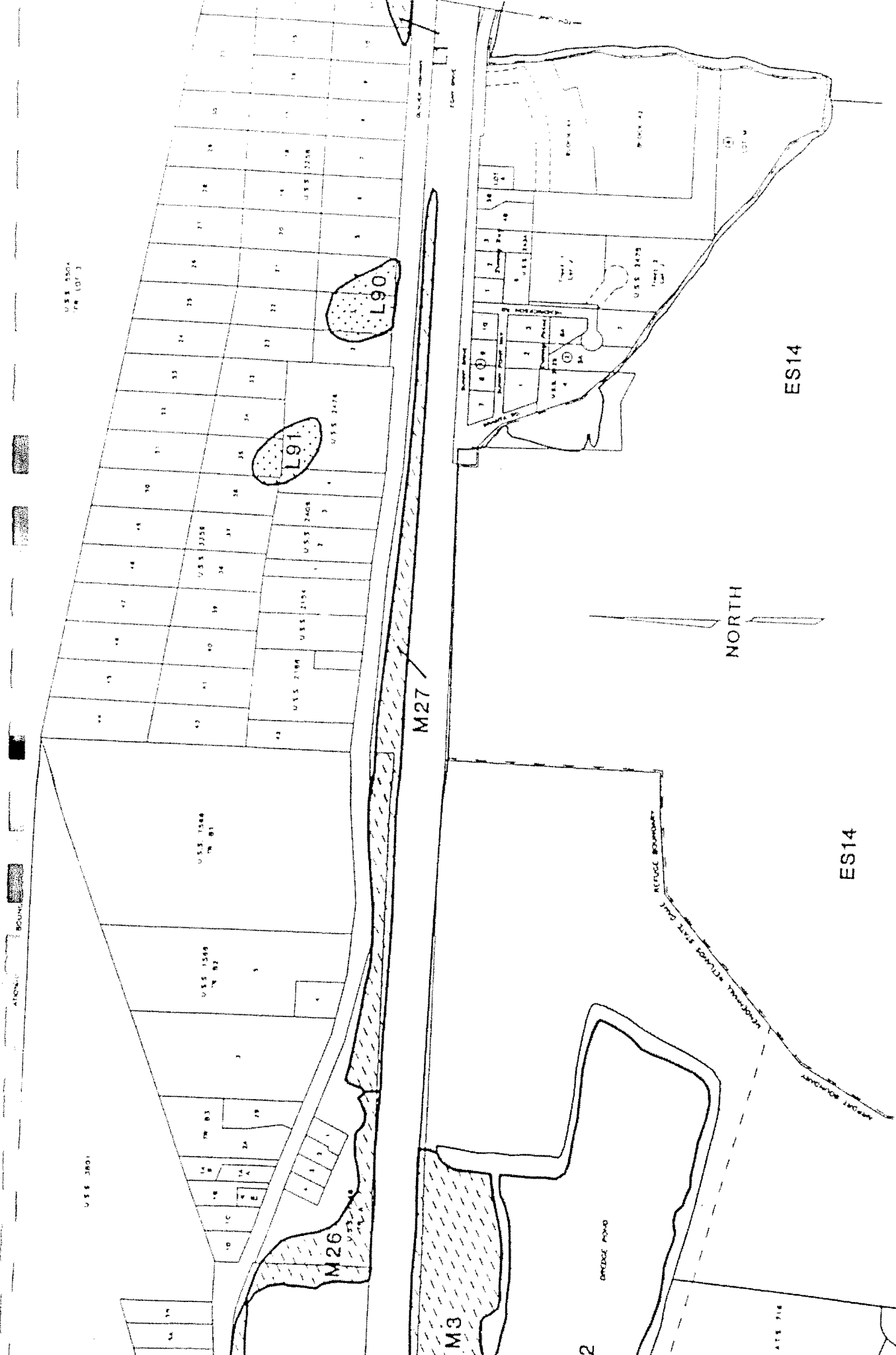
Indicates that a more restrictive, category A, stream corridor designation applies to a portion of the wetland unit.

(r)

Indicates that a less restrictive, category C, residential road corridor designation applies to a portion of the wetland unit.



City & Borough of Juneau



WETLANDS CLASSIFICATION

- L1-B
- L90-D
- L91-D
- M2-EP
- M3-B
- M26-B
- M27-B

ES16

C.B.J. - BASEMAP SERIES

WETLAND EVALUATION RESULTS

FUNCTION	WETLAND NUMBER										
	ES14	ES16	ES42	L1	L4	L5	L6	L90	L91		
Groundwater Discharge	L	L	L	M	L	L	M	M	M		
Groundwater Recharge	L	L	L	L	L	L	L	L	L		
Surface Hydrologic Control	L	L	L	ML	H	H	ML	L	L		
Sediment/Toxicant Retention	-	-	H	H	H	H	H	ML	ML		
Nutrient Export	-	-	-	L	M	L	H	L	L		
Riparian Support	H	H	H	MH	H	L	H	ML	ML		
Erosion Sensitivity	-	-	-	L	L	H	H	MH	ML		
Salmonid Habitat	-	-	-	MH	H	VL	VH	L	L		
Disturbance Sensitive Wildlife	H1	H1	ML2	ML2	L	H4	H3	L	L		
Regional Ecological Diversity	H5	MH6	H5	L	H5	L	H1	L	L		
Ecological Replacement Cost	L	L	L	L	L	L	H	M	L		
Recreational Use/Potential	ML	ML	ML	ML	MH	MH	L	ML	ML		
Recreational Use/Actual	ML	ML	ML	ML	ML	ML	L	ML	ML		
Downslope Beneficiary Sites	L	L	M	M	M	M	M	L	L		

NOTE: Some rating codes are followed by a number (e.g.H4). This number has no value connotation, but is used to reference the specific criterion used to arrive at the rating. (See Sec. 2.2).

SOURCE: "Juneau Wetlands: Functions and Values", Adamus Resource Assessment, Inc., August 1987.

LAND USE INFORMATION

	ES14	ES16	ES42	L1	L4	L5	L6	L90	L91
MUNICIPAL WATER	N	N	N	E	N	N	E	E	N
MUNICIPAL SEWER	N	N	N	Y	N	N	Y	Y	N
PROPERTY OWNERSHIP*	S/P	S	P	S	P	P	M	S/P	P
COMP PLAN DESIGNATION	-	-	GC/RR OS	IPU	OS/RR	RR	IPU/ OS	ULDR/ IPU	IPU

EXPLANATION OF DATA:

1. Municipal Water: E = EXISTING WATER The wetland is within the existing municipal water system.
F = FUTURE WATER The wetland is within the "Municipal Water System Five-Year Expansion Plan Map, Jan. 19, 1984."
N = NO WATER The wetland is not served by municipal water, and is not within the planned expansion of the water system.
2. Municipal Sewer: YES or NO indicates whether the wetland, or a portion of it, is served by the municipal sewer system.
3. Property Ownership: M = MUNICIPAL (CBJ)
P = PRIVATE
S = STATE (including UAJ)
F = FEDERAL
4. Comprehensive Plan Designations:
RR = Resource Reserve
OS = Open Space
RDR = Rural Dispersed Residential
RLDR = Rural Low Density Residential
ULDR = Urban Low Density Residential
MDR = Medium Density Residential
TA = Transition Area (Increased density when serviced by municipal water.)
NC = Neighborhood Commercial
GC = General Commercial
WC = Waterfront Commercial
WCI = Waterfront Commercial Industrial
I = Industrial
IPU = Institutional/Public Use

* Property ownership designations are for general reference; property line alignments are not guaranteed.

SOURCES: Municipal Water System- Five Year Expansion Plan Map, CBJ Engineering Dept., rev. Feb. 1987.
CBJ Street and Property Atlas, CBJ Dept. Community Development, rev. Jan. 1987.
CBJ Comprehensive Plan, CBJ Dept. Community Development, April 1984.

Letter Of Agreement

\$5,000. or Less

Juncau Armory Site Analyst

Statement Of Services

R&M Engineering to provide Site Analyst for future National Guard Armory and OMS construction.
ATTN: Mark Pusich

1. *National Guard site location, Sunny Point (See Attached Map.)*
2. *Acreage required: 10-12 acres*
3. *Number of buildings and type: Two buildings 15,000 square foot armory and a 7,000. square foot OMS (Vehicle Maintenance Shop).*
4. *Mark, Please address the following areas of concern:*
 - a. Drainage problems
 - b. Utilities availability
 - c. Recommend type of construction
 - d. Check adjacent land boring samples
 - e. Easement requirement
 - f. Wetlands determination
 - g. Building location recommendations
 - h. Economic analysis of site improvement cost.

This work should be completed on or before 20 January 1997.

R&M Engineering agrees to provide the above services for a Lump Sum (One Payment) Fixed Price of
\$ 5,000⁰⁰ (Five - Thousand ^{00/100} DOLLARS)

Execution of this document authorizes the Contractor to proceed with this work.

Contract expires 1 February 1997 unless extended by the contracting officer or his authorized representative.

CONTRACTOR: Mark Pusich R&M Engineering

DEPT OF MILITARY AND
VETERAN AFFAIRS - FACILITY
MANAGEMENT DIVISION

Signature Mark Pusich 12-19-96
Name: Mark Pusich Date
Vice President

Signature Ron Pitts 12/23/96
Name: Ron Pitts Date
Contracting Officer

