

CONTRACTING NOTES:

1. Bid Opening Date has been re-scheduled
to
18 June 2004, 1400 (2 PM, AST).

Please refer to SF 30, Block 14.

2. A new bid schedule is enclosed. Please use this revised schedule for submissions. Any bid packages received not using this revised schedule may be subject to rejection as “unresponsive” bids.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE	PAGE OF PAGES 1 1
2. AMENDMENT/MODIFICATION NO. R0003	3. EFFECTIVE DATE 06/01/04	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
6. ISSUED BY US ARMY ENGINEER DISTRICT, AK CEPOA-CT-CM (W911KB) PO BOX 6898 ELMENDORF AFB, AK 99506-0898 KEVIN MALOY (907)753-5594	CODE J4P0000	7. ADMINISTERED BY (If other than Item 6) CODE US ARMY ENGINEER DISTRICT, AK CEPOA-CT-CM PO BOX 6898 ELMENDORF AFB, ALASKA 99506-6898 DACA85	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)		(X)	9A. AMENDMENT OF SOLICITATION NO. W911KB-04-B-0002
CODE 089C4 FACILITY CODE		X	9B. DATED (SEE ITEM 11) 04/15/03
			10A. MODIFICATION OF CONTRACT/ORDER NO.
			10B. DATED (SEE ITEM 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 0 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. Accounting and Appropriation Data (If required)

PROJECT TITLE AND LOCATION: Modified MOUT and Range Upgrade Facility, Ft Wainwright, Alaska

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(X) A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc). SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor is not, is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

BID OPENING DATE IS EXTENDED TO 18 JUN 2004, at 2:00 pm, local time, at the US Army Engineer District-Alaska, 2204 Third St, Elmendorf AFB, Alaska.

NOTICE TO OFFERORS: PLEASE MARK OUTSIDE OF ENVELOPE IN WHICH BID IS SUBMITTED TO SHOW AMENDMENTS RECEIVED. YOU ARE REQUIRED TO ACKNOWLEDGE RECEIPT OF THIS AMENDMENT ON THE REVERSE SIDE OF STANDARD FORM 1442.

IMPORTANT NOTE: DUE TO CONSTRUCTION, BONIFACE GATE IS CLOSED FROM APR 15 - JUL 12, 2004- SEE SECTION 00100 PARA 1.6.2.1 and keep in mind the base is still under tight security measures and access to non-DOD personnel is limited or restricted and requires extra time to process through the Muldoon Gate

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF SIGNER (Type or print)	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____	16C. DATE SIGNED
(Signature of person authorized to sign)		(Signature of Contracting Officer)	

**SOLICITATION, OFFER,
AND AWARD**
(Construction, Alteration, or Repair)

1. SOLICITATION NUMBER W911KB-04-B-0002	2. TYPE OF SOLICITATION <input checked="" type="checkbox"/> SEALED BID (SFB) <input type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED 04/15/04	PAGE OF PAGES
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IMPORTANT - The "offer" section on the reverse must be fully completed by the offeror.

4. CONTRACT NUMBER	5. REQUISITION/PURCHASE REQUEST NUMBER	6. PROJECT NUMBER
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7. ISSUED BY CODE W911KB	8. ADDRESS OFFER TO SEE ITEM 7
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US ARMY ENGINEER DISTRICT, ALASKA
CEPOA-CT-CM (W911KB)
PO BOX 6898
ELMENDORF AFB, AK 99506-6898

9. FOR INFORMATION CALL AM#1. <input checked="" type="checkbox"/> A. NAME SUSAN COYNER KEVIN MALOY	B. TELEPHONE NUMBER (Include area code) (NO COLLECT CALLS) (907)753-2838 5594 ...AM#1
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SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS (Title, Identifying number, date):

NAICS: 237990 (Size Standard: \$28.5 million)
PROJECT TITLE/LOCATION: MOUT Upgrade, Ft Wainwright, Alaska
COMPETITIVE 8(a) SET-ASIDE

DESCRIPTION OF WORK: Construct a live-fire Infantry Squad Battle Course (ISBC), Urban Assault Course (UAC), Shoot House Breach Facility, Ammunition Breakdown Facility, Warm up Buildings and Latrines. Project includes an After Action Review (AAR) Facility from which simulations and training operations will be controlled, monitored and reviewed. Supporting facilities include utilities, electric service, access roads and parking areas, and information systems. The ISBC will be constructed in the Ft Wainwright Yukon Training Area. All other facilities are located within the existing training range area south of the Richardson highway. Responders are advised that this requirement may be delayed, canceled, or revised at any time during the solicitation and/or final award process based on decisions related to DoD changes and disposition of the Armed Services.

THIS SOLICITATION UTILIZES ELECTRONIC BID SETS (EBS) AND WILL BE AVAILABLE FOR DOWNLOADING THROUGH OUR WEBSITE AT NO CHARGE -- <https://ebs.poa.usace.army.mil/AdvertisedSolicitations.asp>

11. The Contractor shall begin performance within 10 calendar days and complete it within 475 calendar days after receiving award, notice to proceed. This performance period is mandatory, negotiable. /See REF FAR 52.211-0010

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE PAYMENT BONDS? (If "YES," indicate within how many calendar days after award in Item 12B.)
 YES NO

12B. CALENDAR DAYS
10

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and 1 copies to perform the work required are due at the place specified in Item 8 by 2:00 pm (hour) local time AM#3... 18 JUN 04 ...AM#3 If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee is, is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 60 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

CONTINUATION SHEET

Amendment No. R0003

Page: 2

a. The following drawings are substituted for the superseded drawings. The identifier "AM #3" appears before and after revised drawings as listed in SCR-5.

Drawing No. F-178-98-01, Sheet No. 26, Ref. Number C-023
F-178-98-01, Sheet No. 33, Ref. Number C-030
F-178-98-01, Sheet No. 82, Ref. Number CD-009
F-178-98-01, Sheet No. 110, Ref. Number A-011

b. The following reissued and/or revised documents are substituted for the superseded documents. The identifier "AM #3" appears before and after new and revised material, except as noted below.

SECTION 00800: SPECIAL CONTRACT REQUIREMENTS, SCR-5 & SCR-30

PROJECT TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS (including submittal registers):

SECTION 01015

Paragraph 1.7.3 Deleted Paragraph

SECTION 02231

Paragraph 3.5 THINNING
Paragraph 3.6 DISPOSAL OF MATERIALS
Paragraph 3.6.1 Nonsaleable Materials

SECTION 02313 (soil boring maps and boring logs)

Paragraph 3.4 Fill on and Backfill
Paragraph 3.12 Attachments, Test Soil Boring Logs

SECTION 02319 Paragraph 3.5d, TESTING

SECTION 02456 (including submittal register)

Paragraph 1.2 SUBMITTALS
Paragraph 3.1.1 Pile Driving
Paragraph 3.1.2 Pre-Drilling
Paragraph 3.1.3 Deleted Paragraph
Paragraph 3.1.4 Splices
Paragraph 3.2.1 Deleted Paragraph
Paragraph 3.2.2 Deleted Paragraph

Note: Revisions within the following documents do not contain the above referenced identifiers.

Bidding Schedule
Submittal Registers

c. The following section (including submittal register) is deleted.

SECTION 13000 RUBBER SELF-SEALING TARGET BACKING CURTAIN

d. The following section (including submittal register) is added.

None

e. NOTICE TO BIDDERS: PLEASE MARK OUTSIDE OF ENVELOPE IN WHICH BID IS SUBMITTED TO SHOW AMENDMENTS RECEIVED. YOU ARE REQUIRED TO ACKNOWLEDGE RECEIPT OF THIS AMENDMENT ON THE REVERSE SIDE OF STANDARD FORM 1442.

BIDDING SCHEDULE

BASIC ITEMS				
Item No.	Description	Estimated Quantity	Unit	Amount
0001	YTA - All Work Complete for Yukon Training Area, excluding Item 0002 and Option Items listed below.	Job	L.S.	\$ _____
0002	FTW - All Work Complete for Fort Wainwright Training Area, excluding Item 0001 and Option Items listed below.	Job	L.S.	\$ _____
Total Basic for Modified MOUT and Range Upgrade (0001 and 0002) \$ _____				
OPTION ITEMS				
0003	YTA - Option 1: All work complete for ISBC Trench No. 2 (See Sheet C-016).	Job	L.S.	\$ _____
0004	FTW - Option 2: All work complete for the Underground Trainer Facility w/ associated infrastructure, grades & berms (See Note 5a).	Job	L.S.	\$ _____
0005	FTW - Option 3: All work complete for the Urban Defense Facility w/associated infrastructure, grades, berms and Assault Road w/final grades (See Note 5a).	Job	L.S.	\$ _____
0006	FTW - Option 4: All work complete for berms for Breach Facility.	Job	L.S.	\$ _____
0007	FTW - Option 5: All work complete for Techniques Trainer Roof Structure.	Job	L.S.	\$ _____
0008	YTA - Option 6: All work complete for Moving Armor Target (See Note 5b).	Job	L.S.	\$ _____
GRAND TOTAL AMOUNT FOR MODIFIED MOUT AND RANGE UPGRADE FACILITY				
GRAND TOTAL AMOUNT (BASIC + OPTIONS)				\$ _____

MODIFIED MOUT AND RANGE UPGRADE FACILITY
FT. WAINWRIGHT, ALASKA
W911KB-04-B-0002, Amendment R0003

NOTES:

1. **AWARD:** Award will be made as a whole to the low responsive, responsible bidder, notwithstanding any other provisions of this Invitation for Bids concerning method of award.
2. **INCOMPLETE BIDS:** Bid prices must be entered for all items of the schedule. Total amount bids submitted without bid prices being entered on individual items will be rejected. Additions will be subject to verification by the Government. In case of variation between the lump-sum prices and the total amount, the lump-sum prices will be considered the bid.
3. **MODIFICATIONS:** A modification to a bid, which provides for a single adjustment to the total amount bid, should state the application of the adjustment to each respective lump-sum price affected. If the modification is not so apportioned, an adjustment will be made on a pro rata basis to all items on the schedule.
4. **(FAR 52.217-5) EVALUATION OF OPTIONS (JUL 1990):** See SECTION 00800: Special Contract Requirements, SCR 30.
5. **BIDDING NOTES:**
 - a) Bid Item 0005 (Option 3) is in lieu of Basic work for continuing the lineal run of Pedestrian Trail through the Urban Defense site. Bid Item 0004 (Option 2) is in lieu of Basic work for continuing the lineal run of Pedestrian Trail south through the Underground Trainer site. Note: Cost for Pedestrian Trail encircling the Underground Trainer is Option 2 work. (See Drawing C-008).
 - b) For Bid Item 0008 (Option 6), provide entire work complete for the Moving Armor Target (MAT). Electrical work shall be as shown on "Typical Moving Armor Target Emplacement Plan", see Panel Schedule for M-1 (MAT), see Sheets C-036, CD-002, CD-003, E-004 and E-014. Note: Basic work (Bid Item 0001) includes downrange power for all other work dedicated to PC3 and PB3 as shown for "Typical Downrange Power Center Plan", see Sheets E-004 and E-008

W911KB-04-B-0002 Amendment 3
FTW 254 Modified MOUT and Range Upgrade

Pre-Bid Site Visit was conducted 06 May 2004. The following attended (Revised):

Last	First	Company
Eder	Bob	Alaska Mechanical
Dillon	Christopher	Alutiiq
Kennedy	Dave	Alutiiq
Miles	Keith	Alutiiq
Strike	Greg	Alutiiq
McIntyre	Howard	American Mechanical, Inc
Brice	Luther	Brice, Inc
Brice	Sam	Brice, Inc
Donaldson	Derwood	Bristol
Goebel	Rollie	Bristol
Letts	Charles	Bristol
Johnston	Chris	C & E
Froehle	Hal	CADDO
Cowthorp	Mike	Cowthorp Draglines
Haley	George	Dokoozian & Assoc, Inc.
Mattis	Gary	Goodfellow Bros., Inc
Brand	Randy	Great Northwest, Inc.
Geraghty	Steve	Great Northwest, Inc.
Kalen	Patrick	Kalen & Assoc, Inc
Kalen	Susan	Kalen & Assoc, Inc
Leith	John	Norcon, Inc.
Risla	January	Norcon, Inc.
Green	Doug	Northwest Mining
Green	Tim	Northwest Mining
Nielson	Walt	Northwest Mining
Eason	Will	Premier Earthwork, Inc.
Waller	Jim	Premier Earthwork, Inc.
Hatzis	Steve	Tunista, Inc.
Miller	Jim	Unit Company
Mader	Brian	Wire-Comm

FTW254 CONTRACTOR QUESTIONS

1. What are the Eielson security/entrance requirements for contractor work and delivery vehicles? What delays and inspections should be required on a daily basis?

All contractor personnel will be required to have background checks to obtain base passes and vehicles may be inspected during base access.

2. What water sources are currently approved for project use? Are there any additional permit requirements that bidders can expect in order to use these sources?

The borrow pit on the Ft. Wainwright Small Arms Complex is authorized for use. There are no known sources in the Yukon Training Area.

3. Reference Amendment #2, question and response #46—Please provide additional specific information on the haul road: When will it be completed, what will the exact route is, what will be width, what will the cross section?

The information requested is unavailable.

4. Reference Amendment #2, question and response #54—Realize that this is a significant hauling restriction. Can the bridge be upgraded by the military/Corps or can the contractor install a temporary bridge. If the contractor can install a temporary bridge, are there any additional permits or requirements involved other than the actual physical installation? If so, what are the timelines for these permits?

The contractor may install a temporary bridge as necessary through the submission of an appropriate installation plan. The plan and installation shall be subject to the approval of the Contracting Officer.

5. Reference Amendment #2, question and response #58—There are conflicting statements within this question. Which of the statements does the response of “yes” apply to? Does all unclassified fill to be placed on the project have to meet the <15% passing the .075 mm sieve requirement?

All unclassified fill to be placed on the project shall meet the <15% passing the .075 mm sieve requirement.

6. Reference Amendment #2, question and response #42 as well as target CD drawings. Similar to this question and response, are there any requirements for fills and backfills below the specified unclassified layer for the various targets at the YTA site?

There may be additional fill required in places to achieve subgrade elevation. Any fill required to achieve subgrade elevation shall be the same material as the structural section being supported, which, in this case, is unclassified material.

7. Reference Amendment #2, question and response #65—Can you please clarify this statement with respect to haul roads on Air Force property? Are there weight restrictions on Air Force Roads?

There are no weight restrictions on Air Force roads.

8. Reference Amendment #2, questions and responses #'s 25, 26, 38. Standard 7" x 9" railroad ties have a tolerance of $-1/4"$ $+1/2"$. This makes a size range for the 7" dimension of 171.5mm to 190.5mm. As discussed, the web spacing for the specified H-pile is 181.4 mm. As currently designed, many of the timbers will not stack within the H-pile. Please clarify.

Substitution of the next larger size H-Pile is acceptable to the Government as necessary to ensure proper stacking.

9. What is the access route for the project to the YTA site? Will the main Eielson Gate be used? Is there another access point to this work site? What security requirements will be imposed? Will full access along Quarry Road and Manchu Road-Trail be available during the construction period?

The preferred route is entry through the main gate at Eielson AFB, turn right onto Flightline Ave., and turn left onto Quarry Road.

10. Please provide the size and specification for the timber wall to be constructed for the "Trench Section" as indicated on sheet CD-010.

The construction is identical to the timber wall shown for all target emplacements. The typical details for the H-pile connections and other information are shown on sheet CD-007.

11. Please provide the specification for "Filter Fabric" utilized in all buried timber applications.

Refer to Specification section 02373.

12. Please provide the specification for "Treated Timber Retaining Wall" utilized in the target and bunker construction.

The construction is identical to the timber wall shown for all target emplacements. The typical details for the H-pile connections and other information are shown on sheet CD-007.

13. Question on sheet CD0023 and sheet CD9 the scales do not appear to be correct in relationship to the dimensions called out on these pages.

Reference amended drawings provided under this amendment.

14. Please provide the size and specification for the timber wall to be constructed for the "Trench Section" as indicated on sheet CD-010.

THE CONSTRUCTION IS IDENTICAL TO THE TIMBER WALL SHOWN FOR ALL TARGET EMPLACEMENTS. THE TYPICAL DETAILS FOR THE H-PILE CONNECTIONS AND OTHER INFO IS SHOW ON SHEET CD-007.

15. Please provide the specification for "Filter Fabric" utilized in all buried timber applications.

PLEASE SEE SECTION 02373 FOR THE GEOTEXTILE SPECS.

16. Please provide the specification for "Treated Timber Retaining Wall" utilized in the target and bunker construction.

THE CONSTRUCTION IS IDENTICAL TO THE TIMBER WALL SHOWN FOR ALL TARGET EMPLACEMENTS. THE TYPICAL DETAILS FOR THE H-PILE CONNECTIONS AND OTHER INFO IS SHOW ON SHEET CD-007

SECTION 00700a
General Wage Decision AK030001
(Dated (06/13/2003))

Modification Record:

No.	Publication Date
0	06/13/2003
1	11/28/2003
2	02/06/2004
3	03/05/2004
4	04/02/2004
5	04/16/2004 ...AM#1
6	05/14/2004 ...AM#3

General Wage Decision AK030006
(Dated (06/13/2003))

Modification Record:

No.	Publication Date
0	06/13/2003
1	11/28/2003
2	02/13/2004
3	03/05/2004
4	04/02/2004
5	04/16/2004 ...AM#1
6	05/14/2004 ...AM#3

General Decision Number: AK030001 05/14/2004
 Superseded General Decision Number: AK020001
 State: Alaska
 Construction Types: Building and Heavy
 Counties: Alaska Statewide.
 BUILDING AND HEAVY CONSTRUCTION PROJECTS (does not include residential construction consisting of single family homes and apartments up to and including 4 stories)

Modification Number	Publication Date
0	06/13/2003
1	11/28/2003
2	02/06/2004
3	03/05/2004
4	04/02/2004
5	04/16/2004
6	05/14/2004

ASBE0097-001 01/01/2004

	Rates	Fringes
Asbestos Workers/Insulator (includes application of all insulating materials protective coverings, coatings and finishings to all types of mechanical systems).....	\$ 29.63	9.42

ASBE0097-002 01/01/2004

	Rates	Fringes
Hazardous Material Handler (includes preparation, wetting, stripping, removal scrapping, vacuuming, bagging, and disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems).....	\$ 26.45	9.42

BOIL0502-002 01/01/2004

	Rates	Fringes
Boilermaker.....	\$ 35.23	15.37

BRAK0001-002 07/01/2003

	Rates	Fringes
Bricklayer, Blocklayer, Stonemason, Marble Mason, Tile Setter, Terrazzo Worker....	\$ 30.13	11.80
Tile & Terrazzo Finisher.....	\$ 24.70	11.80

CARP1243-003 07/01/2003
 North of the 63rd Parallel

	Rates	Fringes
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Carpenter/Lather/Drywall Applicator.....	\$ 31.40	12.20
Carpenter: Fire or Flood Repair Work.....	\$ 31.99	12.20
Millwright.....	\$ 32.38	12.20

 CARP1281-004 07/01/2003
 SOUTH OF 63RD PARALLEL

	Rates	Fringes
Acoustical Applicator and Lather.....	\$ 28.10	12.70
Carpenters & Drywallers.....	\$ 28.10	12.70
Millwright.....	\$ 28.80	12.70

 CARP2520-003 08/01/2003

	Rates	Fringes
Diver		
Stand-by.....	\$ 32.66	12.20
Tender.....	\$ 31.66	12.20
Working.....	\$ 65.32	12.20
Piledriver		
Carpenter.....	\$ 29.30	12.20
Piledriver; Skiff Operator and Rigger.....	\$ 28.14	12.20
Sheet Pile Stabber.....	\$ 29.14	12.20
Welder.....	\$ 29.90	12.20

 ELEC1547-004 11/03/2003

	Rates	Fringes
Cable splicer.....	\$ 33.17	3%+13.10
Electrician;Technician.....	\$ 31.42	3%+13.10

 ELEC1547-005 01/01/2004

	Rates	Fringes
Cable splicer.....	\$ 35.90	3%+16.00
Linemen (Including Equipment Operators, Technician).....	\$ 34.15	3%+16.00
Powderman.....	\$ 32.15	3%+16.00
Tree Trimmer.....	\$ 22.95	3%+16.00

 ELEV0019-002 01/01/2004

	Rates	Fringes
Elevator Mechanic.....	\$ 37.695	10.765+a

FOOTNOTE: a. Employer contributes 8% of the basic hourly rate for over 5 year's service and 6% of the basic hourly rate for 6 months to 5 years' of service as vacation paid credit. Seven paid holidays: New Year's Day; Memorial Day; Independence Day; Labor Day, Thanksgiving Day; Friday after Thanksgiving and Christmas Day

 ENGI0302-002 09/01/2003

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	\$ 32.08	10.89
GROUP 1A.....	\$ 33.62	10.89

GROUP 2.....	\$ 31.41	10.89
GROUP 3.....	\$ 30.78	10.89
GROUP 4.....	\$ 25.36	10.89

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Asphalt Roller; Back Filler; Barrier Machine (Zipper); Batch Plant Operator: Batch and Mixer over 200 yds.; Beltcrete with power pack and similar conveyors; Bending Machine; Boat Coxwains; Bulldozers; Cableways, Highlines and Cablecars; Cleaning Machine; Coating Machine; Concrete Hydro Blaster; Cranes-45 tons and under or 150 foot boom and under (including jib and attachments): (a) Shovels, Backhoes, Draglines, Clamshells; Gradalls-3 yards and under; (b) Hydralifts or Transporters, all track or truck type, (c) Derricks; Crushers; Deck Winches-Double Drum; Ditching or Trenching Machine (16 inch or over); Drilling Machines, core, cable, rotary and exploration; Finishing Machine Operator, concrete paving, Laser Screed, sidewalk, curb and gutter machine; Helicopters; Hover Craft, Flex Craft, Loadmaster, Air Cushion, All Terrain Vehicle, Rollagon, Bargecable, Nodwell Sno Cat; Hydro Ax: Feller Buncher and similar; Loaders: Forklifts with power boom and swing attachment, Overhead and front end, 2 1/2 yards through 5 yards, Loaders with forks or pipe clamps, Loaders, elevating belt type, Euclid and similar types; Mechanics, Bodyman; Micro Tunneling Machine; Mixers: Mobile type w/hoist combination; Motor Patrol Grader; Mucking Machines: Mole, Tunnel Drill, Horizontal/Directional Drill Operator, and/or Shield; Operator on Dredges; Piledriver Engineers, L. B. Foster, Puller or similar Paving Breaker; Power Plant, Turbine Operator, 200 k.w. and over (power plants or combination of power units over 300 k.w.); Sauerman-Bagley; Scrapers-through 40 yards; Service Oiler/Service Engineer; Sidebooms-under 45 tons; Shot Blast Machine; Spreaders, Blaw Knox, Cedarapids, Barber Greene, Slurry Machine; Sub-grader (Gurries, C.M.I. and C.M.I. Roto Mills and similar types); Tack tractor; Truck mounted Concrete Pumps, Conveyor, Creter; Water Kote Machine; Unlicensed off road hauler

GROUP 1A: Cranes-over 45 tons or 150 foot (including jib and attachments): (a) Shovels, backhoes, draglines, clamshells-over 3 yards, (b) Tower cranes; Loaders over 5 yds.; Motor Patrol Grader (finish: when finishing to final graders and/or to hubs, or for asphalt); Power Plants: 1000 k.w. and over; Quad; Screed; Sidebooms over 45 tons; Slip Form Paver C.M.I. and similar types; Scrapers over 40 yards

GROUP 2: Batch Plant Operators: Batch and Mixer 200 yds. per hour and under; Boiler-fireman; Cement Hog and Concrete Pump Operator; Conveyors (except as listed in group 1); Hoist on steel erection; Towermobiles and Air Tuggers; Horizontal/Directional Drill Locator; Loaders, Elevating Grader, Dumor and similar; Locomotives: rod and geared engines; Mixers; Screening, Washing Plant; Sideboom (cradling rock drill regardless of size); Skidder; Trenching Machine under 16 inches.

GROUP 3: "A" Frame Trucks, Deck Winches: single power drum; Bombardier (tack or tow rig); Boring Machine; Brooms-power; Bump Cutter; Compressor; Farm tractor; Forklift, industrial type; Gin Truck or Winch Truck with poles when used for

hoisting; Grade Checker and Stake Hopper; Hoist, Air Tuggers, Elevators; Loaders: (a) Elevating-Athey, Barber Green and similar types (b) Forklifts or Lumber Carrier (on construction job site) (c) Forklifts with Tower (d) Overhead and Front-end, under 2 1/2 yds. Locomotives: Dinkey (air, steam, gas and electric) Speeders; Mechanics (light duty); Mixers: Concrete Mixers and Batch 200 yds. per hour and under; Oil, Blower Distribution; Post Hole Diggers, mechanical; Pot Fireman (power agitated); Power Plant, Turbine Operator, under 300 k.w.; Pumps-water; Rig oiler/assistant engineer, over 45 ton, over 3 yards or over 150 foot boom; Roller-other than Plantmix; Saws, concrete; Straightening Machine; Tow Tractor
 GROUP 4: Rig Oiler/Assistant Engineer (Advances to Group III if over 45 tons or 3 yards or 150 ft. boom); Swamper (on trenching machines or shovel type equipment); Spotter; Steam Cleaner
 FOOTNOTE: Groups 1-4 receive 10% premium while performing tunnel or underground work.

IRON0751-003 08/01/2003

	Rates	Fringes
Ironworkers:		
BRIDGE, STRUCTURAL,		
ORNAMENTAL, REINFORCING		
MACHINERY MOVER,		
RIGGER, SHEETER, STAGE		
RIGGER, BENDER OPERATOR.....	\$ 27.50	14.10
FENCE, BARRIER AND		
GUARDRAIL INSTALLERS.....	\$ 24.00	13.85
GUARDRAIL LAYOUT MAN.....	\$ 24.74	13.85
HELICOPTER, TOWER.....	\$ 28.50	14.10

LABO0341-005 09/01/2003

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 24.49	11.50
GROUP 2.....	\$ 25.24	11.50
GROUP 3.....	\$ 25.89	11.50
GROUP 3A.....	\$ 28.29	11.50
GROUP 4.....	\$ 16.84	11.50
TUNNELS, SHAFTS, AND		
RAISES		
GROUP 1.....	\$ 26.94	11.50
GROUP 2.....	\$ 27.76	11.50
GROUP 3.....	\$ 28.48	11.50
GROUP 3A.....	\$ 31.12	11.50

LABORERS CLASSIFICATIONS

GROUP 1: Asphalt Workers (shovelman, plant crew); Brush Cutters; Camp Maintenance Laborer; Carpenter Tenders; Choke Setters, Hook Tender, Rigger, Signalman; Concrete Laborer (curb and gutter, chute handler, grouting, curing, screeding); Crusher Plant Laborer; Demolition Laborer; Ditch Diggers; Dump Man; Environmental Laborer (asbestos (limited to nonmechanical systems), hazardous and toxic waste, oil spill); Fence Installer; Fire Watch Laborer; Flagman; Form Strippers; General Laborer; Guardrail Laborer, Bridge Rail

Installers; Hydro-Seeder Nozzleman; Laborers (building);
 Landscape or Planter; Material Handlers; Pneumatic or Power
 Tools; Portable or Chemical Toilet Serviceman; Pump Man or
 Mixer Man; Railroad Track Laborer; Sandblast, Pot Tender; Saw
 Tenders; Scaffold Building and Erecting; Slurry Work; Stake
 Hopper; Steam Point or Water Jet Operator; Steam Cleaner
 Operator; Tank Cleaning; Utiliwalk and Utilidor Laborer;
 Watchman (construction projects); Window Cleaner
 GROUP 2: Burning and Cutting Torch; Cement or Lime Dumper or
 Handler (sack or bulk); Choker Splicer; Chucktender (wagon,
 airtrack and hydraulic drills); Concrete Laborers (power
 buggy, concrete saws, pumpcrete nozzleman, vibratorman);
 Environmental Laborer (marine work); Foam Gun or Foam Machine
 Operator; Green Cutter (dam work); Guardrail Machine
 Operator; Gunnite Operator; Hod Carriers; Jackhammer or
 Pavement Breakers (more than 45 pounds); Mason Tender and Mud
 Mixer (sewer work); Plasterer, Bricklayer and Cement Finisher
 Tenders; Power Saw Operator; Railroad Switch Layout Laborer;
 Sandblaster; Sewer Caulkers; Sewer Plant Maintenance Man;
 Thermal Plastic Applicator; Timber Faller, chain saw
 operator, filer; Timberman
 GROUP 3: Bit Grinder; Drill Doctor (in the field); Drillers
 (including, but not limited to, wagon drills, air track
 drills; hydraulic drills); High Rigger and tree topper;
 Higher Scaler; Pioneer Drilling and Drilling Off Tugger (all
 type drills); Powderman; Slurry Seal Squeegee Man
 GROUP 3A: Asphalt Raker, Asphalt Belly dump lay down; Grade
 checker (setting or transferring of grade marks, line and
 grade); Pipelayers
 GROUP 4: Final Building Cleanup
 TUNNELS, SHAFTS, AND RAISES CLASSIFICATIONS
 GROUP 1: Brakeman; Muckers; Nippers; Topman and Bull Gang;
 Tunnel Track Laborer
 GROUP 2: Burning and Cutting Torch; Concrete Laborers;
 Jackhammers; Laser Instrument Operators; Nozzleman, Pumpcrete
 or Shotcrete; Pipelayers.
 GROUP 3: Miner; Miner; Retimberman
 GROUP 3A: Powderman
 Tunnel shaft and raise rates only apply to workers regularly
 employed inside a tunnel portal or shaft collar.

 * PAIN1140-004 04/01/2004
 SOUTH OF THE 63RD PARALLEL

	Rates	Fringes
Painters:		
Brush, Roller, Sign,		
Paper and Vinyl, Swing		
Stage, Hand		
Taper/Drywall,		
Structural Steel, and		
Commercial Spray.....	\$ 23.79	12.89
Machine Taper/Drywall.....	\$ 23.99	12.89
Spray-Sand/Blast, Epoxy		
and Tar Applicator.....	\$ 24.59	12.89
Steeple Jack & Tower.....	\$ 25.59	12.89

 PAIN1140-005 09/01/2003

	Rates	Fringes
Soft Floor Layer.....	\$ 25.40	8.87

PAIN1140-006 01/01/2004		
SOUTH OF THE 63RD PARALLEL		
	Rates	Fringes
Glazier.....	\$ 27.00	11.60

* PAIN1555-004 04/01/2004		
NORTH OF THE 63RD PARALLEL		
	Rates	Fringes
Hazardous Material		
Applicator		
LEAD BASED PAINT		
ABATEMENT, RADON		
MITIGATION, SANDBLAST,		
STRUCTURAL STEEL,		
TAPING, TEXTURING.....	\$ 28.50	12.47
Painter		
BRUSH, BUFFER OPERATOR,		
FLOOR-COVERER, POT		
TENDER, ROLL SPRAY,		
WALLCOVERER.....	\$ 28.00	12.47

PAIN1555-005 01/01/2004		
NORTH OF THE 63RD PARALLEL		
	Rates	Fringes
Glazier.....	\$ 26.60	12.07

PLAS0867-001 04/01/2004		
	Rates	Fringes
Plasterer		
NORTH OF THE 63RD		
PARALLEL.....	\$ 30.39	11.51
SOUTH OF THE 63RD		
PARALLEL.....	\$ 30.14	11.51

* PLAS0867-003 04/01/2003		
	Rates	Fringes
Cement Mason		
NORTH OF THE 63RD		
PARALLEL.....	\$ 29.54	11.51
SOUTH OF THE 63RD		
PARALLEL.....	\$ 29.29	11.51

PLUM0262-002 07/01/2003		
East of the 141st Meridian		
	Rates	Fringes
Plumber; Steamfitter.....	\$ 29.09	10.55

PLUM0367-002 07/20/2003		
South of the 63rd Parallel		
	Rates	Fringes
Plumber; Steamfitter.....	\$ 30.80	12.50

PLUM0375-002 07/01/2003		
North of the 63rd Parallel		

	Rates	Fringes
Plumber; Steamfitter.....	\$ 34.26	13.15

* PLUM0669-002 04/01/2004		
	Rates	Fringes
Sprinkler Fitter.....	\$ 37.85	8.65

ROOF0190-002 09/01/2003		
	Rates	Fringes
Roofer		
North of the 63rd		
Parallel.....	\$ 30.20	10.92
South of the 63rd		
Parallel.....	\$ 28.20	10.92

SHEE0023-003 07/01/2003		
South of the 63rd Parallel		
	Rates	Fringes
Sheet Metal Worker.....	\$ 30.80	12.44

SHEE0023-004 09/01/2003		
North of the 63rd Parallel		
	Rates	Fringes
Sheet Metal Worker.....	\$ 33.36	12.89

TEAM0959-003 09/01/2003		
	Rates	Fringes
Truck Driver		
GROUP 1.....	\$ 32.10	10.07
GROUP 1A.....	\$ 33.15	10.07
GROUP 2.....	\$ 31.05	10.07
GROUP 3.....	\$ 30.37	10.07
GROUP 4.....	\$ 29.90	10.07
GROUP 5.....	\$ 29.26	10.07
GROUP 1: Semi with Double Box Mixer; Dump Trucks (including rockbuggy and trucks with pups) over 40 yards up to and including 60 yards; Deltas, Commanders, Rollogans and similar equipment when pulling sleds, trailers or similar equipment; Boat Coxswain; Lowboys including attached trailers and jeeps, up to and including 12 axles; Ready-mix over 12 yards up to and including 15 yards)		
GROUP 1A: Dump Trucks (including Rockbuggy and Trucks with pups) over 60 yards up to and including 100 yards		
GROUP 2: Turn-O-Wagon or DW-10 not self-loading; All Deltas, Commanders, Rollogans, and similar equipment; Mechanics; Tireman, heavy duty; Dump Trucks (including Rockbuggy and Trucks with pups) over 20 yards up to and including 40 yards; Lowboys including attached trailers and jeeps up to and including 8 axles; Super vac truck/cacasco truck/heat stress truck; Ready-mix over 7 yards up to and including 12 yards		
GROUP 3: Dump Trucks (including Rockbuggy and Trucks with pups) over 10 yards up to and including 20 yards; batch trucks 8 yards and up; Oil distributor drivers; Greaser; Water Wagon (when pulled by Euclid or similar type equipment); Partsman		
GROUP 4: Buggymobile; Semi or Truck and trailer; Dumpster; Tireman (light duty); Dump Trucks (including Rockbuggy and		

Truck with pups) up to and including 10 yards; Track Truck Equipment; Stringing Truck; Fuel Truck; Fuel Handler with truck; Grease Truck; Flat Beds, dual rear axle; Hyster Operators (handling bulk aggregate); Lumber Carrier; Water Wagon, semi; Water Wagon, dual axle; Gin Pole Truck, Winch Truck, Wrecker, Truck Mounted "A" Frame manufactured rating over 5 tons; Bull Lifts and Fork Lifts with Power Boom and Swing attachments, over 5 tons; Front End Loader with Forks; Bus Operator over 30 passengers; All Terrain Vehicles; Boom Truck/Knuckle Truck over 5 tons; Foam Distributor Truck/dual axle; Hydro-seeders, dual axle; Vacuum Trucks, Truck Vacuum Sweepers; Vacuum Trucks, Truck Vacuum Sweepers; Loadmaster (air and water); Air Cushion or similar type vehicle; Fire Truck; Combination Truck-fuel and grease; Compactor (when pulled by rubber tired equipment); Rigger (air/water/oilfield); Ready Mix, up to and including 7 yards
GROUP 5: Gravel Spreader Box Operator on Truck; Flat Beds, single rear axle; Boom Truck/Knuckle Truck up to and including 5 tons; Pickups (Pilot Cars and all light duty vehicles); Water Wagon, single axle; Gin Pole Truck, Winch Truck, Wrecker, Truck Mounted "A" Frame, manufactured rating 5 tons and under; Bull Lifts and Fork Lifts (fork lifts with power broom and swing attachments up to and including 5 tons); Buffer Truck; Tack Truck; Bus Operators (up to 30 passengers); Farm type Rubber Tired Tractor (when material handling or pulling wagons on a construction project); Foam Distributor, single axle; Hydro-Seeders, single axle; Team Drivers (horses, mules and similar equipment); Rigger (warehouse operation); Fuel Handler (station/bulk attendant); Batch Truck, up to and including 7 yards

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
=====

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the

Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====
END OF GENERAL DECISION

General Decision Number: AK030006 05/14/2004

State: Alaska

Construction Types: Highway

Counties: Aleutians East, Aleutians West, Anchorage, Bethel, Bristol Bay, Dillingham, Fairbanks North Star, Kenai Peninsula, Kodiak Island, Matanuska-Susitna, Nome, North Slope, Northwest Artic, Southeast Fairbanks, Valdez-Cordova, Wade Hampton and Yukon-Koyukuk Counties in Alaska.

Highway Construction Projects

Modification Number	Publication Date
0	06/13/2003
1	11/28/2003
2	02/13/2004
3	03/05/2004
4	04/02/2004
5	04/16/2004
6	05/14/2004

CARP1243-004 07/01/2003
 North of the 63rd Parallel

	Rates	Fringes
Carpenter.....	\$ 31.40	12.20

CARP1281-006 07/01/2003
 South of the 63rd Parallel

	Rates	Fringes
Carpenter.....	\$ 28.10	12.70

CARP2520-004 08/01/2003

	Rates	Fringes
Piledriver		
Carpenter.....	\$ 29.30	12.20
Piledriver, Skiff		
operator, Rigger.....	\$ 28.14	12.20
Sheet Stabber.....	\$ 29.14	12.20
Welder.....	\$ 29.90	12.20

ELEC1547-004 11/03/2003

	Rates	Fringes
Cable splicer.....	\$ 33.17	3%+13.10
Electrician; Technician.....	\$ 31.42	3%+13.10

ELEC1547-005 01/01/2004

	Rates	Fringes
Cable splicer.....	\$ 35.90	3%+16.00
Linemen (Including		
Equipment Operators,		
Technician).....	\$ 34.15	3%+16.00
Powderman.....	\$ 32.15	3%+16.00
Tree Trimmer.....	\$ 22.95	3%+16.00

ENGI0302-002 09/01/2003

	Rates	Fringes
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Power equipment operators:

GROUP 1.....	\$ 32.08	10.89
GROUP 1A.....	\$ 33.62	10.89
GROUP 2.....	\$ 31.41	10.89
GROUP 3.....	\$ 30.78	10.89
GROUP 4.....	\$ 25.36	10.89

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Asphalt Roller; Back Filler; Barrier Machine (Zipper); Batch Plant Operator: Batch and Mixer over 200 yds.; Beltcrete with power pack and similar conveyors; Bending Machine; Boat Coxwains; Bulldozers; Cableways, Highlines and Cablecars; Cleaning Machine; Coating Machine; Concrete Hydro Blaster; Cranes-45 tons and under or 150 foot boom and under (including jib and attachments): (a) Shovels, Backhoes, Draglines, Clamshells; Gradalls-3 yards and under; (b) Hydralifts or Transporters, all track or truck type, (c) Derricks; Crushers; Deck Winches-Double Drum; Ditching or Trenching Machine (16 inch or over); Drilling Machines, core, cable, rotary and exploration; Finishing Machine Operator, concrete paving, Laser Screed, sidewalk, curb and gutter machine; Helicopters; Hover Craft, Flex Craft, Loadmaster, Air Cushion, All Terrain Vehicle, Rollagon, Bargecable, Nodwell Sno Cat; Hydro Ax: Feller Buncher and similar; Loaders: Forklifts with power boom and swing attachment, Overhead and front end, 2 1/2 yards through 5 yards, Loaders with forks or pipe clamps, Loaders, elevating belt type, Euclid and similar types; Mechanics, Bodyman; Micro Tunneling Machine; Mixers: Mobile type w/hoist combination; Motor Patrol Grader; Mucking Machines: Mole, Tunnel Drill, Horizontal/Directional Drill Operator, and/or Shield; Operator on Dredges; Piledriver Engineers, L. B. Foster, Puller or similar Paving Breaker; Power Plant, Turbine Operator, 200 k.w. and over (power plants or combination of power units over 300 k.w.); Sauerman-Bagley; Scrapers-through 40 yards; Service Oiler/Service Engineer; Sidebooms-under 45 tons; Shot Blast Machine; Spreaders, Blaw Knox, Cedarapids, Barber Greene, Slurry Machine; Sub-grader (Gurries, C.M.I. and C.M.I. Roto Mills and similar types); Tack tractor; Truck mounted Concrete Pumps, Conveyor, Creter; Water Kote Machine; Unlicensed off road hauler

GROUP 1A: Cranes-over 45 tons or 150 foot (including jib and attachments): (a) Shovels, backhoes, draglines, clamshells-over 3 yards, (b) Tower cranes; Loaders over 5 yds.; Motor Patrol Grader (finish: when finishing to final graders and/or to hubs, or for asphalt); Power Plants: 1000 k.w. and over; Quad; Screed; Sidebooms over 45 tons; Slip Form Paver C.M.I. and similar types; Scrapers over 40 yards

GROUP 2: Batch Plant Operators: Batch and Mixer 200 yds. per hour and under; Boiler-fireman; Cement Hog and Concrete Pump Operator; Conveyors (except as listed in group 1); Hoist on steel erection; Towermobiles and Air Tuggers; Horizontal/Directional Drill Locator; Loaders, Elevating Grader, Dumor and similar; Locomotives: rod and geared engines; Mixers; Screening, Washing Plant; Sideboom (cradling rock drill regardless of size); Skidder; Trenching Machine under 16 inches.

GROUP 3: "A" Frame Trucks, Deck Winches: single power drum;

Bombardier (tack or tow rig); Boring Machine; Brooms-power; Bump Cutter; Compressor; Farm tractor; Forklift, industrial type; Gin Truck or Winch Truck with poles when used for hoisting; Grade Checker and Stake Hopper; Hoist, Air Tuggers, Elevators; Loaders: (a) Elevating-Athey, Barber Green and similar types (b) Forklifts or Lumber Carrier (on construction job site) (c) Forklifts with Tower (d) Overhead and Front-end, under 2 1/2 yds. Locomotives: Dinkey (air, steam, gas and electric) Speeders; Mechanics (light duty); Mixers: Concrete Mixers and Batch 200 yds. per hour and under; Oil, Blower Distribution; Post Hole Diggers, mechanical; Pot Fireman (power agitated); Power Plant, Turbine Operator, under 300 k.w.; Pumps-water; Rig oiler/assistant engineer, over 45 ton, over 3 yards or over 150 foot boom; Roller-other than Plantmix; Saws, concrete; Straightening Machine; Tow Tractor
 GROUP 4: Rig Oiler/Assistant Engineer (Advances to Group III if over 45 tons or 3 yards or 150 ft. boom); Swamper (on trenching machines or shovel type equipment); Spotter; Steam Cleaner
 FOOTNOTE: Groups 1-4 receive 10% premium while performing tunnel or underground work.

 IRON0751-003 08/01/2003

	Rates	Fringes
Ironworkers:		
BRIDGE, STRUCTURAL,		
ORNAMENTAL, REINFORCING		
MACHINERY MOVER,		
RIGGER, SHEETER, STAGE		
RIGGER, BENDER OPERATOR.....	\$ 27.50	14.10
FENCE, BARRIER AND		
GUARDRAIL INSTALLERS.....	\$ 24.00	13.85
GUARDRAIL LAYOUT MAN.....	\$ 24.74	13.85
HELICOPTER, TOWER.....	\$ 28.50	14.10

 LABO0341-007 09/01/2003

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 24.49	11.50
GROUP 2.....	\$ 25.24	11.50
GROUP 3.....	\$ 25.89	11.50
GROUP 3A.....	\$ 28.29	11.50
GROUP 4.....	\$ 16.84	11.50
Tunnels, Shafts, and		
Raises		
GROUP 1.....	\$ 26.94	11.50
GROUP 2.....	\$ 27.76	11.50
GROUP 3.....	\$ 28.48	11.50
GROUP 3A.....	\$ 31.12	11.50

LABORERS CLASSIFICATIONS

GROUP 1: Asphalt Workers (shovelman, plant crew); Brush Cutters; Camp Maintenance Laborer; Carpenter Tenders; Choke Setters, Hook Tender, Rigger, Signalman; Concrete Laborer (curb and gutter, chute handler, grouting, curing, screeding); Crusher Plant Laborer; Demolition Laborer; Ditch Diggers; Dump Man; Environmental Laborer (asbestos (limited

to nonmechanical systems), hazardous and toxic waste, oil spill); Fence Installer; Fire Watch Laborer; Flagman; Form Strippers; General Laborer; Guardrail Laborer, Bridge Rail Installers; Hydro-Seeder Nozzleman; Laborers (building); Landscape or Planter; Material Handlers; Pneumatic or Power Tools; Portable or Chemical Toilet Serviceman; Pump Man or Mixer Man; Railroad Track Laborer; Sandblast, Pot Tender; Saw Tenders; Scaffold Building and Erecting; Slurry Work; Stake Hopper; Steam Point or Water Jet Operator; Steam Cleaner Operator; Tank Cleaning; Utiliwalk and Utilidor Laborer; Watchman (construction projects); Window Cleaner

GROUP 2: Burning and Cutting Torch; Cement or Lime Dumper or Handler (sack or bulk); Choker Splicer; Chucktender (wagon, airtrack and hydraulic drills); Concrete Laborers (power buggy, concrete saws, pumpcrete nozzleman, vibratorman); Environmental Laborer (marine work); Foam Gun or Foam Machine Operator; Green Cutter (dam work); Guardrail Machine Operator; Gunnite Operator; Hod Carriers; Jackhammer or Pavement Breakers (more than 45 pounds); Mason Tender and Mud Mixer (sewer work); Plasterer, Bricklayer and Cement Finisher Tenders; Power Saw Operator; Railroad Switch Layout Laborer; Sandblaster; Sewer Caulkers; Sewer Plant Maintenance Man; Thermal Plastic Applicator; Timber Faller, chain saw operator, filer; Timberman

GROUP 3: Bit Grinder; Drill Doctor (in the field); Drillers (including, but not limited to, wagon drills, air track drills; hydraulic drills); High Rigger and tree topper; Higher Scaler; Pioneer Drilling and Drilling Off Tugger (all type drills); Powderman; Slurry Seal Squeegee Man

GROUP 3A: Asphalt Raker, Asphalt Belly dump lay down; Grade checker (setting or transferring of grade marks, line and grade); Pipelayers

GROUP 4: Final Building Cleanup

TUNNELS, SHAFTS, AND RAISES CLASSIFICATIONS

GROUP 1: Brakeman; Muckers; Nippers; Topman and Bull Gang; Tunnel Track Laborer

GROUP 2: Burning and Cutting Torch; Concrete Laborers; Jackhammers; Laser Instrument Operators; Nozzleman, Pumpcrete or Shotcrete; Pipelayers.

GROUP 3: Miner; Retimberman

GROUP 3A: Powderman

Tunnel shaft and raise rates only apply to workers regularly employed inside a tunnel portal or shaft collar.

 * PLAS0867-004 04/01/2004

	Rates	Fringes
Cement Mason		
North of the 63rd		
Parallel.....	\$ 29.54	11.51
South of the 63rd		
Parallel.....	\$ 29.29	11.51

 TEAM0959-003 09/01/2003

	Rates	Fringes
Truck Driver		
GROUP 1.....	\$ 32.10	10.07
GROUP 1A.....	\$ 33.15	10.07

GROUP 2.....	\$ 31.05	10.07
GROUP 3.....	\$ 30.37	10.07
GROUP 4.....	\$ 29.90	10.07
GROUP 5.....	\$ 29.26	10.07

GROUP 1: Semi with Double Box Mixer; Dump Trucks (including rockbuggy and trucks with pups) over 40 yards up to and including 60 yards; Deltas, Commanders, Rollogans and similar equipment when pulling sleds, trailers or similar equipment; Boat Coxswain; Lowboys including attached trailers and jeeps, up to and including 12 axles; Ready-mix over 12 yards up to and including 15 yards)

GROUP 1A: Dump Trucks (including Rockbuggy and Trucks with pups) over 60 yards up to and including 100 yards

GROUP 2: Turn-O-Wagon or DW-10 not self-loading; All Deltas, Commanders, Rollogans, and similar equipment; Mechanics; Tireman, heavy duty; Dump Trucks (including Rockbuggy and Trucks with pups) over 20 yards up to and including 40 yards; Lowboys including attached trailers and jeeps up to and including 8 axles; Super vac truck/cacasco truck/heat stress truck; Ready-mix over 7 yards up to and including 12 yards

GROUP 3: Dump Trucks (including Rockbuggy and Trucks with pups) over 10 yards up to and including 20 yards; batch trucks 8 yards and up; Oil distributor drivers; Greaser; Water Wagon (when pulled by Euclid or similar type equipment); Partsman

GROUP 4: Buggymobile; Semi or Truck and trailer; Dumpster; Tireman (light duty); Dump Trucks (including Rockbuggy and Truck with pups) up to and including 10 yards; Track Truck Equipment; Stringing Truck; Fuel Truck; Fuel Handler with truck; Grease Truck; Flat Beds, dual rear axle; Hyster Operators (handling bulk aggregate); Lumber Carrier; Water Wagon, semi; Water Wagon, dual axle; Gin Pole Truck, Winch Truck, Wrecker, Truck Mounted "A" Frame manufactured rating over 5 tons; Bull Lifts and Fork Lifts with Power Boom and Swing attachments, over 5 tons; Front End Loader with Forks; Bus Operator over 30 passengers; All Terrain Vehicles; Boom Truck/Knuckle Truck over 5 tons; Foam Distributor Truck/dual axle; Hydro-seeders, dual axle; Vacuum Trucks, Truck Vacuum Sweepers; Vacuum Trucks, Truck Vacuum Sweepers; Loadmaster (air and water); Air Cushion or similar type vehicle; Fire Truck; Combination Truck-fuel and grease; Compactor (when pulled by rubber tired equipment); Rigger (air/water/oilfield); Ready Mix, up to and including 7 yards

GROUP 5: Gravel Spreader Box Operator on Truck; Flat Beds, single rear axle; Boom Truck/Knuckle Truck up to and including 5 tons; Pickups (Pilot Cars and all light duty vehicles); Water Wagon, single axle; Gin Pole Truck, Winch Truck, Wrecker, Truck Mounted "A" Frame, manufactured rating 5 tons and under; Bull Lifts and Fork Lifts (fork lifts with power broom and swing attachments up to and including 5 tons); Buffer Truck; Tack Truck; Bus Operators (up to 30 passengers); Farm type Rubber Tired Tractor (when material handling or pulling wagons on a construction project); Foam Distributor, single axle; Hydro-Seeders, single axle; Team Drivers (horses, mules and similar equipment); Rigger (warehouse operation); Fuel Handler (station/bulk attendant); Batch Truck, up to and including 7 yards

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.
=====

Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses
(29 CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates
listed under the identifier do not reflect collectively
bargained wage and fringe benefit rates. Other designations
indicate unions whose rates have been determined to be
prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can
be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on
a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests
for summaries of surveys, should be with the Wage and Hour
Regional Office for the area in which the survey was conducted
because those Regional Offices have responsibility for the
Davis-Bacon survey program. If the response from this initial
contact is not satisfactory, then the process described in 2.)
and 3.) should be followed.

With regard to any other matter not yet ripe for the formal
process described here, initial contact should be with the
Branch of Construction Wage Determinations. Write to:

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Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an
interested party (those affected by the action) can request
review and reconsideration from the Wage and Hour Administrator
(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
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Washington, DC 20210

The request should be accompanied by a full statement of the
interested party's position and by any information (wage
payment data, project description, area practice material,
etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an
interested party may appeal directly to the Administrative
Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION

SECTION 00800
SPECIAL CONTRACT REQUIREMENTS

SCR-1 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984) (FAR 52.211-10):

See SECTION 00700.

SCR-2 NOT USED

SCR-3 LIQUIDATED DAMAGES-CONSTRUCTION (SEP 2000) (FAR 52.211-12):

See SECTION 00700.

SCR-4 NOT USED

SCR-5 CONTRACT DRAWINGS AND SPECIFICATIONS (Aug 2000) (DFARS 252.236-7001):

(a) thru (d). See SECTION 00700

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings:

Drawing No.	Sheet No.	Title	Rev. No.	Date
		<u>GENERAL</u>		
NONE	00	COVER	NONE	27 JAN 2004
F-178-98-01	00	DRAWING INDEX	"	"
"	00	DRAWING INDEX	"	"
		<u>LOCATION AND VICINTY MAP</u>		
F-16-06-4302	00	PROJECT LOCATION MAPS	"	"
"	00	FTW AND YTA BORROW PIT LOCATION MAP	"	"
		<u>GENERAL</u>		
F-178-98-01	01	STANDARD ABBREVIATIONS	"	"
"	02	CIVIL LEGEND AND SYMBOLS	"	"
		<u>CIVIL SITE</u>		
"	03	OVERALL FTW SITE PLAN	"	"
"	04	FTW CLEARING COORDINATES TABLE AND SURVEY CONTROL DATA	"	"

Drawing No.	Sheet No.	Title	Rev. No.	Date
F-178-98-01	05	FTW CLEARING PLAN	NONE	27 JAN 2004
"	06	FTW CLEARING PLAN	"	"
"	07	FTW GENERAL SITE PLAN	"	"
"	08	FTW GENERAL SITE PLAN	"	"
"	09	FTW GENERAL SITE PLAN	"	"
"	10	FTW GENERAL SITE PLAN	"	"
"	11	FTW GENERAL SITE PLAN	"	"
"	12	FTW GENERAL SITE PLAN	"	"
"	13	FTW GENERAL SITE PLAN	"	"
"	14	OVERALL YTA SITE PLAN	"	"
"	15	YTA CLEARING AND THINNING COORDINATES TABLE AND SURVEY CONTROL DATA	"	"
"	16	YTA CLEARING PLAN	"	"
"	17	YTA CLEARING PLAN	"	"
"	18	YTA GENERAL SITE PLAN	"	"
"	19	YTA GENERAL SITE PLAN	"	"
"	20	YTA GENERAL SITE PLAN	"	"
"	21	YTA RANGE DATA SHEET	"	"
"	22	YTA RANGE DATA SHEET	"	"
"	23	FTW BUILDING SITE AND GRADING PLAN - ROC AREA	"	"
"	24	ROC AREA OF FTW SECTIONS	"	"
"	25	BUILDING SITE AND GRADING PLAN - SHOOT HOUSE	"	"
AM# 3...				
"	<u>26</u>	<u>SHOOT HOUSE FTW SECTIONS</u>	<u>1</u>	<u>7 MAY 2004</u>
				...AM# 3
"	27	BUILDING SITE AND GRADING PLAN - URBAN	NONE	27 JAN 2004

Drawing No.	Sheet No.	Title	Rev. No.	Date
		DEFENSE BUILDING		
F-178-98-01	28	URBAN DEFENSE BUILDING SECTIONS	NONE	27 JAN 2004
"	29	FTW BUILDING SITE AND GRADING PLAN - UNDERGROUND TRAINER	"	"
"	30	U-TRAINER SECTIONS	"	"
"	31	FTW BUILDING SITE AND GRADING PLAN - LATRINE	"	"
"	32	LATRINE SECTIONS	"	"
AM# 3...				
"	<u>33</u>	<u>BUILDING SITE AND GRADING PLAN - URBAN ASSAULT COURSE</u>	<u>1</u>	<u>7 MAY 2004</u>
				...AM# 3
"	34	UAC SECTIONS	NONE	27 JAN 2004
"	35	FTW BUILDING SITE AND GRADING PLAN - BREACH FACILITY	"	"
"	36	FTW BREACH FACILITY SECTIONS	"	"
"	37	FTW BREACH FACILITY SECTIONS	"	"
"	38	YTA BUILDING SITE AND GRADING PLAN - ROC AREA	"	"
"	39	ROC AREA OF YTA SECTIONS	"	"
"	40	MOVING ARMOR TARGET PLAN AND PROFILE	"	"
"	41	FTW ROADWAY CURVE DATA TABLES	"	"
"	42	YTA ROADWAY CURVE DATA TABLES	"	"
"	43	YTA ROADWAY CURVE DATA TABLES	"	"
"	44	FTW AND YTA CULVERT SCHEDULE	"	"
"	45	FTW PIPE PROFILES	"	"

Drawing No.	Sheet No.	Title	Rev. No.	Date
"	46	FTW PIPE PROFILES	"	"
F-178-98-01	47	FTW PIPE PROFILES	NONE	27 JAN 2004
"	48	FTW PIPE PROFILES	"	"
"	49	FTW PIPE PROFILES	"	"
"	50	FTW PIPE PROFILES	"	"
"	51	YTA PIPE PROFILES	"	"
"	52	YTA PIPE PROFILES	"	"
"	53	YTA PIPE PROFILES	"	"
		<u>CIVIL ROAD PROFILES</u>		
"	54	FTW ACCESS ROAD 1	"	"
"	55	FTW ACCESS ROAD 1	"	"
"	56	FTW ACCESS ROAD 2	"	"
"	57	FTW ACCESS ROAD 2	"	"
"	58	FTW SHOOT HOUSE ROAD	"	"
"	59	FTW ASSAULT ROAD	"	"
"	60	YTA ACCESS ROAD 1	"	"
"	61	YTA ACCESS ROAD 1	"	"
"	62	YTA ACCESS ROAD 1	"	"
"	63	YTA ACCESS ROAD 1	"	"
		<u>CIVIL CROSS SECTIONS</u>		
"	64	FTW ACCESS ROAD 1	"	"
"	65	FTW ACCESS ROAD 1	"	"
"	66	FTW ACCESS ROAD 1	"	"
"	67	FTW ACCESS ROAD 2	"	"
"	68	FTW ACCESS ROAD 2	"	"
"	69	FTW SHOOT HOUSE ROAD	"	"
F-178-98-01	70	FTW ASSAULT ROAD	NONE	27 JAN 2004

Drawing No.	Sheet No.	Title	Rev. No.	Date
"	71	YTA ACCESS ROAD 1	"	"
"	72	YTA ACCESS ROAD 1	"	"
"	73	YTA ACCESS ROAD 1	"	"
		<u>CIVIL COMMON DETAILS</u>		
"	74	TYPICAL ROAD, TRAIL AND PARKING SECTIONS	"	"
"	75	MOVING ARMOR TARGET (MAT) EMPLACEMENT	"	"
"	76	MOVING ARMOR TARGET (MAT) DETAILS	"	"
"	77	STATIONARY ARMOR TARGET (SAT) AND DOWN RANGE POWER CENTER EMPLACEMENT	"	"
"	78	EMPLACEMENT COVER DETAILS	"	"
"	79	STATIONARY INFANTRY TARGET (SIT) EMPLACEMENT AND SECTIONS AND HOSTILE FIRE SIMULATOR	"	"
"	80	MOVING INFANTRY TARGET (MIT) EMPLACEMENT, SECTIONS, AND DETAILS	"	"
"	81	MACHINE GUN/OBSERVATION BUNKER	"	"
AM# 3...				
"	82	TRENCH 1 AND 2 LAYOUTS	<u>1</u>	7 MAY 2004
				...AM# 3
"	83	TRENCH SECTION AND DETAIL	"	"
"	84	FLIR CAMERA TOWER DETAILS	"	"
"	85	FLIR CAMERA TOWER ASSEMBLIES (2 BOLT FOOTPAD)	"	"
"	86	FLAGPOLE DETAILS	"	"
"	87	FENCE DETAILS	"	"
F-178-98-01	88	FENCE DETAILS	NONE	27 JAN 2004

Drawing No.	Sheet No.	Title	Rev. No.	Date
"	89	FENCE AND GATE DETAILS	"	"
"	90	SECURITY GATE DETAILS	"	"
"	91	DRAINAGE DETAILS	"	"
"	92	CHANNEL LINING DETAIL	"	"
"	93	INFANTRY SQUAD BATTLE COURSE UNDERGROUND TRAINER AND MANHOLE DETAILS	"	"
"	94	GRENADIER GUNNERY TRAINER DETAILS	"	"
"		<u>EROSION CONTROL</u>		
"	95	EROSION CONTROL DETAILS	"	"
"	96	EROSION CONTROL DETAILS	"	"
"	97	EROSION CONTROL DETAILS	"	"
"	98	EROSION CONTROL - SECTIONS AND DETAILS	"	"
		<u>ARCHITECTURAL</u>		
"	99	ARCHITECTURAL ABBREVIATIONS	"	"
"	100	COMBINED AFTER ACTION REVIEW AND OPERATIONS STORAGE BUILDING - FLOOR PLAN, DOOR AND FINISH SCHEDULES	"	"
"	101	COMBINED AFTER ACTION REVIEW AND OPERATIONS STORAGE BUILDING - EXTERIOR ELEVATIONS AND ROOF PLAN	"	"
"	102	COMBINED AFTER ACTION REVIEW AND OPERATIONS STORAGE BUILDING - EXTERIOR ELEVATIONS AND SECTION	"	"
F-178-98-01	103	COMBINED AFTER ACTION REVIEW AND OPERATIONS	NONE	27 JAN 2004

Drawing No.	Sheet No.	Title	Rev. No.	Date
		STORAGE BUILDING - BUILDING SECTION AND DETAILS		
"	104	TYPICAL SECTIONS AND DETAILS	"	"
"	105	TYPICAL SECTIONS AND DETAILS	"	"
"	106	COMBINED RANGE OPERATIONS GENERAL INSTRUCTION BUILDING - FLOOR PLAN, DOOR AND FINISH SCHEDULES	"	"
"	107	COMBINED RANGE OPERATIONS GENERAL INSTRUCTION BUILDING - EXTERIOR ELEVATIONS	"	"
"	108	COMBINED RANGE OPERATIONS GENERAL INSTRUCTION BUILDING - EXTERIOR ELEVATIONS	"	"
"	109	LATRINE FLOOR PLAN, ELEVATIONS, DOOR AND FINISH SCHEDULE	"	"
AM# 3...				
"	<u>110</u>	<u>LATRINE BUILDING SECTION</u>	<u>1</u>	<u>7 MAY 2004</u>
				...AM# 3
"	111	GENERAL INSTRUCTION BUILDING - FLOOR PLAN, ROOF PLAN, DOOR AND FINISH SCHEDULES	NONE	27 JAN 2004
"	112	GENERAL INSTRUCTION BUILDING - EXTERIOR ELEVATIONS	"	"
"	113	GENERAL INSTRUCTION BUILDING - EXTERIOR ELEVATIONS AND BUILDING SECTION	"	"
"	114	WARM-UP BUILDING - FLOOR PLAN, ROOF PLAN, DOOR AND FINISH SCHEDULES	"	"

Drawing No.	Sheet No.	Title	Rev. No.	Date
F-178-98-01	115	WARM-UP BUILDING - EXTERIOR ELEVATIONS	NONE	27 JAN 2004
"	116	WARM-UP BUILDING - EXTERIOR ELEVATIONS AND BUILDING SECTION	"	"
"	117	SHOOT HOUSE - FLOOR PLAN	"	"
"	118	SHOOT HOUSE - EXTERIOR ELEVATIONS	"	"
"	119	SHOOT HOUSE - EXTERIOR ELEVATIONS	"	"
"	120	SHOOT HOUSE - BUILDING SECTION	"	"
"	121	SHOOT HOUSE - TYPICAL SECTIONS AND DETAILS	"	"
"	122	CLEARING TECHNIQUES BUILDING - FLOOR PLAN AND ELEVATIONS	"	"
"	123	CLEARING TECHNIQUES BUILDING - EXTERIOR ELEVATIONS	"	"
"	124	CLEARING TECHNIQUES BUILDING - EXTERIOR ELEVATIONS	"	"
"	125	SQUAD & PLATOON TASK - TECHNIQUE TRAINER - BASE AND ELEVATED FLOOR PLAN	"	"
"	126	SQUAD & PLATOON TASK - TECHNIQUE TRAINER - BASE FLOOR PLAN	"	"
"	127	SQUAD & PLATOON TASK - TECHNIQUE TRAINER - EXTERIOR ELEVATIONS	"	"
"	128	SQUAD & PLATOON TASK - TECHNIQUE TRAINER - EXTERIOR ELEVATIONS	"	"
"	129	SQUAD & PLATOON TASK - TECHNIQUE TRAINER - SECTIONS AND DETAILS	"	"

Drawing No.	Sheet No.	Title	Rev. No.	Date
F-178-98-01	130	GRENADIER - GUNNERY TRAINER - FLOOR PLANS, EXTERIOR ELEVATIONS AND SECTION	NONE	27 JAN 2004
"	131	URBAN DEFENSE BUILDING - BASEMENT, FIRST FLOOR, ROOF AND ROOF FRAMING PLANS	"	"
"	132	URBAN DEFENSE BUILDING - SECOND FLOOR AND ROOF PLANS	"	"
"	133	URBAN DEFENSE BUILDING - EXTERIOR ELEVATIONS	"	"
"	134	URBAN DEFENSE BUILDING - DOOR AND FINISH SCHEDULES	"	"
"	135	URBAN DEFENSE BUILDING - BUILDING SECTIONS AND DETAILS	"	"
"	136	URBAN DEFENSE BUILDING - BUILDING SECTIONS AND DETAILS	"	"
"	137	URBAN DEFENSE BUILDING - BUILDING SECTIONS AND DETAILS	"	"
"	138	URBAN DEFENSE BUIDLING - TYPICAL DETAILS	"	"
"	139	BREACH FACILITY - STATION 1 - PLAN, ELEVATION AND DETAIL	"	"
"	140	BREACH FACILITY - STATION 2 - PLAN, ELEVATION AND DETAIL	"	"
"	141	BREACH FACILITY - STATION 3 - PLAN, ELEVATION AND DETAIL	"	"
		<u>STRUCTURAL</u>		
"	142	GENERAL NOTES	"	"
"	143	ABBREVIATIONS	"	"

Drawing No.	Sheet No.	Title	Rev. No.	Date
F-178-98-01	144	COMBINED AFTER ACTION REVIEW AND OPERATIONS STORAGE BUILDING - FOUNDATION PLAN	NONE	27 JAN 2004
"	145	COMBINED AFTER ACTION REVIEW AND OPERATIONS STORAGE BUILDING - FLOOR PLAN	"	"
"	146	COMBINED AFTER ACTION REVIEW AND OPERATIONS STORAGE BUILDING - ROOF FRAMING PLAN	"	"
"	147	COMBINED RANGE OPERATIONS CENTER AND GENERAL INSTRUCTION BUILDING FOUNDATION PLAN	"	"
"	148	COMBINED RANGE OPERATIONS CENTER AND GENERAL INSTRUCTION BUILDING - FLOOR FRAMING PLAN	"	"
"	149	COMBINED RANGE OPERATIONS CENTER AND GENERAL INSTRUCTION BUILDING - ROOF FRAMING PLAN	"	"
"	150	LATRINE - FOUNDATION, FLOOR & ROOF FRAMING PLANS	"	"
"	151	GENERAL INSTRUCTION BUILDING - FOUNDATION AND FLOOR FRAMING PLANS	"	"
"	152	GENERAL INSTRUCTION BUILDING - ROOF FRAMING PLANS	"	"
"	153	WARM-UP BUILDING - FOUNDATION AND FLOOR FRAMING PLANS	"	"
"	154	WARM-UP BUILDING - ROOF FRAMING PLANS	"	"
"	155	SHOOT HOUSE - FOUNDATION PLAN	"	"

Drawing No.	Sheet No.	Title	Rev. No.	Date
F-178-98-01	156	SHOOT HOUSE - ROOF FRAMING AND CATWALK PLAN	NONE	27 JAN 2004
"	157	CLEARING TECHNIQUES BUILDING - FOUNDATION PLAN	"	"
"	158	CLEARING TECHNIQUES BUILDING - ROOF FRAMING	"	"
"	159	SQUAD & PLATOON TASK - TECHNIQUE TRAINER FOUNDATION AND SECOND FLOOR PLANS	"	"
"	160	SQUAD & PLATOON TASK - TECHNIQUE TRAINER FOUNDATION PLAN	"	"
"	161	GRENADIER - GUNNERY TRAINER FOUNDATION PLAN	"	"
"	162	URBAN DEFENSE BUILDING - FOUNDATION PLAN AND FIRST FLOOR PLAN	"	"
"	163	URBAN DEFENSE BUILDING - SECOND FLOOR PLAN AND ROOF FRAMING PLAN	"	"
"	164	URBAN DEFENSE BUILDING - HIGH ROOF FRAMING PLAN	"	"
"	165	BREACH FACILITY - STATION 1 PLAN AND ELEVATION	"	"
"	166	BREACH FACILITY - STATION 2 PLAN AND ELEVATION	"	"
"	167	BREACH FACILITY - STATION 3 PLAN AND ELEVATION	"	"
"	168	STEEL FRAME ELEVATIONS	"	"
"	169	CONCRETE DETAILS	"	"
"	170	URBAN DEFENSE BUILDING - CONCRETE DETAILS	"	"

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F-178-98-01	171	TYPICAL DETAILS	NONE	27 JAN 2004
"	172	DETAILS	"	"
"	173	MASONRY WALL DETAILS	"	"
"	174	MASONRY WALL REINFORCING SCHEDULE AND TYPICAL DETAILS	"	"
"	175	MASONRY WALL REINFORCING SCHEDULE AND TYPICAL DETAILS	"	"
"	176	DETAILS	"	"
"	177	MOMENT FRAME DETAILS	"	"
"	178	STEEL DETAILS	"	"
"	179	DETAILS	"	"
"	180	DETAILS	"	"
"	181	DETAILS	"	"
"	182	DETAILS	"	"
"	183	DETAILS	"	"
"	184	SQUAD AND PLATOON TASK - TECHNIQUE TRAINER SECTIONS AND DETAILS	"	"
"	185	DETAILS	"	"
"	186	DETAILS	"	"
		<u>MECHANICAL</u>		
"	187	HVAC SCHEDULES & DETAILS	"	"
"	188	WARMUP, GENERAL INSTRUCTION AND LATRINE BUILDING MECHANICAL PLANS	"	"
"	189	COMBINED AFTER ACTON REVIEW AND OPERATIONS STORAGE BUILDING MECHANICAL PLAN	"	"
"	190	HVAC SCHEDULES AND DETAILS	"	"

Drawing No.	Sheet No.	Title	Rev. No.	Date
		<u>PLUMBING</u>		
F-178-98-01	191	LATRINE FLOOR PLAN, PLUMBNG LEGEND AND SCHEDULE	NONE	27 JAN 2004
		<u>ELECTRICAL</u>		
"	192	ELECTRICAL SITE PLAN - FORT WAINRIGHT	"	"
"	193	ELECTRICAL SITE PLAN - FORT WAINRIGHT	"	"
"	194	ELECTRICAL SITE PLAN - FORT WAINRIGHT	"	"
"	195	ELECTRICAL SITE PLAN - YUKON TRAINING AREA	"	"
"	196	ELECTRICAL SITE PLAN - YUKON TRAINING AREA	"	"
"	197	SINGLE LINE DIAGRAMS - YUKON TRAINING AREA	"	"
"	198	FORT WAINWRIGHT - SINGLE LINE DIAGRAM	"	"
"	199	YUKON TRAINING AREA - SINGLE LINE DIAGRAM	"	"
"	200	FIBER OPTIC CABLING RISER DIAGRAM	"	"
"	201	ELECTRICAL POLE DETAILS	"	"
"	202	ELECTRICAL DETAILS	"	"
"	203	ELECTRICAL TARGET EMPLACEMENT DETAILS	"	"
"	204	ELECTRICAL TARGET EMPLACEMENT DETAILS	"	"
"	205	ELECTRICAL PANEL SCEDULES - YUKON TRAINING AREA	"	"
"	206	ELECTRICAL DETAILS	"	"
"	207	ELECTRICAL DETAILS	"	"

Drawing No.	Sheet No.	Title	Rev. No.	Date
F-178-98-01	208	ELECTRICAL LEGEND AND LIGHTING FIXTURE SCHEDULES	NONE	27 JAN 2004
"	209	LIGHTING FIXTURE DETAILS	"	"
"	210	LIGHTING FIXTURE DETAILS	"	"
"	211	COMBINED AFTER ACTION REVIEW AND OPERATIONS STORAGE BUILDING ELECTRICAL PLAN	"	"
"	212	COMBINED AFTER ACTION REVIEW AND OPERATIONS STORAGE BUILDING ELECTRICAL PLAN	"	"
"	213	COMBINED RANGE OPERATIONS CENTER AND GENERAL INSTRUCTION BUILDING ELECTRICAL PLAN	"	"
"	214	SINGLE LINE DIAGRAMS	"	"
"	215	GENERAL INSTRUCTION BUILDING ELECTRICAL PLAN	"	"
"	216	WARM-UP BUILDING ELECTRICAL PLANS	"	"
"	217	ELECTRICAL FLOOR PLAN - LATRINE BUILDING	"	"
"	218	ELECTRICAL FLOOR PLAN - SHOOTHOUSE	"	"
"	219	ELECTRICAL FLOOR PLAN - SHOOTHOUSE	"	"
"	220	URBAN DEFENSE BUILDING ELECTRICAL PLANS	"	"
"	221	URBAN DEFENSE BUILDING ELECTRICAL PLANS	"	"
"	222	CLEARING TECHNIQUES BUILDING ELECTRICAL PLAN	"	"

Drawing No.	Sheet No.	Title	Rev. No.	Date
F-178-98-01	223	SQUAD & PLATOON TASK - TECHNIQUE TRAINER ELECTRICAL FLOOR PLANS	NONE	27 JAN 2004
"	224	SQUAD & PLATOON TASK - TECHNIQUE TRAINER ELECTRICAL FLOOR PLANS	"	"
"	225	ELECTRICAL SITE PLAN - FORT WAINRIGHT	"	"
"	226	GREDNADIER - GUNNERY TRAINER FLOOR PLANS, EXTERIOR	"	"
"	227	FLOOR AND WALL MOUNT COMMUNICATIONS EQUIPMENT CABINET (CEC) LAYOUT	"	"
"	228	FLOOR AND WALL MOUNT COMMUNICATIONS EQUIPMENT CABINET (CEC) TYPICAL DETAILS	"	"

SCR-6 NOT USED

SCR-7 CERTIFICATES OF COMPLIANCE:

Any certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in 3 copies. Each certificate shall be signed by an official authorized to certify in behalf of the manufacturing company and shall contain the name and address of the

Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if, after tests are performed on selected samples, the material is found not to meet the specific requirements.

SCR-8 SUBMITTALS (ER 415-1-10, 30 May 1995):

Within 30 days after receipt of Notice to Proceed, the Contractor shall complete and submit to the Contracting Officer, in triplicate, submittal register ENG Form 4288 listing all submittals and dates. In addition to those items listed on ENG Form 4288, the Contractor shall furnish submittals for any deviation from the plans or specifications. The scheduled need dates must be recorded on the document for each item for control purposes. In preparing the document, adequate time (minimum of 30 days) shall be allowed for review and, only when stipulated, approval and possible resubmittal. Scheduling shall be coordinated with the approved progress schedule. The Contractor's Quality Control representative shall review the listing at least

every 30 days and take appropriate action to maintain an effective system. Copies of updated or corrected listing shall be submitted to the Contracting Officer at least every 60 days in the quantity specified. Payment will not be made for any material or equipment which does not comply with contract requirements.

SECTION 01330 SUBMITTAL PROCEDURES includes an ENG Form 4288 listing technical items the Contractor shall submit to the Contracting Officer, as indicated in the contract requirements.

SCR-9 NOT USED

SCR-10 FORT WAINWRIGHT PHYSICAL DATA (APR 1984): Data and information furnished or referred to below are furnished for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

a. The indications of physical conditions on the drawings and in the specifications are the result of site investigation.

b. Location: Fort Wainwright is located adjacent to, and southeast of Fairbanks, Alaska.

c. Transportation:

(1) Water: Commercial cargo service is available from West Coast port cities of the mainland states to the Alaska ports of Anchorage, Valdez, Whittier and Seward.

(2) Truck: Truck service is available to Fairbanks from the port cities of Anchorage, Valdez, and Seward, Alaska, and from the 48 contiguous states over the Alaska Highway.

(3) Railroad: The Alaska Railroad offers freight service from the 48 contiguous states and Canada via rail barge and trainship through Whittier, and from Seward, to Anchorage and Fairbanks. In addition to the freight service, scheduled passenger service and express service between Anchorage and Fairbanks, and passenger service between Anchorage and Whittier are also available. Fairbanks (including Eielson AFB and Ft. Wainwright) is the northern terminus, and Seward and Whittier are the southern terminals of the Alaska Railroad.

(4) Air: Commercial airlines operate to Fairbanks, Alaska.

d. Communications: Telephone communications and services for the Contractor's use are the responsibility of the Contractor. The Contractor shall make all arrangements and payment for telephone service. Contact Alaska Communications Systems, 1-800-478-3081. The Government does not guarantee the adequacy or efficiency of the service or the number of telephones that can be assigned to the Contractor.

e. Weather Data: A Climatological Summary for Fort Wainwright is attached to the end of this section.

SCR-11 AVAILABILITY AND USE OF UTILITY SERVICES (APR 1984) (FAR 52.236-14):

See SECTION 00700.

SCR-12 IDENTIFICATION OF EMPLOYEES AND MILITARY REGULATIONS:

(a) The Contractor shall be responsible for compliance with all regulations and orders of the Commanding Officer of the Military Installation, respecting identification of employees, movements on installation, parking, truck entry, and all other military regulations which may affect the work.

(b) The work under this contract is to be performed at an operating Military Installation with consequent restrictions on entry and movement of non-military personnel and equipment.

SCR-13 INSURANCE - WORK ON A GOVERNMENT INSTALLATION (JAN 1997) (FAR 52.228-5):

(a) The Contractor shall, at its own expense, provide and maintain during the entire performance of this contract, at least the following kinds and minimum amounts of insurance:

(1) Workman's Compensation and Employers' Liability Insurance: \$100,000.00.

(2) General Liability Insurance: A Bodily Injury, Comprehensive policy which provides \$500,000.00 per occurrence.

(3) Automobile Liability Insurance: A comprehensive policy which provides \$200,000.00 per person and \$500,000.00 per occurrence for bodily injury and \$20,000.00 per occurrence for property damage, covering the operation of its automobiles used in connection with the performance of the contract.

(4) Aircraft Public and Passenger Liability Insurance: Where aircraft are used in connection with the performance of the contract; \$200,000.00 per person, \$500,000.00 per occurrence for bodily injury, other than passenger liability, and \$200,000.00 per occurrence for property damage; \$200,000.00 per person for passenger liability bodily injury aggregate equal to the total number of seats or number of passengers, whichever is greater.

(5) Vessel Collision Liability and Protection and Indemnity Liability Insurance: Where vessels are used in connection with the performance of the contract.

(b) Before commencing the work under this contract, the Contractor shall notify the Contracting Officer in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective (1) for such period as the laws of the State in which this contract is to be performed prescribe, or (2) until 30 days after the insurer or the Contractor gives written notice to the Contracting Officer, whichever period is longer.

(c) The Contractor shall insert the substance of this clause, including this paragraph (c), in subcontracts under this contract that require work on a Government installation and shall require subcontractors to provide and maintain the insurance required above. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the Contracting Officer upon request.

SCR-16 LAYOUT OF WORK (APR 1984) (FAR 52.236-17):

See SECTION 00700.

SCR-17 THRU SCR-24 NOT USED

SCR-25 COMMUNICATION SECURITY:

All communications with DOD organizations are subject to COMSEC review. Contractor personnel shall be aware that telecommunications networks are continually subject to intercept by unfriendly intelligence organizations. The DOD has authorized the military departments to conduct COMSEC monitoring and recording of telephone calls originating from or terminating at DOD organizations. Therefore, civilian Contractor personnel are advised that any time they place a call to or receive a call from Alaska District offices or Resident Engineer offices located on military installations, they are subject to COMSEC procedures. The Contractor will assume the responsibility for ensuring wide and frequent dissemination of the above information to all employees dealing with official DOD information.

SCR-26 PERMITS AND RESPONSIBILITIES:

The Government has obtained the following permits/licenses related to the construction of this project:

Wetlands Permit

Range borrow pit south of Richardson Highway (requires 30.48 m boom to get the most out of the pit. May expand pit 45.05 hectares to extract up to 573,416 cu. m of gravel. Prepare closure plan, no access on Wednsdays.)

It will be the responsibility of the Contractor to obtain all other permits/licenses required for this project as required under the Contract Clause paragraph entitled PERMITS AND RESPONSIBILITIES.

SCR-27 NOT USED

SCR-28 PAYMENT FOR MOBILIZATION AND DEMOBILIZATION (DEC 1991) (DFARS 252.236-7004):

See SECTION 00700. Applies to Yukon Training Area portion of project.

SCR-29 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (1999 JUNE HQ USACE) (EFARS 52.231-5000):

See SECTION 00700.

SCR-30 OPTION FOR INCREASED QUANTITY

AM# 3... a. The Government may increase the quantity of work awarded by exercising Optional Items 0003 thru 0008 at any time, or not at all, but no later than 90 calendar days after NTP. Notice to Proceed on work added by exercise of the option will be given upon execution of consent of surety....AM# 3

b. The parties hereto further agree that any options herein shall be considered as having been exercised at the time the Government deposits written notification to the Contractor in the mails.

c. Optional items awarded shall be completed within the time period for completion of the base items, as stated in SCR-1.

SCR-31 AND SCR-32 NOT USED

SCR-33 PAYMENT FOR MATERIALS DELIVERED OFF-SITE (1995 MAR HQ USACE) (EFARS 52.232-5000):

See SECTION 00700.

SCR-34 AND SCR-35 RESERVED

SCR-36 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (ER 415-1-15, 31 Oct 1989):

1. This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the Contract Clause entitled "DEFAULT (FIXED PRICE CONSTRUCTION)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

a. The weather experienced at the project site during the contract period must be found to be unusually severe; that is, more severe than the adverse weather anticipated for the project location during any given month.

b. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

2. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

Monthly Anticipated Adverse Weather Delay Work Days Based on a 5-Day Work Week

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
22	20	21	0	0	1	1	1	0	10	21	22

3. Upon acknowledgement of the Notice to Proceed and continuing throughout the contract, the Contractor shall record on the daily CQC report, the occurrence of adverse weather and the resultant impact to normally scheduled work. Actual adverse weather delays days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled workday. The number of actual adverse weather days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day in each month, and be recorded as full days. If the number of actual adverse weather days exceeds the number of days anticipated in Paragraph 2, above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather workdays, and issue a modification in accordance with the Contract Clause entitled "DEFAULT (FIXED-PRICE CONSTRUCTION)".

SCR-37 NOT USED

SCR-38 YEAR 2000 COMPLIANCE (OCT 1997) (FAR 39.106):

In accordance with FAR 39.106, the Contractor shall ensure that with respect to any design, construction, goods, or services under this contract as well as any subsequent task/delivery orders issued under this contract (if applicable), all information technology contained therein shall be Year 2000 compliant. Specifically, the Contractor shall:

(1) Perform, maintain, and provide an inventory of all major components to include structures, equipment, items, parts, and furnishings under this contract and each task/delivery order which may be affected by the Year 2000 compliance requirement.

(2) Indicate whether each component is currently Year 2000 compliant or requires an upgrade for compliance prior to Government acceptance.

SCR-39 THRU SCR-44 NOT USED

SCR-45 SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1, U.S. ARMY CORPS OF ENGINEERS:

EM 385-1-1 and its changes are available at <http://www.hq.usace.army.mil> (at the HQ homepage, select Safety and Occupational Health).

The Contractor shall be responsible for complying with the current edition and all changes posted on the web (see web address above) as of the effective date of this solicitation and shall comply with the version in effect on the contract award date. This EM 385-1-1 shall remain in effect throughout the life of the contract.

SCR-46 THRU SCR-111 NOT USED

SCR-112 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999) (FAR 52.222-23):

See SECTION 00700.

SCR-113 AND SCR-114 NOT USED

**ATTACHMENT: CLIMATOLOGICAL SUMMARY
POST POLICY LETTER #24, ACCESS CONTROL**

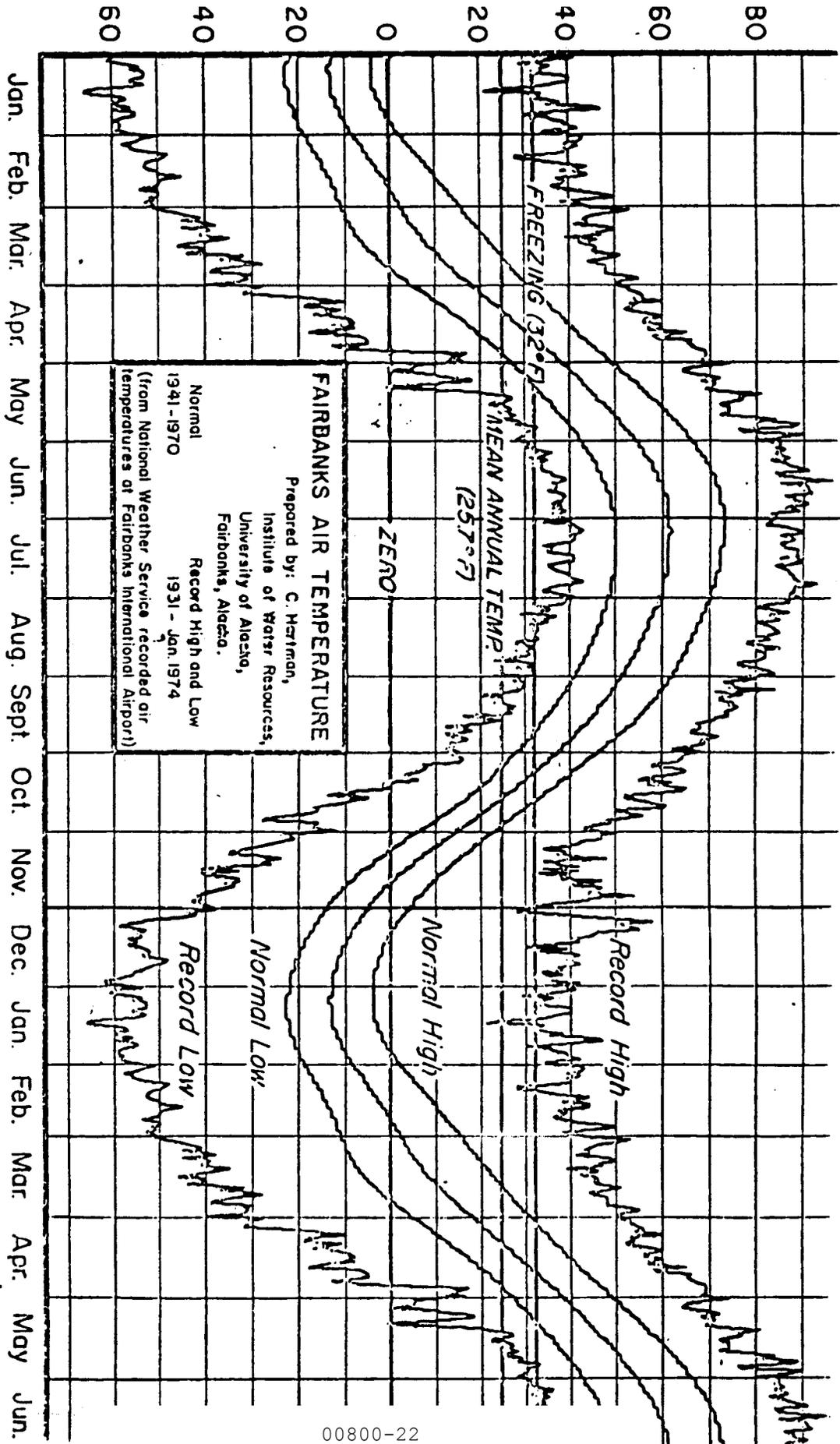
CLIMATOLOGICAL SUMMARY

FT. WAINWRIGHT (Period of record exceeds 25 years)

MEANS AND EXTREMES FOR PERIOD OF RECORD

Temperature	Mean Annual	25.9° F	
	Highest Recorded	95.0° F	
	Lowest Recorded	-62.0° F	
	Maximum Freezing Index	6464 degree days (1950-51)	
	Maximum Thawing Index	3568 degree days (1953)	
Precipitation	Mean Annual	12.67"	
	Mean Annual Snowfall	41.8"	
	Maximum Monthly	4.31" July 1948	
	Maximum Monthly Mean	2.27" Aug	
	Maximum Rainfall During 24 hr Period	2.33" Aug	
	Maximum Snowfall During 24 hr Period	15.5" Jan	
	Maximum Monthly Snowfall	27.7" Dec 1955	
Wind	Mean Hourly Speed	4.6 mph	
	Prevailing Direction	ENE 7.2% (calm 32%)	
	Maximum Velocity	61 mph	
	Direction Maximum Velocity	SW	
Annual Mean Number of Days	Sunrise to Sunset	Clear	72
		Partly Cloudy	90
		Cloudy	203
		Precipitation 0.01 inch or more	101
		Snow, Sleet, or Hail 1.0 inch or more	19
		Heavy Fog 0 - 3/4 mile visibility for 3/4 of the time	
		Thunderstorms	5
	Max Temp	IV 70°	46
		III 32°	157
		II 32°	229
I Zero		123	
Min Temp	IV 70°		
	III 32°		
	II 32°		
	I Zero		

NPA Form 3
AUG 1958





DEPARTMENT OF THE ARMY

POST COMMANDER'S OFFICE
1060 GAFFNEY ROAD #6000
FORT WAINWRIGHT, ALASKA 99703-6000

REPLY TO THE
ATTENTION OF:

APVR-WLE-PM

27 November 2001

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Post Policy Letter #24, Access Control Rosters for Entry to Fort Wainwright

1. Effective immediately, all access control rosters for entry onto the Fort Wainwright Military Reservation will be prepared and submitted in accordance with the procedures outlined in this policy letter. Each directorate/activity/unit/organization (DOL, DPW, DCA, BLM, et cetera) is responsible for submitting their own access rosters and for submission of updates and changes in their respective rosters.

2. Access rosters will be submitted in the following manner:

a. Prepare using a pre-formatted spreadsheet provided by PMO. Use the following data fields:

- (1) Last Name
- (2) First Name
- (3) Company, Group, or Team
- (4) End of Contract Date or End of Access Date

b. Any additions will be highlighted in blue, and any deletions will be highlighted in red. Once a change has been submitted, remember to change your roster and return the text to normal.

c. Send spreadsheet via electronic mail to pmocat@wainwright.army.mil. Send the signed, original paper copy to the FWA Provost Marshal Office, ATTN: SPC Newsom, PMO Admin, 353-7552.

d. The Master Access Roster at Main Gate and Trainer Gate is updated twice daily at 0900 and 1500 hours. Your roster must be submitted at least 24 hours prior in order to be included in that update.

3. Non-DoD-affiliated Personnel.

a. For groups and individuals from off-Post (e.g., sports teams, special events, CPAC) requesting access to Fort Wainwright facilities, to include activities other than MWR, the

procedure is the same as above with the following additional requirement: Contact the directorate/activity/unit/organization that is responsible for the facility (e.g., DCA for access to APVR-WLE-PM

SUBJECT: Post Policy Letter #24, Access Control Rosters for Entry to Fort Wainwright

Youth Services). Coordination for access can only be accomplished through the responsible agency. The responsible agency will prepare the access roster for the off-Post group and submit it according to the procedure described in paragraph 2.

b. Individuals requesting access to MWR activities (e.g., Birch Hill Ski/Snowboard Area, Chena Bend Golf Course, et cetera) must enter at the Main Gate. All members of the group will log in at the Visitors' Center. The driver and anyone 18 years of age and older must show a drivers license. The driver must provide valid vehicle registration. A daily MWR pass will be issued, and the vehicle will be searched. The pass is valid for the day of issue only, and the procedure will be followed each time the vehicle enters Post. Access will granted no earlier than 60 minutes prior to the opening time of the activity/facility. Exit from Post will be within 60 minutes of activity/facility closing time. Individuals who are issued MWR passes who are discovered deviating from the authorized route will have their privileges revoked and be subject to bar from the installation.

4. In the event that the Force Protection Condition (FPCON) Level is elevated to DELTA, this policy becomes void; no public access to MWR activities/facilities will be authorized.

5. The Post Commander is the final approving authority for access to Post. Inclusion on an access roster does not guarantee access to Post. The Post Commander may deny entry to anyone at any time. Access may be limited to times and dates as specified by the Post Commander.

6. Point of Contact (POC) for this memorandum is CPT Martin, Fort Wainwright Provost Marshal, 353-7889.

*// ORIGINAL SIGNED BY
LTC MICHAEL T. MEEKS
FOR //*

VICTORIA M. BRUZESE
LTC, EN
Post Commander

DISTRIBUTION:
A (FWA)

 **This notice of authorization must be conspicuously displayed at the site of work.**

United States Army Corps of Engineers
TANANA RIVER 222

2004

DISCHARGE 93,457 CUBIC YARDS OF FILL MATERIAL INTO 26.4 ACRES OF WETLANDS TO CONSTRUCT A MODIFIED MILITARY OPERATIONS IN URBAN TERRAIN FACILITY CONSISTING OF A BREACH FACILITY, URBAN ASSUALT

A permit to COURSE, SHOOT HOUSE, ALONG WITH SUPPORT FACILITIES

at THE SMALL ARMS COMPLEX WITHIN SECTIONS 20 AND 29, TOWNSHIP 1 SOUTH, RANGE 1 EAST, FAIRBANKS MERIDIAN. FAIRBANKS, ALASKA.

has been issued to UNITED STATES ARMY FORT WAINWRIGHT

on 19 FEBRUARY **2004**

Address of Permittee BLDG. 3105, FORT WAINWRIGHT, ALASKA 99703

Permit Number

4-2002-1098


FOR: *District Commander*
Sheila Newman
Regulatory Project Manager
NORTH SECTION

REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
3437 AIRPORT WAY
SUITE 206 WASHINGTON PLAZA
FAIRBANKS, ALASKA 99709-4777

February 20, 2004

Regulatory Branch
North Section
POA-2004-226

Ms. Debbie Lipyanic
ITAM/NR Coordinator
Public Works
APVR-WPW-GE (LIPYANIC)
1060 Gaffney Road
Fort Wainwright, Alaska 99703

Dear Ms. Lipyanic:

Enclosed is the signed Department of the Army permit 4-2002-1098, Tanana River 222, authorizing the discharge of 93,457 cubic feet of unclassified fill material into 26.4 acres of wetlands in Fort Wainwright, Alaska. Also enclosed is a Notice of Authorization which should be posted in a prominent location near the authorized work.

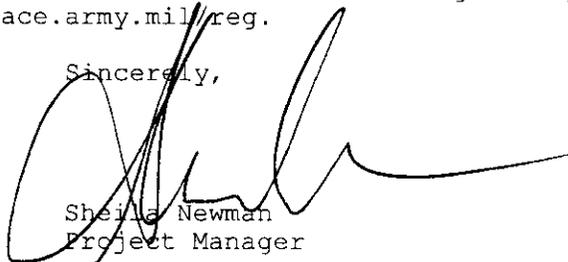
If changes in the plans or location of the work are necessary for any reason, plans should be submitted to this office promptly. Federal law requires approval before construction is begun; if the changes are unobjectionable, approval will be issued without delay.

Nothing in this letter shall be construed as excusing you from compliance with other Federal, State, or local statutes, ordinances, or regulations which may affect the proposed work.

Please take a moment to complete and return the enclosed questionnaire. Our interest is to see how we can continue to improve our service to you, our customer, and how best to achieve these improvements. Upon your request, you may also provide additional comments by telephone or a meeting. We appreciate your efforts and interest in evaluating the regulatory program.

Please contact me at (907) 474-2166, or by mail at the address above, if you have questions. For additional information about our Regulatory Program, visit our web site at www.poa.usace.army.mil/reg.

Sincerely,



Sheila Newman
Project Manager

Enclosures (s)

REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
3437 AIRPORT WAY
SUITE 206 WASHINGTON PLAZA
FAIRBANKS, ALASKA 99709-4777

February 4, 2004

Regulatory Branch
North Section
4-2002-1098

Ms. Deb M. Lipyanic
Public Works Building 3023
Fort Wainwright, Alaska 99703

Dear Ms. Lipyanic:

Enclosed are two copies of Department of the Army permit 4-2002-1098, Tanana River 222, which would authorize discharge of 93,457 cubic feet of unclassified fill material into 26.4 acres of wetlands in Fort Wainwright, Alaska.

The Alaska Department of Environmental Conservation has issued a Certificate of Reasonable Assurance pursuant to Section 401 of the Clean Water Act for your project and they have found it to be in accordance with the Alaska Water Quality Standards. This certification is attached to the Department of the Army permit and will become a part of the permit when it is finalized.

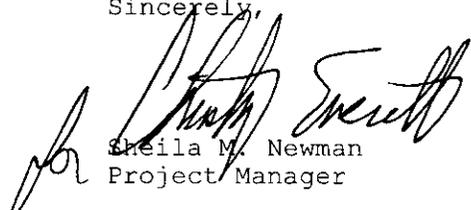
Additionally, we have enclosed a Notification of Administrative Appeals Options and Process and Request for Appeal form regarding this Department of the Army Permit (see section labeled "Initial Proffered Permit").

If you accept the conditions of the enclosed permit, please sign and date both copies and return them to us. The permit will not be valid until we have returned a finalized copy to you. It should be understood that this is not an authorization to commence construction. No work is to be performed in the waterway or adjacent wetlands until you have received a validated copy of the permit.

Nothing in this letter shall be construed as excusing you from compliance with other Federal, State, or local statutes, ordinances, or regulations which may affect this work.

Please contact me at (907) 474-2166, or at the address above, if you have questions concerning this matter. For additional information about our Regulatory Program, visit our web site at www.poa.usace.army.mil/reg.

Sincerely,



Sheila M. Newman
Project Manager

Enclosures

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: US Army at Fort Wainwright

File Number: 4-2002-1098

Date: 04FEB04

Attached is:

See Section below

XXX INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)
 PROFFERED PERMIT (Standard Permit or Letter of permission)
 PERMIT DENIAL
 APPROVED JURISDICTIONAL DETERMINATION
 PRELIMINARY JURISDICTIONAL DETERMINATION

A
 B
 C
 D
 E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Sheila M. Newman, Project Manager
US Army Corps of Engineers
Alaska District CEPOA-CO-R-NF
3437 Airport Way, Suite 206
Fairbanks, Alaska 99709-4777
(907) 474-2166
(907) 474 2164 Facsimile Machine

If you only have questions regarding the appeal process you may also contact:

Commander
ATTN: ET-C/Michael Lee
USAED, Pacific Ocean
Building 230
Fort Shafter, HI 96858-5440

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.

Date:

Telephone number:

Mail to:

Commander
ATTN: ET-C/Michael Lee
USAED, Pacific Ocean
Building 230
Fort Shafter, HI 96858-5440

STATE OF ALASKA

FRANK H. MURKOWSKI, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
NON-POINT SOURCE WATER POLLUTION CONTROL555 Cordova Street
Anchorage, AK 99501-2617
Phone: (907) 269-7564
Fax: (907) 269-7508
TTY: (907) 269-7511

January 29, 2004

Certified Mail 7099 3400 0016 8435 0887

Deb Lipyanic
US Army, Public Works
Building 3023
Fort Wainwright, Alaska 99703Subject: Tanana River 222
Reference No. 4-2002-1098

RECEIVED

FEB 02 2004
CENPA-CO-R-N-FFU
Alaska District Corps of Engineers

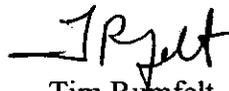
Dear Ms. Lipyanic:

In accordance with Section 401 of the Federal Clean Water Act of 1977 and provisions of the Alaska Water Quality Standards, the Department of Environmental Conservation is issuing the enclosed Certificate of Reasonable Assurance for the proposed filling of 27 acres of wetlands, at Fort Wainwright, Alaska.

Department of Environmental Conservation regulations provide that any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Director, Division of Water, 410 Willoughby Ave., Juneau 99801, within 15 days of the permit decision. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, within 30 days of the permit decision. If a hearing is not requested within 30 days, the right to appeal is waived.

By copy of this letter we are advising the Corps of Engineers our actions and enclosing a copy of the certification for their use.

Sincerely,

Tim Rumpfelt
Environmental Specialist

Enclosure

CC: (with encl.)

Sheila Newman, Corps of Engineers Fairbanks
EPA, AK Operations

00800-30

**STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CERTIFICATE OF REASONABLE ASSURANCE**

A Certificate of Reasonable Assurance, in accordance with Section 401 of the federal Clean Water Act and the Alaska Water Quality Standards, is issued to the US Army, Public Works, Michael Meeks, Directorate, Building 3105, Fort Wainwright, Alaska 99703, for the proposed placement of fill into 27 acres of wetlands in the construction of the Modified Military Operation in Urban Terrain Facility. Said fill will be for roadways, driveways and building pads.

The proposed activity is located within section 20 and 29, T1S, R1E, Fairbanks Meridian, small arms range complex, Fort Wainwright, Alaska.

Public notice of the application for this certification was given as required by 18 AAC 15.180.

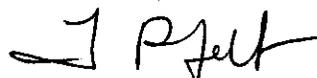
Water Quality Certification is required under Section 401 because the proposed activity will be authorized by a Corps of Engineers permit identified as Tanana River 222, reference number 4-2002-1098, and a discharge may result from the proposed activity.

Having reviewed the application and comments received in response to the public notice, the Alaska Department of Environmental Conservation certifies that there is reasonable assurance that the proposed activity, as well as any discharge which may result, will comply with applicable provisions of Section 401 of the Clean Water Act and the Alaska Water Quality Standards, 18 AAC 70, provided that the following alternative measures are adhered to.

1. Prior to fill placement, a silt fence or similar structure shall be installed on a line parallel to and within 5' of the proposed fill toe of slope within all wetland areas that contain standing water that is connected to any natural body of water or where the fill toe is within 25' of such a water body. This structure shall remain in place until the fill has been stabilized or contained in another manner. Silt fences will not have to be installed if the construction activity is occurring during the time that the water is in a frozen state.

Date

1/29/04



Tim Rumfelt
Environmental Specialist

MODIFIED MOUT AND RANGE UPGRADE FACILITY FORT WAINWRIGHT, ALASKA

VICINITY MAP



LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

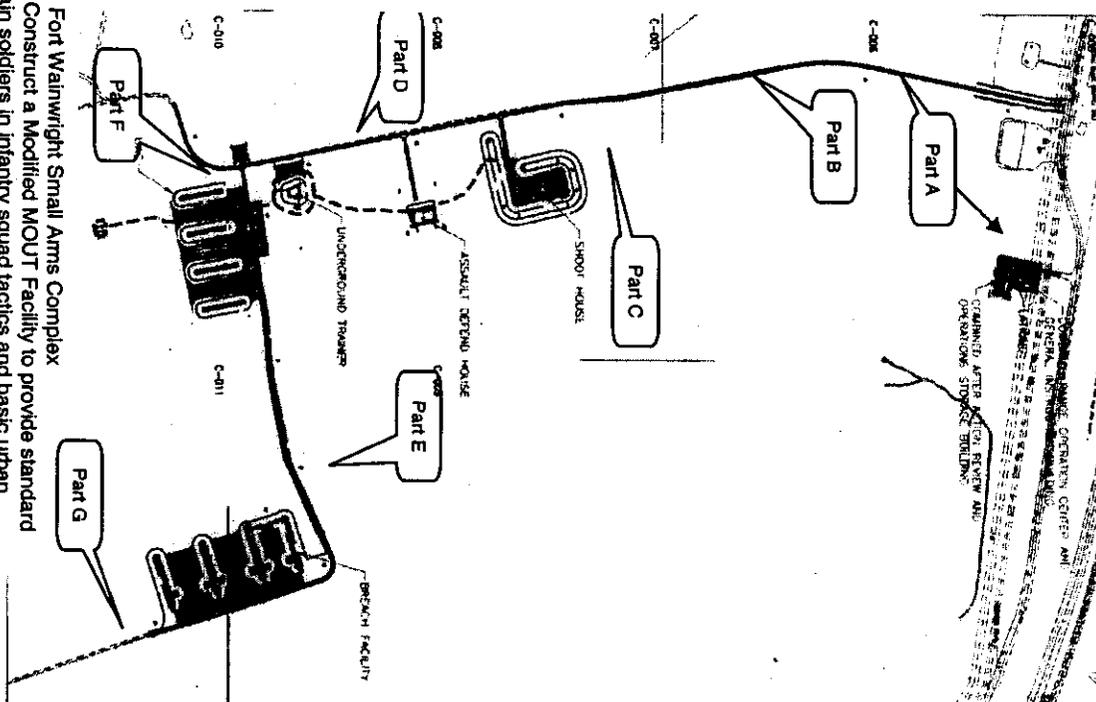
LOCATION MAP



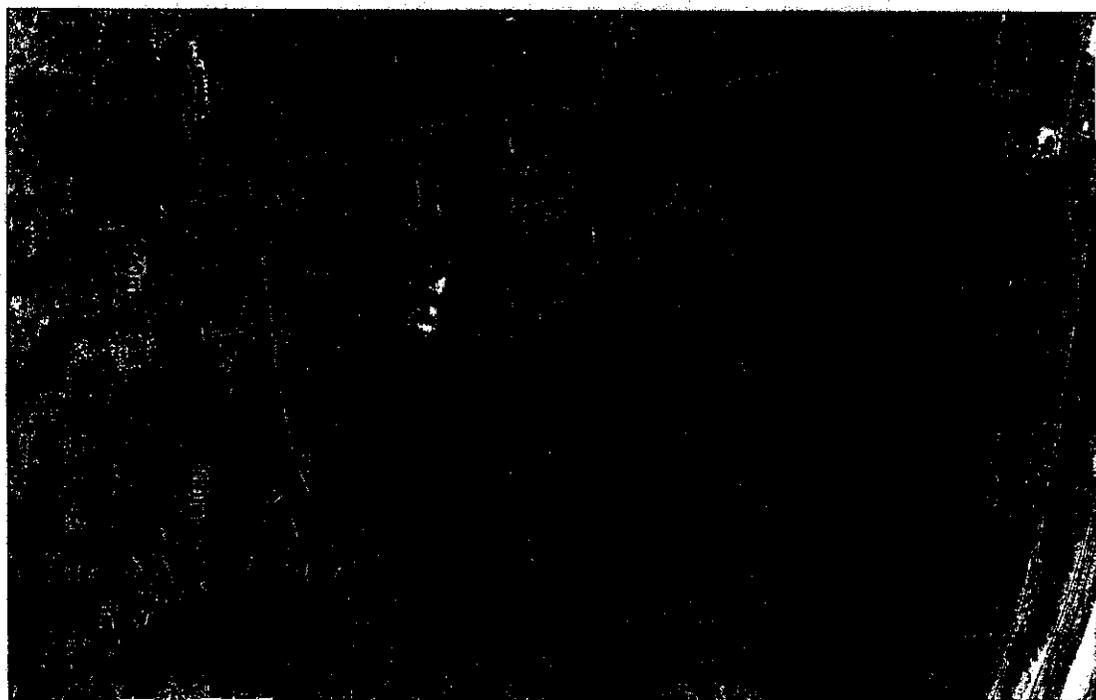
00800-32

4-2003-1078 Tanana River 2003
 Page 1 of 32
 12/15/2003

Modified MOUT Facility - Site Plan



LOCATION: Fort Malmwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian



4-2002-1098 TANANA RIVER 222

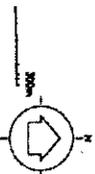
Page 2 of 32

12/15/2003

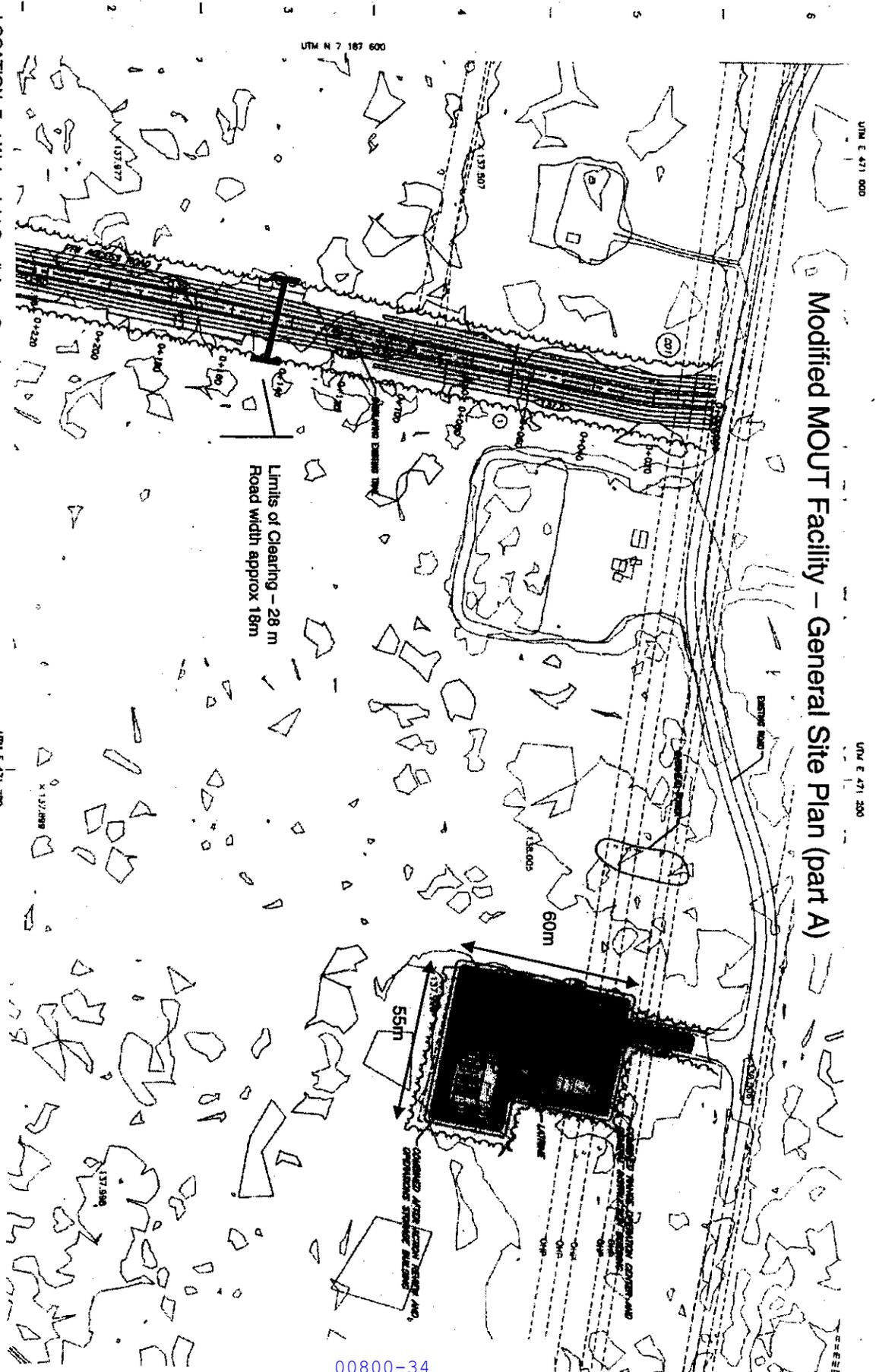
1/9

GRAPHIC SCALE 1:3000

SCALE 1:3000



Modified MOUT Facility - General Site Plan (part A)



LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

MATCH LINE SEE SHEET No. C-006

GRAPHIC SCALE 1:500
 0 10m 20m 30m 40m 50m



00800-34

4-2002-1098

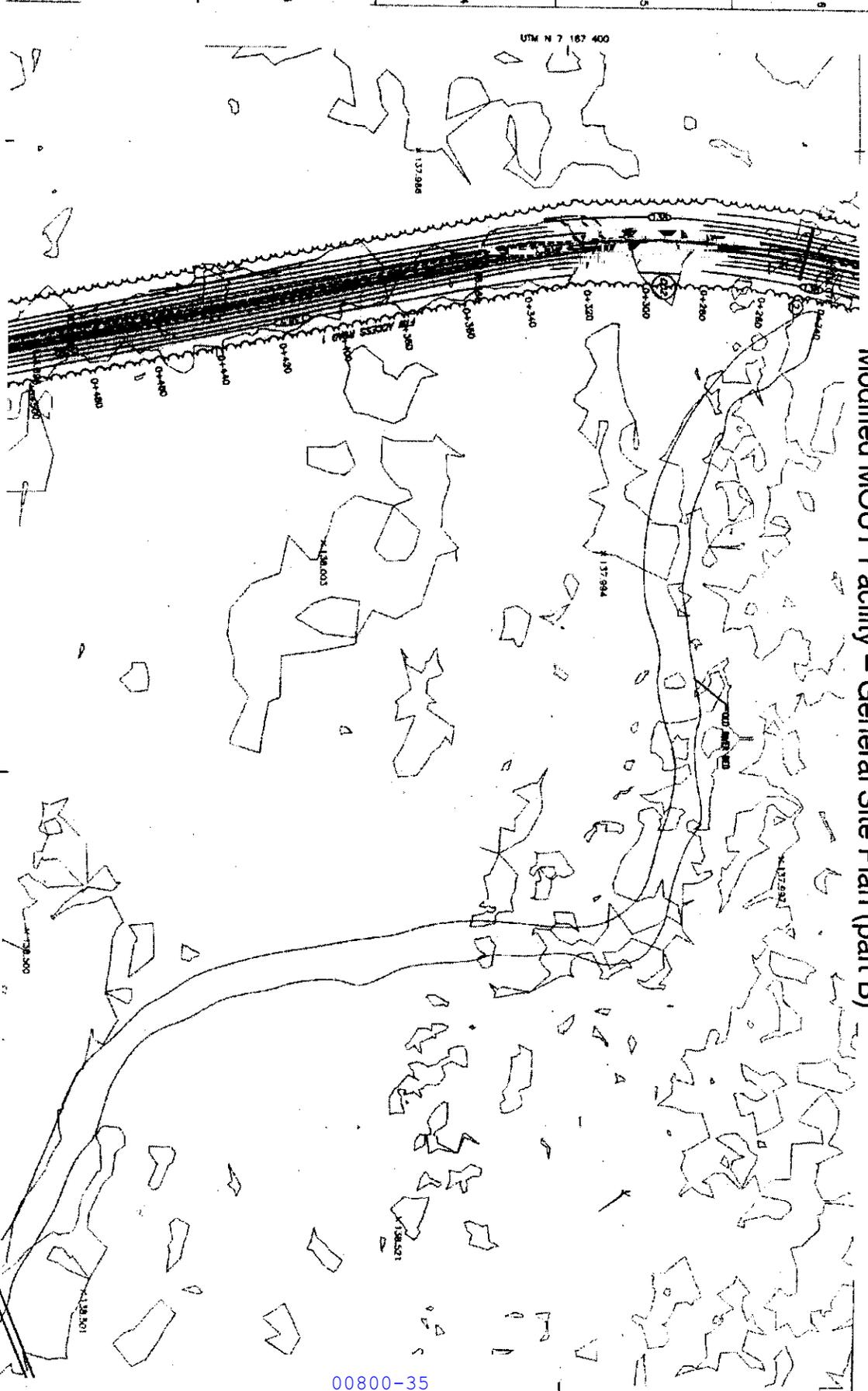
TANANA RIVER 222

Page 3 of 32

12/15/2003

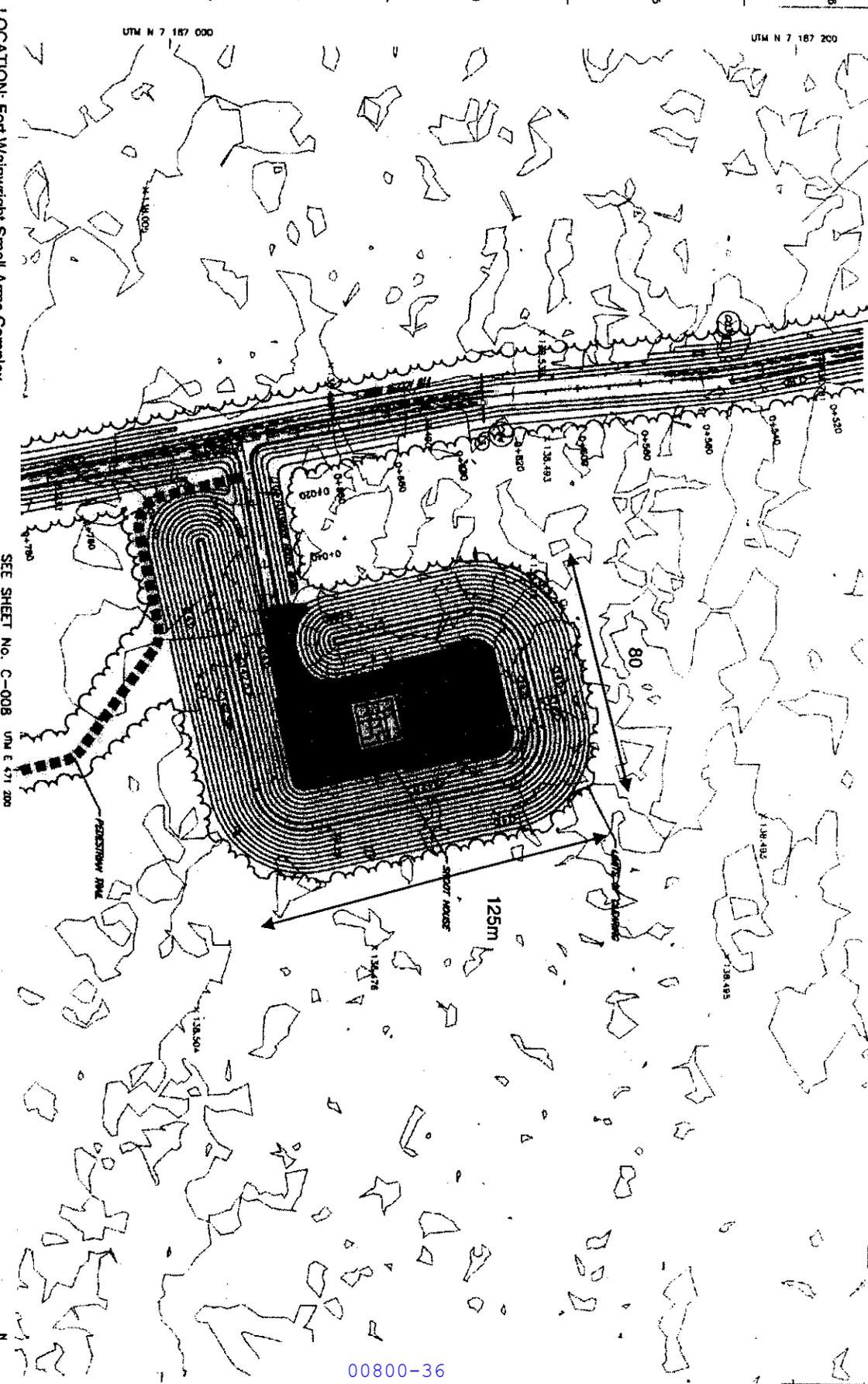
Modified MOUT Facility - General Site Plan (part B)

LOCATION: Fort Wainwright Small Arms Complex
 PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
 NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian



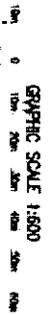
4-2002-1098 Tanana River 222 Page 4 of 32 12/15/2003

Modified MOUT Facility - General Site Plan (part C)



LOCATION: Fort Wainwright Small Arms Complex
 PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
 NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

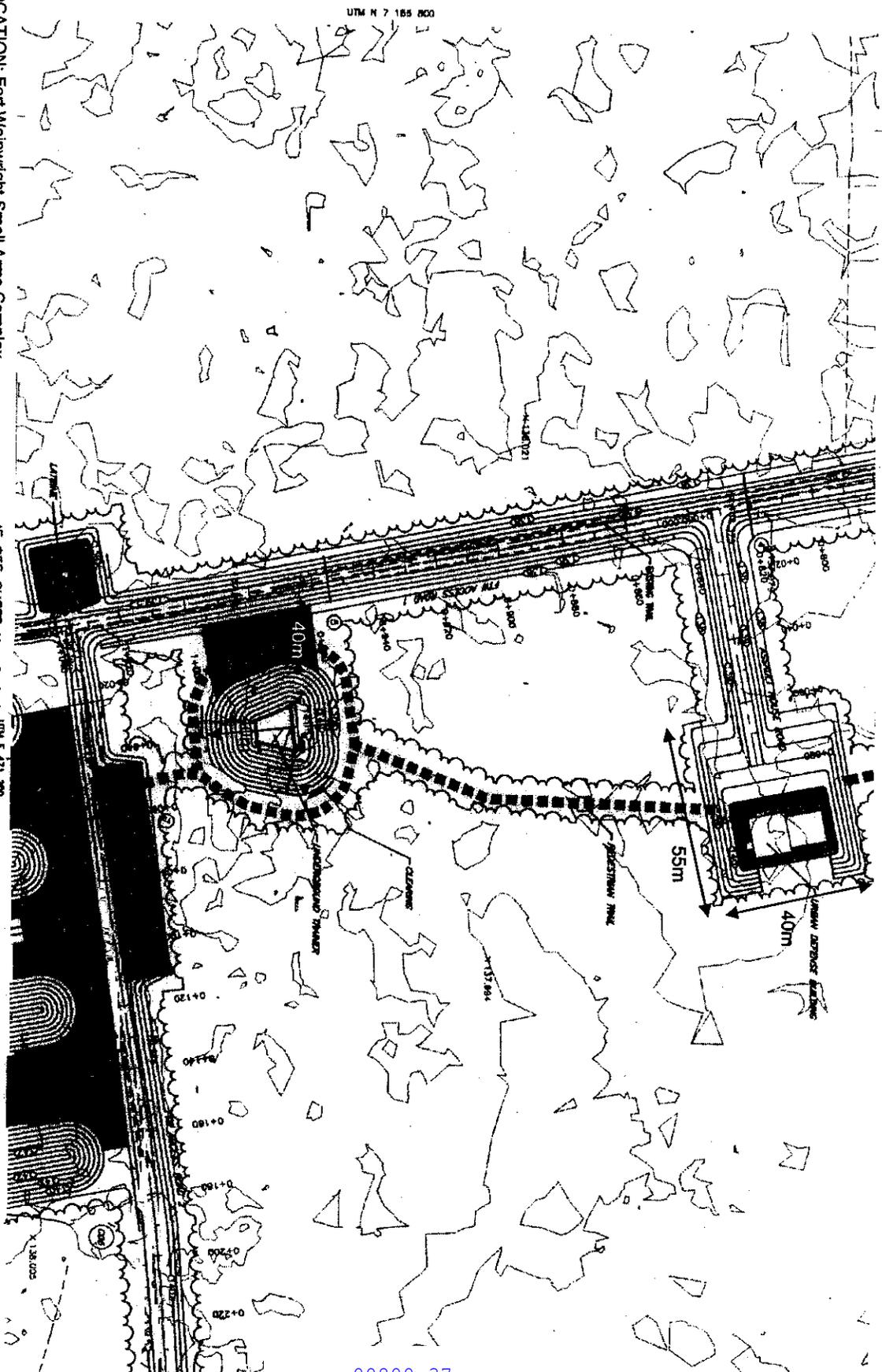
SEE SHEET NO. C-008 UTM E 471 200



00800-36

4-2002-1098 Tanana River 222 12/15/2003

Modified MOUT Facility - General Site Plan (part D)



LOCATION: Fort Wainwright Small Arms Complex

PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.

NEAREST WATERBODY: Tanana River
Fairbanks North Star Borough
Section 20 & 29 T1S, R1E, Fairbanks Meridian

SEE SHEET NO. C-010 UTM E 471 200

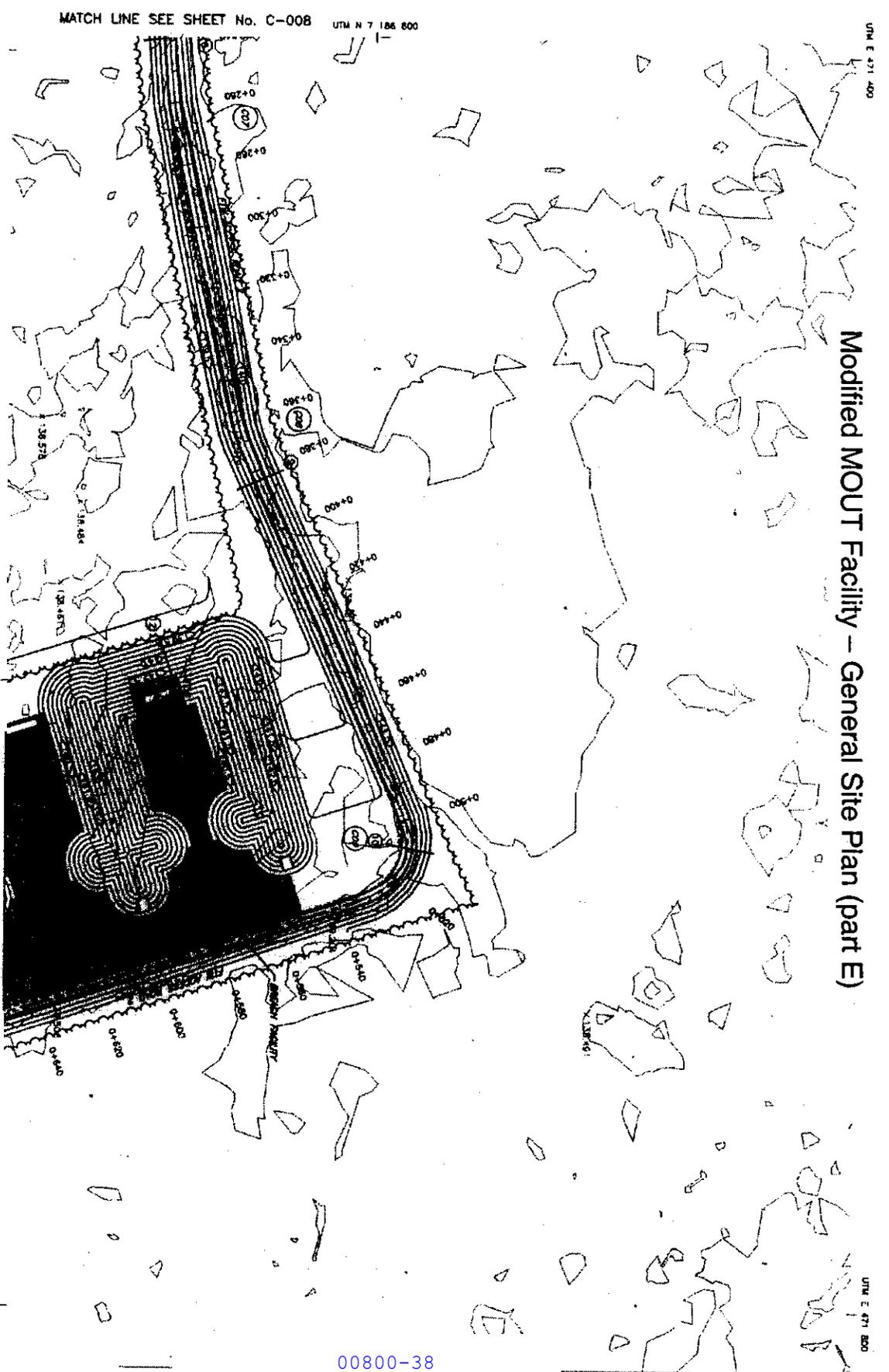
Page 6 of 32

GRAPHIC SCALE 1:800



4-2002-1096 Tanana June 22 12/15/2003

Modified MOUT Facility - General Site Plan (part E)



LOCATION: Fort Wainwright Small Arms Complex

PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.

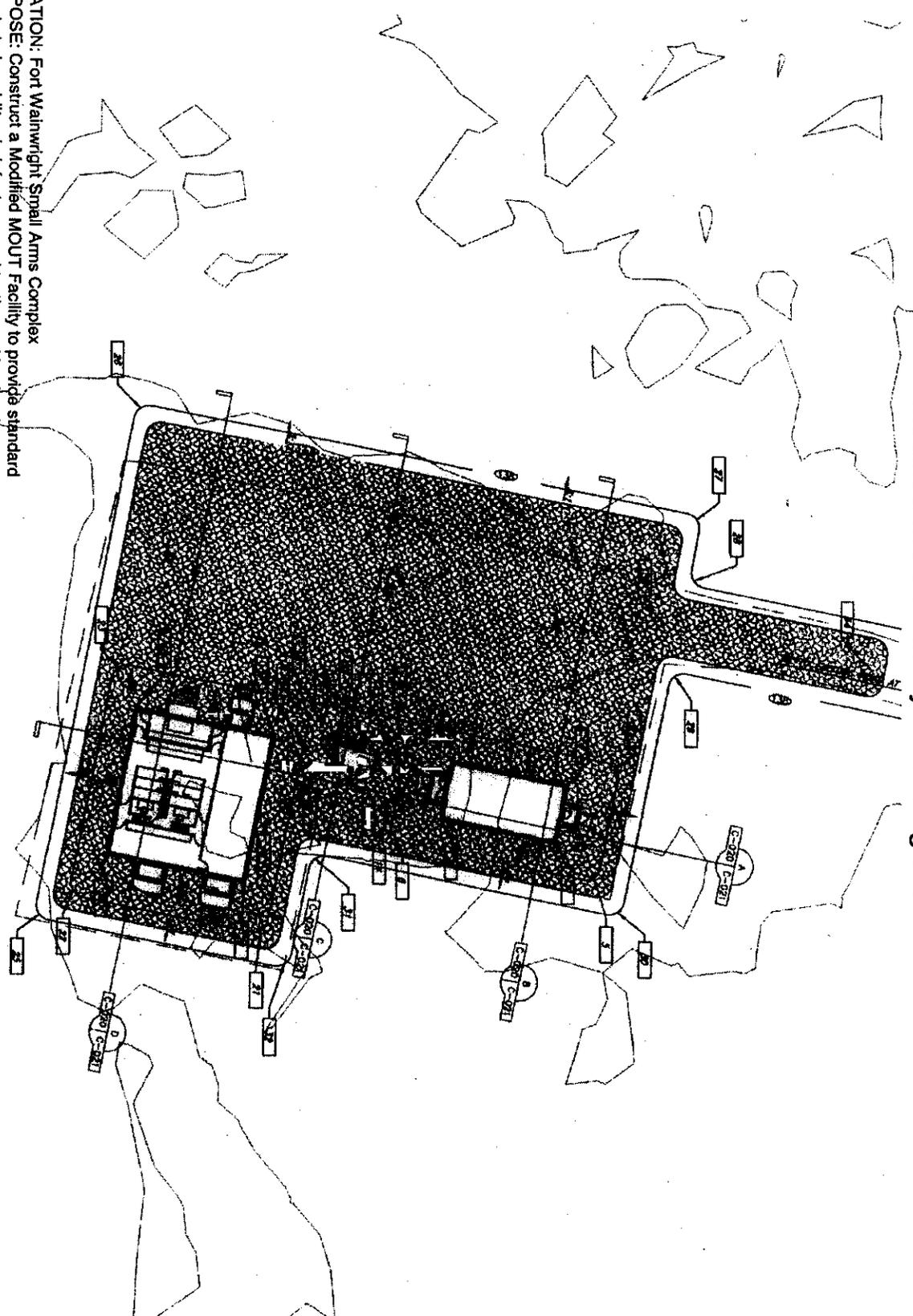
NEAREST WATERBODY: Tanana River
Fairbanks North Star Borough
Section 20 & 29 T1S, R1E, Fairbanks Meridian

4-2002-1598 *Tanana River 222* *12/15/2003*

GRAPHIC SCALE 1:800



Modified MOUT Facility – Building site



LOCATION: Fort Wainwright Small Arms Complex
 PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
 NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

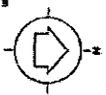
**COMBINED ROO AND GENERAL INSTRUCTION BUILDING
 LATRINE, AND COMBINED AAR AND
 OPERATIONS BUILDING**

SCALE: 1:200

Page 10 of 32

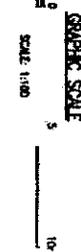
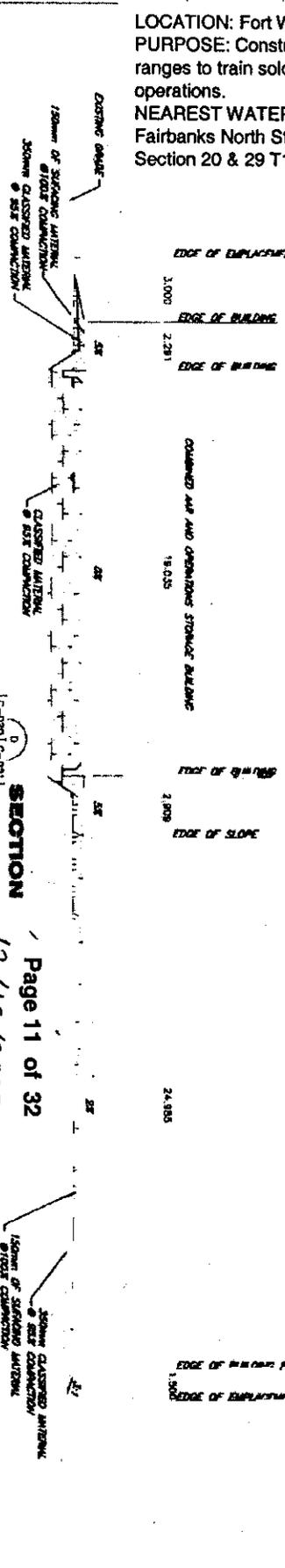
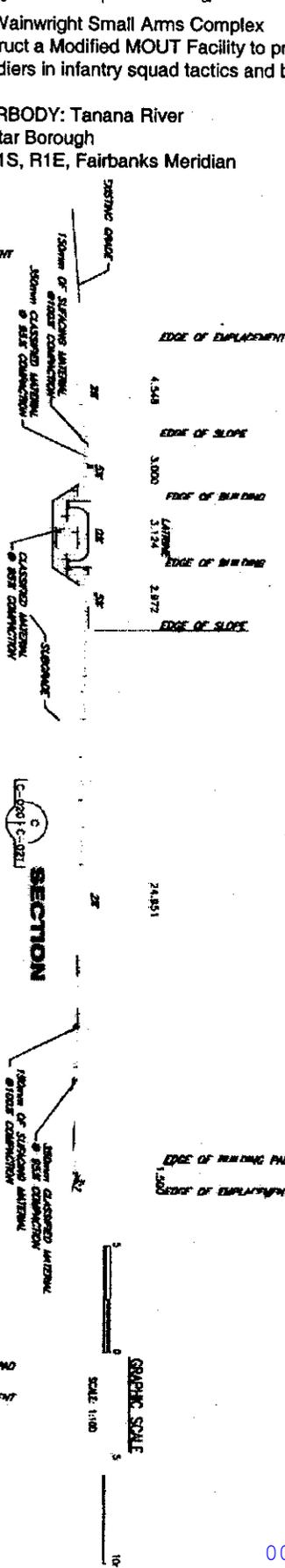
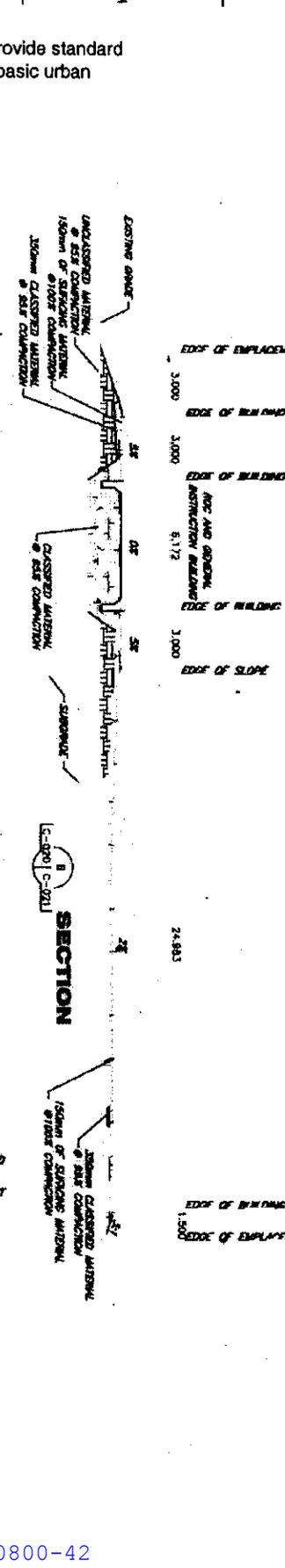
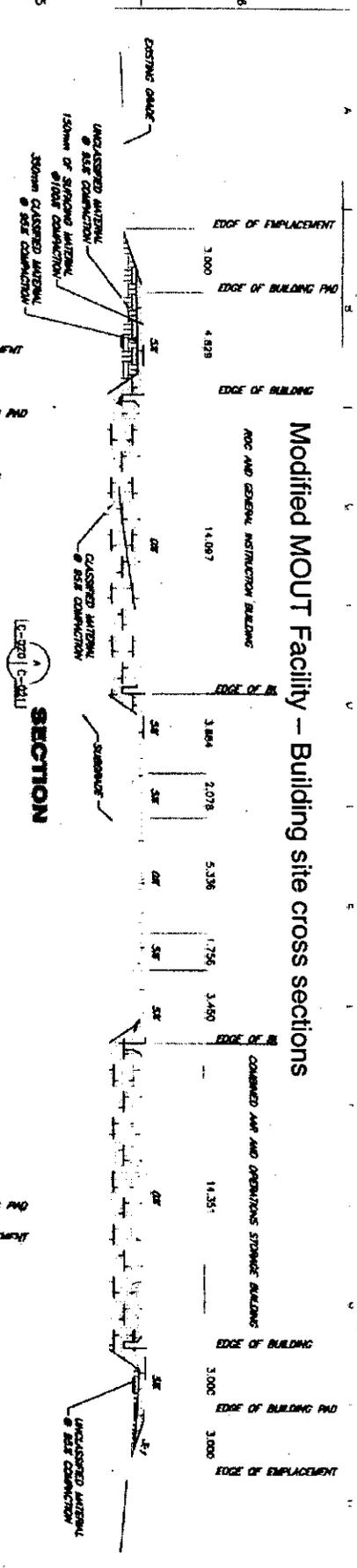
4-8002-1098 Tanana River 102 12/15/2003

GRAPHIC SCALE
 SCALE: 1:200



LOCATION: Fort Wainwright Small Arms Complex
 PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
 NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

Modified MOUT Facility - Building site cross sections



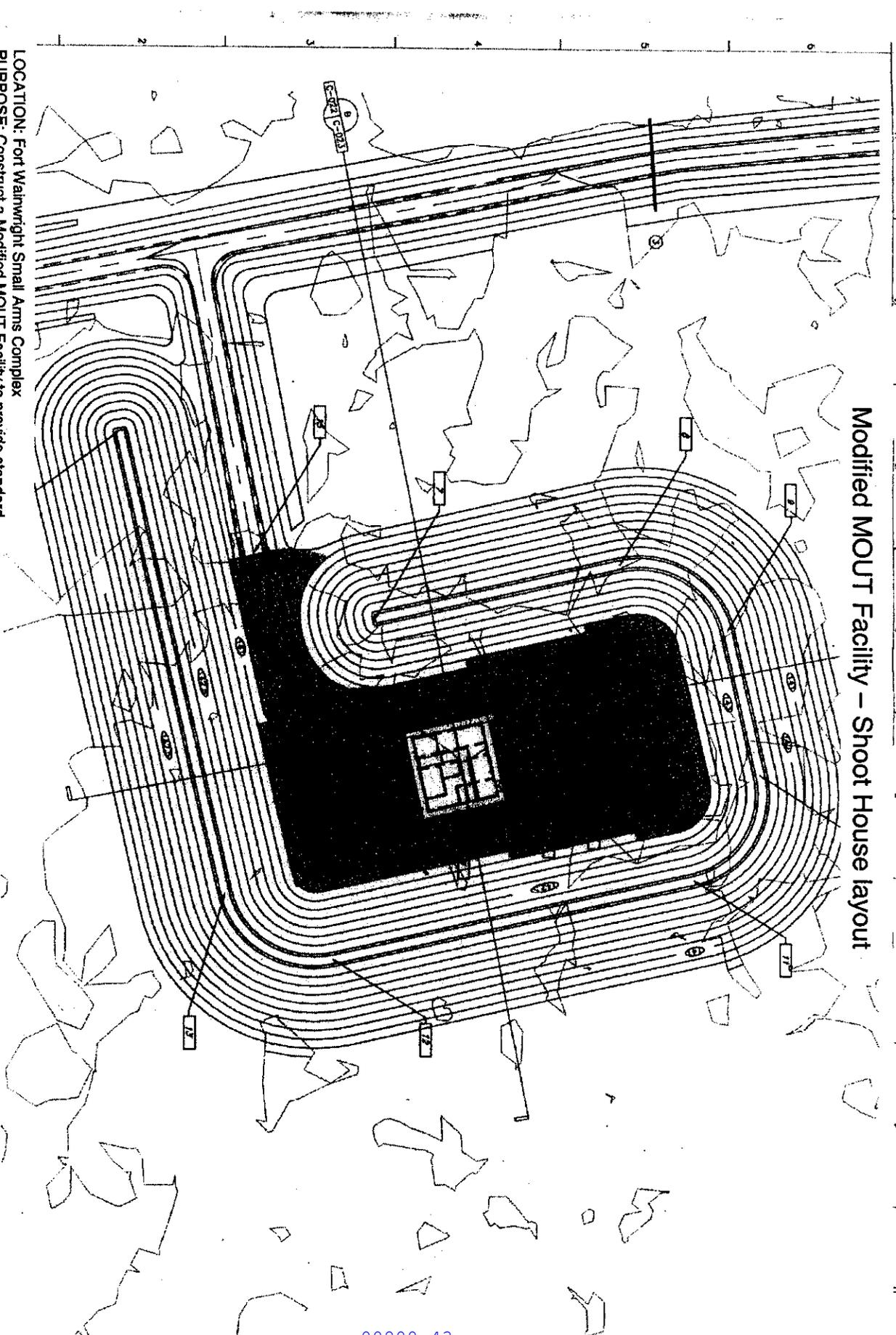
4-2003-1098 Tanana River R22
 Page 11 of 32
 12/15/2003

Modified MOUT Facility – Shoot House layout

LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.

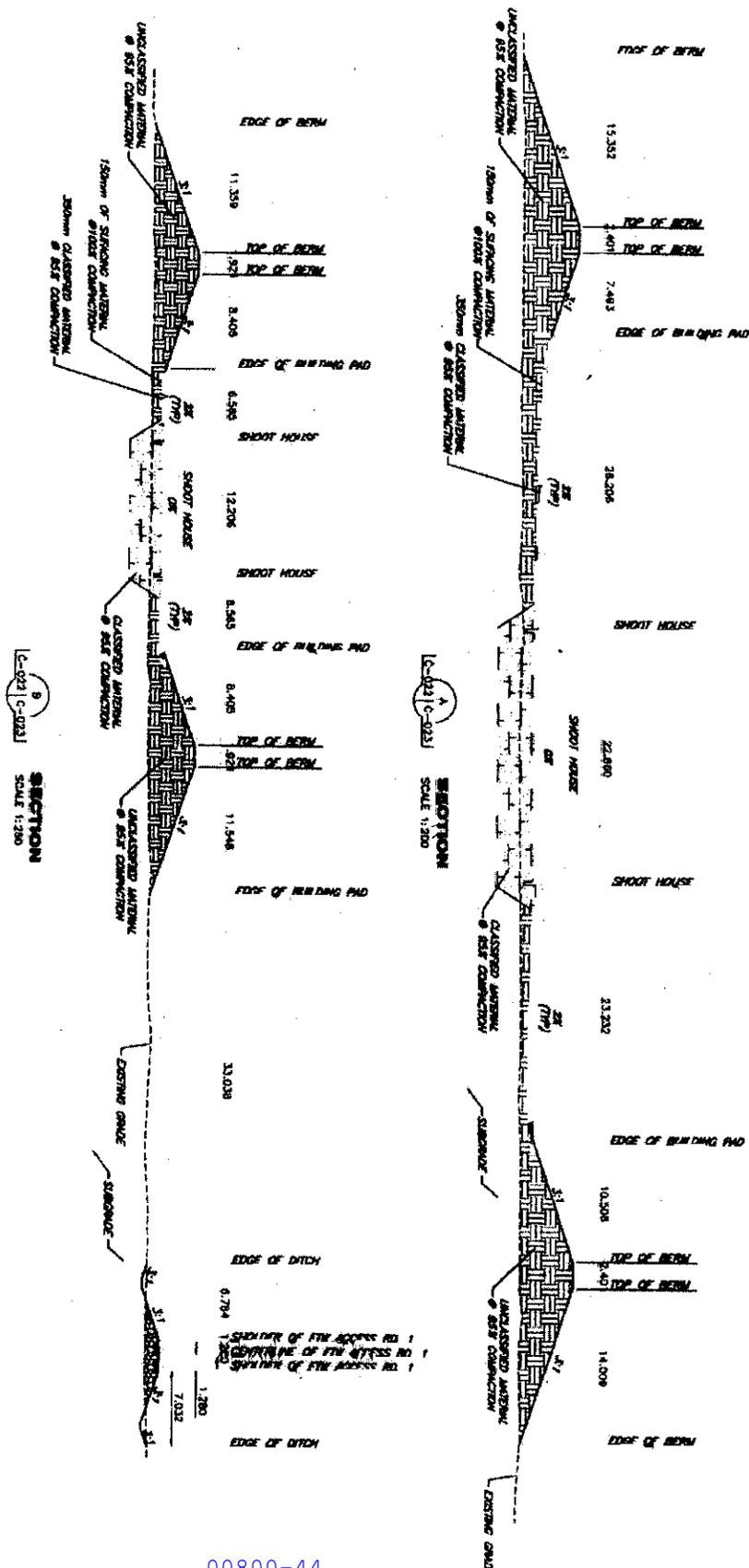
NEAREST WATERBODY: Tanana River
Fairbanks North Star Borough
Section 20 & 29 T1S, R1E, Fairbanks Meridian

SHOOT HOUSE
SCALE: 1:500



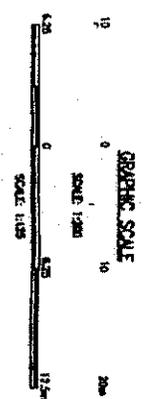
4-2002-1098 Tanana River 222
12/15/2003

Modified MOUT Facility – Shoot House – Fill Cross Sections

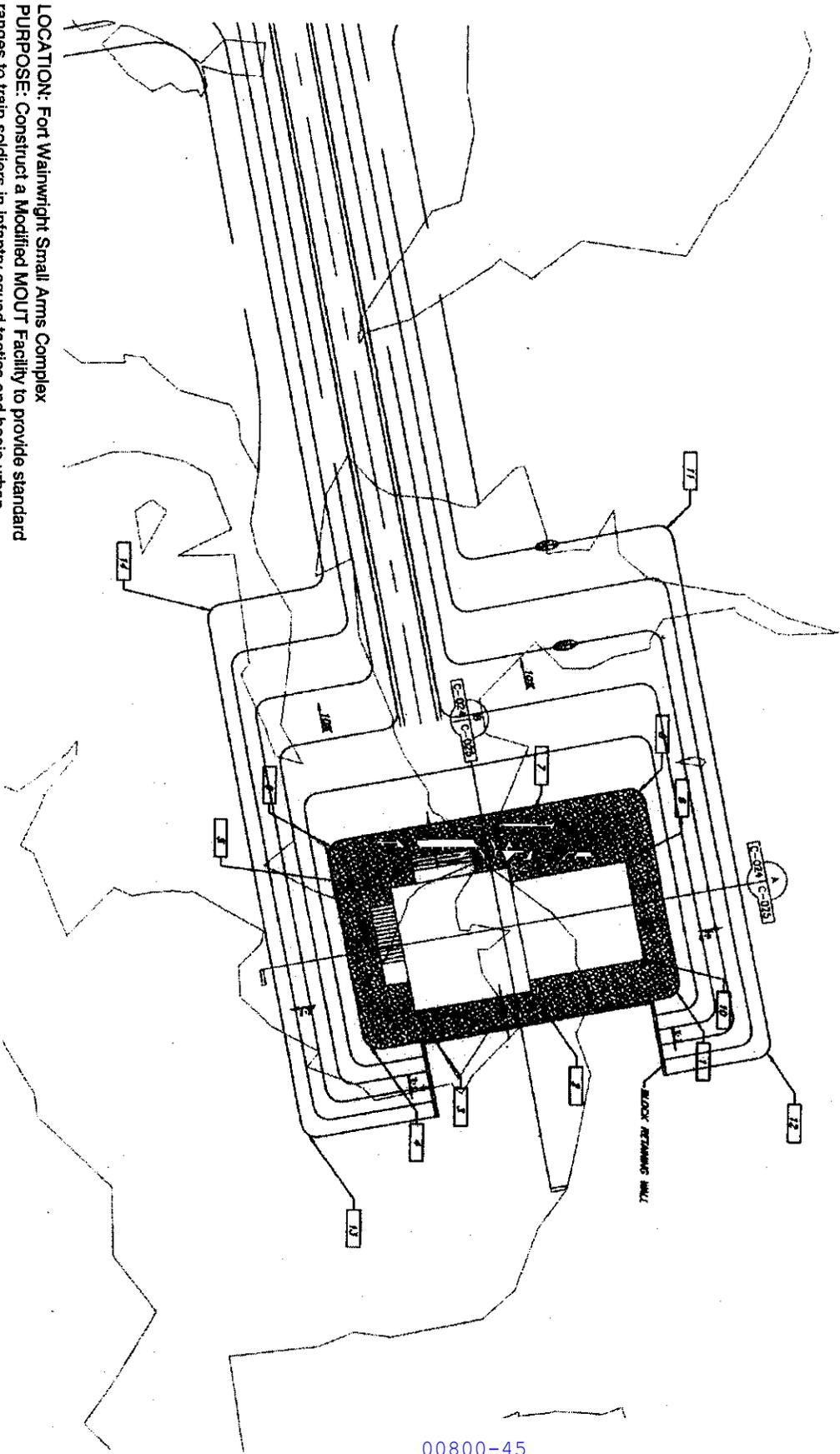


LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

4-2002-1098
 Tanana River 202
 12/15/2003

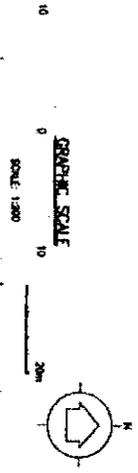


Modified MOUT Facility – Urban Defense Site Plan

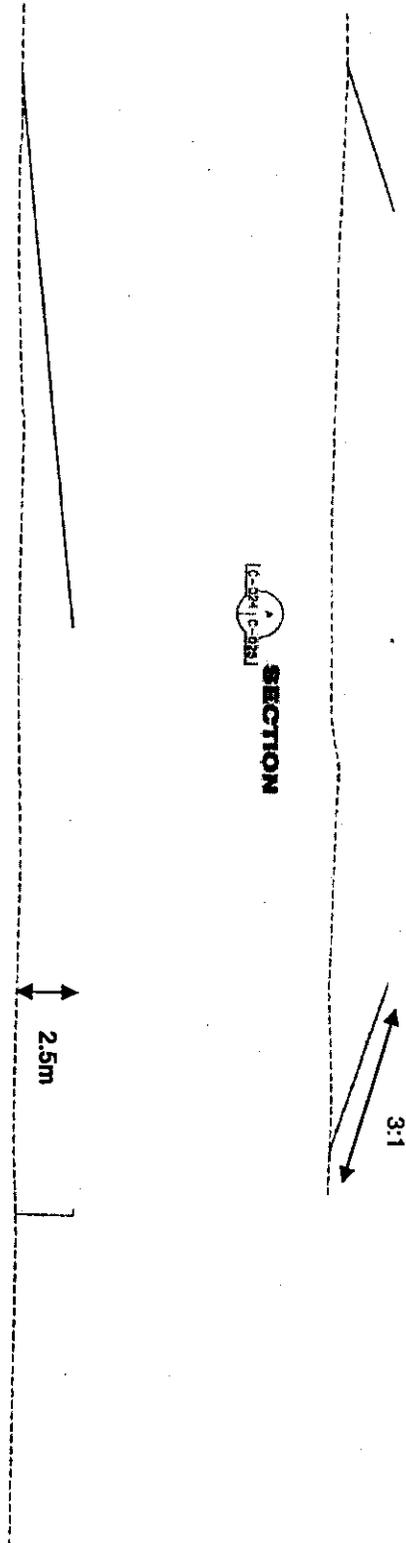


LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

4-2002-1098 Tanana River 222
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 12/15/2003



Modified MOUT Facility – Urban Defense – Fill Cross sections



SECTION

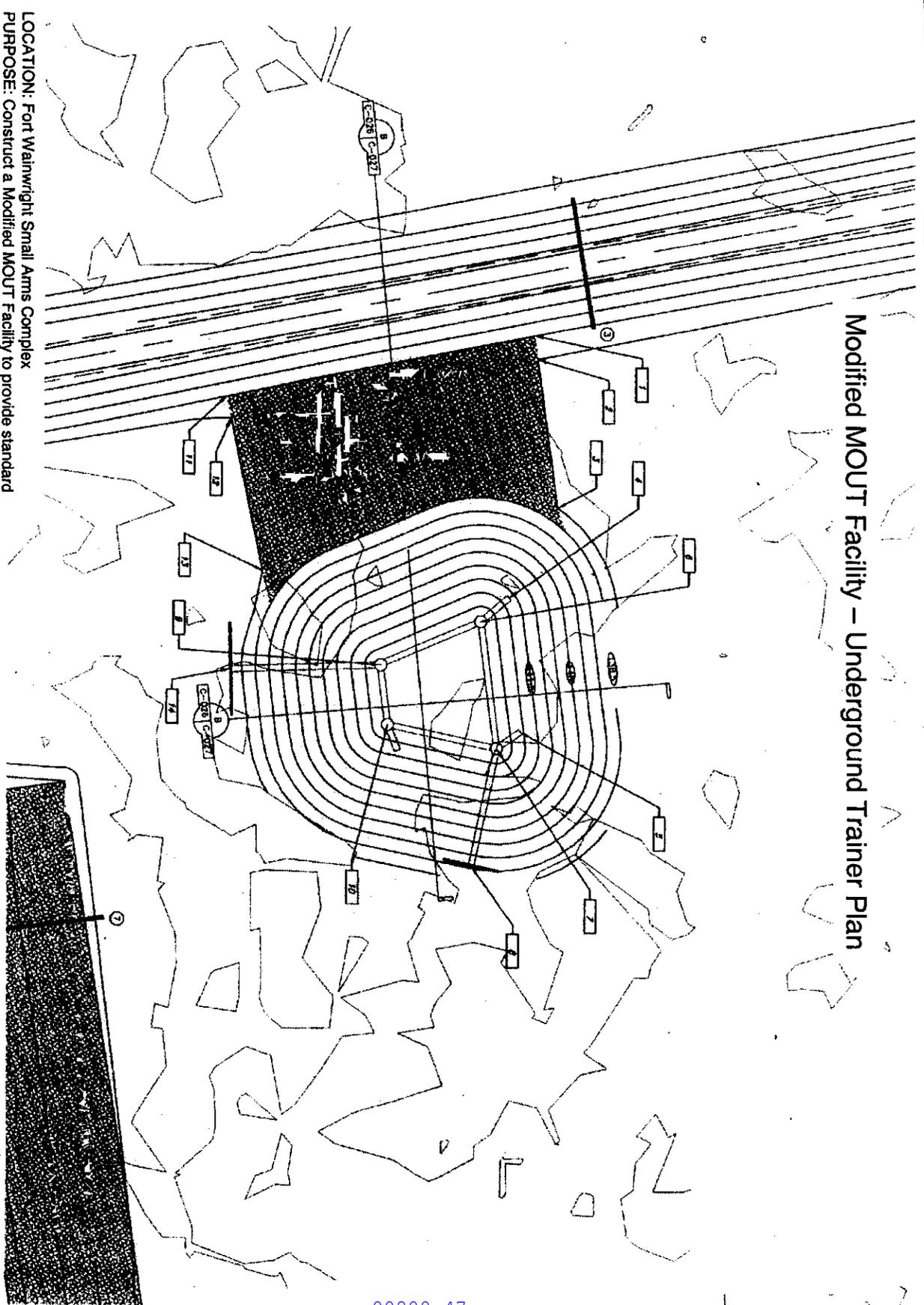
SECTION

LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

4-2002-1098 Tanana River 222
 Page 15 of 32
 12/15/2003



Modified MOUT Facility - Underground Trainer Plan

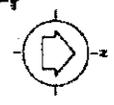


LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

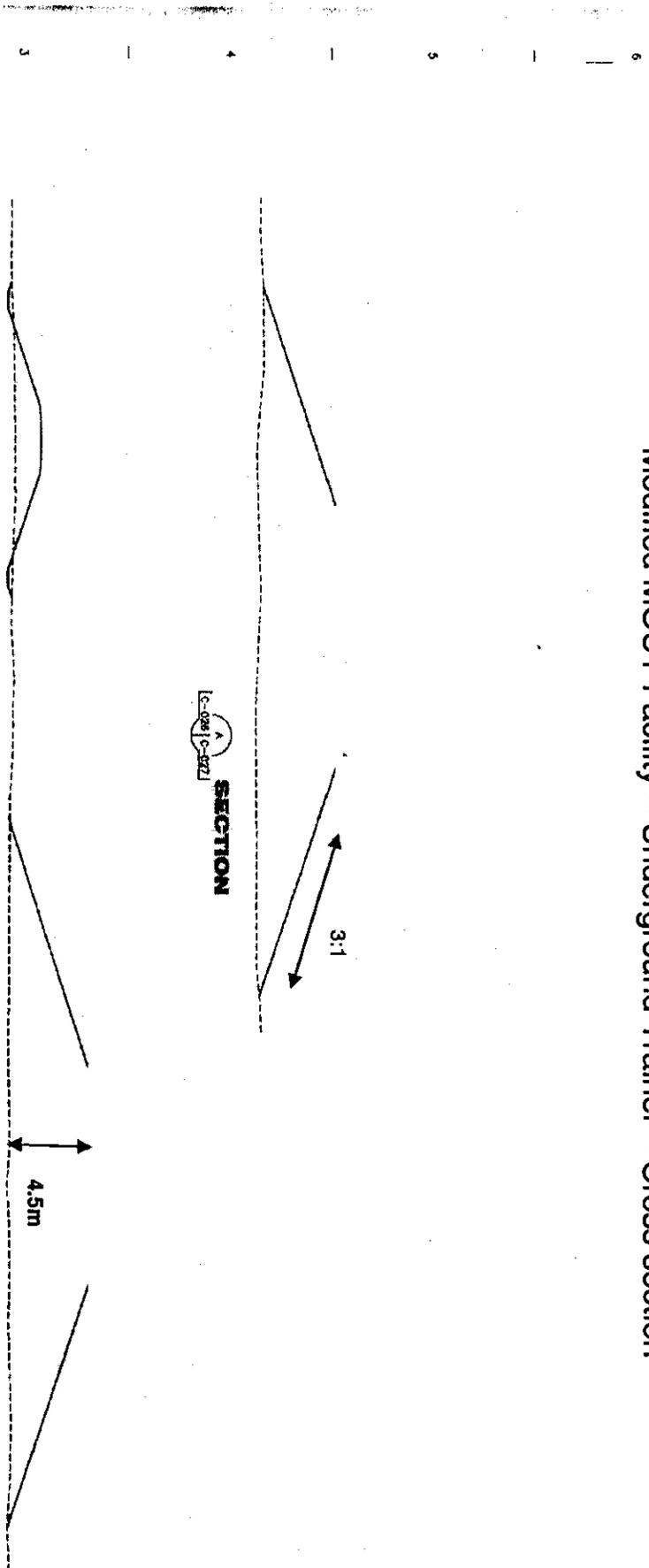
4-2002-109F Tanana River 222

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 12/15/2003

GRAPHIC SCALE
 0 10 20
 SCALE: 1:2000



Modified MOUT Facility -- Underground Trainer -- Cross section



LOCATION: Fort Wainwright Small Arms Complex
 PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
 NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

4-2002-1098 Tanana River All 12/15/2003

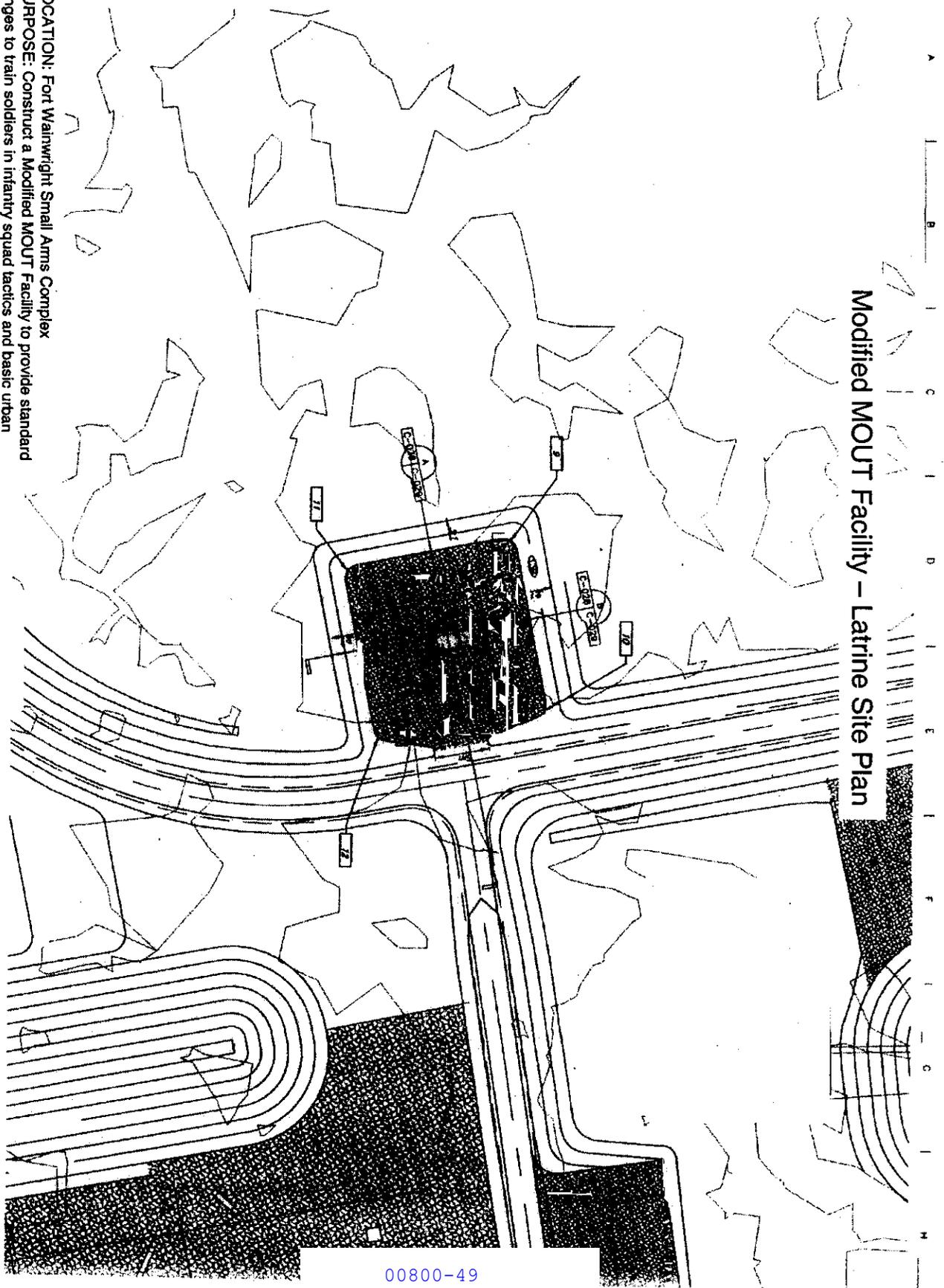
Page 17 of 32

4:30

GRAPHIC SCALE
SCALE: 1:125

12.5m

Modified MOUT Facility - Latrine Site Plan



LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

SCALE: 1:200

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4-2002-109F

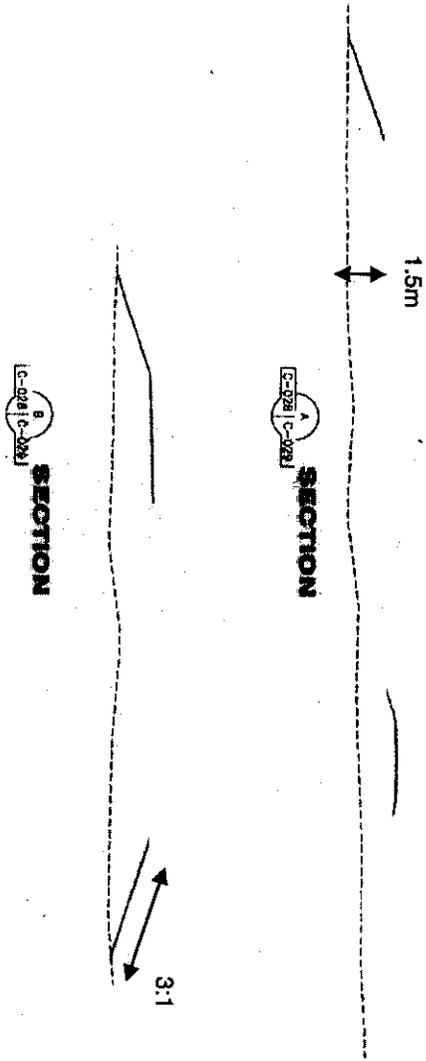
Tanana River 222

12/15/2003

GRAPHIC SCALE

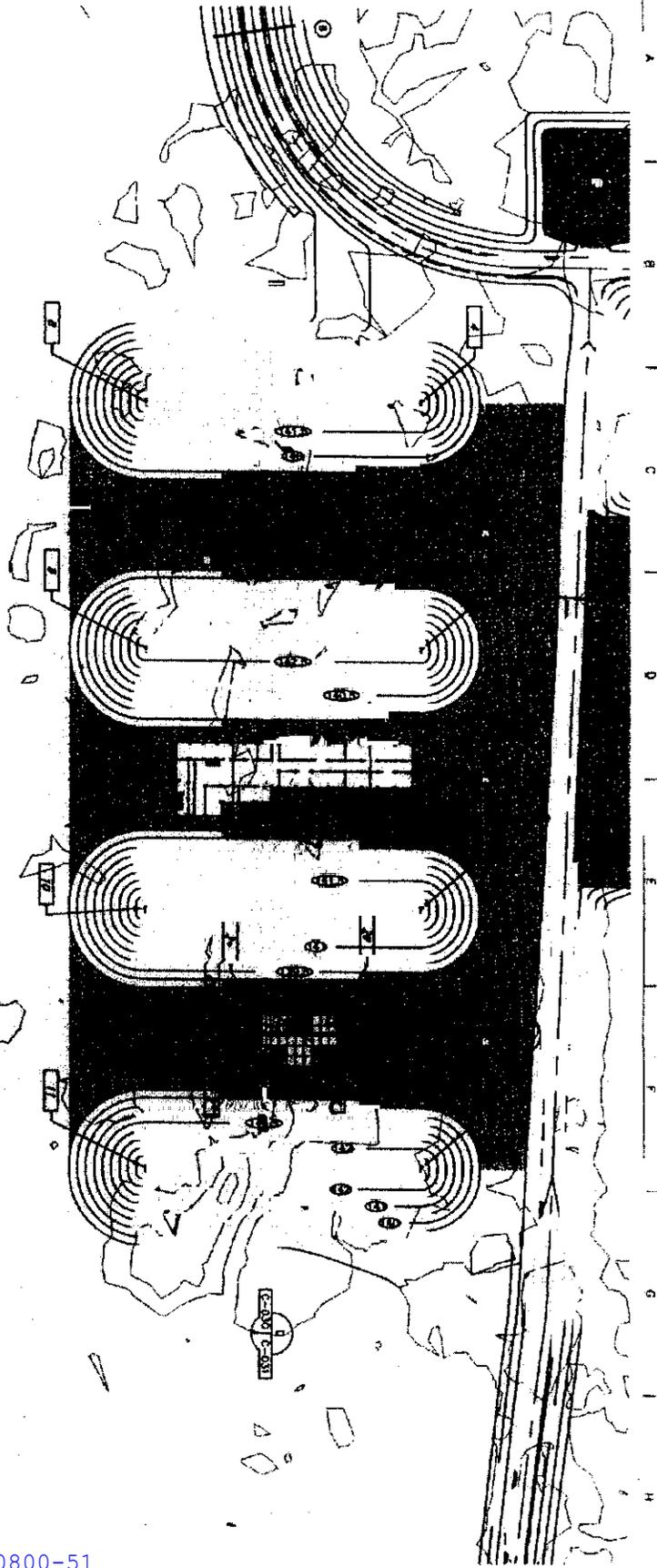


Modified MOUT Facility – Latrine Cross Section



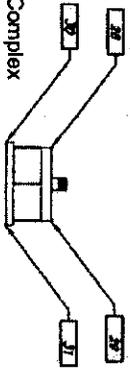
LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

4-2002-1098 Tanana River 200 12/15/2003



Modified MOUT Facility – Urban Assault Course Site Plan

LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian



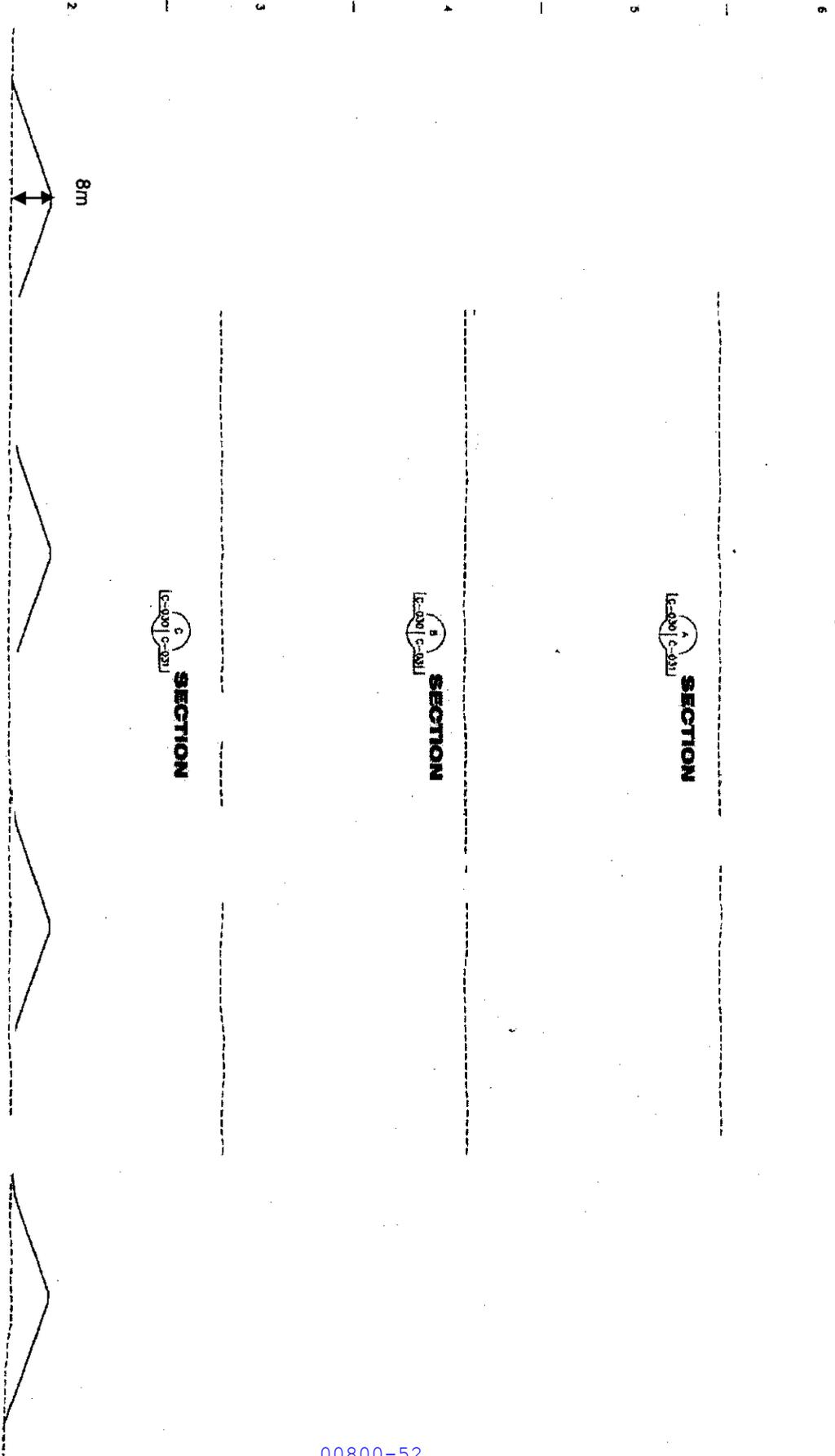
Page 20 of 32

Tanana River 212
12/15/2003

GRAPHIC SCALE
SCALE 1:400



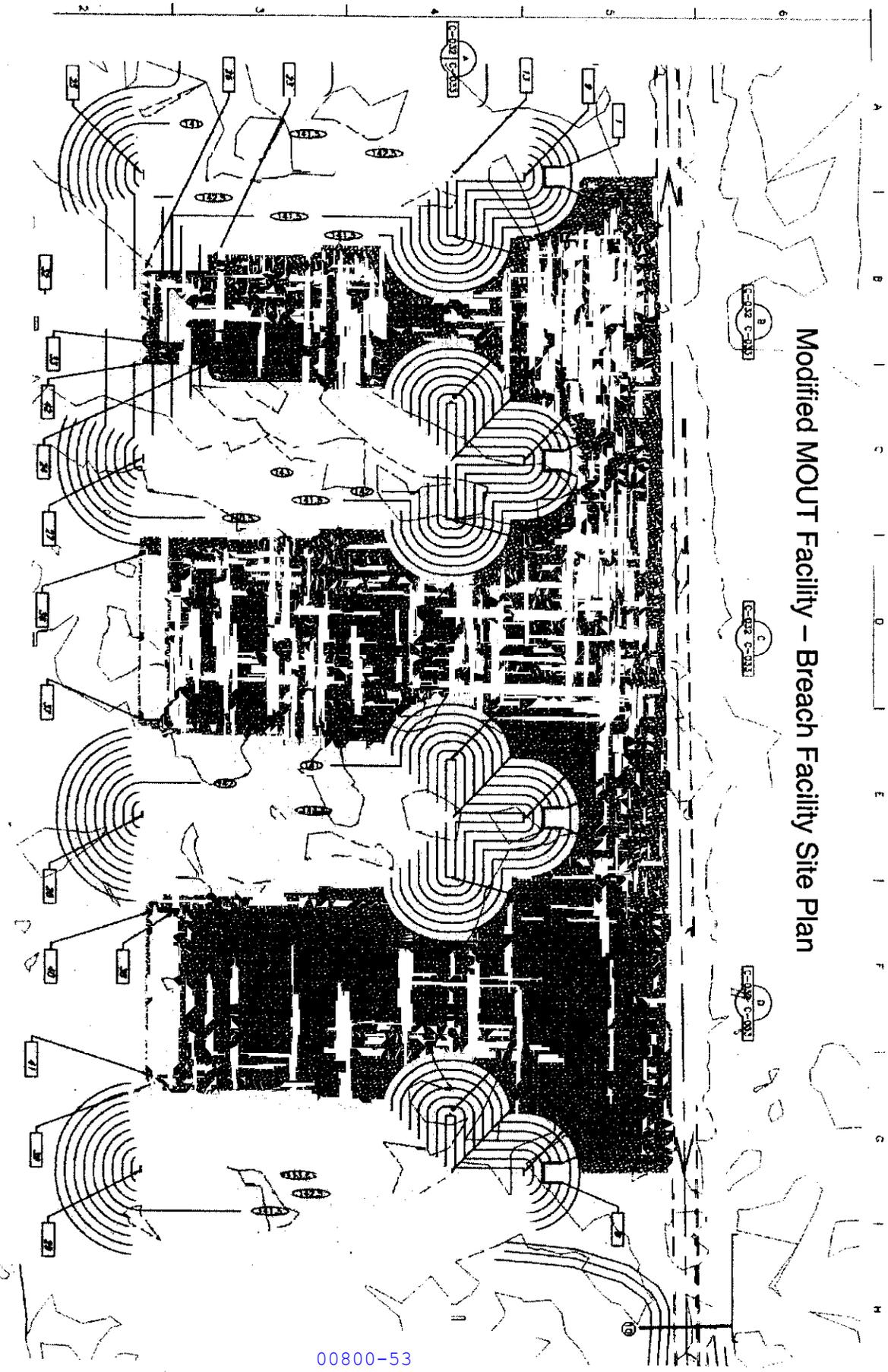
Modified MOUT Facility – Urban Assault Cross Sections



LOCATION: Fort Wainwright Small Arms Complex
 PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
 NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

4-2002-1098 Tanana River 2002 12/15/2003

Modified MOUT Facility – Breach Facility Site Plan



LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

00800-53

4-2002-1098

Tanner River 022

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12/15/2003

GRAPHIC SCALE
SCALE: 1:200

30m



Modified MOUT Facility – Breach Facility Cross Sections

1 LOCATION: Fort Wainwright Small Arms Complex
 2 PURPOSE: Construct a Modified MOUT Facility to provide standard
 3 ranges to train soldiers in Infantry squad tactics and basic urban
 4 operations.
 5 NEAREST WATERBODY: Tanana River
 6 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

 SECTION

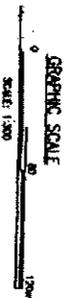
 SECTION

 SECTION

 SECTION

15m

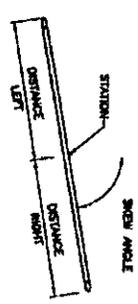
4-2002-1098 Tanana River 222
 Page 23 of 32
 12/15/2003



CUVERT No.	PLAN SHEET REFERENCE	QUANT. PROBE SHEET REFERENCE	THREAT/ROAD NAME	STATION	SIZE (mm)	LENGTH (ft)	SLOPE (%)	SHEAR ANGLE	INVERT LEFT (ft)	OUTLET RIGHT (ft)	LEFT INVERT	RIGHT INVERT	WIDTH	WALL THICKNESS (mm)
1	C-005	C-041	FTW ACCESS ROAD 1	0+000.00	40	14.72	1.00	87°00'	7.15	7.57	131.48	132.58	0.9	1.30
2	C-004	C-041	FTW ACCESS ROAD 1	0+008.12	80	14.72	1.00	87°00'	7.16	7.58	131.74	132.84	0.9	1.30
3	C-007	C-041	FTW ACCESS ROAD 1	0+016.24	40	14.84	1.00	87°00'	7.18	7.60	131.90	133.00	0.9	1.30
4	C-008	C-041	FTW ACCESS ROAD 1	0+020.48	40	15.03	1.00	87°00'	7.19	7.61	132.06	133.16	0.9	1.30
5	C-009	C-041	FTW ACCESS ROAD 1	0+024.72	40	14.17	1.00	87°00'	7.12	7.54	132.22	133.32	0.9	1.30
6	C-010	C-042	FTW ACCESS ROAD 2	1+118.172	40	14.88	1.00	87°00'	7.16	7.58	132.38	133.48	0.9	1.30
7	C-008	C-042	FTW ACCESS ROAD 2	0+020.152	40	12.26	1.00	86°00'	6.26	6.68	130.30	131.40	0.9	1.30
8	C-009	C-042	FTW ACCESS ROAD 2	0+028.27	40	14.72	1.00	86°00'	7.18	7.60	130.76	131.86	0.9	1.30
9	C-009	C-042	FTW ACCESS ROAD 2	0+030.136	40	14.75	1.00	87°00'	7.18	7.60	130.92	132.02	0.9	1.30
10	C-009	C-042	FTW ACCESS ROAD 2	0+030.296	40	13.50	1.00	87°00'	6.41	6.79	130.86	131.96	0.9	1.30
11	C-011	C-042	FTW ACCESS ROAD 2	0+032.992	40	14.72	1.00	87°00'	7.13	7.59	130.58	131.68	0.9	1.30

FTW CULVERT SCHEDULE

TERMINUS AND SECONDARY THREAT SERVICE ROADS



UP STATION



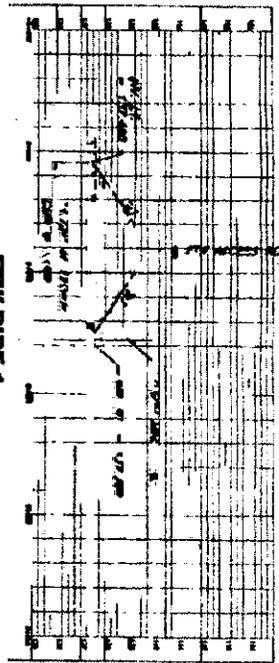
TYPICAL STRAIGHT PIPE

TYPICAL CULVERT PLAN AND PROFILE
NOT TO SCALE

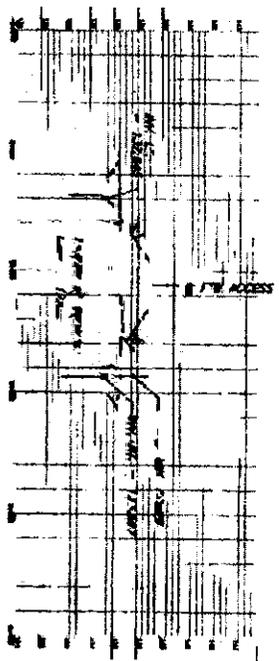
LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

4-2002-1098 Tanana River 2002
 12/15/2003

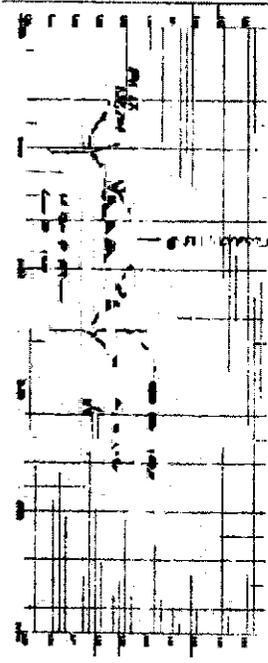
Modified MOUT Facility - Culvert Cross Sections (1-6)



FTW PIPE 1



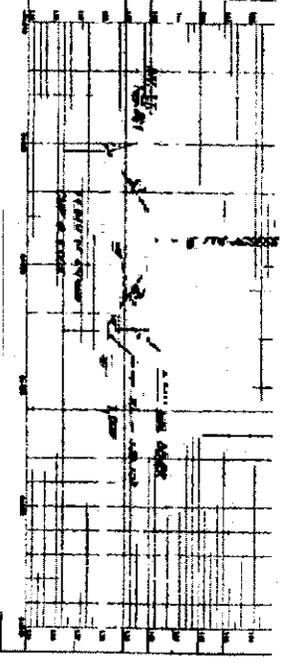
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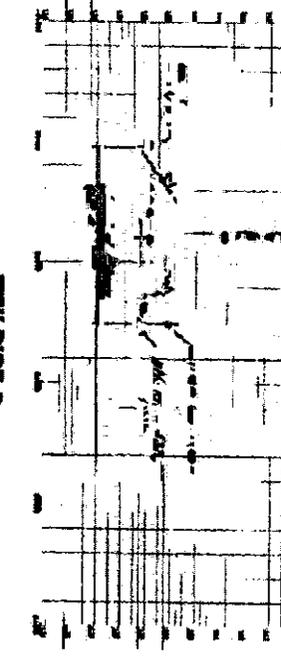
FTW PIPE 2



FTW PIPE 5



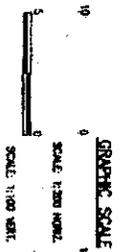
FTW PIPE 3



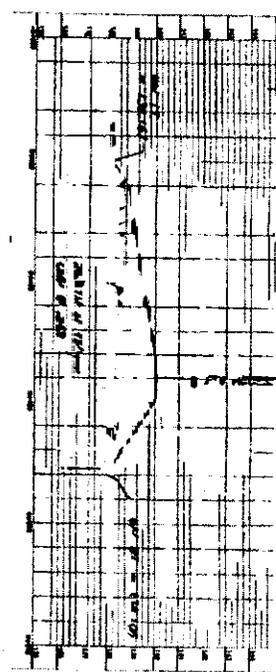
LOCATION: Fort Wainwright Small Arms Complex
 PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
 NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

4-2002-1098

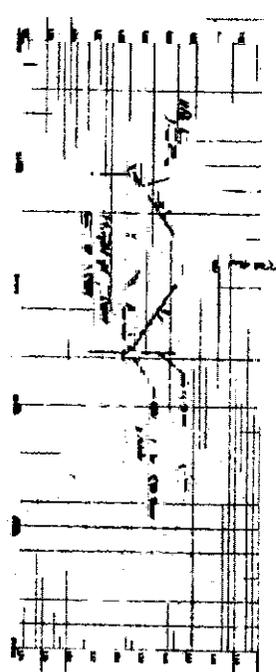
Page 25 of 32
Tanana River 222
12/15/2003



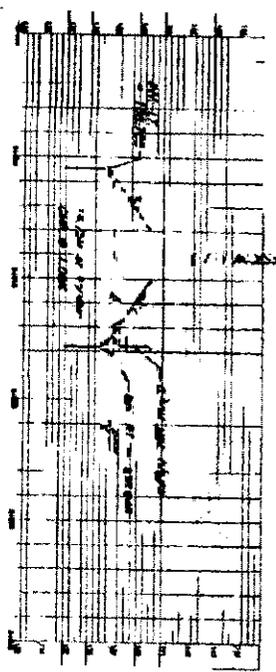
Modified MOUT Facility - Culvert Cross Sections (7-11)



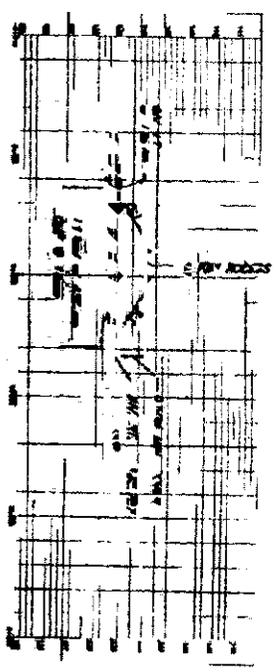
FTW PIPE 7



FTW PIPE 8



FTW PIPE 9



FTW PIPE 10



FTW PIPE 11

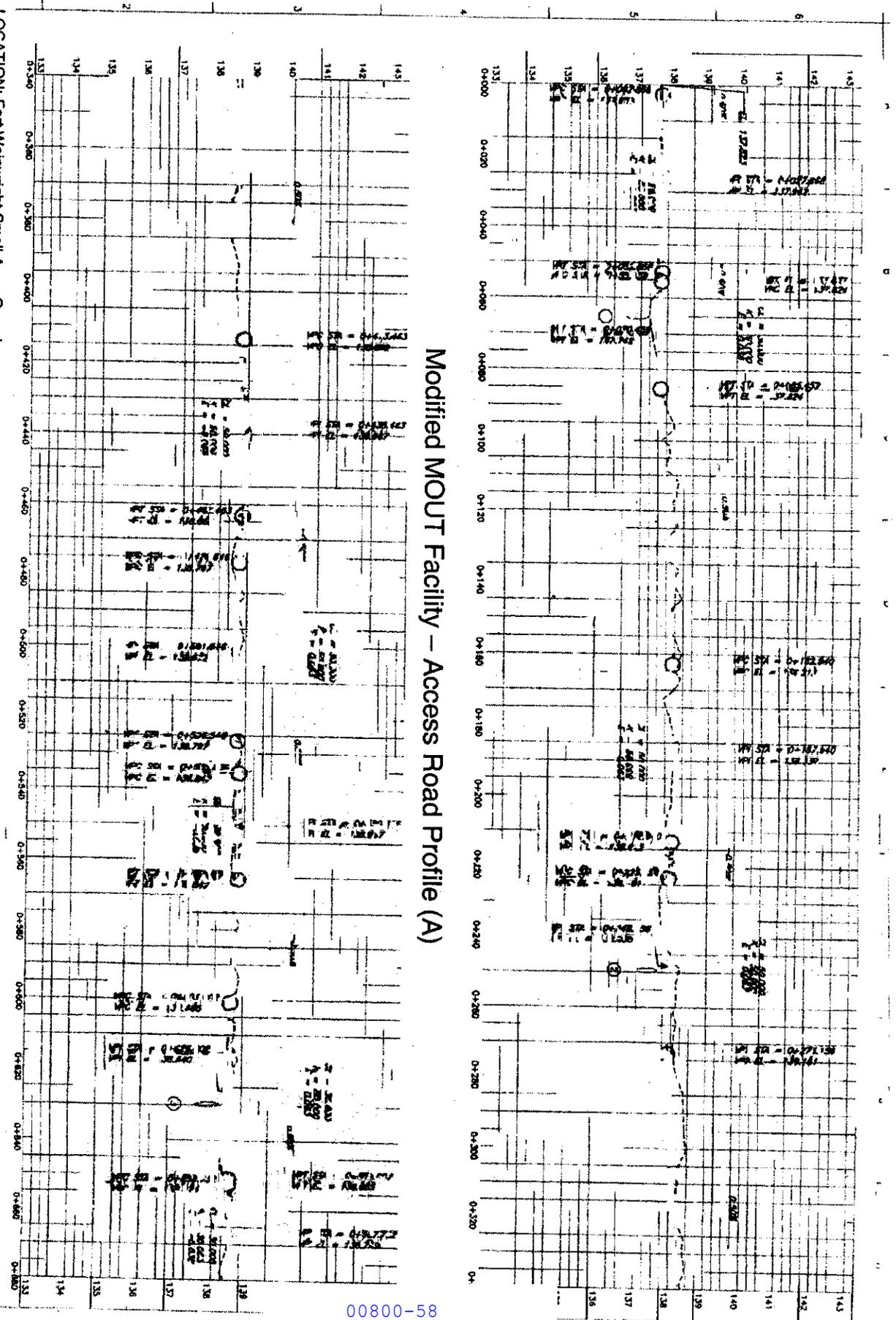
LOCATION: Fort Wainwright Small Arms Complex
 PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
 NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

4-2002-1098

Tanana River 222
12/15/2003



Modified MOUT Facility - Access Road Profile (A)



00800-58

FTW ACCESS RD. 1

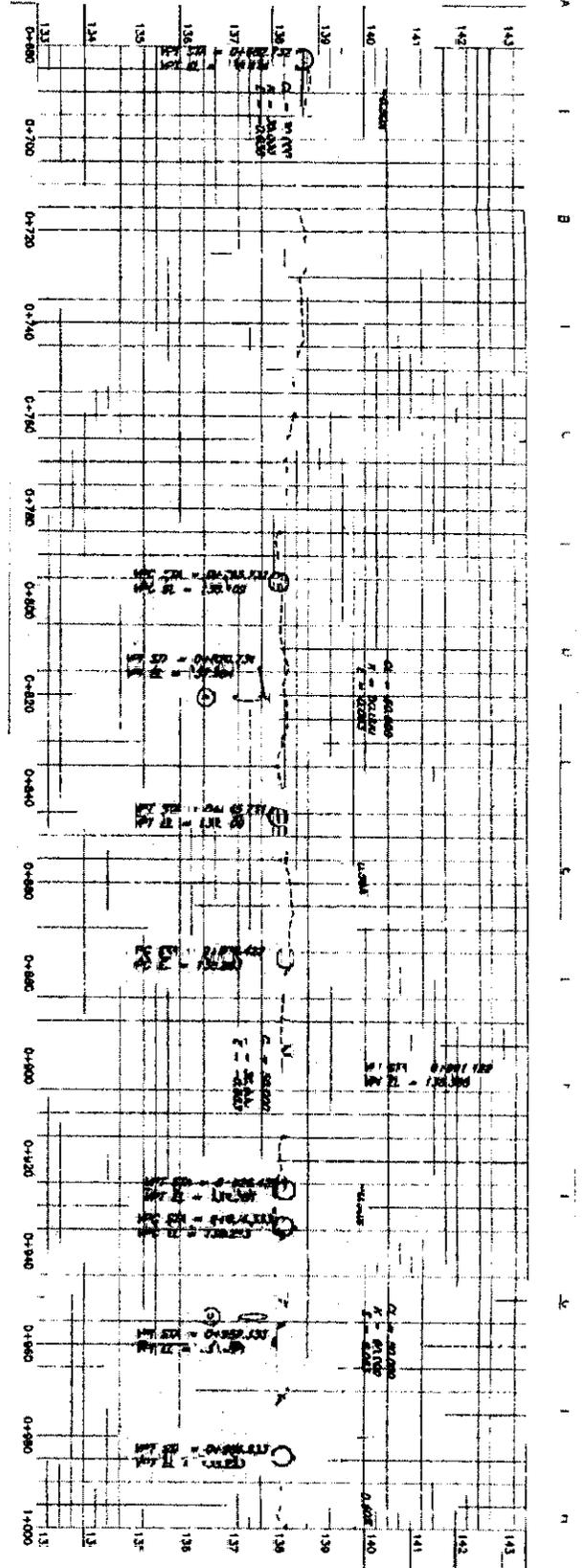
LOCATION: Fort Wainwright Small Arms Complex
 PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.

NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

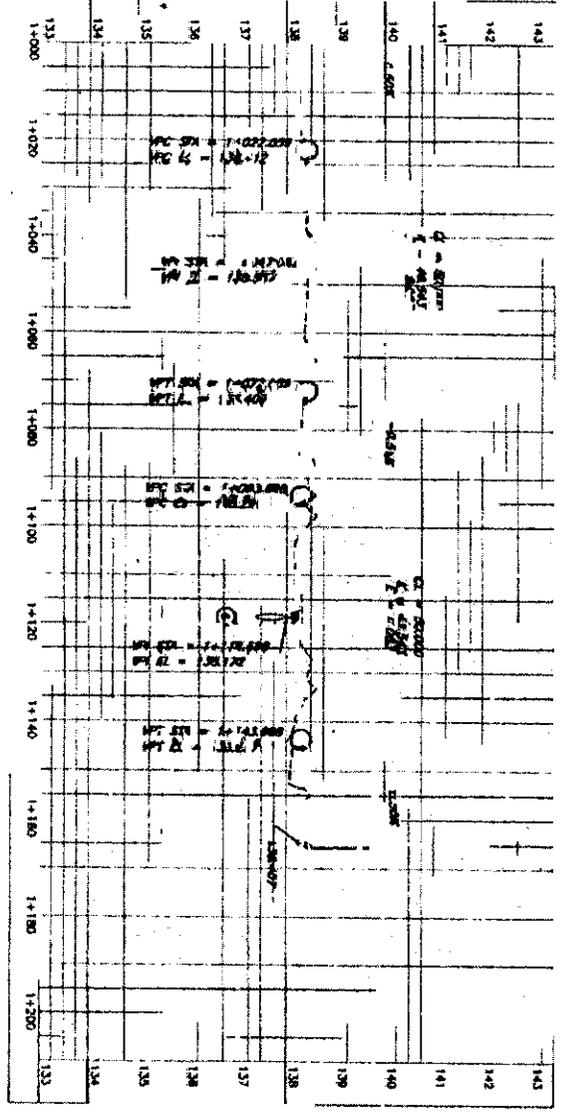
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4-2002-1098 Tanana River 222
12/15/2003



Modified MOUT Facility - Access Road Profile (B)



FTW ACCESS RD. 1

LOCATION: Fort Wainwright Small Arms Complex
 PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
 NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

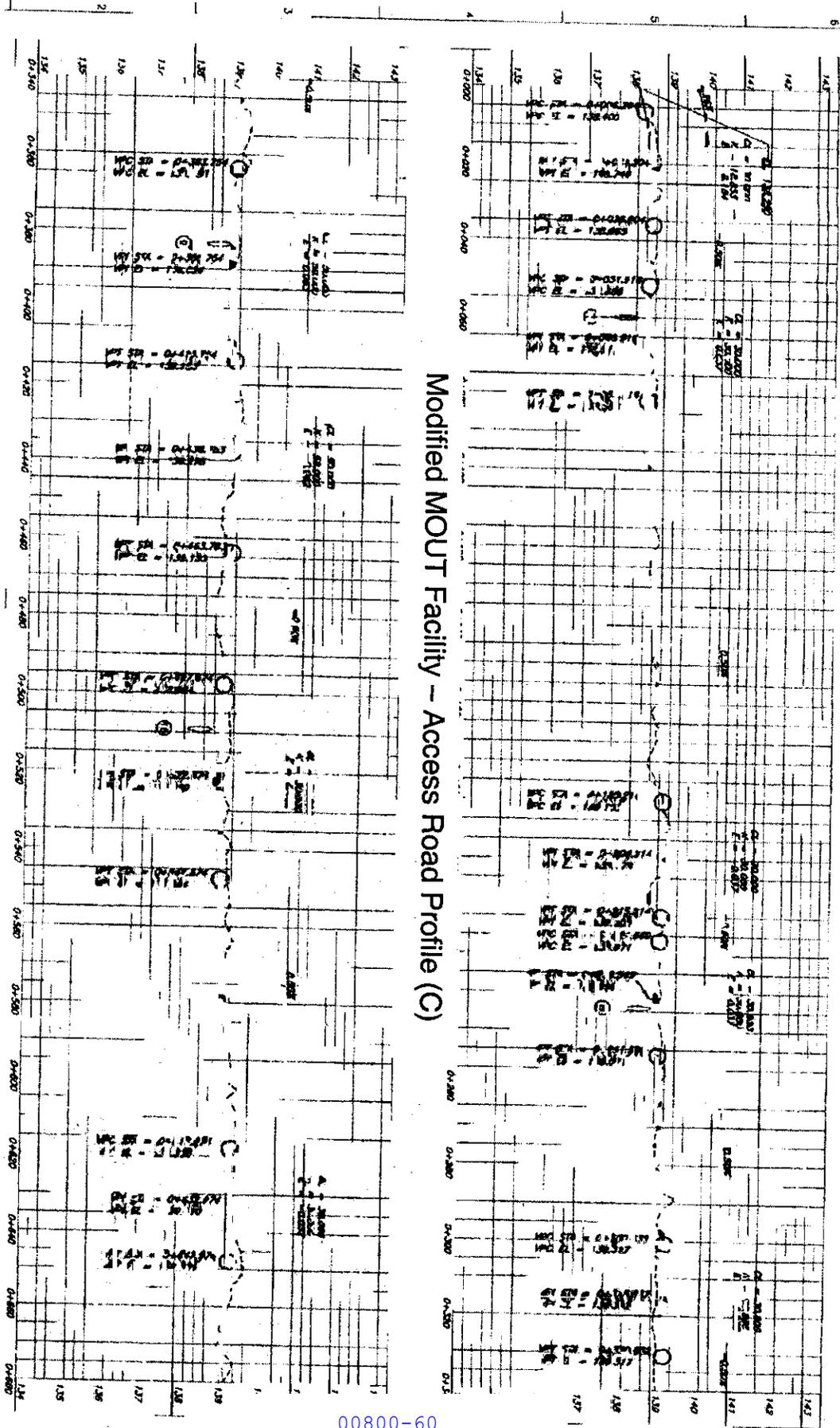


4-2002-1098

Tanana River 2002

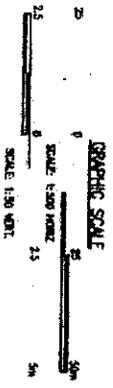
12/15/2003

Modified MOUT Facility - Access Road Profile (C)



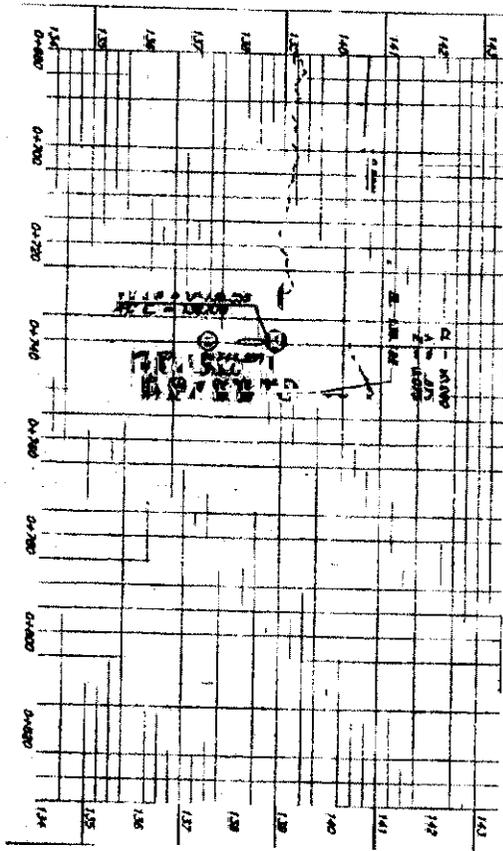
LOCATION: Fort Wainwright Small Arms Complex
 PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
 NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

FTW ACCESS RD. 2



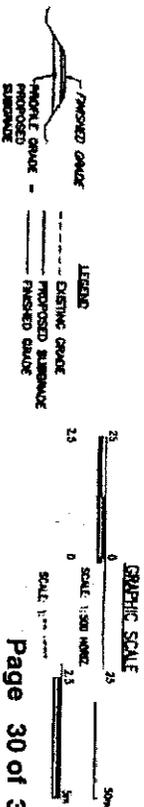
4-2002-1098 Tanana River 222
 12/15/2003

Modified MOUT Facility – Access Road Profile (D)

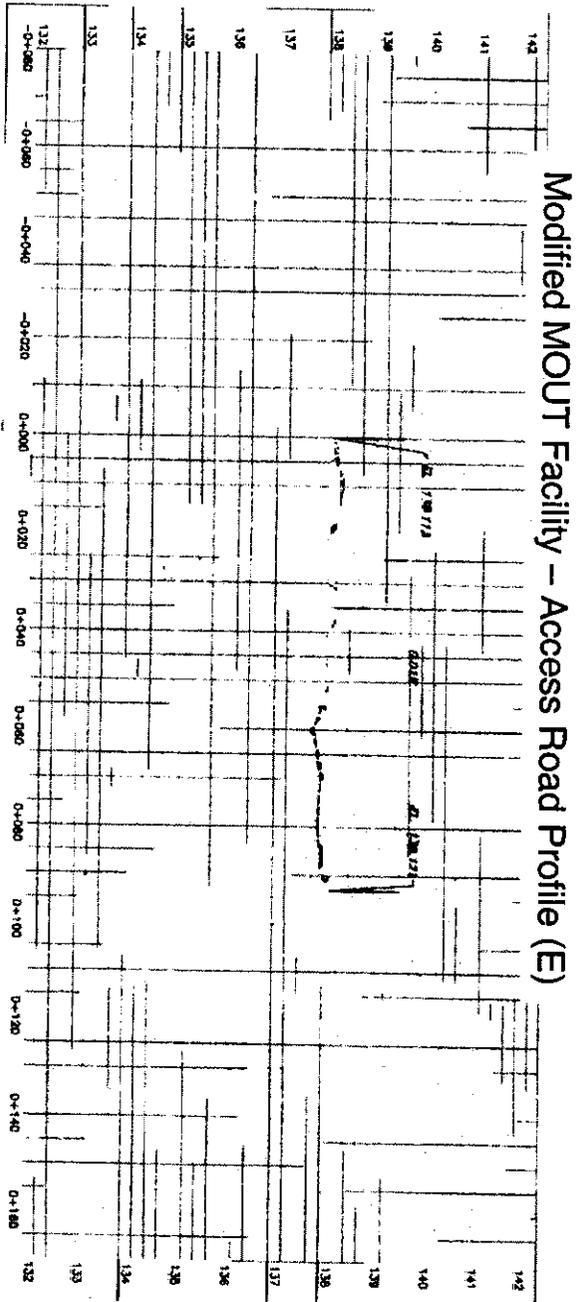
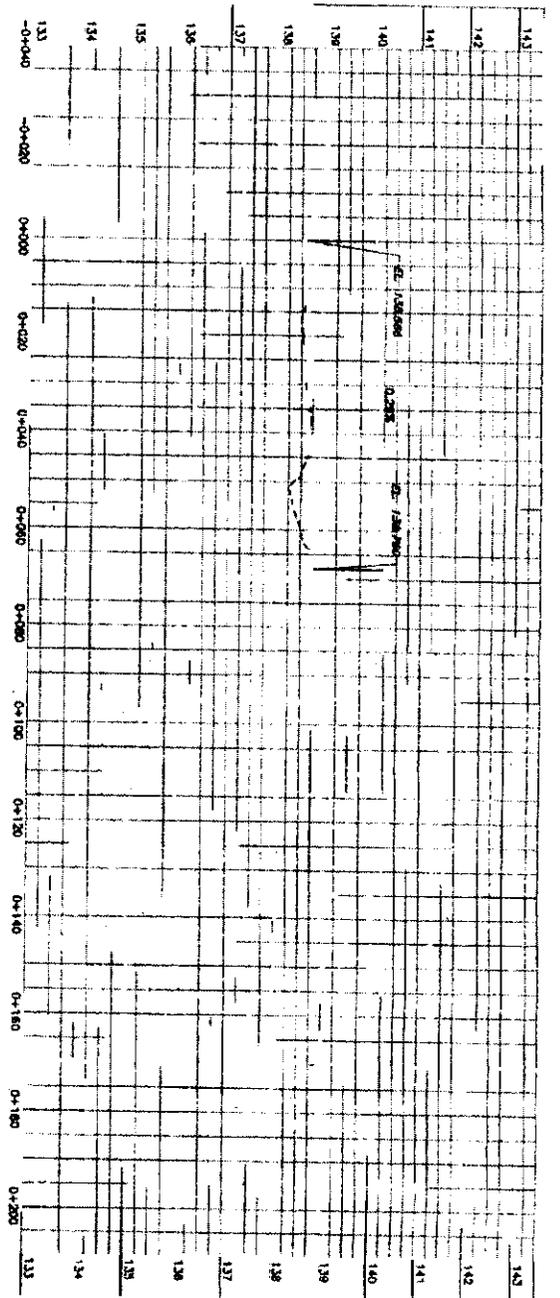


FTW ACCESS RD. 2

LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

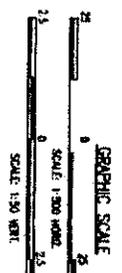


4-2002-1098 Tanana River 222
12/15/2003



LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in Infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

ASSAULT ROAD



NOTE: CONTRACTOR SHALL BE OBLIGATED AND RESPONSIBLE TO OBTAIN FINAL ELEVATIONS BY SURVEY AND REPORT DOWN AT A BLOW NOT TO EXCEED 10%.

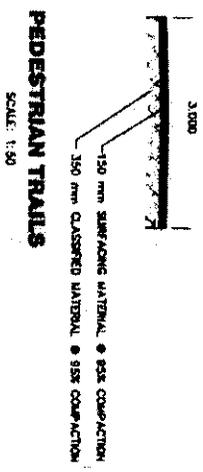
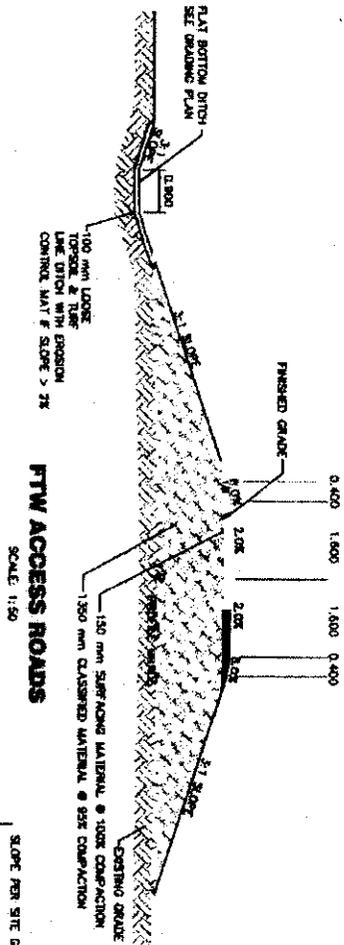
00800-62

4-2002-1088

Tanana River 202

12/15/2003

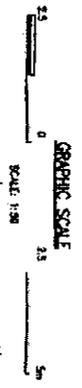
Modified MOUT Facility – Access Road Cross Sections



LOCATION: Fort Wainwright Small Arms Complex
PURPOSE: Construct a Modified MOUT Facility to provide standard ranges to train soldiers in infantry squad tactics and basic urban operations.
NEAREST WATERBODY: Tanana River
 Fairbanks North Star Borough
 Section 20 & 29 T1S, R1E, Fairbanks Meridian

4-2002-1098 Tanana River 222
 12/15/2003

NOTE:
 ALL MEASUREMENTS ARE IN MILLIMETERS
 UNLESS OTHERWISE NOTED



DEPARTMENT OF THE ARMY PERMIT

Permittee United States Army, Fort Wainwright, Alaska

Permit No. 4-2002-1098, Tanana River 222

Issuing Office U.S. Army Engineer District, Alaska

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Place 93,457 cubic yards of fill material into 26.4 acres of wetlands to construct a Modified Military Operations in Urban Terrain (MOUT) Facility. The MOUT will include a Breach Facility, an Urban Assault Course, and shoot house with supporting facilities consisting of electric service; short, crushed aggregate access roads and parking areas; an ammo breakdown facility; a warm-up building; self-contained dry-flush Arctic latrines; and information systems.

All work will be performed in accordance with the attached plan, sheets (1-32), dated December 15, 2003.

Project Location: The project is located within the small arms range complex at Fort Wainwright, Alaska, within sections 20 and 29, Township 1 South, Range 1 East, Fairbanks Meridian, Fairbanks, Alaska. 64° 48' 23" N, 147°35' 30" W. USGS Fairbanks D-2 SE Quadrangle.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on February 28, 2007. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. All disturbed and fill areas shall be stabilized to prevent erosion. Increased water turbidity and accumulation of sediment in drainages, soughs, and other wetlands shall be evidence of insufficient stabilization.
2. No fill or construction materials shall be stockpiled on adjacent wetlands outside the project boundary.
3. Natural drainage patterns shall be maintained by the installation of culverts of adequate size and number.
4. Prior to fill placement, a silt fence or similar structure shall be installed on a line parallel to and within 5' of the proposed fill toe of slope within all wetland areas that contain standing water that is connected to any natural body of water or where the fill toe is within 25' of such a water body. This structure shall remain in place until the fill has been stabilized or contained in another manner. Silt fences will not have to be installed if the construction activity is occurring during the time that the water is in a frozen state.

Special Information:

Any condition incorporated by reference into this permit by General Condition 5, remains a condition of this permit unless expressly modified or deleted, in writing, by the District Engineer or his authorized representative.

Further Information:

1. Congressional Authority: You have been authorized to undertake the activity described above pursuant to:
Section 404 of the Clean Water Act (33 U.S.C. 1344).
2. Limits of this authorization.
 - a. This permit does not obviate the need to obtain other Federal, state, or local authorization required by law.
 - b. This permit does not grant any property rights or exclusive privileges.
 - c. This permit does not authorize any injury to the property or rights of others.
 - d. This permit does not authorize interference with any existing or proposed Federal project.
3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
 - a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
 - b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
 - c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
 - d. Design or construction deficiencies associated with the permitted work.

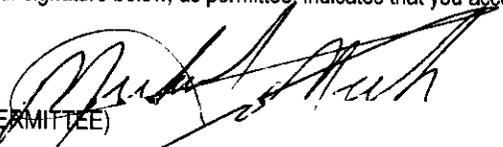
(REVERSE OF ENG FORM 1721)

- e. Damage claims associated with any future modification, suspension, or revocation of this permit.
- 4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
- 5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
 - a. You fail to comply with the terms and conditions of this permit.
 - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
 - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

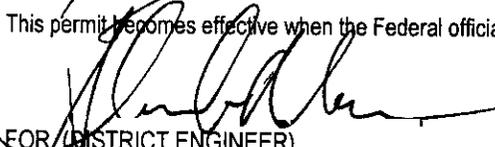
6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

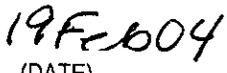
Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.


(PERMITTEE)


(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.


FOR (DISTRICT ENGINEER)
Colonel Timothy J. Gallagher
Sheila Newman, Regulatory Project Manager
North Section, Regulatory Branch


(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE)

(DATE)

FTQW # / PROJECT TITLE: Squad Infantry Battle Course, for Modified MONT FacilityAir Force Project Manager / Office Symbol / Telephone Number: Dave Patterson, 353-1242Contractor Project Engineer / Company / Telephone Number: Chris Campbell, (907) 753-5797**--PART I (To be completed by the project manager)--**Campbell**ATTACH AF FORM 332 FOR PROJECT**

HISTORICAL: Is this work occurring on the flightline ramp, run-way (1131) or at one of the following buildings, note the new building numbers are in parentheses: 1120 (2287), 1121 (2311), 1123 (2339), 1124 (2341), 1125 (2347), 1127 (2355), 1128 (2357), 1132 (2359), 1133 (2383), 1134 (2381), 1135 (2379), 1136 (2377), 1138 (2421), 1140 (2511), 1141 (2509), 1146 (2577), 1183 (2681), 1190 (2685) or 3112 (354)?

Yes or No No

REQUIRED SURVEYS:

1. Lead-based paint survey accomplished. Attach survey and give a brief description of the results or state why a survey is not required:

N/A

2. Asbestos survey. Attach results or state why a survey is not required:

N/A

WASTES TO BE GENERATED:

1. Trees: N/A number, square feet, or acres

2. Trees and brush or hydro-axed vegetation and soil mixture: N/A cubic yards

3. Clean soil: N/A cubic yards - give brief description (percent silt, sand, gravel, etc):

4. Contaminated soil: N/A cubic yards. Type of contaminate(s):

5. Concrete: N/A cubic yards

6. Asphalt:

a. Chunk: N/A cubic yards

b. Milled: N/A cubic yards

FTQW # / PROJECT TITLE: Squad Infantry Battle Course, for Modified MONT Facility
WASTES TO BE GENERATED (continued):7. Asbestos: N/A cubic yards8. Lead Based Paint Debris: N/A Give brief description:

TCLP Results:

9. Hazardous Wastes:

PCB light ballasts: N/ANon-PCB light ballasts: N/AExit light ballasts: N/ANon-incandescent lights: N/ATransformers: N/ATransformer oil: N/AMercury thermostats: N/ASmoke detectors: N/ABatteries: N/ARags with oil, grease, solvents: N/AUsed solvents: N/AWaste paint: N/AUn-used hazardous materials: N/AUsed spray cans: N/AOther: N/A

10. Construction / Demolition Wastes (wood, glass, sheetrock, pipe, etc):

a. Give brief description:

N/A

b. Items to be salvaged:

N/A

c. Items to be recycled:

N/A

BORROW PITS: Materials required for the project:1. Gravel: 25,000 cubic meters or approximately 32,500 cubic yards2. Topsoil: N/A cubic yards

FTQW # / PROJECT TITLE: Squad Infantry Battle Course, for Modified MONT Facility**--PART II (To be completed by 354 CES/CEV)-- Koenen****INSTRUCTIONS FOR THE DISPOSAL OF WASTES:**

1. Tree Protection, Transplanting, Replacement, and Method: N/A

2. Wastes to be disposed on base:

Trees, Soil, Concrete:

Hazardous Waste and Asbestos:

3. Wastes to be disposed off base:

All construction wastes (except hazardous wastes) not listed for on base disposal shall be disposed off base by the contractor in an approved landfill in accordance with applicable state and federal regulations.

BORROW PITS:

1. Borrow pit(s) to be used:

Gravel - Mullins Borrow Pit. Other contractors may be using Mullins Pit Borrow Pit. Contractor shall coordinate as required. NOTE: Prior approval from 354 CES/CEVN (377-5182) is required for locating any excavating equipment or processing/screening plant in the pit. Any waste or reject materials from processing base course, concrete aggregate, and asphalt aggregate shall be disposed of as directed by 354 CES/CEVN.

Archaeological Artifacts: Any archaeological artifacts, to include bones, encountered during soil and gravel excavation are property of the federal government and must be turned into the Natural/Cultural Resources Office located in Building 2160 (377-5182).

Topsoil: No topsoil was requested.

2. Pit development, rehabilitation, and/or expansion work required for privilege of using borrow pit(s):

To support further Cathers and Mullins Lake pit development the Squad Infantry Battle Course Contractor will hydro-ax a sparsely treed area 2.75 acres adjacent to Cathers Lake and 420 feet of shoreline along Mullins Pit. The attached illustrations define the pit development (hydro-ax) boundaries. Request all hydro axing activities occur after 1 Aug to ensure compliance with federal migratory act.

Reviewers:

CEVQ ___ FI ___ CEVN ___ BK ___ CEO ___ AES ___ CEOH ___ DF ___ CEOMI ___ GC ___ CEC ___ JP ___.

Date of Issue: 12 Feb 04. This Coordination Review becomes invalid if the project is not awarded within one year from the date of issue.

Gathers Lake Borrow Pit Hydro-axing

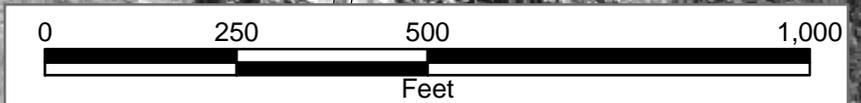


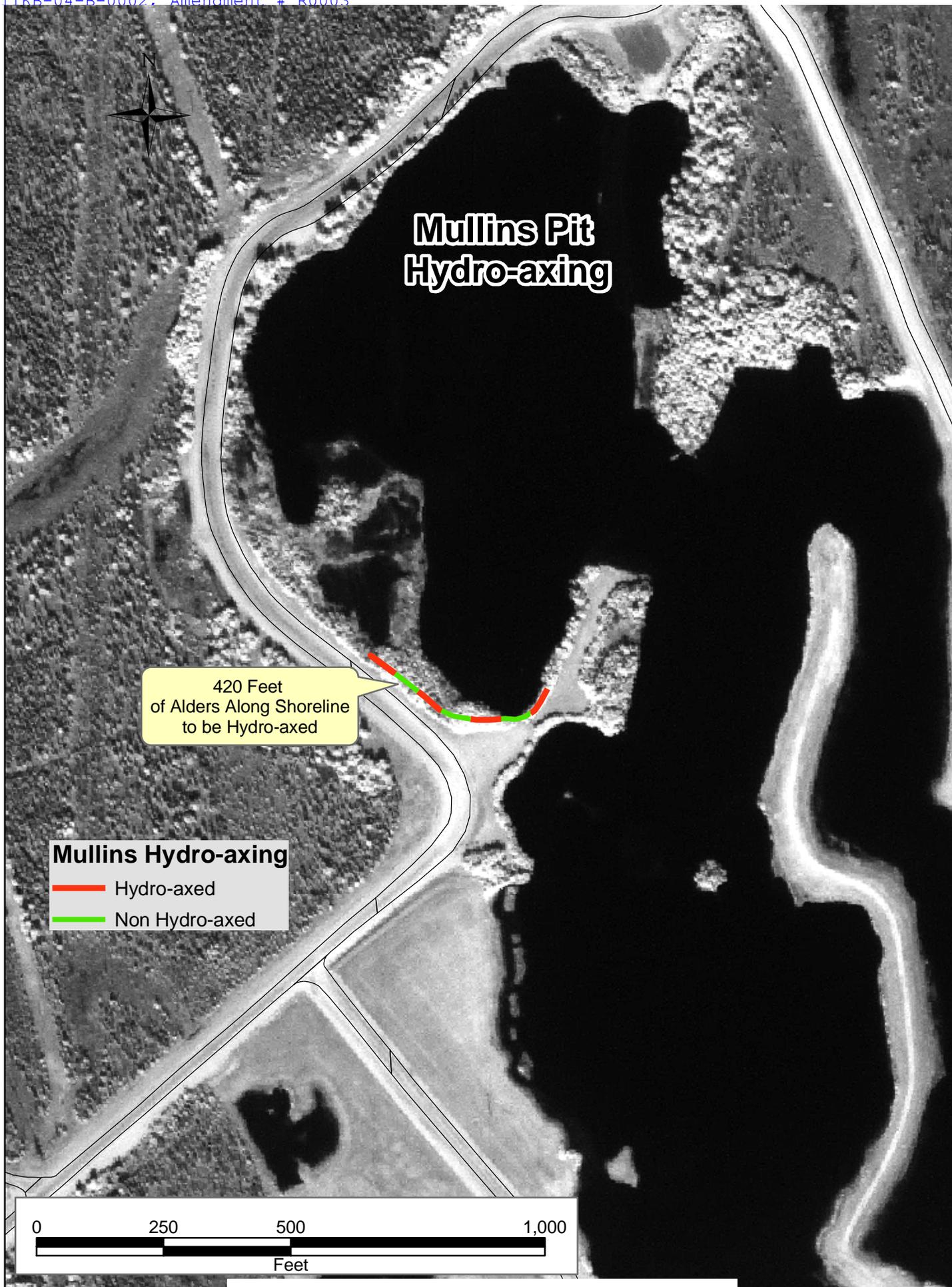
Water

Moose Creek

2.75 Acres
of Spruce and
Poplar Trees

Transmitter Road





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SECTION 01015

SPECIAL ITEMS

PART 1 GENERAL

1.1 SCOPE

Items included in this section cover special features and/or requirements which are not otherwise specified or indicated.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM E 1527 (2000) Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process

U.S. ARMY CORPS OF ENGINEERS (USACE)

TI 809-04 (1998) Seismic Design for Buildings

U.S. ARMY (DA)

AR 210-21 (1997) Army Ranger and Land Training Program

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Videotapes

1.4 ACCIDENT PREVENTION PLAN

The Contractor shall obtain the Contracting Officer's approval of the Accident Prevention Plan required by the Safety and Health Requirements Manual referenced in paragraph Accident Prevention of the Contract Clauses prior to start of any work at the project site.

1.5 FIRE SAFETY

The Contractor shall obtain a permit from the organization having jurisdiction over the job site for any welding or open flame work.

1.6 WORK CLEARANCE AND UTILITY OUTAGES

The Contractor shall limit the number of utility outages to the minimum necessary to complete the work. All outages shall be scheduled to occur between 0800 and 1500 hours, Tuesdays through Thursdays. A written request for each outage shall be submitted to the Utilities Distribution Foreman, through the Contracting Officer, with the maximum lead time possible, but not less than 5 working days prior to the requested outage. The request shall identify the utility, exact location, affected facilities, the duration of the outage, and a brief explanation of the work to be performed. For commercial telephone and cable outages, the request shall be made directly with the provider. The Contractor shall post outage notices at each entrance of each affected building and notify each building manager by phone or in person a minimum of 24 hours before the outage begins. No outage shall be effected until the Contractor has received approval from the Contracting Officer. If the outage cannot be completed within the time requested, a new request shall be submitted and approval obtained in advance for the additional time required. The Contractor will be required to pay overtime costs of Government utilities personnel required to work beyond their duty hours, or on holidays or weekends, due to outages. Shutdown and startup of utility systems will be done by Post utility personnel unless otherwise specified. Emergency, unscheduled outages shall be reported immediately to the Utilities Distribution Foreman.

1.7 DISPOSITION OF MATERIALS

Combustible and noncombustible waste material shall be disposed of in the Ft. Wainwright landfill, except waste soil and clearing debris which shall be disposed of on Range. No burning of materials will be permitted. The Contractor shall coordinate with landfill personnel, through the Contracting Officer, as to hours of operation (normally 0800 to 1600 weekdays except 0800 to 1500 Fridays), segregation of waste for separate designated areas, and procedure for secure handling and transporting of materials (Phone 353-7192). Plastic and metal drums, hazardous waste, waste oil, oily waste, sludges, grease, paints, chemical wastes, and explosives are prohibited from disposal at the landfill. A landfill Authorization Card will be required, obtained from the Ft. Wainwright Environmental Office, Bldg. 3023, phone 353-6249. Access must be coordinated at least 1 day in advance with DPW Grounds Maintenance Shop at 353-7192. Construction debris must be construction material only with no mixed garbage such as food containers or household type refuse. Mixed loads will be refused.

1.7.1 Salvageable Material

Salvageable material, if not otherwise indicated, shall become the property of the Contractor. The value of such salvage shall be reflected in the contract price.

1.7.2 Disposal of Soils

No soil stockpile shall be moved from its present location without written permission from the Contracting Officer. No soils shall be removed from the installation for off-site remediation. Such soils shall be properly tracked and fully accounted for until returned to the installation, and shall not be mixed with other soils at any time.

1.7.3 **AM# 3...**Deleted Paragraph...**AM# 3**

1.7.4 Landfill Cover Requirements

All construction debris placed in the landfill by the Contractor's operations shall be covered daily. The Contractor shall provide all plant, labor, material, equipment and supervision necessary to cover all construction debris deposited in the landfill generated by this projects' construction operations. The Contractor shall be responsible for providing cover in accordance with the requirements listed below and in accordance with all local, State, and Federal regulations. This work is considered incidental to the project requirements and no separate payment will be made for this work.

1.7.4.1 Cover Layer Requirements

- a. The material used to cover the construction debris shall be obtained from an approved source(s). See additional requirements listed in paragraph Cover Material Source below.
- b. Material shall be spread in sufficient quantity and loose thickness to ensure that when compactive effort is applied that the cover material will consolidate easily and uniformly, and that all debris is covered.
- c. The maximum compacted thickness shall be 600 mm and 300 mm minimum.
- d. Compactive effort shall be applied uniformly across the entire surface employing equipment of a type specifically designed for use in this type of environment. Required compactive effort shall be equivalent to 3-passes of a D-6 dozer or heavier piece of equipment over the entire surface to be covered.

1.7.4.2 Cover Material Source

Suitable cover material shall be provided from a source outside of Fort Wainwright.

The Contracting Officer prior to the start of any construction or demolition operations shall approve outside source. This material shall meet the requirements outlined in the paragraph entitled NON-GOVERNMENT BORROW SOURCES.

It shall be the responsibility of the Contractor to coordinate their operations with that of any other Contractor(s) using the landfill.

The Contractor shall provide all plant, labor, equipment and supervision necessary for the acquisition, transport and off-loading of the cover material at the landfill.

1.7.4.3 On-site Equipment Storage

Equipment associated with this effort may be stored within the boundary of the landfill. It is the Contractor's responsibility to safeguard against unauthorized access to the equipment during non-duty hours.

1.8 TESTS

The Contractor shall provide testing, except where specifically noted to be performed by the Government, in accordance with SECTION 01451 CONTRACTOR QUALITY CONTROL

1.9 WARRANTY OF CONSTRUCTION (FAR 52.246-21)

See Section 00700 also.

Defects in design or manufacture of equipment, specified by the Government on a "brand name and model" basis, shall not be included in this warranty. In this event, the Contractor shall require any subcontractors, manufacturers, or suppliers thereof to execute their warranties, in writing, directly to the Government.

1.9.1 Failures

Upon receipt of notice from the Government of failure of any part of warranted items during the warranty period, the affected part or parts shall be promptly replaced. Such replacement shall include furnishing and installing the necessary new part or parts, making all necessary repairs, restoring the affected item to the operating condition specified in this contract and making all such tests as are necessary to ensure that there are no remaining defects. Such tests shall be performed in the presence of representatives of the Using Agency indicated below. Upon final acceptance of the work or transfer of responsibility to the Government for operation and maintenance of the items covered, whichever is earlier, the Contractor shall be responsible to the Using Agency for the warranty provisions of this contract. A letter stating the applicable warranty provisions shall be furnished to the Contracting Officer in duplicate, in the format and text shown in the sample letter attached to this section.

Directorate of Public Works
Attn: Mr. Nickolas Nugent
3015 Montgomery Rd., #6500
Fort Wainwright, Alaska 99703-6500

1.10 CAMP FACILITIES

There are no Government-owned camp facilities at the jobsite for the Contractor's use.

1.11 CONSTRUCTION COMPLIANCE INSPECTION (CCI) AND TECHNICAL INTERFACE INSPECTION (TTI)

These requirements are to ensure that the range is properly certified for training, per AR 210-21.

1.11.1 Construction Compliance Inspection

The purpose of the Construction Compliance Inspection (CCI) is to assess construction progress and to identify problem areas early to avoid costly and extensive corrective actions and project delays at the Target Interface Inspection (TTI). Target interface items include all portions of construction for the protection of the equipment. The Huntsville Center Corps of Engineers will schedule the CCI in conjunction with the applicable Corps of Engineers District, the U.S. Army Training Support Center (ATSC), the installation, and the Major Command (MACOM) when construction has reached the point that the following items can be

checked (usually about midpoint of construction): A minimum of one of each type of target emplacement shall be complete, including the installations of all electrical power equipment, and all data equipment including power and data cables and conduits. In all cases, the fiber termination racks and samples of the power and data cables and associated connectors shall be on site and available for inspection, but they do not have to be installed. Space shall be shown for the master fiber panel(s) and cable trays or wireways for routing cables to range operating system(s).

1.11.2 Obstruction Removal

The Contractor must remove any obstruction and debris within the target emplacement vicinities and around other associated equipment prior to the target interface inspections.

1.11.3 Target Interface Inspection.

The range is ready for the Target Interface Inspection (TII) when all target equipment interface points are ready for inspection (usually around 90-95 percent construction completion or about 30 days prior to the end of construction). The U.S. Army Training Support Center (ATSC) will schedule the TII in conjunction with the Huntsville Center Corps of Engineers, the applicable Corps of Engineers District, the installation, the MACOM, PEO-STRICOM, and the target installation Contractor. All target emplacements shall be complete, including the installation of all electrical power equipment, and all data equipment including power and data cables and conduits. Power cables shall be connected to all associated electrical equipment and tested. At the target emplacements, fiber data cables shall be terminated/connected in the TPP (target patch panel) and tested. At the range operations center, fiber data cables shall be terminated/connected in the fiber termination rack (FTR) and tested. Cable tray(s) or wireways(s) for routing cables to range operating system(s) shall be installed. 120/240V, 20A circuits shall be installed in junction boxes near the master fiber panel or fiber termination rack.

1.12 OPERATION AND MAINTENANCE (O & M) MANUALS

Six copies shall be submitted to the Contracting Officer not later than 30 days prior to scheduled contract completion. Failure to submit manuals by this date will be considered cause to withhold any payments due the Contractor. All equipment manual materials shall be durable, clearly printed or reproduced copies, not more than 216 x 280 mm in size, or neatly folded to that size without overlapping into the binding. Materials shall be indexed and bound in stiff covers with tab separators. Approval of manuals shall be obtained prior to scheduling operating tests and field training courses.

1.13 PARTNERING

a. The Government intends to encourage the foundation of a cohesive partnership with the Contractor and its subcontractors. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The

objectives are effective and efficient contract performance, intended to achieve completion within budget, on schedule, and in accordance with plans and specifications.

b. This partnership will be bilateral in makeup, and participation will be totally voluntary. Implementation of this initiative will be a topic of discussion at the Preconstruction Conference. Other recurring or special purpose meetings, as agreed between the Government and the Contractor, will be held as necessary to resolve contentious issues and maintain the partnering spirit.

1.14 VIDEOTAPING OF TESTS AND O & M TRAINING

The Contractor shall videotape tests and operation and maintenance training sessions required in the technical specifications for mechanical and electrical features. Videotapes shall be produced in the VHS format and of professional quality. Approval of applicable O & M manuals shall be obtained and manuals provided on site at least 3 days prior to tests and training as specified. Each system or piece of equipment shall be covered in a single tape or set of tapes which shall be correlated with the approved O & M manuals. Videotapes shall be categorized and indexed by equipment and item of repair, with a typed or printed label showing the project, equipment or system and contract number; this same information shall be provided as an introduction on each video tape. One copy of the videotaped material shall be submitted to the Contracting Officer, for review, within ten (10) days after completion of the videotaped training session. Coverage shall include, as applicable:

- a. Testing, trouble-shooting, repair of heating, ventilation, diesel-generator and boiler controls.
- b. Demonstration of common maintenance items, i.e. system tests (efficiency and operability), cleaning, adjustment, replacement of high failure items, scheduled maintenance, tear down and repair of specific items, etc.
- c. Testing of fire suppression and detection systems. Resetting of systems after activation. Trouble-shooting, actual maintenance and repair of specific components, etc.
- d. How to verify system performance and operating parameters (i.e. flows, temperatures, pressures, amperage draw, etc.).

1.15 EARTHQUAKE-RESISTANT EQUIPMENT SUPPORTS

All items of electrical, mechanical, and other installed equipment shall be mounted to prevent damage from lateral motion caused by earthquake. Restraints for seismic loading shall comply with requirements in TI 809-04. Any hooks from which light fixtures or other equipment are suspended shall be closed. Light fixtures in suspended ceilings shall have secondary support from main structural framing of ceiling or roof system. Items of suspended or supported equipment subject to causing damage by swaying or tipping shall be cross-braced or laterally secured to the building structure. Any items of equipment mounted without rigid restraint of lateral motion shall have sufficient clearances and flexibility of

associated wiring, piping, or other connections to accommodate the full range of such motion as might occur.

1.16 NPDES

Work shall comply with EPA National Pollutant Discharge Elimination System (NPDES General Permit No. AK-R-10-0000 for Construction Activities). See SECTION 01356 STORMWATER POLLUTION PREVENTION MEASURES for additional specific requirements.

1.17 NON-GOVERNMENT BORROW SOURCES

The Contractor shall check any non-Government, proposed borrow sources for the presence of hazardous substances and petroleum products as defined in ASTM E 1527. The publication includes guidance on previously examined sites. A Phase I Environmental Site Assessment, also as defined therein, shall be submitted for each proposed borrow site as a supplement to the Environmental Protection Plan specified in SECTION 01411 ENVIRONMENTAL PROTECTION. The report shall identify any previous or current presence of hazardous substances at the site, regardless of whether they have been, or can be, released to the environment. The Assessment shall be performed under the direct supervision of an independent, registered professional engineer, currently licensed by the State in which the borrow source is located, and within such time frame as will ensure reports are valid when submitted. The engineer shall have a minimum of 3 years experience in performing satisfactory Environmental Site Assessments. All reports shall be certified in writing by the engineer and submitted in the standard format specified in the referenced publication, through the Contracting Officer, to the Post Environmental Office for review. Reports shall be submitted at least 30 days prior to needing borrow materials in the work. The qualifications of the engineer performing the Assessment shall be included with the report. Where hazardous materials are indicated, use of the source will not be allowed. No borrow materials shall be brought onto Government property without approval of the Contracting Officer. The Government reserves the right to sample and test any borrow materials delivered to the project for conformance with this specification.

1.18 BIRDS' PROTECTION

Federal and State law protects the Cliff Swallows that build mud nests on Post facilities. Once the Cliff Swallow establishes nest and lays eggs, then the nest cannot be removed or birds annoyed until the nests are no longer occupied. Forcing or annoying the birds to abandon an occupied nest is a violation of State and Federal law. Any work including demolition of known Cliff Swallows nesting areas (i.e., eaves, porches, entranceways, tanks, etc.) shall be done prior to 10 May or after 1 August to avoid project delays.

The Contractor shall initiate a program to remove the partially completed nests daily from 10 May to 21 July to avoid work stoppage. The Contractor is responsible for all or any delays and charges filed by U.S. Fish and Wildlife Service and the State of Alaska Department of

Public Safety due to his/her negligence in removing and/or annoying such established nests.

1.19 COORDINATION OF WORK

a. General: During the construction period the Contractor shall have full use of the premises for construction operations, except as noted. The Contractor's use of the premises is limited only by the Government's right to maintain access to the existing ranges adjacent to or beyond the new range.

b. Electrical and fiber optic cable not available at ISBC until 15 September 2004.

c. Roadways and entrances: Keep roadways and entrances serving the premises clear and available to the Government and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

d. Use of Existing Buildings: Use of the existing buildings near the After Action Review building at Ft. Wainwright location will not be permitted.

e. Access thru Eielson AFB via Quarry Road shall be coordinated with Mr. Norman Sams, Resident Engineer, phone: (907) 377-4300.

1.20 RANGE SITE ORDNANCE CONTAMINATION

During the range construction contract, ordnance may be found in the area. Inert practice ordnances may also be encountered. When an Unexploded Ordnance (UXO) is discovered, the Contractor shall immediately notify the Contracting Officer's Representative and the Contracting Officer and cease work in the vicinity of the UXO.

Once notified of an UXO, the Contracting Officer's Representative will notify the installation Explosive Ordnance Disposal (EOD) team. The EOD personnel will normally leave their unit's space within 30 minutes during duty hours; after duty hours, within one hour to respond to the UXO item.

During the course of work on this project, the Contractor may encounter ordnance fragments and debris. It shall be the responsibility of the construction Contractor to move or dispose of such non-UXO items to the extent necessary to accomplish the work under this construction contract.

It shall also be the responsibility of the construction Contractor to move or dispose of ordnance fragments and debris as required after detonation of the UXO items by the EOD personnel.

Excavation on this project will not be allowed until each field employee has attended the safety course given by the EOD personnel. Subsequent new field employees shall also attend the safety course.

The Safety Officer for the Contractor will be notified by the Contracting Officer's Representative prior to each detonation. Cooperation with the EOD personnel during UXO removal is essential.

1.21 ATTACHMENTS

Sample letter

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

S A M P L E L E T T E R

Contracting Officer
Date _____
Address (as stated in Notice of Award)

SUBJECT: Warranty Provisions, Contract

GENTLEMEN:

This is to acknowledge our responsibility in connection with the warranty provisions of this contract as set forth in the contract specifications.

The following items, equipment or systems furnished or installed under this contract are hereby warranted against defective design, material and workmanship for a period as indicated:

Warranted Item, at Equipment or System Time	Identification Serial Number, Etc.	Warranty Expires 11:59 PM Std.
_____	_____	
_____	_____	
_____	_____	
_____	_____	

Upon receipt of notice from the Government of failure of any part or parts of the warranted item, equipment, or system during the warranty period, the affected part or parts will be replaced promptly with new parts. Such replacement will include furnishing and installing the new part or parts, making all necessary repairs, restoring the item, equipment, or system to the operating condition specified in this contract and making all such tests as are necessary to ensure that there are no remaining defects. Such tests will be performed in the presence of the Representative of the Using Agency indicated below.

We are responsible to _____ for the warranty provisions of this contract. Correspondence regarding the failure of any of the preceding items, equipment or systems covered by the warranty provisions of this contract should be addressed to:

_____ Telephone Number:

Very truly yours,

Signed: _____
Title: _____
Organization: _____

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SECTION 02231

CLEARING AND GRUBBING

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Nonsaleable Materials

Written permission to dispose of such products on private property shall be filed with the Contracting Officer.

SD-04 Samples

Tree-wound paint

Submit samples in cans with manufacturer's label.

1.2 DELIVERY, STORAGE, AND HANDLING

Deliver materials to, store at the site, and handle in a manner which will maintain the materials in their original manufactured or fabricated condition until ready for use.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 PROTECTION

3.1.1 Roads and Walks

Keep roads and walks free of dirt and debris at all times.

3.1.2 Trees, Shrubs, and Existing Facilities

Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations by the erection of barriers or by such other means as the circumstances require.

3.1.3 Utility Lines

Protect existing utility lines that are indicated to remain from damage. Notify the Contracting Officer immediately of damage to or an encounter with an unknown existing utility line. The Contractor shall be responsible for the repairs of damage to existing utility lines that are indicated or made known to the Contractor prior to start of clearing and

grubbing operations. When utility lines which are to be removed are encountered within the area of operations, the Contractor shall notify the Contracting Officer in ample time to minimize interruption of the service.

3.1.4 Survey Control Monuments

The Contractor shall be responsible for maintaining and preserving all existing survey control monuments established by The Corp of Engineers for this project. If said monuments are disturbed, destroyed or removed by the Contractor through negligence before their removal is authorized, the Contracting Officer may require replacing them and deduct the expense of the replacement from any amounts due, or become due, to the Contractor.

3.2 CLEARING

Clearing shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within the areas to be cleared. Clearing shall also include the removal and disposal of structures that obtrude, encroach upon, or otherwise obstruct the work. Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 75 mm or more in diameter and shall be trimmed of all branches to the heights indicated or directed. Limbs and branches to be trimmed shall be neatly cut close to the bole of the tree or main branches. Cuts more than 75 mm in diameter shall be painted with an approved tree-wound paint.

3.3 TREE REMOVAL

Where indicated or directed, trees and stumps that are designated as trees shall be removed from areas outside those areas designated for clearing and grubbing. This work shall include the felling of such trees and the removal of their stumps and roots as specified in paragraph GRUBBING. All trees shall be disposed of as specified in paragraph DISPOSAL OF MATERIALS.

3.4 GRUBBING

Grubbing shall consist of the removal and disposal of stumps, roots larger than 75 mm in diameter, and matted roots from the designated grubbing areas. Material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, shall be removed to a depth of not less than 455 mm below the original surface level of the ground in areas indicated to be grubbed and in areas indicated as construction areas under this contract, such as areas for buildings, and areas to be paved. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform with the original adjacent surface of the ground.

3.5 **AM# 3...THINNING...AM# 3**

AM# 3...Thinning zones A and B are shown in the plans. Thinning in Zone A shall include falling and removing up to 75% of all trees in excess of

150 mm in trunk diameter as measured 300 mm above the ground. Thinning in Zone B shall include falling and removing up to 50% of the trees in excess 150 mm in trunk diameter as measured 300 mm above the ground. All removed trees shall have their stump removed or ground down until flush with the surrounding ground. The goal of the thinning operation is to leave the surrounding area as natural and undisturbed as possible. Any damage to the surrounding area shall be restored by the Contractor to the existing condition. This includes tire ruts, stump holes (if the stump is removed in lieu of grinding), and other damage that causes holes, depressions, or unnatural sudden elevation changes that could present a hazard to trainees. Contractor shall mark any trees selected for removal and submit a tree clearing plan for approval....AM# 3

3.6 **AM# 3...DISPOSAL OF MATERIALS...AM# 3**

3.6.1 **AM# 3...Nonsaleable Materials...AM# 3**

Logs, stumps, roots, brush, rotten wood, and other refuse from the clearing and grubbing operations, shall be disposed of by chipping and using the chips as erosion control material on the project site except when otherwise directed in writing. All trees are considered nonsaleable material. Logs too large to chip will be disposed of by the contractor off-site. Such directive will state the conditions covering the disposal of such products and will also state the areas in which they may be placed.

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SECTION 02313

EARTHWORK FOR BUILDINGS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C 117	(1995) Materials finer than 0.075mm sieve in mineral aggregates by washing
ASTM C 136	(2001) Sieve Analysis of Fine and Coarse Aggregates
ASTM D 75	(2003) Sampling Aggregates
ASTM D 422	(1963; R 1998) Particle-Size Analysis of Soils
ASTM D 1556	(2000) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(2002) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft. (2,700 kN-m/cu.m.))
ASTM D 2167	(1994; R 2001) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2922	(2001) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(2001) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

1.2 DEFINITIONS

1.2.1 Nonfrost Susceptible Soils

Nonfrost susceptible soils are inorganic soils containing less than three percent by weight of grains finer than 0.02 mm. The methods of test used shall be the ASTM C 117, ASTM C 136, ASTM D 75, and ASTM D 422.

1.2.2 Classified Fill and Backfill

Approved, well-graded, non-frost susceptible material consisting of

sand, gravel or crushed rock, and free of muck, frozen material, organic materials, refuse or construction debris. Classified Material should contain not more than 60 percent, by weight, passing the 4.7 mm U.S. sieve, not more than six (6) percent passing the .075mm sieve, and not more than three (3) percent smaller than 0.02 mm, all measured relative to the fraction passing the 75-mm sieve. The maximum particle size should not exceed two-thirds of the lift thickness.

1.2.3 Surfacing Material

Surfacing material for gravel surfaced roads should be crushed aggregate conforming to the following gradation:

SURFACING MATERIAL

<u>Sieve Size (mm)</u>	<u>Percent Finer By Weight</u>
25.0	100
9.5	50-85
4.7	36-65
2.00	25-50
0.425	15-30
0.075	2-8
0.020	0-3

1.2.4 Unclassified Fill and Backfill

Approved material with a Plasticity Index (PI) less than six (6) consisting of silt, sand, gravel or crushed rock, and free of muck, frozen material, organic materials, refuse or construction debris. Unclassified Material should contain not more than 15 percent, by weight, passing the 0.075 mm sieve, measured relative to the fraction passing the 75-mm sieve. The maximum particle size should not exceed two-thirds of the lift thickness.

1.2.5 Fill

Fill is considered to be material placed above the original ground line.

1.2.6 Backfill

Backfill is considered to be material placed in an excavation made under this contract.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Compaction Test Plan

The proposed location of all compaction tests, in 3 copies prior to commencing operations.

Heating and Monitoring Plan

The procedures proposed for winter protection of foundations and slabs by heating, and monitoring temperatures.

Submit 15 days prior to starting work.

SD-09 Manufacturer's Field Reports

Compaction Test Report

Test results, with amended compaction test plan as specified herein. A copy must be provided before the fill or backfill will be accepted as completed work.

1.4 SOURCE OF MATERIALS

Excavated shall be used to the maximum extent possible for fill and backfill, or as directed. Only clean, non-contaminated material shall be used as backfill. Excavated material not used shall be wasted as directed, provided, however, that no material shall be wasted without prior approval.

Classified fill and backfill and unclassified fill and backfill shall be obtained by selection from the excavated material. If the excavation is insufficient in quantity, or unsuitable, additional materials may be obtained from the designated borrow pit.

1.5 MAXIMUM DENSITY DETERMINATIONS

1.5.1 Definition

Degree of compaction shall be expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557.

1.5.2 Density Tests

- a. Characteristics of backfill materials shall be determined in accordance with particle size analysis of soils ASTM D 422 and moisture-density relations of soils ASTM D 1557. A minimum of one particle size analysis and one moisture-density relation test shall be performed on each different type of material used for bedding and backfill.
- b. Test shall be performed per paragraph TESTING. Field in-place density shall be determined in accordance with ASTM D 1556, ASTM D 2167, or ASTM D 2922. When ASTM D 2922 is used, the calibration curves shall be checked and adjusted using the sand cone method as described in paragraph Calibration of the ASTM publication. ASTM D 2922 results in a wet unit weight of soil and when using this method, ASTM D 3017 shall be used to determine the moisture gauges shall be checked along with density calibration checks as described in ASTM D 3017. The calibration checks of both the density and moisture gauges shall be made at the beginning of a job, on each different type of material encountered, at intervals as directed by the Contractor Officer. Copies of calibration curves, results of calibration tests, and field and laboratory density tests shall be furnished to the Contracting Officer.

1.6 SUBSURFACE INVESTIGATIONS

Explorations consisting of drill holes and/or test pits have been made at the site of the building to assist the Contractor in ascertaining the character of the excavation material to be encountered; however, the Government does not guarantee that materials other than those disclosed by the drill holes or opened pits will not be encountered, or that the proportions of the various materials will not vary from those indicated by the explorations. Additional data on subsurface conditions are available for review in the Office of the Alaska District Engineer.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

Unless otherwise shown, the areas within lines 7,620 mm outside of each building and structure line shall be cleared and grubbed of trees, stumps, roots, brush and other items that would interfere with construction operations. Stumps, logs, roots more than 40 mm in diameter, and other organic or metallic debris shall be completely excavated and removed within building and structure lines, and shall be excavated and removed to a depth not less than 460 mm below original ground surface in the remainder of the cleared areas. The resulting depressions shall be completely filled and compacted in accordance with the applicable paragraph of this specification unless further excavation is required. Building and utilities materials shown to be salvaged or to be installed in the work under this contract shall be removed carefully by workmen skilled in the particular trade involved.

3.1.1 Disposal of Cleared and Grubbed Material

Material removed and not designated as salvage material shall be disposed of as specified or shown. To the maximum extent possible, material will be chipped and spread as erosion control material. Any logs too large to chip will be disposed of offsite by the contractor.

3.2 STRIPPING OF TOPSOIL

Where indicated or directed, topsoil shall be stripped to a depth as directed. Topsoil shall be spread on areas already graded and prepared for topsoil, or transported and deposited in stockpiles convenient to areas that are to receive application of the topsoil later, or at locations indicated or specified. Topsoil shall be kept separate from other excavated materials, brush, litter, objectionable weeds, roots, stones larger than 50 mm in diameter, and other materials that would interfere with planting and maintenance operations. Any surplus of topsoil from excavations and grading shall be stockpiled in locations indicated. See Section 02921 SEEDING for definition of Topsoil.

3.3 GENERAL EXCAVATION

The Contractor shall perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified and shall include trenching for utility systems to a 1,525 mm outside the building line and all work incidental there to. Satisfactory excavated materials shall be

transported to and placed in fill or embankment within the limits of the work. Unsatisfactory materials encountered within the limits of the work shall be excavated below grade and replaced with satisfactory materials as directed. Such excavated material and the satisfactory material ordered as replacement shall be included in excavation. Surplus satisfactory excavated material not required for fill or embankment shall be disposed of in areas approved for surplus material storage or designated waste areas. Unsatisfactory excavated material shall be disposed of in designated waste or spoil areas. During construction, excavation and fill shall be performed in a manner and sequence that will provide proper drainage at all times. Material required for fill or embankment in excess of that produced by excavation within the grading limits shall be excavated from the borrow areas indicated or from other approved areas selected by the Contractor as specified.

3.3.1 Field Modifications

If nonfrost susceptible soils are encountered within the depth below finished grade as indicated on the drawings for depth of excavation, the Contractor shall excavate only to depths such that the nonfrost susceptible materials are uncovered or to the bottom of the footing or slab whichever is greater. If unsuitable soil conditions in the opinion of the Contracting Officer are encountered at the excavation lines specified, he may direct that extra excavation performed. The Contractor shall perform such extra excavation only when so directed in writing, and the extra work shall include both the necessary excavation and the placement and compaction of backfill material required to restore the excavation to the depth indicated on the drawings. When the excavation is carried to a line either above or below the elevations specified, an equitable modification of the contract price will be made. Backfill material shall not be placed until the Contractor has taken cross sectional elevations and measurements of the area excavated in the presence of the Contracting Officer.

3.3.2 Drainage

Excavation shall be performed in the dry. The excavations and the area immediately surrounding each excavation for a distance of 3,000 mm, including slopes and ditches, shall be continually and effectively drained away from the excavation. The excavation for inlet, outlet, and diversion ditches and the furnishing and operating of dewatering equipment, as necessary, shall be performed under this specification. Suitable precautions shall be taken to prevent any erosion from undercutting previously concreted footings and slabs. Excavations shall be kept free from ponding until the permanent work in the excavations has been completed and accepted, and the excavations have been completely backfilled.

3.3.3 Shoring

Shoring, including sheet piling, shall be installed during excavation where required for the protection of workmen, banks, structures and utilities.

3.3.4 Disposal of Excavated Material

Suitable excavated material shall be placed in the proper section of the permanent site work required for the project under contract. Suitable

material that cannot be placed readily in the permanent work shall be separately stockpiled as directed. Stockpiles shall be kept in a neat, well-drained and workable condition at all times. Material in excess of that required for the permanent work under this contract and any unsuitable material shall be disposed of as specified or shown. No excavated material shall be deposited at any time in a manner that may endanger any structure by direct pressure, by overloading banks contiguous to the operations, or that may be in any way detrimental to the completed work or obstruct any existing drainage course.

3.3.5 Protection of Utilities

When utility lines are encountered within the area of operations, the Contractor shall notify the Contracting Officer in ample time for the necessary measures to be taken to prevent interruption of the service. The existing utilities to be retained and utilities constructed under this contract that are shown on the drawings or the location of which is made known to the Contractor and adjustment in payment will be made by the Government at rates determined or approved by the Contracting Officer. Inactive or abandoned utilities shall be removed and the remaining ends capped or plugged outside the building excavation line.

3.4 FILL AND BACKFILL

AM# 3...No fill or backfill shall be placed until the subgrade has been checked and approved, and in no case shall it be placed on a subgrade that is muddy. Fill or backfill shall not be placed against foundation walls prior to 7 days after completion of the wall and then only after approval. Fill or backfill shall be brought up evenly on each side of wall as far as practicable. Heavy equipment for spreading and compacting backfill shall not be operated closer to the wall than a distance equal to the height of the backfill above top of footing. Care shall be exercised to avoid any wedging action or eccentric action upon or against the structure, and to avoid any disturbance or damage to the work. Each layer of fill or backfill shall be spread, and moistened, or dried by aeration, to the moisture content required to attain the specified degree of compaction....AM# 3

3.4.1 Classified Fill and Backfill

Where classified fill or backfill is shown on the drawings, or is required for additional excavation found necessary by the Contractor for its operations, such fill shall consist of material as herein before specified and it shall be placed in layers not exceeding 200 mm in loose thickness, uniformly compacted to at least 95 percent compaction, unless otherwise shown on the drawings, with vibratory, or equal, machine compaction equipment of an approved type. Layer thickness shall not exceed 100 mm where power-driven hand tampers are used. Portions of any layer in which the materials become segregated to the extent that the required percent compaction cannot be attained, shall be removed and replaced with satisfactory materials, or blended with additional material until segregation is eliminated and specified percent compaction can be attained. Where classified fill or backfill extends below the footings, it shall also extend to a vertical line 1,070 mm outside the projected exterior wall line, or to the lines as shown on the drawings.

3.4.2 Unclassified Fill and Backfill

After completion of foundation footings and wall, and other construction below the elevation of the final grades, and prior to backfilling, all forms shall be removed and the excavation shall be cleaned of all trash and debris. Backfilling or fill placed outside the exterior walls and above the bottom of the footings shall be unclassified, except where otherwise indicated on the drawings, and shall be placed in horizontal layers not in excess of 200 mm, (where hand tampers are used) in thickness. Each layer shall be compacted by hand or machine tampers or by other suitable equipment to at least 85 percent compaction. Backfill shall be brought to a suitable elevation above grade to provide for anticipated settlement and shrinkage thereof. Basement walls and floor slabs shall be protected from frost damage where construction is discontinued for the winter. To preclude frost damage to structures without basements, where construction is to be discontinued for the winter, no unclassified material shall be placed adjacent to exterior walls prior to placement of classified material within the structure.

3.4.3 Winter Protection

The Contractor shall take adequate precautions to protect foundations and floor slabs from damage due to frost action. It shall be the responsibility of the Contractor to repair or replace all such damage at no additional cost to the Government, and with no extension of the contract completion date. If, in the opinion of the Contracting Officer, repair of damage will result in an unsuitable facility, replacement of damaged portions of work will be directed. The following minimum requirements shall be met:

3.4.3.1 Backfilling

Exterior foundation footings and walls for slab-on-grade structures shall be backfilled to finished grade prior to the ambient air temperature falling below 0 degrees C. The backfill and/or insitu material shall be complete within a minimum of 1525 mm each side of the footing or wall. In lieu of this backfilling, the exterior footings may be heated as specified below. To preclude frost damage to slab-on-grade structures during winter construction, no unclassified material shall be placed adjacent to exterior walls prior to placement of classified material within the structure.

3.4.3.2 Heating

Exterior foundation footings and walls for structures with basements or crawl spaces, and all interior footings and floor slabs for structures with basements, crawl spaces or slab-on-grade construction, shall be protected as specified herein. When the ambient air temperature is below 0 degrees C, foundation footings or walls are not backfilled, the entire structure, to include all the footings or walls, shall be heated to 4.5 degrees C minimum. All temperatures shall be constantly and adequately monitored. The Contractor shall submit a Heating and Monitoring Plan describing the proposed method(s) to be used for winter protection.

3.4.3.3 Alternatives

The Contractor may request an alternative method for winter protection by submitting Heating and Monitoring Plan in writing to the Contracting Officer for approval.

3.4.3.4 Survey

The Contractor shall survey the elevations of all footings and slabs throughout the freezing season as directed by the Contracting Officer. These elevations shall be used to detect any movement of the footings and slabs, and to indicate the adequacy of the precautions taken.

3.5 OPERATION OF BORROW PITS

3.5.1 General

Borrow pits shall be opened and operated by the Contractor within the borrow areas shown on the drawings for the production of borrow materials required to complete the work under this section. Within the general borrow area, the Contracting Officer will designate a specific area for production of borrow materials required for work in this contract. The method of operation the pits will be subject to approval in order to obtain materials conforming to the specified requirements, to insure utilization of available materials, the pits shall be opened in such manner as to expose the vertical faces of the deposit for suitable working depths. All strata and pockets of unsuitable materials overlying or occurring in the deposit shall be wasted as directed. Unless otherwise indicated on the drawings, pits shall be opened and excavated to a minimum depth of 6 meters below the groundwater level existing at the time of borrow operations. Where pits are operated above groundwater level, excavation shall be to a maximum depth of 6 meters below original ground surface. The Government guarantees that sufficient quantities of material can be obtained from the designated area; however, the amount of work involved, the equipment required or the amounts of material required to be processed in order to produce sufficient quantities of suitable materials shall be the responsibility of the Contractor and the Government will not be liable for the cost resulting from such work or waste. Permafrost may be encountered. Frozen soils of undetermined extent are known to exist within the general borrow area. It is usual for seasonal frost to exceed 3 meters in depth. Preliminary approval of borrow pits shall not mean that all materials found in the deposit will be acceptable and the right is reserved to reject certain areas, strata, or channels within the areas and zones designated on the drawings when, in the opinion of the Contracting Officer, the material is unsatisfactory for the work under this section of the specifications. All necessary clearing, the grubbing and stripping of overburden of borrow pits, the disposal of waste and debris there from, and satisfactory drainage of the borrow pits shall be considered as incidental operations to the borrow excavations and shall be performed by the Contractor at no additional cost to the Government. As other contractors may be at work in the general borrow pit area, the Contractor shall develop operating procedures to eliminate all interference possible between its own and other contractor personnel and equipment, and such procedures shall be approved, prior to initiation of the work.

3.5.2 Disposal of Waste

All waste materials from stripping operations, and processing operations, and all other material designated as unsuitable by the Contracting Officer for use in the work, shall be disposed of in the designated portion of the borrow area, or as directed. Material meeting criteria may be utilized for earthwork under other sections of this specification.

3.5.3 Final Clean-up

Upon completion of the work covered by this contract, the Contractor shall leave the Government-owned borrow areas and adjacent premises in a satisfactory condition, with free drainage to adjacent drainage area.

3.6 ACCESS TO JOBSITE

The Contractor shall, for the duration of this contract, provide bridging of excavation or other means of access to existing structures or construction sites in the areas covered by this contract.

3.7 WEATHER LIMITATIONS

It shall be the responsibility of the Contractor to protect all areas of completed work against any detrimental effects due to weather, by approved methods. Any areas of completed work that are damaged by freezing or rain, shall be reconditioned, reshaped and recompacted by the Contractor in conformance with the requirements of this specification without additional cost to the Government.

3.8 REPAIR OF EXISTING WORK

All sidewalks, fences, poles and other existing feature that is to be retained but has been damaged or removed as a result of performance of the work shall be repaired or replaced in kind in a satisfactory manner.

3.9 CLEANING UP

The Contractor shall at all times keep the construction area, including storage areas used by it, free from accumulations of waste materials or rubbish and, prior to completion of the work, remove any rubbish from and about the premises and all tools, equipment and materials not the property of the Government. Upon completion of the construction, the Contractor shall leave the work and premises in a clean, neat and satisfactory condition.

3.10 BLASTING

Blasting operations, regardless of type, shall not be done.

3.11 TESTING

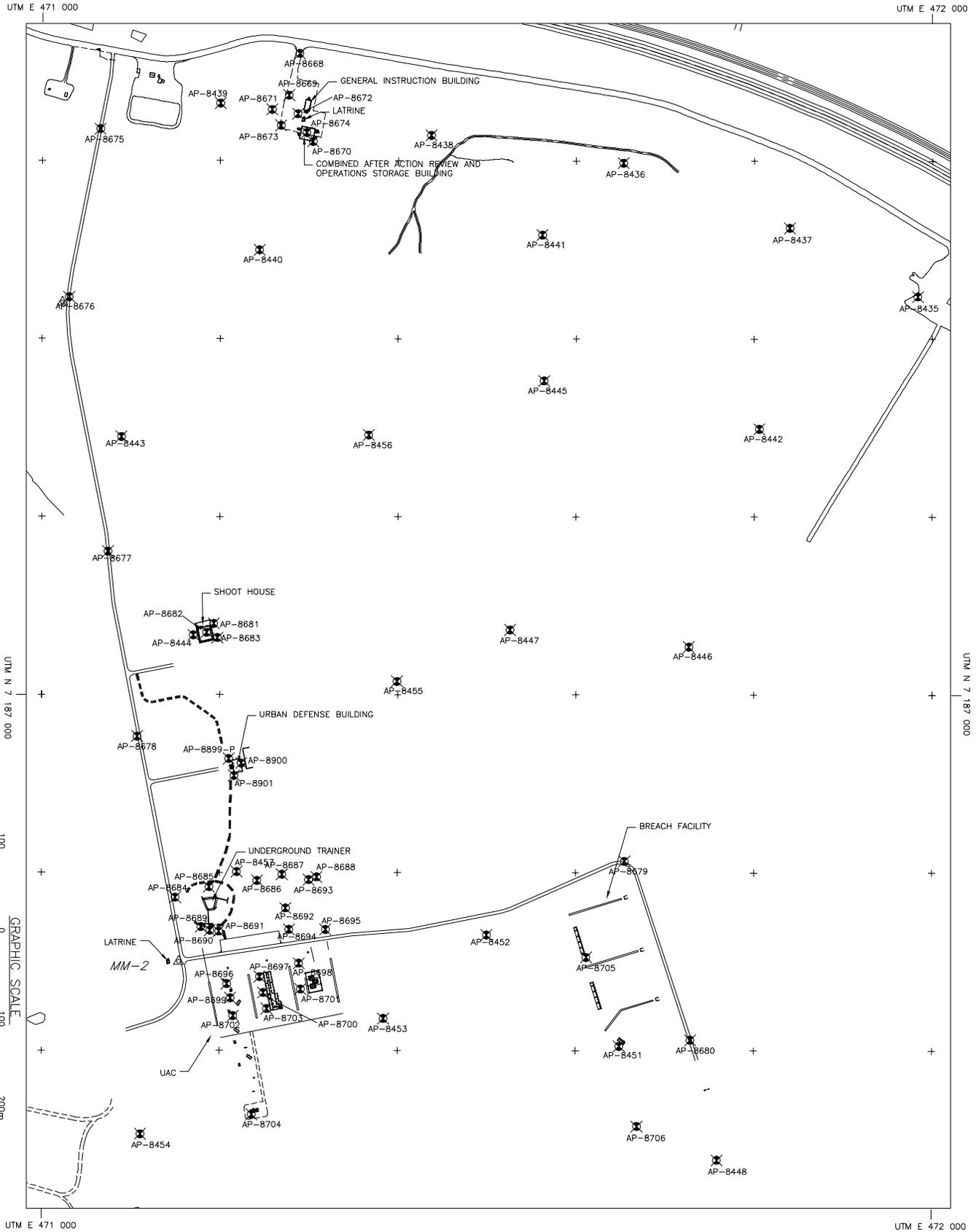
Compaction tests, and gradation and nonfrost susceptibility test, shall be performed on each layer of compacted material placed. Testing shall be the responsibility of the Contractor and shall be performed by an independent testing agency satisfactory to the Contracting Officer. The Contracting Officer may direct that the tests be taken at locations other than those shown on the submitted compaction test plan and that additional test be taken to supplement these required tests. The Contractor shall remove and replace nonconforming materials and shall recompact and retest failed and replaced areas until the specified degree of compaction is obtained. The Contractor shall amend its submitted compaction test plan to show the exact location and number of test taken. This plan shall be keyed to the test results. The compaction test report of each test shall reflect the type of test procedure and, for compaction tests, the volume or unit weight of the standard and the volume or unit weight of the compacted soil. The

record shall also reflect the firm or person that performed the test, the project title and contract number. The area referred to hereinafter which determines the minimum number of test required shall be an area that is compacted in one continuous operation.

- a. The following density test are required beneath structures with on-grade concrete floor slabs and when uniform compaction requirements are specified for beneath footings and slabs. The number of tests shall apply to each layer of material placed.
 - (1) Compacted Area: 50 square meters or less. A minimum of two tests or one test for each 12 square meters of area, whichever will provide the greatest number of tests.
 - (2) Compacted Area: Between 50 and 360 square meters. A minimum of four tests.
 - (3) Compacted Area: 360 square meters or greater. One test for each 90 square meters of area.
- b. The following density tests are required beneath footings for structures with elevated floors (crawl space) and structures where the compaction requirements beneath footings and floor slabs vary. The number of tests shall apply to each layer of material placed.
 - (1) Continuous Footings: One test for each 15 meters of continuous footing for walls over 30 meters long or a minimum of two tests per wall, whichever provides the greatest number of tests.
 - (2) Column Footings: One test per footing.
- c. Classified materials in-place are sampled and tested for gradation and nonfrost susceptibility requirements at least once for every 75 compacted cubic meters or portion thereof. For these tests, gradation shall be determined in accordance with ASTM C 136, with ASTM C 117 used to determine minus 0.075 mm sieve material and ASTM D 422 used to determine minus 0.02 mm material.

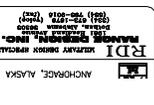
3.12 **AM# 3...ATTACHMENTS...AM# 3**

AM# 3...Test Soil Boring Logs...AM# 3



FTW SITE
SOL BORINGS
FT WANNINGHT, ALASKA
PN 55847 FY 04

W911KB-04-B-0002
MAY 2004
ANCHORAGE, ALASKA



Date	Description	Author	Checked

CONTRACT NO. _____
 CONTRACTOR _____
 STATE _____
 APPROVED _____
 RECOMMENDED _____
 DATE _____



W911KB-04-B-0002, Amendment # R0003



ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 1 Date: 11 Dec 2002
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,187,448 m Easting: 471,984 m		Top of Hole Elevation: 140.7 m

Hole Number, Field: TB-1	Permanent: AP-8435	Operator: Lincoln Trigg	Inspector: Steven Henslee
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Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: 3.8 m AD	Depth Drilled: 10.7 m	Total Depth: 11.1 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: Mobile 61 HDX	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
1		1			F2	Grab	SM	Silty SAND with Gravel				13	1.5	Brown, moist, rounded gravel, fine sand, nonplastic (NP) fines, FILL
2		2			NFS	8 20 15	GP	Poorly graded GRAVEL with Sand				38	0.9	Gray, moist, angular to subangular gravel, fine and coarse (gap graded) sand, FILL
3		3			F4	2 5 4	SM	Silty SAND					0.5	Brown, moist, fine sand, NP fines
4														
5		4			PFS	5 13 10	GP	Poorly graded GRAVEL with Sand				19	0.5	Gray, moist, subrounded to rounded gravel, medium sand
6		5				3 11 16	GP	Poorly graded GRAVEL with Sand				19	0.6	Gray, wet, subrounded to rounded gravel, fine to medium sand
7														
8		6				3 11 16	GP	Poorly graded GRAVEL with Sand				25	0.7	Gray, wet, subrounded to rounded gravel, medium to coarse sand
9		7				2 8 13	GP	Poorly graded GRAVEL with Sand				38	0.9	Gray, wet, subrounded to rounded gravel, medium to coarse sand
10														
11		8				5 11 14	GP	Poorly graded GRAVEL with Sand				25	0.8	Gray, wet, subrounded to rounded gravel, medium to coarse sand
12														Bottom of Hole 11.1 m Elevation 129.6 m Groundwater Encountered After Drilling: at depth 3.8 m PID = (Hot) Photo Ionization Detector

EXPLORATION LOG FTW254LOGS.GPJ ACE ANC.GDT 7/25/03

W911KB-04-B-0002, Amendment # R0003



**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 11 Dec 2002

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,598 m
Easting: 471,653 m

Top of Hole
Elevation: 138.7 m

Hole Number, Field: Permanent:
TB-2 AP-8436

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
10.7 m

Total Depth:
11.0 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1		1a, 1b	Nbe	F4	Grab Grab	OL ML	Organic SILT SILT				1.3 0.6		Surface: Brush and trees Black, frozen, nonplastic (NP) fines, 50% organics by volume Brown, moist, fine sand, NP fines	
1-2		2		F4	2 1 3	ML	SILT with Sand	16	84		0.6	44	Dark gray to black, moist, low plasticity fines	
2-3		3	Nbn	NFS	13 25 25	SP	Poorly graded SAND				0.5		Gray, frozen, fine sand	
3-5		4	Vc		9 62	SP	Poorly graded SAND with Gravel	38	58	4	19	0.7	9	Gray, frozen, subrounded to rounded gravel, fine to coarse sand, ice crystals to 5 millimeters
5-7		5	Nbe		3 32 43	SP- SM	Poorly graded SAND with Silt	94	6		0.9	25	Gray, frozen, fine sand	
7-8		6	Nbn		10 65	GP	Poorly graded GRAVEL with Sand			19	0.7		Gray, frozen, subrounded to rounded gravel, fine to medium sand	
8-10		7	Nbe		3 49 65	GP- GM	Poorly graded GRAVEL with Silt and Sand	62	31	7	25	0.6	14	Gray, frozen, subrounded to rounded gravel, fine to medium sand
10-11		8	Nbn		3 49 50/75mm	GP- GM	Poorly graded GRAVEL with Silt and Sand	46	45	9	25	0.4	7	Gray, frozen, subrounded to rounded gravel, medium to coarse sand Bottom of Hole 11.0 m Elevation 127.6 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

W911KB-04-B-0002, Amendment # R0003



Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 2 Date: 12 Dec 2002
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,187,525 m Easting: 471,840 m		Top of Hole Elevation: 138.5 m

Hole Number, Field: TB-3	Permanent: AP-8437	Operator: Lincoln Trigg	Inspector: Steven Henslee
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Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> Piezometer	Depth to Groundwater: 2.6 m AD	Depth Drilled: 14.9 m	Total Depth: 15.2 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: Mobile 61 HDX	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1		1	Nbn	F4	Grab	ML	SILT					1.0		Brown, frozen to moist, nonplastic (NP) fines
1-2		2		PFS	6 12 13	GP	Poorly graded GRAVEL with Sand	71	24	5	51	0.5	2	Brown, moist, subrounded to rounded gravel, fine to medium sand
2-3		3		PFS	6 8 10	GP	Poorly graded GRAVEL with Sand				25	0.6		450 millimeters of of heaving sand Gray, moist, subrounded to rounded gravel, medium to coarse sand
3-5		4		NFS	4 8 7	GP	Poorly graded GRAVEL with Sand				25	0.7		Gray, moist, subrounded to rounded gravel, medium to coarse sand
5-6		5	Nbe		12 42 68	GP	Poorly graded GRAVEL with Sand	69	29	2	25	0.8	15	300 millimeters of sand infiltration from above Gray, frozen, subrounded to rounded gravel, medium sand
6-8														450 millimeters of sand infiltration from above
8-10		6	Nbn		6 42 44	SP	Poorly graded SAND					0.3		1.0 meter of sand infiltration from above Gray, frozen, fine sand
10-11		7	Nbn		90 10/0mm	GP	Poorly graded GRAVEL with Sand				25	0.3		1.1 meter of sand infiltration from above Gray, frozen, subrounded to rounded gravel, coarse sand
11-12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

NPA Form 19-E May 94 Prev. Ed. Obsolete	Project: Modified MOUT and Range Upgrade Facility	Hole Number: AP-8437
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W911KB-04-B-0002, Amendment # R0003



**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 2 of 2 Date: 12 Dec 2002
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,187,525 m Easting: 471,840 m		Top of Hole Elevation: 138.5 m

Hole Number, Field: TB-3	Permanent: AP-8437	Operator: Lincoln Trigg	Inspector: Steven Henslee
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Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> Piezometer	Depth to Groundwater: 2.6 m AD	Depth Drilled: 14.9 m	Total Depth: 15.2 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: Mobile 61 HDX	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
13		8			31 100/100mm	SM	Silty SAND				51	0.4	7	Gray, frozen, subrounded to rounded gravel, fine to medium sand
14		9			10 50/75mm	GP-GM	Poorly graded GRAVEL with Silt				19	0.7		Gray, frozen, subrounded to rounded gravel, medium to coarse sand, nonplastic fines
15		10			50 10/0mm	GP-GM	Poorly graded GRAVEL with Silt				13	0.5		600 millimeters of sand infiltration from above Recovered material loose and soupy; but similar to material collected in sample 9 Bottom of Hole 15.2 m Elevation 123.3 m Groundwater Encountered After Drilling: at depth 2.6 m PID = (Hot) Photo Ionization Detector

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 12 Dec 2002

Soils and Geology Section EXPLORATION LOG

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,629 m
Easting: 471,437 m

Top of Hole
Elevation: 137.9 m

Hole Number, Field: Permanent:
TB-4 AP-8438

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
10.4 m

Total Depth:
10.7 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0.5		1a	Nbn	F4	Grab	ML	SILT					1.2		Surface: Grass, brush, tundra
0.5		1b	Nbn	F4	Grab	ML	SILT with Sand					1.2		Dark brown, frozen, nonplastic (NP) fines, organics
1.5		2	Nbe	F4	2 6 11	ML	SILT with Sand	24	76			0.8	77	Brown, frozen, fine sand, NP fines, seasonal frost
2.5		3			25/0mm	NR	No Recovery							Dark gray, frozen, low plasticity fines, less than 1% organics by volume
3.5		4		F3	61 10/0mm	GM	Silty GRAVEL with Sand	50	38	12	44	1.0	9	Spoon bouncing vigorously
4.5		5			90	GM	Silty GRAVEL with Sand	43	43	14	44	0.9	9	Dark gray, frozen, subrounded to rounded gravel, fine to medium sand, NP fines
5.5		6			40 50/75mm	SM	Silty SAND with Gravel				19	0.4		Very slow drilling
6.5		7			37 65/75mm	SM	Silty SAND with Gravel				19	0.7		Dark gray, frozen, subrounded gravel, fine to medium sand, NP fines
10.7														Dark gray, frozen, subrounded gravel, fine to medium sand, NP fines Bottom of Hole 10.7 m Elevation 127.2 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 1 Date: 13 Dec 2002
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,187,665 m Easting: 471,200 m		Top of Hole Elevation: 137.8 m

Hole Number, Field: Permanent: TB-5 AP-8439	Operator: Lincoln Trigg	Inspector: Steven Henslee
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Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: NE	Depth Drilled: 10.5 m	Total Depth: 10.7 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: Mobile 61 HDX	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1		1	Nbe	F4	Grab	OL	Organic SILT					1.5		Black, frozen, nonplastic (NP) fines
1-2		2	Nbe	F3	3 10 15	ML	Sandy SILT		33	67		0.7	38	Brown, frozen, fine sand, NP fines
2-3		3	Nbn	NFS	19 35 43	SP	Poorly graded SAND					0.5		Gray, frozen, fine sand
3-4		4a 4b	Nbn Nbe	NFS NFS	13 80 10/0mm	SP SP-SM	Poorly graded SAND Poorly graded SAND with Silt and Gravel	37	56	7	25	0.3 0.2	15	Gray, frozen, fine sand Gray, frozen, subrounded to rounded gravel, fine to medium sand
4-5		5			50 60/75mm	GP-GM	Poorly graded GRAVEL with Silt and Sand				32	0.7		Gray, frozen, subrounded to rounded gravel, fine to medium sand, NP fines
5-6		6			64 50/75mm	GM	Silty GRAVEL with Sand				25	0.8		Gray, frozen, subrounded to rounded gravel, fine to medium sand, NP fines
6-7		7			65 50/50mm	GM	Silty GRAVEL with Sand				32	0.8		Gray, frozen, subrounded to rounded gravel, fine to medium sand, NP fines
7-8		8			35 50/75mm	GM	Silty GRAVEL with Sand				25	0.9		Gray, frozen, subrounded to rounded gravel, fine to medium sand, NP fines
8-11														Bottom of Hole 10.7 m Elevation 127.0 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector

EXPLORATION LOG FTW254 LOGS.GPJ ACE_ANC.GDT 7/25/03

W911KB-04-B-0002, Amendment # R0003



Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 1 Date: 14 Dec 2002
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,187,500 m Easting: 471,244 m		Top of Hole Elevation: 137.9 m

Hole Number, Field: TB-6	Permanent: AP-8440	Operator: Lincoln Trigg	Inspector: Steven Henslee
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Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: NE	Depth Drilled: 10.5 m	Total Depth: 10.7 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: Mobile 61 HDX	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1		1a	Nbn		Grab	OL	Organic SILT						Black, frozen, nonplastic (NP) fines, 60% organics by volume	
0-1		1b	Nbn	F4	Grab	ML	SILT				1.0		Gray, frozen, NP fines	
1-2		2	Nbe	F4	6 19 16	ML	SILT with Sand	29	71		0.8	32	Brown, frozen, fine sand, NP fines	
2-3		3	Vx	F2	15 28 35	SM	Silty SAND	86	14		0.6	32	Gray, frozen, fine sand, NP fines, ice crystals less than 1 millimeter in diameter	
3-4		4	Vx	F2	13 45 10/0mm	SM	Silty SAND	87	13		0.5	24	Gray, frozen, fine to medium sand, NP fines	
4-6		5			50 40	SM	Silty SAND with Gravel				0.7		Gray, frozen, rounded gravel, medium to coarse sand, NP fines	
6-7		6	Nbn		52/150mm	GP	Poorly graded GRAVEL with Sand				38	0.8	Gray, frozen, subrounded to rounded gravel, fine to medium sand	
7-9		7			50/100mm	GP-GM	Poorly graded GRAVEL with Silt and Sand				6	0.9	Gray, frozen, subrounded to rounded gravel, fine to medium sand	
9-11		8			52/150mm	SM	Silty SAND				6	1.0	Gray, frozen, fine to medium sand, NP fines	
11-12													Bottom of Hole 10.7 m Elevation 127.2 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Project: **modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

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Date: 15 Dec 2002

Soils and Geology Section EXPLORATION LOG

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,517 m
Easting: 471,562 m

Top of Hole
Elevation: 138.0 m

Hole Number, Field: Permanent:
TB-7 AP-8441

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
10.4 m

Total Depth:
10.7 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

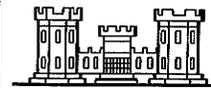
Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1		1	Nbn		Grab	OL	Organic SILT					1.0	Black, frozen, nonplastic (NP) fines, 60% organics by volume	
1-2		2	Nbn	PFS	5 16 30	SP	Poorly graded SAND					0.8	Brown, frozen, fine sand	
2-3		3	Nbe	F2	13 31 48	SM	Silty SAND	86	14			0.8	32 Gray, frozen, fine sand	
3-5		4	Nbe	F2	50/125mm	SM	Silty SAND			19		0.7	24 Gray, frozen, subrounded to rounded gravel, fine to coarse sand	
5-6		5			50 25/25mm	SM	Silty SAND			6		0.8	Dark gray, frozen, subrounded to rounded gravel, fine to medium sand, NP fines	
6-8		6			42 50/75mm	SM	Silty SAND			13		0.8	Dark gray, frozen, subrounded to rounded gravel, fine to medium sand, NP fines	
8-9		7			50/100mm	SM	Silty SAND			13		0.9	Dark gray, frozen, subrounded to rounded gravel, fine to medium sand	
9-11		8			9 50/100mm	SM	Silty SAND			13		0.7	Gray, frozen, fine to medium sand, NP fines	
11-12	Bottom of Hole 10.7 m Elevation 127.4 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector													

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 15 Dec 2002

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,299 m
Easting: 471,806 m

Top of Hole
Elevation: 138.7 m

Hole Number, Field: Permanent:
TB-8 AP-8442

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other Installed PVC for thermister string
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
10.4 m

Total Depth:
10.5 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
1		1a 1b	Nbe	F4	Grab Grab	OL ML	Organic SILT SILT					1.0		Black, frozen, organics Dark gray, frozen, nonplastic (NP) fines
2		2	Vx	F4	9 17 17	ML	SILT with Sand	3	19	78		0.8	53	Dark gray, frozen, NP fines, ice crystals to 5 millimeters in diameter
3		3	Nbe	F4	12 27 42	SM	Silty SAND	3	57	42		0.8	29	Dark gray, frozen, fine sand, NP fines
4		4			22/75mm 10/0mm	NR	No Recovery							No recovery, frozen soil indicated by blow count and drill action
6		5			50/75mm	SP	Poorly graded SAND					0.5		Gray, frozen, subrounded gravel, fine to medium sand
8		6			50/75mm	NR	No Recovery							No recovery, sand and gravel to 100 millimeters in cuttings, frozen soil indicated by blow count and drill action
11		7			50/75mm	NR	No Recovery							No recovery, frozen soil indicated by blow count and drill action Bottom of Hole 10.5 m Elevation 128.2 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

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Date: **16 Dec 2002**

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: **7,187,290 m**
Easting: **471,089 m**

Top of Hole
Elevation: **137.8 m**

Hole Number, Field: **TB-9** Permanent: **AP-8443**

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other Installed PVC for thermister string
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
8.8 m

Total Depth:
9.1 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
1		1	Nbe		Grab	OL	Organic SILT					1.5		Black, frozen, nonplastic (NP) fines, 40% organics by volume
2		2	Nbe	F4	3 6 13	ML	SILT		8	92		0.8	40	Brown, frozen, NP fines
3		3	Nbe	S2	15 36 33	SP-SM	Poorly graded SAND with Silt	2	87	11		0.7	30	Gray, frozen, fine sand
4		4			1/50mm 24/0mm	NR	No Recovery							No recovery, spoon bouncing vigorously, frozen soil indicated by blow count and drill action
6		5			50/75mm	NR	No Recovery							No recovery, cuttings consist of gravel and sand, spoon bouncing vigorously, frozen soil indicated by blow count and drill action
8		6			3/125mm 46/50mm	SM	Silty SAND with Gravel	36	50	14	19		7	Gray, frozen, subrounded to rounded gravel, fine to medium sand, NP fines
9		7			6 20/0mm	SM	Silty SAND with Gravel	33	53	14	19		7	Gray, frozen, subrounded to rounded gravel, fine to medium sand, NP fines
10														Bottom of Hole 9.1 m Elevation 128.7 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

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Date: 16 Dec 2002

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,067 m
Easting: 471,170 m

Top of Hole
Elevation: 137.9 m

Hole Number, Field: Permanent:
TB-10 AP-8444

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
2.3 m WD

Depth Drilled:
8.8 m

Total Depth:
8.8 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

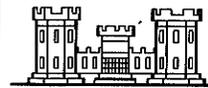
Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class: TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0		1a 1b	Nbn	F4	Grab Grab	OL ML	Organic SILT SILT					1.3	Surface: Trees Black, frozen, nonplastic (NP) fines, 15% organics by volume Brown, frozen, NP fines	
1		2		F4	2 6 6	SP	Poorly graded SAND					0.9	Brown, moist, fine sand	
2														
3		3		NFS	5 10 10	GP	Poorly graded GRAVEL with Sand			13	0.7		Brown, wet, subrounded to rounded gravel, fine to coarse sand	
4		4			2 4 9	SP	Poorly graded SAND with Gravel			6	0.6		Gray, wet, subrounded to rounded gravel, fine to coarse sand	
5														
6		5			2 8 8	GP	Poorly graded GRAVEL with Sand				0.6		300 millimeters of heaving sand Gray, wet, subrounded to rounded gravel, fine to coarse sand	
7		6				NR	No Recovery						less than 1.5 meters of heaving sand, unable to sample	
8														
9		7				NR	No Recovery						1.2 meters of heaving sand, unable to sample Bottom of Hole 8.8 m Elevation 129.0 m Groundwater Encountered While Drilling: at depth 2.3 m PID = (Hot) Photo Ionization Detector	
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

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Date: 17 Dec 2002

Soils and Geology Section EXPLORATION LOG

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,353 m
Easting: 471,564 m

Top of Hole
Elevation: 138.2 m

Hole Number, Field: Permanent:
TB-11 AP-8445

Operator: Lincoln Trigg
Inspector: Steven Henslee

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
8.8 m

Total Depth:
9.0 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
1		1	Nbe	F4	Grab	OL ML	Organic SILT SILT					0.5	Black, nonplastic (NP) fines, 50% organics by volume Brown, frozen, NP fines	
2		2	Nbe	F4	7 13 13	ML	SILT		7	93		0.7	38 Brown, frozen, NP fines	
3		3	Nbn	NFS	10 22 41	SP	Poorly graded SAND					0.8	Gray, frozen, fine sand	
4		4	Nbn	F2	48 10/0mm	SM	Silty SAND with Gravel	28	56	16	25	1.1	10 Gray, frozen, rounded gravel, fine to medium sand, spoon bouncing vigorously	
6		5			50/125mm	SM	Silty SAND with Gravel	14	64	22	13	0.9	8 Gray, frozen, subrounded gravel, fine sand, NP fines, spoon bouncing vigorously	
8		6			50/150mm	SM	Silty SAND with Gravel	29	51	20	13	0.7	9 Gray, frozen, subrounded to rounded gravel, fine to medium sand	
9		7			50/100mm	SM	Silty SAND with Gravel					0.6	6 Gray, frozen, rounded gravel, fine to medium sand, NP fines Bottom of Hole 9.0 m Elevation 129.2 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

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Date: 17 Dec 2002

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,054 m
Easting: 471,727 m

Top of Hole
Elevation: 138.3 m

Hole Number, Field: Permanent:
TB-12 AP-8446

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
2.3 m WD

Depth Drilled:
8.8 m

Total Depth:
9.3 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1			Nbe	F4	Grab	OL	Organic SILT					0.3	Black, nonplastic (NP) fines, 60% organics by volume	
1-2		2		F4	2 8	ML	Sandy SILT	3	33	64		0.8	32 Gray, moist, fine sand, NP fines	
2-3		3		NFS	6 12 15	GP	Poorly graded GRAVEL with Sand					51	0.6 Gray, wet, subrounded to rounded gravel, fine to coarse sand, faint organic odor	
3-4		4		NFS	5 10 13	GP	Poorly graded GRAVEL with Sand					57	0.9 Gray, wet, subrounded to rounded gravel, fine to coarse sand, faint organic odor	
4-6		5			2 3 7	GP	Poorly graded GRAVEL with Sand					13	1.0 375 millimeters of heaving sand Gray, wet, subrounded to rounded gravel, fine to medium sand	
6-8		6				NR	No Recovery						1.6 meters of heaving sand, no sample attempted	
8-9		7			2 2 7 10	GP	Poorly graded GRAVEL with Sand					38	1.0 900 millimeters of heaving sand Gray, wet, subrounded to rounded gravel, fine to medium sand, unable to shake spoon to the bottom of the hole, drove sampler an extra 150 millimeters to compensate for heaving sand Bottom of Hole 9.3 m Elevation 129.0 m Groundwater Encountered While Drilling: at depth 2.3 m PID = (Hot) Photo Ionization Detector	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 1 Date: 18 Dec 2002
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,187,073 m Easting: 471,526 m		Top of Hole Elevation: 138.5 m

Hole Number, Field: TB-13	Permanent: AP-8447	Operator: Lincoln Trigg	Inspector: Steven Henslee
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Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: NE	Depth Drilled: 8.8 m	Total Depth: 9.1 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: Mobile 61 HDX	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1		1	Nbn	F4	Grab	OL	Organic SILT					0.8	Dark gray to black, frozen, nonplastic (NP) fines, 40% organics by weight	
1-2		2	Vx	F4	4 6 16	ML	Sandy SILT		46	54		0.7	81 Brown, frozen, NP fines, ice to 5 millimeters in diameter, 5% organics by volume	
2-3		3		F2	28/125mm 10/0mm	SM	Silty SAND with Gravel	18	61	21	13	0.7	7 Drill action indicates material change Gray, moist, subrounded gravel, fine sand, NP fines	
3-4		4		F4	50	SM	Silty SAND with Gravel				25	0.6	Gray, moist, subrounded gravel, fine sand, NP fines	
4-5		5			50	SM	Silty SAND with Gravel	38	48	14	19	0.7	8 Gray, moist, subrounded to rounded gravel, fine sand, NP fines	
5-6		6			25 13	SM	Silty SAND with Gravel				6	0.7	Gray, moist, subrounded gravel, fine sand, NP fines, spoon bouncing vigorously	
6-9		7			41/75mm 15/0mm	NR	No Recovery						No recovery, spoon bouncing vigorously, frozen soil indicated by blow count and drill action Bottom of Hole 9.1 m Elevation 129.4 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

NPA Form 19-E May 94 Prev. Ed. Obsolete	Project: Modified MOUT and Range Upgrade Facility	Hole Number: AP-8447
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W911KB-04-B-0002, Amendment # R0003



**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Project: Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska

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Date: 18 Dec 2002

Soils and Geology Section EXPLORATION LOG

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,477 m
Easting: 471,759 m

Top of Hole
Elevation: 138.4 m

Hole Number, Field: Permanent:
TB-14 AP-8448

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
7.5 m

Total Depth:
7.8 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1		1	Nbn	F4	Grab	OL ML	Organic SILT Sandy SILT					0.8	Black, frozen, nonplastic (NP) fines, 50% organics by volume	
1-2		2	Nbe	F4	3 6 11	ML	SILT		10	90		0.6	57 Brown, frozen, fine sand, NP fines	
2-3		3	Vx	NFS	11 24 31	SP	Poorly graded SAND		95	5		0.2	30 Brown to gray, frozen, fine sand	
3-5		4	Nf		35 50	GP	Poorly graded GRAVEL with Sand				19	0.2	Gray, frozen, subrounded to rounded gravel, fine to medium sand	
5-6		5			2/50mm 48/100mm	SM	Silty SAND with Gravel	22	60	18	25	0.4	9 Gray, frozen, subrounded to rounded gravel, fine to coarse sand, NP fines	
6-8		6	Nf		50 25/25mm	SM	Silty SAND with Gravel				13	0.5	Gray, frozen, subrounded to rounded gravel, fine to medium sand, NP fines	
8-7.8													Bottom of Hole 7.8 m Elevation 130.6 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

W911KB-04-B-0002, Amendment # R0003



ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 1
Date: 18 Dec 2002

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,274 m
Easting: 471,826 m

Top of Hole Elevation: 138.5 m

Hole Number, Field: **TB-15** Permanent: **AP-8449**

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
2.4 m AD

Depth Drilled:
8.7 m

Total Depth:
8.7 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1			Nbe	F4	Grab	OL	Organic SILT					1.1	Black, frozen, nonplastic (NP) fines, 60% organics by volume	
1-2		2	Nbe	F4	2 2	ML	SILT with Sand	30	70			0.2	35 Brown, frozen, fine sand, NP fines	
2-3													Drill action indicates material change	
3-4		3	NFS		7 10 14	GP	Poorly graded GRAVEL with Sand			51		0.3	Gray, wet, subrounded to rounded gravel, medium to coarse sand	
4-5		4	NFS		6 50/125mm	SP	Poorly graded SAND with Gravel			13		0.4	300 millimeters of heaving sand Gray, wet, subrounded to rounded gravel, fine to coarse sand	
5-6		5	Nbn		15 25 35	SP	Poorly graded SAND					0.7	Gray, frozen, fine to medium sand	
6-7		6	Vc		26 50/100mm	GP-GM	Poorly graded GRAVEL with Silt			25		0.3	17 Brown, frozen, subrounded to rounded gravel, fine to coarse sand	
7-9		7			3/25mm 10/0mm	NR	No Recovery						No recovery, spoon bouncing vigorously, frozen soil indicated by blow count and drill action Bottom of Hole 8.7 m Elevation 129.8 m Groundwater Encountered After Drilling: at depth 2.4 m PID = (Hot) Photo Ionization Detector	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 1
Date: 18 Dec 2002

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,047 m
Easting: 471,914 m

Top of Hole Elevation: 139.2 m

Hole Number, Field: Permanent:
TB-16 AP-8450

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
2.6 m AD

Depth Drilled:
7.5 m

Total Depth:
7.9 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0.0 - 0.5		1	Nbe	F4	Grab	OL ML	Organic SILT SILT with Sand				10	0.2	Surface: Black spruce, brush Black, frozen, nonplastic (NP) fines, 60% organics by volume Dark gray, moist, fine sand, NP fines	
0.5 - 2.0		2		F4	3 4	ML	SILT with Sand		23	77		3.0	28	Dark brown, moist, fine sand, NP fines, 75 millimeters of decaying wood plugging shoe
2.0 - 3.0		3		NFS	4 2 4	SP	Poorly graded SAND with Gravel				13	0.5	Gray, wet, subrounded to rounded gravel	
3.0 - 5.0		4			1 2 2	NR	No Recovery							900 millimeters of heaving sand No recovery
5.0 - 6.0		5			3 4 4	GP	Poorly graded GRAVEL with Sand				51	0.5	600 millimeters of heaving sand Gray, wet, subrounded to rounded gravel, fine sand	
6.0 - 7.9		6			3 7 7	GP	Poorly graded GRAVEL with Sand				25	0.5	450 millimeters of heaving sand Gray, wet, subrounded to rounded gravel, fine to medium sand	
7.9 - 7.9														Bottom of Hole 7.9 m Elevation 131.2 m Groundwater Encountered After Drilling: at depth 2.6 m PID = (Hot) Photo Ionization Detector

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

W911KB-04-B-0002, Amendment # R0003



ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 1
Date: 19 Dec 2002		
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,605 m Easting: 471,649 m		Top of Hole Elevation: 138.4 m
Hole Number, Field: TB-17	Permanent: AP-8451	Operator: Lincoln Trigg
		Inspector: Steven Henslee

Type of Hole: <input type="checkbox"/> other _____ <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: NE	Depth Drilled: 7.2 m	Total Depth: 7.4 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: Mobile 61 HDX	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0			Nbe	F4	Grab	OL	Organic SILT					0.3		Surface: Tundra Black, frozen, nonplastic (NP) fines, organics 60% by volume
1			Vx	F4	2 7 18	ML	Sandy SILT		30	70		0.6	41	Dark brown, frozen, fine sand, NP fines, ice to 3 millimeters in diameter Drill action indicates material change
2			Nf	NFS	45 50/100mm	SP-SM	Poorly graded SAND with Silt and Gravel	44	50	6	25	0.6	10	Gray, frozen, subrounded to rounded gravel, fine to coarse sand
3			Nf	F2	45 30/75mm 10/0mm	SM	Silty SAND with Gravel	37	47	16	38	0.4	9	Gray, frozen, subrounded to rounded gravel, fine to medium sand, NP fines
4														Slow drilling, Little to no cuttings
5					50	SM	Silty SAND				19	0.3		Gray, frozen, fine sand, NP fines
6			Nf		38 33/75mm 10/0mm	SW	Well-graded SAND with Gravel				38	0.2		Gray, frozen, subrounded gravel, fine to coarse sand
7														Bottom of Hole 7.4 m Elevation 131.0 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector
8														
9														
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

W911KB-04-B-0002, Amendment # R0003



**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Soils and Geology Section EXPLORATION LOG

Project: **modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 19 Dec 2002

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,730 m
Easting: 471,500 m

Top of Hole
Elevation: 138.3 m

Hole Number, Field: Permanent:
TB-18 AP-8452

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
2.7 m AD

Depth Drilled:
7.3 m

Total Depth:
7.6 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class: TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0.0 - 0.2		1a	Nf	F4	Grab	OL	Organic SILT					0.2		Black, frozen, nonplastic (NP) fines, 60% organics (roots) by volume
0.2 - 0.5		1b		F4	Grab	ML	SILT					0.5		Brown, frozen, fine sand, NP fines
0.5 - 1.0		2		NFS	5 5 7	SP	Poorly graded SAND with Gravel			6		0.5		Brown, moist, rounded gravel, fine to medium sand
1.0 - 2.0		3		NFS	7 9 8	GP	Poorly graded GRAVEL with Sand			51		0.4		Brown, wet, subrounded to rounded gravel, fine to medium sand
2.0 - 4.0		4	Nbn	NFS	5 24 39	SP	Poorly graded SAND with Gravel			44		0.3		Gray, frozen, subrounded to rounded gravel, fine to coarse sand
4.0 - 6.0		5	Nbe		20 30 50/125mm	SP-SM	Poorly graded SAND with Silt	89	11			0.3	30	Gray, frozen, fine sand, NP fines
6.0 - 7.0		6	Nf		20 50	GP	Poorly graded GRAVEL with Sand			13		0.4		Gray, frozen, subrounded to rounded gravel, fine to medium sand
7.0 - 7.6														Bottom of Hole 7.6 m Elevation 130.7 m Groundwater Encountered After Drilling: at depth 2.7 m PID = (Hot) Photo Ionization Detector

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

W911KB-04-B-0002, Amendment # R0003



**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Soils and Geology Section EXPLORATION LOG

Project: **modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 19 Dec 2002

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,636 m
Easting: 471,384 m

Top of Hole
Elevation: 138.1 m

Hole Number, Field: Permanent:
TB-19 AP-8453

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
7.3 m

Total Depth:
7.5 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1		1	Nbe	F4	Grab	OL	Organic SILT					0.2	Black, frozen, nonplastic (NP) fines,	
1-2		2	Nbe	F4	3 4	ML	Sandy SILT					0.5	Brown to gray, frozen, fine sand, NP fines Drill action indicates material change	
2-3		3	Nf	S1	5/125mm 20/25mm	GP- GM	Poorly graded GRAVEL with Silt and Sand	64	28	8	32	0.5	9 Gray, wet to frozen, subrounded gravel, fine to coarse sand	
3-4		4		F1	1/50mm 49/100mm	GM	Silty GRAVEL with Sand				6	0.6	Gray, frozen, subrounded to rounded gravel, fine to coarse sand Slow drilling, little to no cuttings	
4-6		5			50/125mm	GM	Silty GRAVEL with Sand				13	0.7	Gray, frozen, subrounded to rounded gravel, fine to medium sand	
6-8		6			38 20/50mm 10/0mm	SM	Silty SAND with Gravel	26	57	17	19	0.6	12 Gray, frozen, subrounded to rounded gravel, fine to coarse sand Bottom of Hole 7.5 m Elevation 130.6 m Groundwater Not Encountered PID = (Hot) Photo Ionization Detector	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 1
Date: **21 Dec 2002**

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: **7,186,506 m**
Easting: **471,111 m**

Top of Hole Elevation: **137.9 m**

Hole Number, Field: **TB-20** Permanent: **AP-8454**

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
7.5 m

Total Depth:
7.9 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0			Nbe	F4	Grab	OL	Organic SILT						Black, frozen, nonplastic (NP) fines, 60% organics by volume	
1			Nbe	F4	5 11 9	ML	Sandy SILT	36	64			38	Gray, frozen, fine sand, NP fines, 2% organics by volume Drill action indicates material change	
2														
3				PFS	50 25/25mm	GP	Poorly graded GRAVEL with Sand					25	Gray, moist, rounded gravel, fine to medium sand	
4				NFS	5 7 9	GP	Poorly graded GRAVEL with Sand					57	Gray, wet, subrounded to rounded gravel, fine to coarse sand	
5														
6					5 5 7	SP	Poorly graded SAND with Gravel					51	Gray, wet, subrounded to rounded gravel, fine to coarse sand	
7														
8					2 6 7	GP	Poorly graded GRAVEL with Sand					64	Gray, wet, subrounded gravel, fine to medium sand	
9													Bottom of Hole 7.9 m Elevation 130.0 m Groundwater Not Encountered No PID measurements taken.	
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

W911KB-04-B-0002, Amendment # R0003



**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 21 Dec 2002

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,015 m
Easting: 471,399 m

Top of Hole
Elevation: 137.9 m

Hole Number, Field: Permanent:
TB-21 AP-8455

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
3.5 m WD

Depth Drilled:
7.5 m

Total Depth:
7.9 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0							Organic SILT						Surface: Snow, brush	
1			Nbe	F4	Grab	OL							Black, frozen, nonplastic (NP) fines, 60% organics by volume	
2		2	Nf	F4	1 2 3	ML	SILT						Gray, frozen, NP fines, less than 5% organics by volume	
3		3		F4	1 2	ML	Sandy SILT	38	62			39	Gray, moist, NP fines, less than 5% organics by volume	
4														
5		4		NFS	2 7 9	SP	Poorly graded SAND with Gravel			25			Gray, wet, subrounded to rounded gravel, fine to coarse sand	
6		5			1 5 11	GP	Poorly graded GRAVEL with Sand			25			Gray, wet, subrounded to rounded gravel, fine to coarse sand	
7														
8		6			2 3 7	GP	Poorly graded GRAVEL with Sand			25			Gray, wet, subrounded to rounded gravel, fine to coarse sand	
8													Bottom of Hole 7.9 m Elevation 130.0 m Groundwater Encountered While Drilling: at depth 3.5 m No PID measurements taken.	
9														
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

W911KB-04-B-0002, Amendment # R0003



**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Project: Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska

Page 1 of 1
Date: 21 Dec 2002

Soils and Geology Section EXPLORATION LOG

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,292 m
Easting: 471,367 m

Top of Hole
Elevation: 138.2 m

Hole Number, Field: Permanent:
TB-22 AP-8456

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
3.7 m AD

Depth Drilled:
7.5 m

Total Depth:
7.8 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class: TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1		1	Nbe	F4	Grab	OL	Organic SILT						Black, frozen, nonplastic (NP) fines, 60% organics by volume	
1-2		2		F4	1 2	SM	Silty SAND		51	49		33	Brown, moist, fine sand, NP fines	
2-3		3		F4	1 2	ML	Sandy SILT						Gray, wet, fine sand, NP fines	
3-5		4	Nbn	F1	5 50/75mm	GP-GM	Poorly graded GRAVEL with Silt and Sand	70	22	8	38	8	450 millimeters of heaving sand Gray, frozen, subrounded to rounded gravel, fine sand	
5-6		5	Nbn		12 49 20/25mm	SP-SM	Poorly graded SAND with Silt and Gravel	29	63	8	15	12	Gray, frozen, subrounded gravel, fine to coarse sand	
6-8		6	Nf		16 40/75mm	GP-GM	Poorly graded GRAVEL with Silt and Sand						Gray, frozen, subrounded to rounded gravel, fine to medium sand Bottom of Hole 7.8 m Elevation 130.4 m Groundwater Encountered After Drilling: at depth 3.7 m No PID measurements taken.	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 21 Dec 2002

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,801 m
Easting: 471,219 m

Top of Hole
Elevation: 138.1 m

Hole Number, Field: Permanent:
TB-23 AP-8457

Operator:
Lincoln Trigg

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
7.2 m

Total Depth:
7.5 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

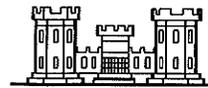
Type of Equipment:
Mobile 61 HDX

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0							Organic SILT						Surface: Brush, snow	
1		1	Nf	F4	3	OL							Black, frozen, nonplastic (NP) fines, 60% organics by volume	
2		2		F4	12	ML	Sandy SILT	30	70			29	Brown, moist, fine sand, NP fines, less than 5% organics by weight	
3		3			5/50mm 25/25mm	NR	No Recovery						No recovery, spoon bouncing vigorously, frozen soil indicated by blow count and drill action	
4		4			12/0mm	NR	No Recovery						No recovery, spoon bouncing vigorously, frozen soil indicated by blow count and drill action	
6		5	Nbe			GP-GM	Poorly graded GRAVEL with Silt and Sand	52	41	7	25	38	Gray, frozen, subrounded to rounded gravel, fine to medium sand	
7		6	Nbe			SP-SM	Poorly graded SAND with Silt and Gravel				25		Gray, frozen, subrounded gravel, fine to coarse sand	
8													Bottom of Hole 7.5 m Elevation 130.6 m Groundwater Not Encountered No PID measurements taken. *Since no samples were collected previously, the hole was advanced 18 inches past the sample depth and the augers reversed to allow sampling of the cuttings. Blow count not applicable so not recorded.	
9														
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section EXPLORATION LOG

Project: **modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 1
Date: 16 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,721 m
Easting: 471,289 m

Top of Hole Elevation: 138.4 m

Hole Number, Field: **AAR-1** Permanent: **AP-8668**

Operator: **William Tester**

Inspector: **Steven Henslee**

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater: **3.4 m AD**

Depth Drilled: **4.6 m**

Total Depth: **5.0 m**

Hammer Weight: **154 kg**

Split Spoon I.D.: **64 mm**

Size and Type of Bit: **203 mm HSA**

Type of Equipment: **CME 850 with Automatic Hammer**

Type of Samples: **Grab and Drive**

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class: TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1		1				GP-GM	Poorly graded GRAVEL with Silt and Sand	60	32	8	38		6	Surface: Gravel road Brown, wet, rounded gravel, fine to coarse sand, FILL
1-1.5		2	Vx	F4	12 13 14	ML	SILT		9	91			50	Brown, frozen, fine sand, nonplastic (NP) fines, small cloudy ice crystals
1.5-2		3	Nbn	F4	7 21 42	ML	SILT							Brown, frozen, fine sand, NP fines
2-3		4		NFS	2 5 4	GP	Poorly graded GRAVEL with Sand				25			Brown, wet, rounded gravel, medium to coarse sand
3-5		5		NFS	3 3 3	SP	Poorly graded SAND							Gray, wet, fine sand
5-6	Bottom of Hole 5.0 m Elevation 133.4 m Groundwater Encountered After Drilling: at depth 3.4 m													

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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Soils and Geology Section EXPLORATION LOG

Project: modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 1
Date: 9 Apr 2003		
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other	Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other	
Location: Northing: 7,187,674 m Easting: 471,277 m	Top of Hole Elevation: 138.8 m	
Hole Number, Field: AAR-2	Permanent: AP-8669	Operator: William Tester
		Inspector: Gregory Carpenter

Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: 3.3 m WD	Depth Drilled: 9.1 m	Total Depth: 9.1 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
1		1a 1b	Vx Vx	F3 F4	11 23 20	SM PT	Silty SAND with Gravel PEAT	24	39	37	>76	24	Gray, frozen, rounded gravel, fine to coarse sand, FILL Dark brown, frozen	
2		2a 2b	Vx	F4	8 8 5 4	OL ML	Organic SILT SILT						Gray and brown, frozen to moist, small ice crystals Brown and gray, moist, very fine sand, nonplastic fines	
3		3			25 26 32	SP	Poorly graded SAND with Gravel and Cobbles				>76		Drill action indicates sand, no recovery, spoon impeded by cobbles	
4														
5		4			6 6 6 6	SP	Poorly graded SAND with Gravel				25		Gray, wet, sample washed out	
6														
7		5			2 3 2 4	GP	Poorly graded GRAVEL with Sand				38		Gray, wet, rounded gravel, fine to coarse sand	
8		6			4 4 2	SP	Poorly graded SAND with Gravel				25		Gray, wet to frozen, rounded gravel, medium to coarse sand, small ice crystals	
9							No Sample						Drill action indicates sand, rod bound up in auger, no sample taken	
10													Bottom of Hole 9.1 m Elevation 129.6 m Groundwater Encountered While Drilling: at depth 3.3 m	
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
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Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska

Page 1 of 1
Date: 16 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,622 m ±
Easting: 471,304 m ±

Top of Hole
Elevation: 139.1 m ±

Hole Number, Field: Permanent:
AAR-3 AP-8670

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
3.5 m AD

Depth Drilled:
9.1 m

Total Depth:
9.8 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1						GP	Poorly graded GRAVEL with Sand	72	24	4	64		6	Surface: Gravel pad Brown, wet, rounded gravel, fine to coarse sand, nonplastic (NP) fines, FILL
1-1.5		2	Nbn	F4	4	ML	SILT							Brown, frozen, fine sand, NP fines, 75 millimeters of organics at 900 millimeters below ground surface
1.5-2		3	Vx	F4	10	ML	SILT							
2-3					7									300 millimeters of heaving sand Brown, moist, rounded gravel, fine to medium sand
3-4		4	NFS		8	SP	Poorly graded SAND with Gravel				19			
4-5					8									300 millimeters of heaving sand Gray, wet, rounded gravel, fine to coarse sand
5-6		5	NFS		3	GP	Poorly graded GRAVEL with Sand				51			
6-7					4									400 millimeters of heaving sand Gray, wet, rounded gravel, medium to coarse sand
7-8		6			3	GP	Poorly graded GRAVEL with Sand				51			
8-9					2									900 millimeters of heaving sand Gray, wet, rounded gravel, coarse sand
9-10		7			6	GP	Poorly graded GRAVEL with Sand				64			
10-11					4									600 millimeters of heaving sand Gray to black, subrounded to rounded gravel, fine to coarse sand, 13-millimeter thick piece of wood
11-12		8			6	GP	Poorly graded GRAVEL with Sand				25			
12					2									Bottom of Hole 9.8 m Elevation 129.4 m ± Groundwater Encountered After Drilling: at depth 3.5 m

EXPLORATION LOG FTW254 LOGS.GPJ ACE ANC.GDT 7/25/03

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**ALASKA DISTRICT
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Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 9 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,658 m
Easting: 471,258 m

Top of Hole
Elevation: 138.0 m

Hole Number, Field: Permanent:
AAR-4 AP-8671

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
6.1 m

Total Depth:
6.4 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0						PT	PEAT						Surface: Tundra Dark brown, frozen, surface organics	
1		1		F4	3	OL	Organic SILT					29	Gray with brown organic layers (roots), moist, nonplastic (NP) fines	
2		2	Vx	F4	2	ML	SILT						Brown and gray, frozen, rounded gravel, very fine to coarse sand, NP fines	
3		3	Vx	NFS	44	GP	Poorly graded GRAVEL with Sand			38			Gray, frozen, rounded gravel, fine to coarse sand	
4		4	Vx		52/125mm	GP	Poorly graded GRAVEL with Sand			25			Gray, frozen, fine to coarse sand	
5		5	Vx		15	SP	Poorly graded SAND			13			Gray, frozen, rounded gravel, fine to medium sand	
6					51/125mm								Bottom of Hole 6.4 m Elevation 131.6 m Groundwater Not Encountered	
7														
8														
9														
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
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Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 2 Date: 11 Apr 2003
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,187,653 m Easting: 471,287 m		Top of Hole Elevation: 138.9 m

Hole Number, Field: AAR-5	Permanent: AP-8672	Operator: William Tester	Inspector: Gregory Carpenter
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Type of Hole: <input checked="" type="checkbox"/> other <u>Installed PVC for thermister string</u> <input type="checkbox"/> Test Pit <input type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: NE	Depth Drilled: 15.2 m	Total Depth: 15.4 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
1		1	Nbn	S1	44 60	GP-GM	Poorly graded GRAVEL with Silt and Sand	57	34	9	64	3	Gray, frozen, rounded gravel, fine to coarse sand, nonplastic (NP) fines, FILL	
2		2	Vx	NFS	52/125mm	GP	Poorly graded GRAVEL with Sand				38		Gray, frozen, rounded gravel, fine to coarse sand, FILL	
3		3		F4	2 3 6 7	ML	SILT				38		Gray, wet, fine sand, NP fines	
4				NFS		GP	Poorly graded GRAVEL with Sand						Gray, wet, rounded gravel, fine to coarse sand	
5		4		NFS	4 6 2	GP	Poorly graded GRAVEL with Sand	68	29	3	25	5	Gray, wet, subangular to rounded gravel, fine to coarse sand	
6		5			3 3 4 4	GP	Poorly graded GRAVEL with Sand	65	33	2	38	6	Gray, wet, rounded gravel, fine to coarse sand	
8		6			4 4 4 5	SP	Poorly graded SAND						Gray, wet, fine sand	
9		7			5 5 6 5	GW	Well-graded GRAVEL with Sand	57	41	2	25	7	600 millimeters of heaving sand Gray, wet, rounded gravel, fine to coarse sand	
11		8	Vx		53	GP	Poorly graded GRAVEL with Sand				19		600 millimeters of sand infiltrating from above Gray, frozen, rounded gravel, fine to coarse sand	
12													1.2 meters of sand infiltrating from above	

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**ALASKA DISTRICT
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Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 2 of 2
Date: 11 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,653 m
Easting: 471,287 m

Top of Hole
Elevation: 138.9 m

Hole Number, Field: Permanent:
AAR-5 AP-8672

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other Installed PVC for thermister string
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
15.2 m

Total Depth:
15.4 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
9					52/100mm	GP	Poorly graded GRAVEL with Sand				51		Surface: Gravel pad	
13														
14					34 52/50mm	SP	Poorly graded SAND with Gravel	8	90	2	13	21	900 millimeters of sand infiltrating from above Gray, frozen, rounded gravel, fine to medium sand	
15					61	GP	Poorly graded GRAVEL with Sand				25		Gray, frozen, rounded gravel, fine to coarse sand, sample was thawed Bottom of Hole 15.4 m Elevation 123.5 m Groundwater Not Encountered	
16														
17														
18														
19														
20														
21														
22														
23														
24														

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Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska	Page 1 of 1 Date: 11 Apr 2003
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other	Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,187,640 m Easting: 471,268 m	Top of Hole Elevation: 138.6 m

Hole Number, Field: AAR-6	Permanent: AP-8673	Operator: William Tester	Inspector: Gregory Carpenter
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Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: 3.5 m WD	Depth Drilled: 9.1 m	Total Depth: 9.3 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0						GP	Poorly graded GRAVEL with Sand						Surface: Edge of gravel pad	
1		1	Nbn	F4	12	PT-OL	Peat with Orangic Silt						Gray, frozen, rounded gravel, fine to coarse sand, FILL	
1		1	Nbn	F4	15								Dark brown and gray, frozen, nonplastic (NP) fines, surface organics	
2		2	Nbn	F4	10	ML	SILT with Sand						Brown, moist, very fine sand, NP fines	
2		2			10									
3		3		F4	2	ML	SILT with Sand			13			Gray, wet, very fine sand, NP fines	
3		3		NFS	1	GP	Poorly graded GRAVEL with Sand						Gray, wet, rounded gravel, fine to coarse sand	
4		4		NFS	1	GP	Poorly graded GRAVEL with Sand						Gray, wet, rounded gravel, fine to coarse sand	
4		4		NFS	4	GP	Poorly graded GRAVEL with Sand			64			Gray, wet, rounded gravel, fine to coarse sand	
5		5		NFS	6	GP	Poorly graded GRAVEL with Sand						Gray, wet, rounded gravel, fine to coarse sand	
5		5		NFS	6	GP	Poorly graded GRAVEL with Sand						Gray, wet, rounded gravel, fine to coarse sand	
6		6		NFS	4	GP	Poorly graded GRAVEL with Sand			51			Gray, wet, rounded gravel, fine to coarse sand	
6		6		NFS	5	GP	Poorly graded GRAVEL with Sand						Gray, wet, rounded gravel, fine to coarse sand	
7		7		NFS	6	GP	Poorly graded GRAVEL with Sand						Gray, wet, rounded gravel, fine to coarse sand	
7		7		NFS	6	GP	Poorly graded GRAVEL with Sand						Gray, wet, rounded gravel, fine to coarse sand	
8		8		NFS	3	GP	Poorly graded GRAVEL with Sand			51			Gray, wet, rounded gravel, fine to coarse sand	
8		8		NFS	3	GP	Poorly graded GRAVEL with Sand						Gray, wet, rounded gravel, fine to coarse sand	
9		9	Vx/Vc		53/125mm	GP	Poorly graded GRAVEL with Sand			38			Gray, frozen, rounded gravel, fine to coarse sand	
9		9											Bottom of Hole 9.3 m Elevation 129.3 m Groundwater Encountered While Drilling: at depth 3.5 m	

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Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 11 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,632 m
Easting: 471,297 m

Top of Hole
Elevation: 138.7 m

Hole Number, Field: Permanent:
AAR-7 AP-8674

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
4.1 m WD

Depth Drilled:
9.1 m

Total Depth:
9.3 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D-4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
1		1	Nbn	S1	17 42 44	GM	Silty GRAVEL with Sand	54	34	12	25	9	Brown, frozen, angular to rounded gravel, fine to coarse sand,	
2		2	Vx	F4	9 9 4 3	PT- OL ML	Peat with Orangic Silt SILT						Dark brown, frozen, nonplastic (NP) fines, surface organics Gray, moist, fine sand, NP fines	
3		3		F2	2 2 4 4	SM	Silty SAND		69	31		24	Gray, wet, fine sand	
4		4		NFS	4 5 6	GP	Poorly graded GRAVEL with Sand				38		Gray, wet, rounded gravel, fine to coarse sand	
5		5		NFS	5 6 6	GP	Poorly graded GRAVEL with Sand	58	40	2	25	8	300 millimeters of heaving sand Gray, wet, rounded gravel, fine to coarse sand	
7		6		NFS	3 5 5	SP	Poorly graded SAND with Gravel				25		Gray, wet, rounded gravel, fine sand	
8		7	Vx	NFS	55/125mm	SP	Poorly graded SAND with Gravel				19		Gray, frozen, rounded gravel, fine sand Bottom of Hole 9.3 m Elevation 129.5 m Groundwater Encountered While Drilling: at depth 4.1 m	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
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**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

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Date: 16 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,636 m
Easting: 471,065 m

Top of Hole
Elevation: 138.1 m

Hole Number, Field: SR-1
Permanent: AP-8675

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
3.3 m AD

Depth Drilled:
4.6 m

Total Depth:
5.0 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0													Surface: Gravel road	
0.5		1a				GP	Poorly graded GRAVEL with Silt and Sand	68	24	8	51			Gray to black, moist, angular gravel, fine to coarse sand, nonplastic (NP) fines, FILL
0.5		1b				GM	Silty GRAVEL with Sand				19			
1		2			65	SP-SM	Poorly graded SAND with Silt, Gravel, and Cobbles				>76			Tan, moist, rounded gravel, fine sand, NP fines, FILL
1.5			Vx			ML	SILT							Black, moist, angular gravel, fine to coarse sand, NP fines, gravel and cobbles fractured while driving, FILL
2		3			12									Dark gray, frozen, fine sand, NP fines, clear and cloudy ice crystals to 1 millimeter
2					12									
2					14									
3		4a	Nbn		2	SP	Poorly graded SAND							Brown, frozen, fine sand
3		4b			2	SP	Poorly graded SAND							
4					3									Gray, wet, fine sand
5		5			3	SP	Poorly graded SAND				13			Gray, wet, rounded gravel, medium to coarse sand, shoe plugged with 65 millimeters of wood
5					3									Bottom of Hole 5.0 m Elevation 133.1 m Groundwater Encountered After Drilling: at depth 3.3 m
6														
7														
8														
9														
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
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**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 1
Date: 22 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum: MSL other

Location: Northing: 7,187,447 m
Easting: 471,030 m

Top of Hole Elevation: 138.7 m

Hole Number, Field: **SR-2** Permanent: **AP-8676**

Operator: **William Tester** Inspector: **Steven Henslee**

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater: **3.8 m AD**

Depth Drilled: **4.6 m** Total Depth: **5.0 m**

Hammer Weight: **154 kg** Split Spoon I.D.: **64 mm** Size and Type of Bit: **203 mm HSA**

Type of Equipment: **CME 850 with Automatic Hammer** Type of Samples: **Grab and Drive**

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0													Surface: Gravel road	
0.5		1a, 1b, 1c, 1d	Nbn	F4	5	SM	Silty SAND				6		Brown, wet, fine sand, nonplastic (NP) fines Black, moist, angular gravel, fine to coarse sand, NP fines, FILL Brown, moist, rounded gravel, fine to coarse sand, NP fines, FILL Black, frozen, angular gravel, fine to coarse sand, NP fines, FILL Brown, frozen, NP fines, clear ice crystals less than 1 millimeter	
0.5				F2	6	SM	Silty SAND with Gravel				25			
1.0				F2	17	GM	Silty GRAVEL with Sand				38			
1.0				F2		GM	Silty GRAVEL with Sand							
1.5		2	Vx	F4	11	ML	SILT							
1.5					13									
1.5					16									
2.5		3		PFS	3	SP	Poorly graded SAND						Brown, moist, fine sand	
2.5					3									
2.5					4									
3.5		4		NFS	2	SP	Poorly graded SAND						Gray, wet, fine sand	
3.5					1									
3.5					1									
5.0													Bottom of Hole 5.0 m Elevation 133.7 m Groundwater Encountered After Drilling: at depth 3.8 m	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
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Soils and Geology Section
EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

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Date: 6 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,161 m
Easting: 471,074 m

Top of Hole
Elevation: 138.6 m

Hole Number, Field: SR-3
Permanent: AP-8677

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
4.6 m

Total Depth:
4.8 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0													Surface: 100 millimeters of D1 gravel	
1		1	Nbn	F2	Grab	SM	Silty SAND with Gravel	24	53	23	51		6	Gray, frozen, rounded gravel, fine to coarse sand, nonplastic (NP) fines
2		2	Nbn	F4	22 22 25 35	OL ML	Organic SILT SILT							Dark Brown, frozen, organics Gray, frozen, fine sand, NP fines
3		3	Vx	NFS	51/125mm	GP	Poorly graded GRAVEL with Sand and Cobbles				>76			Gray, frozen, rounded gravel, fine to coarse sand
4		4	Vx	NFS	29 50/75mm	SP	Poorly graded SAND with Gravel				38			Gray, frozen, rounded gravel, fine to coarse sand
5														Bottom of Hole 4.8 m Elevation 133.8 m Groundwater Not Encountered
6														
7														
8														
9														
10														
11														
12														

EXPLORATION LOG FTW254 LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
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Soils and Geology Section
EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility**
(FTW254)
Fort Wainwright, Alaska

Page 1 of 1
Date: 22 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,953 m
Easting: 471,107 m

Top of Hole
Elevation: 138.6 m

Hole Number, Field: **SR-4** Permanent: **AP-8678**

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
3.0 m AD

Depth Drilled:
4.6 m

Total Depth:
5.0 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
													Surface: Gravel road	
1		1		F3	38	GM	Silty GRAVEL with Sand				38		Brown, moist, rounded gravel, fine to medium sand, nonplastic (NP) fines, FILL	
		2a	Nbn	F3	20	GM	Silty GRAVEL with Sand						Black, frozen, angular gravel, fine to medium sand, NP fines, FILL	
		2b	Nbn	F4	25	ML	SILT							
		3	Nbn	F4	14	ML	SILT						Brown, frozen, fine sand, NP fines	
2					15								Brown, frozen, fine sand, NP fines	
					20									
3		4		F4	2	ML	SILT						Gray, moist, NP fines, 15 millimeters of wood in shoe	
					2									
					2									
4														
		5	NFS		3	SP	Poorly graded SAND				6		Gray, wet, fine to medium sand	
5					3									
					3									
6													Bottom of Hole 5.0 m Elevation 133.5 m Groundwater Encountered After Drilling: at depth 3.0 m	
7														
8														
9														
10														
11														
12														

EXPLORATION LOG FTW254 LOGS.GPJ ACE_ANC.GDT 7/25/03

W911KB-04-B-0002, Amendment # R0003



**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: **22 Apr 2003**

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: **7,186,813 m**
Easting: **471,655 m**

Top of Hole
Elevation: **139.5 m**

Hole Number, Field: Permanent:
SR-5 AP-8679

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
3.9 m AD

Depth Drilled:
4.6 m

Total Depth:
5.0 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
													Surface: Gravel road	
1		2	Nbe	F4	27 60 50/75mm	GP- GM	Poorly graded GRAVEL with Silt, Sand, and Cobbles				>76	9	Black, frozen, angular gravel (fractured slate), fine to medium sand, nonplastic (NP) fines, clear ice crystals to 2 millimeters, FILL	
2		3a, 3b, 3c	Nbe Nbe Nbe	F4 F4 F4	32 17 21	GP- GM PT ML	Poorly graded GRAVEL with Silt, Sand, and Cobbles PEAT SILT				>76	29	Black, frozen, angular gravel fractured shale), fine to medium sand, NP fines, FILL Organics Gray, frozen, NP fines	
3		4		F4	2 2 3	ML	SILT						Brown, moist, NP fines	
4														
5		5		NFS	6 8 11	GP	Poorly graded GRAVEL with Sand				13		Gray, wet, rounded gravel, fine to medium sand Bottom of Hole 5.0 m Elevation 134.5 m Groundwater Encountered After Drilling: at depth 3.9 m	
6														
7														
8														
9														
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section
EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 1
Date: 22 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,612 m
Easting: 471,729 m

Top of Hole Elevation: 139.5 m

Hole Number, Field: SR-6
Permanent: AP-8680

Operator: William Tester

Inspector: Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater: 3.7 m AD

Depth Drilled: 4.6 m

Total Depth: 5.0 m

Hammer Weight: 154 kg

Split Spoon I.D.: 64 mm

Size and Type of Bit: 203 mm HSA

Type of Equipment: CME 850 with Automatic Hammer

Type of Samples: Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0													Surface: Gravel road	
1	1a, 1b	1a, 1b	Nbn	F4	11 24 28	ML GP	SILT Poorly graded GRAVEL with Sand	35	47	18	64	12	Brown, moist, nonplastic (NP) fines Brown, moist, rounded gravel, fine to medium sand, FILL	
2	2, 3	2, 3	Nbe	F2	11 11 8	SM	Silty SAND with Gravel					37	Black, frozen, angular gravel (fractured slate / shale), fine to medium sand, FILL Brown, frozen, NP fines	
3	3, 4	3, 4		F4	5 5 4	ML	SILT						Brown, moist, NP fines	
4	4, 5	4, 5		PFS	4 7 6	GP	Poorly graded GRAVEL with Sand				51		Gray, wet, rounded gravel, fine to coarse sand	
5													Bottom of Hole 5.0 m Elevation 134.5 m Groundwater Encountered After Drilling: at depth 3.7 m	
6														
7														
8														
9														
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 1
Date: 6 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,080 m
Easting: 471,193 m

Top of Hole Elevation: 138.3 m

Hole Number, Field: SH-1
Permanent: AP-8681

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
2.6 m WD

Depth Drilled:
9.1 m

Total Depth:
9.8 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
1		1	Vx	F4	11 7 5	OL	Organic SILT					0.5	Dark brown, frozen, nonplastic (NP) fines, surface organics	
1						ML	SILT						Gray and red, frozen, NP fines, small ice crystals	
2		2	Vx	S2	10 12 7 5	SP-SM	Poorly graded SAND with Silt	0	92	8		27	Gray, frozen, fine sand, small ice crystals	
3		3		NFS	3 6 8	GP	Poorly graded GRAVEL with Sand	62	35	3	38	7	Gray, wet, rounded gravel, fine to coarse sand	
4														
5		4		NFS	2 5 5	GP	Poorly graded GRAVEL with Sand				51		Gray, wet, rounded gravel, fine to coarse sand	
6		5			5 3 4 7	GP	Poorly graded GRAVEL with Sand	64	34	2	38	6	Gray, wet, rounded gravel, fine to coarse sand	
7														
8		6			4 8 8	GP	Poorly graded GRAVEL with Sand				51		Gray, wet, rounded gravel, fine to coarse sand	
9		7			5 8 8	GP	Poorly graded GRAVEL with Sand				38		Gray, wet, rounded gravel, fine to coarse sand	
10													Bottom of Hole 9.8 m Elevation 128.5 m Groundwater Encountered While Drilling: at depth 2.6 m PID = (Hot) Photo Ionization Detector	
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
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Soils and Geology Section
EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 2
Date: 7 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,070 m
Easting: 471,185 m

Top of Hole Elevation: 138.2 m

Hole Number, Field: SH-2
Permanent: AP-8682

Operator: William Tester

Inspector: Gregory Carpenter

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater: 2.4 m WD

Depth Drilled: 15.2 m

Total Depth: 15.8 m

Hammer Weight: 154 kg

Split Spoon I.D.: 64 mm

Size and Type of Bit: 203 mm HSA

Type of Equipment: CME 850 with Automatic Hammer

Type of Samples: Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0			Vx			OL	Organic SILT						Dark brown, frozen, nonplastic (NP) fines, surface organics	
1		1	Vx	NFS	8	SP	Poorly graded SAND				10		Brown, frozen, rounded gravel, fine to medium sand	
2		2		S2	3	SP-SM	Poorly graded SAND with Silt	0	94	6		27	Brown, wet, fine sand	
3		3		NFS	5	GP	Poorly graded GRAVEL with Sand	62	35	3	25		Gray, wet, rounded gravel, fine to coarse sand	
4					11									
5		4			2	GP	Poorly graded GRAVEL with Sand				51		Gray, wet, rounded gravel, fine to coarse sand	
6					3									
7		5			6	GP	Poorly graded GRAVEL with Sand				51		Gray, wet, rounded gravel, fine to coarse sand	
8					8									
9		6			5	GP	Poorly graded GRAVEL with Sand				51		Gray, wet, rounded gravel, fine to coarse sand	
10					9									
11		7			7	GP	Poorly graded GRAVEL with Sand				38		Gray, wet, rounded gravel, fine to coarse sand	
12					10									
11		8			3	GP-GM	Poorly graded GRAVEL with Silt and Sand	48	45	7	51	8	Gray, wet, rounded gravel, fine to coarse sand, NP fines	
12					10									
12					11									

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ALASKA DISTRICT
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Soils and Geology Section
EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 2 of 2
Date: 7 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,070 m
Easting: 471,185 m

Top of Hole Elevation: 138.2 m

Hole Number, Field: SH-2
Permanent: AP-8682

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
2.4 m WD

Depth Drilled:
15.2 m

Total Depth:
15.8 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
13		9			4 10 13 9	GP	Poorly graded GRAVEL with Sand				51			Surface: Tundra Gray, wet, rounded gravel, fine to coarse sand
14		10			4 8 8 8	GP	Poorly graded GRAVEL with Sand				51			Gray, wet, rounded gravel, fine to coarse sand
15		11			7 9 11 17	GP	Poorly graded GRAVEL with Sand							Gray, wet, rounded gravel, fine to coarse sand
16														Bottom of Hole 15.8 m Elevation 122.3 m Groundwater Encountered While Drilling: at depth 2.4 m
17														
18														
19														
20														
21														
22														
23														
24														

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Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 1

Date: 6 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,187,064 m
Easting: 471,197 m

Top of Hole Elevation: 138.2 m

Hole Number, Field: Permanent:
SH-3 AP-8683

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
2.4 m WD

Depth Drilled:
9.1 m

Total Depth:
9.8 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1						OL	Organic SILT						Dark brown, frozen, organics	
1-1.5		1	Vx	S2	10	SP	Poorly graded SAND				0.6		Gray, frozen, fine sand	
1.5-2		2		S2	2	SP-SM	Poorly graded SAND with Silt	0	92	8	0.6	25	Gray, moist, fine sand	
2-3		3		NFS	5	SP	Poorly graded SAND with Gravel	36	61	3	38	13	Gray, wet, rounded gravel, fine to coarse sand	
3-4		4		NFS	2	GP	Poorly graded GRAVEL with Sand	61	37	2	38	8	Gray, wet, rounded gravel, fine to coarse sand	
4-5		5			3	GP	Poorly graded GRAVEL with Sand				38		Gray, wet, rounded gravel, fine to coarse sand	
5-6		6			6	GP	Poorly graded GRAVEL with Sand				38		Gray, wet, rounded gravel, fine to coarse sand	
6-7		7			3	GP	Poorly graded GRAVEL with Sand				38		Gray, wet, rounded gravel, fine to coarse sand	
7-8		8			4	GP	Poorly graded GRAVEL with Sand				38		Gray, wet, rounded gravel, fine to coarse sand	
8-9		9			6	GP	Poorly graded GRAVEL with Sand				38		Gray, wet, rounded gravel, fine to coarse sand	
9-10		10			4								Bottom of Hole 9.8 m Elevation 128.4 m Groundwater Encountered While Drilling: at depth 2.4 m PID = (Hot) Photo Ionization Detector	

EXPLORATION LOG FTW254 LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 10 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,772 m
Easting: 471,150 m

Top of Hole
Elevation: 138.6 m

Hole Number, Field: UAC-1
Permanent: AP-8684

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
4.6 m

Total Depth:
4.9 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0													Surface: Tundra	
1	Gravel	1			9	GP	Poorly graded GRAVEL with Sand						Gray, gravel, FILL (from road surface)	
1	Rock				18	Rock	Rock				>76		Gray, FILL (shot rock)	
1					9									
2	Silt	2	Vx	F4	4	OL	Organic SILT						Dark brown, nonplastic (NP) fines, original surface organics	
2					5	ML	SILT						Gray with brown mottling, frozen, very fine sand, NP fines	
2					8									
2					10									
3	Sand	3	Vx	NFS	29	SP	Poorly graded SAND with Gravel				19		Gray, frozen, rounded gravel, fine to medium sand	
3					50/75mm									
4	Sand	4	Vx	NFS	15	SP	Poorly graded SAND with Gravel				13		Gray, frozen, rounded gravel, fine to medium sand	
4					50									
5													Bottom of Hole 4.9 m Elevation 133.7 m Groundwater Not Encountered	
6														
7														
8														
9														
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section
EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska	Page 1 of 2
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other	Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,784 m Easting: 471,188 m	Top of Hole Elevation: 138.3 m

Hole Number, Field: UAC-2	Permanent: AP-8685	Operator: William Tester	Inspector: Steven Henslee
Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: NE	Depth Drilled: 15.1 m	Total Depth: 15.2 m

Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0		1	Vx		Grab	PT	PEAT						Surface: Tundra Black, frozen, surface organics	
1		2	Vx	F4	10 16 18	ML	SILT					58	Gray to brown, frozen, nonplastic (NP) fines, cloudy ice crystals to 6 millimeters	
2		3	Vx	F4	13 18 14	ML	SILT					37	Gray to brown, frozen, NP fines, cloudy ice crystals to 1 millimeter	
3		4	Vx	NFS	20 50/50mm	GP SP	Poorly graded GRAVEL with Sand Poorly graded SAND					24	Cuttings indicate poorly graded gravel with sand Gray, frozen, fine to medium sand, cloudy ice crystals less than 1 millimeter	
4		5	Vx	NFS	40 20/25mm	GW	Well-graded GRAVEL with Sand	62	34	4	32	7	Gray, frozen, rounded gravel, fine to coarse sand, cloudy ice crystals less than 1 millimeter	
6		6	Vc		60	GP	Poorly graded GRAVEL with Sand and Cobbles				>76	7	Gray, frozen, rounded gravel, fine to coarse sand, cloudy ice crystals to 2 millimeters	
7		7	Vx		40 25/25mm	GP	Poorly graded GRAVEL with Sand				64	8	Gray, frozen, rounded gravel, fine to coarse sand, cloudy ice crystals less than 1 millimeter	
8		8	Vx		50/100mm	GP	Poorly graded GRAVEL with Sand				51	9	Gray, frozen, rounded gravel, fine to medium sand, cloudy and clear ice crystals less than 1 millimeter	
10		9	Vx		49 35/25mm	GW-GM	Well-graded GRAVEL with Silt and Sand	58	33	9	64	9	Gray, frozen, rounded gravel, fine to coarse sand, clear and cloudy ice crystals to 1 millimeter	

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ENGINEERING SERVICES

Soils and Geology Section
EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 2 of 2
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,784 m Easting: 471,188 m		Top of Hole Elevation: 138.3 m

Hole Number, Field: UAC-2	Permanent: AP-8685	Operator: William Tester	Inspector: Steven Henslee
Type of Hole: <input type="checkbox"/> other _____ <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer		Depth to Groundwater: NE	Depth Drilled: 15.1 m Total Depth: 15.2 m

Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
10		Vx			60/125mm	GP	Poorly graded GRAVEL with Sand				25	9	Surface: Tundra Gray, frozen, rounded gravel, fine to medium sand, clear ice crystals less than 1 millimeter	
11		Vx			65	SP	Poorly graded SAND with Gravel				51	8	Gray, frozen, rounded gravel, fine sand, ice crystals to 1 millimeter	
12		Vx			40 15/0mm	GP	Poorly graded GRAVEL with Sand				51	7	Gray, frozen, rounded gravel, fine to coarse sand, clear ice crystals to 2 millimeters Bottom of Hole 15.2 m Elevation 123.1 m Groundwater Not Encountered	

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ALASKA DISTRICT
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Soils and Geology Section
EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 1
Date: 20 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,791 m
Easting: 471,242 m

Top of Hole Elevation: 138.2 m

Hole Number, Field: UAC-3
Permanent: AP-8686

Operator: William Tester

Inspector: Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater: NE

Depth Drilled: 4.4 m

Total Depth: 4.6 m

Hammer Weight: 154 kg

Split Spoon I.D.: 64 mm

Size and Type of Bit: 203 mm HSA

Type of Equipment: CME 850 with Automatic Hammer

Type of Samples: Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0.0 - 0.1		1	Nbe	F4	Grab	PT	PEAT						Surface: Tundra Dark brown, frozen, surface organics	
0.1 - 0.2		2	Nbe	F4	8	ML	SILT				46		Brown, frozen, nonplastic (NP) fines	
0.2 - 0.3		3a	Nbe	F4	11	ML	SILT						Brown, frozen, NP fines	
0.3 - 0.4		3b	Nbn	NFS	14	SP	Poorly graded SAND with Gravel			13		14	Brown, frozen, rounded gravel, fine to coarse sand	
0.4 - 0.5		4	Vx	NFS	59	GP	Poorly graded GRAVEL with Sand			19		8	Brown, frozen, rounded gravel, fine to coarse sand, clear ice crystals less than 1 millimeter	
0.5 - 0.6		5	Vx	NFS	67	GP	Poorly graded GRAVEL with Sand			25		8	Brown, frozen, rounded gravel, fine to medium sand, clear ice crystals visible only by melting Bottom of Hole 4.6 m Elevation 133.5 m Groundwater Not Encountered	
0.6 - 0.7														
0.7 - 0.8														
0.8 - 0.9														
0.9 - 1.0														
1.0 - 1.1														
1.1 - 1.2														

EXPLORATION LOG FTW254 LOGS.GPJ ACE_ANC.GDT 7/25/03

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Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 2
Date: 20 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,798 m
Easting: 471,270 m

Top of Hole Elevation: 138.2 m

Hole Number, Field: Permanent:
UAC-4 AP-8687

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
15.1 m

Total Depth:
15.4 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
							PEAT						Surface: Tundra	
0.5		1	Nbe	F4	Grab	PT							Black, frozen, surface organics	
1.0		2	Nbn	F4	7	ML	SILT					32	Brown, frozen, nonplastic (NP) fines	
1.5		3	Nbn	F4	10 12 10 18 14	ML	SILT with Sand					29	Brown, frozen, fine sand, NP fines	
2.5		4	Vx	NFS	67	GP	Poorly graded GRAVEL with Sand				38	9	Gray to brown, frozen, rounded gravel, fine to medium sand, clear ice crystals to 1 millimeter	
4.5		5	Vx	NFS	50/100mm	GP	Poorly graded GRAVEL with Sand				19	7	Gray, frozen, rounded gravel, fine to medium sand, clear ice crystals to 1 millimeter	
6.0		6	Vx		62/125mm	GP	Poorly graded GRAVEL with Sand				25	8	Gray, frozen, rounded gravel, fine to coarse sand, clear ice crystals to 1 millimeter	
8.0		7	Vc		26 60/100mm	GP	Poorly graded GRAVEL with Sand				19	18	Gray, frozen, rounded gravel, fine to medium sand, cloudy ice crystals to 6 millimeters	
9.5		8	Vc		70/125mm	GP	Poorly graded GRAVEL with Sand				25	8	Gray, frozen, rounded gravel, fine to coarse sand, cloudy ice crystals to 6 millimeters	
11.0		9	Vc		31 42/50mm	GP	Poorly graded GRAVEL with Sand				25	9	Gray, frozen, rounded gravel, fine to medium sand, ice crystals to 3 millimeters	

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ALASKA DISTRICT
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Soils and Geology Section
EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility**
(FTW254)
Fort Wainwright, Alaska

Page 2 of 2
Date: 20 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,798 m
Easting: 471,270 m

Top of Hole
Elevation: 138.2 m

Hole Number, Field: UAC-4
Permanent: AP-8687

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
15.1 m

Total Depth:
15.4 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class: TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
10		Vx			52/75mm	GP	Poorly graded GRAVEL with Sand				38		8	Surface: Tundra Gray, frozen, rounded gravel, fine to coarse sand, clear ice crystals to 1 millimeter
13														
14		Nbn			56/75mm	GP	Poorly graded GRAVEL with Sand				38		8	Gray, frozen, rounded gravel, fine to coarse sand
15		Vc			25 60	GP	Poorly graded GRAVEL with Sand				13		19	Gray, frozen, rounded gravel, medium to coarse sand, ice to 3 millimeters Bottom of Hole 15.4 m Elevation 122.8 m Groundwater Not Encountered
16														
17														
18														
19														
20														
21														
22														
23														
24														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1

Date: 21 Apr 2003

Soils and Geology Section EXPLORATION LOG

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,795 m
Easting: 471,309 m

Top of Hole
Elevation: 138.3 m

Hole Number, Field: Permanent:
UAC-5 AP-8688

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
4.6 m

Total Depth:
4.9 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0			Nbe	F4	Grab	PT	PEAT						Surface: Tundra	
0.1		1	Nbe	F4	9	ML	SILT					29	Black, frozen, surface organics	
0.2		2	Nbe	F4	16	ML	SILT						Brown, frozen, nonplastic (NP) fines	
0.3		3	Vx	F4	15	ML	SILT					31	Brown, frozen, NP fines, ice crystals less than 1 millimeters	
3.1		4	Vx	NFS	45	GP	Poorly graded GRAVEL with Sand			25		7	Gray, frozen, rounded gravel, fine to coarse sand, clear ice crystals apparent only when melted	
4.9		5	Vx		16	GP	Poorly graded GRAVEL with Sand					24	Gray, frozen, rounded gravel, fine to coarse sand, clear ice crystals to 1 millimeter Bottom of Hole 4.9 m Elevation 133.4 m Groundwater Not Encountered	

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**ALASKA DISTRICT
CORPS OF ENGINEERS
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**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 17 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,739 m
Easting: 471,179 m

Top of Hole
Elevation: 138.4 m

Hole Number, Field: Permanent:
UAC-6 AP-8689

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other Installed PVC for thermister string
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
9.1 m

Total Depth:
9.3 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class: TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0.0 - 0.2		1				PT	PEAT						Dark brown, frozen, surface organics	
0.2 - 0.5		2	Vr	F4	7 7 10	ML	SILT						Dark gray, frozen, nonplastic (NP) fines, cloudy and clear ice crystals and lenses to 13 millimeters, 50% ice by volume	
0.5 - 1.0		3	Vr	F4	9 10 12	ML	SILT						Dark gray, frozen, NP fines, cloudy ice crystals and lenses to 13 millimeters, 50% ice by volume	
1.0 - 1.5		4	Vx	PFS	50/125mm	GP	Poorly graded GRAVEL with Sand	53	43	4	25	8	Gray, frozen, rounded gravel, fine to coarse sand, cloudy and clear ice crystals less than 1 millimeter	
1.5 - 2.0		5	Vx	PFS	55	GW	Well-graded GRAVEL with Sand	65	31	4	38	7	Gray, frozen, rounded gravel, fine to coarse sand, cloudy ice crystals less than 1 millimeter	
2.0 - 2.5		6	Vx		60	GP	Poorly graded GRAVEL with Sand				25		Gray, frozen, rounded gravel, fine to medium sand, clear ice crystals less than 1 millimeter	
2.5 - 3.0		7	Vc		40	GP	Poorly graded GRAVEL with Sand				13	16	Gray, frozen, rounded gravel, medium to coarse sand, cloudy and clear ice crystals to 1 millimeter	
3.0 - 3.5		8	Nbn		60/125mm	GP-GM	Poorly graded GRAVEL with Silt and Sand				38	7	Gray, frozen, rounded gravel, fine to medium sand, NP fines Bottom of Hole 9.3 m Elevation 129.1 m Groundwater Not Encountered	

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**ALASKA DISTRICT
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ENGINEERING SERVICES**

**Soils and Geology Section
EXPLORATION LOG**

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 2
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,735 m Easting: 471,189 m		Top of Hole Elevation: 138.1 m
Hole Number, Field: UAC-7	Permanent: AP-8690	Operator: William Tester
		Inspector: Steven Henslee

Type of Hole: <input type="checkbox"/> other	Depth to Groundwater: NE	Depth Drilled: 15.2 m	Total Depth: 15.5 m
<input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer			

Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0						PT	PEAT						Surface: Tundra	
0.5						ML	SILT						Black, frozen, surface organics	
1.0		2			9 12 15	ML	SILT						Brown, frozen, nonplastic (NP) fines	
1.5		3			10 14 15	ML	SILT						Brown, frozen, NP fines, small cloudy ice crystals, 35% by volume	
2.0													Gray, frozen, NP fines, cloudy ice crystals less than 1 millimeter	
3.0		4a	Nbe	F4	8 15	ML	SILT						Gray, frozen, NP fines	
3.5		4b	Vx	NFS	41	GP	Poorly graded GRAVEL with Sand						Gray, frozen, rounded gravel, medium to coarse sand, cloudy ice crystals to 1 millimeter	
4.5		5	Nbn	S1	54	GP-GM	Poorly graded GRAVEL with Silt, Sand, and Cobbles	55	40	5	>76	7	Gray, frozen, rounded gravel, fine to medium sand	
6.0		6	Vc		55/125mm	GW	Well-graded GRAVEL with Sand				19		Gray, frozen, rounded gravel, fine to medium sand, cloudy and clear ice crystals to 2 millimeters	
8.0		7	Vx		52	GW	Well-graded GRAVEL with Sand	60	37	3	19	8	Gray, frozen, rounded gravel, fine to medium sand, cloudy and clear ice crystals to 1 millimeter	
9.5		8	Vx		45 30/25mm	GP	Poorly graded GRAVEL with Sand				64		Gray, frozen, rounded gravel, fine to medium sand, cloudy and clear ice crystals to 1 millimeter, 50-millimeter layer of silt at 9.2 meters	
11.0		9	Vx		50/25mm	GP	Poorly graded GRAVEL with Sand				64		Gray, frozen, rounded gravel, fine to medium sand, cloudy and clear ice crystals to 1 millimeter	

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ALASKA DISTRICT
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Soils and Geology Section
EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 2 of 2
Date: 16 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,735 m
Easting: 471,189 m

Top of Hole Elevation: 138.1 m

Hole Number, Field: UAC-7
Permanent: AP-8690

Operator: William Tester

Inspector: Steven Henslee

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater: NE

Depth Drilled: 15.2 m

Total Depth: 15.5 m

Hammer Weight: 154 kg

Split Spoon I.D.: 64 mm

Size and Type of Bit: 203 mm HSA

Type of Equipment: CME 850 with Automatic Hammer

Type of Samples: Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
10		Vx			50 50/75mm	SP	Poorly graded SAND with Gravel				13		Surface: Tundra Gray, frozen, rounded gravel, medium to coarse sand, clear ice crystals to 2 millimeters	
11		Vc			42 50/75mm	GP	Poorly graded GRAVEL with Sand				64		Gray, frozen, rounded gravel, medium to coarse sand, cloudy and clear ice crystals to 3 millimeters	
12a		Vc			28	SP	Poorly graded SAND						Gray, frozen, fine to medium sand	
12b					60	GP	Poorly graded GRAVEL with Sand						Gray, frozen, rounded gravel, medium to coarse sand, ice crystals to 1 millimeter Bottom of Hole 15.5 m Elevation 122.6 m Groundwater Not Encountered	

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ALASKA DISTRICT
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Soils and Geology Section
EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

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Date: 16 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,734 m
Easting: 471,199 m

Top of Hole Elevation: 138.2 m

Hole Number, Field: UAC-8
Permanent: AP-8691

Operator: William Tester

Inspector: Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater: NE

Depth Drilled: 9.3 m

Total Depth: 9.4 m

Hammer Weight: 154 kg

Split Spoon I.D.: 64 mm

Size and Type of Bit: 203 mm HSA

Type of Equipment: CME 850 with Automatic Hammer

Type of Samples: Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
													Surface: Gravel road	
0.5		1a, 1b	Nbe, Vx	F4	Grab	PT, ML	PEAT, SILT						Black, frozen, nonplastic (NP) fines, surface organics	
1.0		2	Vx	F4	7, 11, 9	ML	SILT						Gray, frozen, NP fines, small ice crystals	
1.5		3	Vs	F4	7, 9, 12	ML	SILT						Dark gray, frozen, NP fines, cloudy ice crystals to 3 millimeters, 40% by volume	
2.0													Dark gray, frozen, NP fines, cloudy and clear ice crystals to 6 millimeters, ice layers, 13-16 millimeters, 50% or greater by volume	
3.0		4	Vx	F4	7, 18, 18	ML	SILT						Dark gray, frozen, fine sand, NP fines, small ice crystals visible by melting	
4.5		5	Vx	S1	25/75mm, 10/0mm	GP-GM	Poorly graded GRAVEL with Silt and Sand	57	36	7	25	10	Gray, frozen, rounded gravel, fine to medium sand	
6.0		6	Vx		69	GP	Poorly graded GRAVEL with Sand				51		Gray, frozen, rounded gravel, medium sand, small cloudy ice crystals	
8.0		7	Nbn		50/75mm	GP	Poorly graded GRAVEL with Sand				64		Gray, frozen, rounded gravel, fine to medium sand	
9.5		8a, 8b	Vx, Vc		13, 50/100mm	SP, GW	Poorly graded SAND, Well-graded GRAVEL	51	45	4	51	8	Gray, frozen, fine to medium sand, ice crystals visible by melting	
10.0												8	Gray, frozen, rounded gravel, fine to medium sand, small clear and cloudy ice crystals and ice coatings	
10.0													Bottom of Hole 9.4 m Elevation 128.8 m Groundwater Not Encountered	

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**ALASKA DISTRICT
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**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: **21 Apr 2003**

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: **7,186,760 m**
Easting: **471,274 m**

Top of Hole
Elevation: **138.5 m**

Hole Number, Field: Permanent:
UAC-9 AP-8692

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other Installed PVC for thermister string
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
9.0 m

Total Depth:
9.2 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0						PT	PEAT						Surface: Tundra	
1		2	Vx	F4	13 14 19	ML	SILT					32	Brown, frozen, NP fines, clear ice crystals to 2 millimeters	
2		3a 3b	Nbn Vx	F4 NFS	15 60	ML GP	SILT Poorly graded GRAVEL with Sand					37	Brown, frozen, NP fines Gray, frozen, rounded gravel, fine to medium sand, ice crystals to 1 millimeter, visible by melting	
3		4	Vx/Vc	NFS	50	GP	Poorly graded GRAVEL with Sand			19		11	Gray, frozen, rounded gravel, medium to coarse sand, ice crystals to 2 millimeters	
4		5	Vx/Vc	NFS	30 50/75mm	GP	Poorly graded GRAVEL with Sand			32		7	Gray, frozen, rounded gravel, fine to coarse sand, clear ice crystals less than 2 millimeters	
5		6	Vx		50	GP	Poorly graded GRAVEL with Sand			51		8	Gray, frozen, rounded gravel, fine to medium sand, clear ice crystals visible by melting	
6		7	Vx		21 20/120mm	SP	Poorly graded SAND with Gravel			64		10	Gray, frozen, rounded gravel, fine to medium sand, clear ice crystals visible by melting	
7		8	Vx		15 52/100mm	SP	Poorly graded SAND					21	Gray, frozen, fine to medium sand, clear ice crystals visible by melting	
8													Bottom of Hole 9.2 m Elevation 129.2 m Groundwater Not Encountered	

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ALASKA DISTRICT
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Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 1
Date: 21 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,762 m
Easting: 471,300 m

Top of Hole Elevation: 138.3 m

Hole Number, Field: Permanent:
UAC-10 AP-8693

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
9.0 m

Total Depth:
9.1 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0		1	Nbe	F4	Grab	PT	PEAT						Surface: Tundra Black, frozen, surface organics	
1		2	Nbe	F4	9 12 26	ML	SILT					38	Brown, frozen, nonplastic (NP) fines	
2		3	Nbe Vx	F4 PFS	20/100mm 31/50mm	ML GP	SILT Poorly graded GRAVEL with Sand					9	Brown, frozen, NP fines Gray, frozen, rounded gravel, fine to medium sand, clear ice crystals visible by melting	
3		4	Vx	NFS	55	GP	Poorly graded GRAVEL with Sand			38		7	Brown, frozen, rounded gravel, fine to coarse sand, clear and cloudy ice crystals to 2 millimeters	
4		5	Vc	NFS	45 20/25mm	GP	Poorly graded GRAVEL with Sand			25		8	Gray, frozen, rounded gravel, fine to coarse sand, clear ice crystals to 3 millimeters	
6		6	Vx		50/125mm	GP	Poorly graded GRAVEL with Sand			25		7	Gray, frozen, rounded gravel, fine to coarse sand, clear ice crystals to 2 millimeters	
7		7	Vx		15 47	SP	Poorly graded SAND					25	Gray, frozen, fine to medium sand, clear ice crystals to 2 millimeters	
9		8	Vx		50	GP	Poorly graded GRAVEL with Sand			32		8	Gray, frozen, rounded gravel, fine to coarse sand, very small clear ice crystals visible by melting Bottom of Hole 9.1 m Elevation 129.1 m Groundwater Not Encountered	

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ALASKA DISTRICT
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Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 1
Date: 13 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,736 m
Easting: 471,278 m

Top of Hole
Elevation: 138.2 m

Hole Number, Field: UAC-11
Permanent: AP-8694

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
Total Depth:
9.5 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-0.5						PT	PEAT						Surface: Tundra surface	
0.5-1.0						OL	Organic SILT						Dark brown, frozen, surface organics	
1.0-1.5		1	Vx	F4	10 16 17	ML	SILT					59	Dark brown, frozen, nonplastic (NP) fines, surface organics 50% by volume	
1.5-2.0		2	Vx	F4	12 15 21	ML	SILT					37	Brown, frozen, NP fines, small ice crystals, pieces of wood up to 13 millimeters	
2.0-2.5													Brown and gray, frozen, fine sand, NP fines, small ice crystals	
2.5-3.0		3	Vx	S1	54	GP-GM	Poorly graded GRAVEL with Silt and Sand	49	41	10	19	9	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
3.0-3.5														
3.5-4.0		4	Vx	NFS	53/125mm	GP	Poorly graded GRAVEL with Sand				51	8	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
4.0-4.5														
4.5-5.0		5	Vx		52	GP	Poorly graded GRAVEL with Sand				51	5	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
5.0-5.5														
5.5-6.0		6	Vx		55/100mm	GP	Poorly graded GRAVEL with Sand and Cobbles				>76	9	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
6.0-6.5														
6.5-7.0		7	Vx		16 40	SP	Poorly graded SAND	0	95	5		28	Gray, frozen, fine sand, small white ice crystals	
7.0-7.5					50/75mm									
7.5-8.0														
8.0-8.5														
8.5-9.0														
9.0-9.5													Bottom of Hole 9.5 m Elevation 128.7 m Groundwater Not Encountered	
9.5-10.0														
10.0-10.5														
10.5-11.0														
11.0-11.5														
11.5-12.0														

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W911KB-04-B-0002, Amendment # R0003



**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 1
Date: 21 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,736 m
Easting: 471,319 m

Top of Hole
Elevation: 138.5 m

Hole Number, Field: **UAC-12** Permanent: **AP-8695**

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
1.8 m AD

Depth Drilled:
4.6 m

Total Depth:
5.0 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0						PT	PEAT						Surface: Tundra	
0.5		2	Nbe	F4	8	ML	SILT						Black, frozen, surface organics	
1.0		3	Nbn	F3	12	SM	Silty SAND	0	58	42		31	Brown, frozen, nonplastic (NP) fines, clear and cloudy ice crystals to 19 millimeters, ice greater than 50% by volume	
1.5		4	NFS		8	SP-SM	Poorly graded SAND with Silt and Gravel	45	48	7	19	11	Brown, frozen, NP fines, no visible ice	
2.0		5	NFS		11	SP	Poorly graded SAND with Gravel				6		Gray, wet, rounded gravel, fine to medium sand	
2.5					13								300 millimeters of heaving sand	
3.0					16								Gray, wet, rounded gravel, fine to medium sand	
5.0													Bottom of Hole 5.0 m Elevation 133.4 m Groundwater Encountered After Drilling: at depth 1.8 m	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
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Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 2
Date: 13 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,675 m
Easting: 471,208 m

Top of Hole Elevation: 138.2 m

Hole Number, Field: UAC-13
Permanent: AP-8696

Operator: William Tester

Inspector: Gregory Carpenter

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater: NE

Depth Drilled: Total Depth: 15.5 m

Hammer Weight: 154 kg

Split Spoon I.D.: 64 mm

Size and Type of Bit: 203 mm HSA

Type of Equipment: CME 850 with Automatic Hammer

Type of Samples: Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-1					5 13 25	PT OL	PEAT Organic SILT						Dark brown, frozen, surface organics	
1-2		1	Vx	F4		ML	SILT					34	Dark brown, frozen, nonplastic (NP) fines, surface organics	
2-3		2	Nbn	NFS	30 50/75mm	SP-SM	Poorly graded SAND with Silt and Gravel	41	52	7	51	15	Gray, frozen, fine sand, NP fines, small white ice crystals	
3-4		3	Nbn	S1	55	GW-GM SP	Well-graded GRAVEL with Silt and Sand Poorly graded SAND	53	42	5	25	7	Gray, frozen, rounded gravel, fine to coarse sand Sand layer indicated by drill action	
4-5		4	Vx	NFS	54	GP	Poorly graded GRAVEL with Sand				25	8	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
5-6		5	Vx		33 50/75mm	GP	Poorly graded GRAVEL with Sand	66	30	4	38	9	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
6-7		6	Vx		55/100mm	GP	Poorly graded GRAVEL with Sand				25	8	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
7-8		7	Vx/Vc		55/100mm	GP	Poorly graded GRAVEL with Sand				25	9	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
8-9		8	Vx/Vc		19 51/75mm	GP	Poorly graded GRAVEL with Sand	74	23	3	38	10	Gray, frozen, rounded gravel, fine to coarse sand, cloudy ice crystals to 12 millimeters filling voids	

EXPLORATION LOG FTW254 LOGS.GPJ ACE_ANC.GDT 7/25/03

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May 94 Prev. Ed. Obsolete

Project: Modified MOUT and Range Upgrade Facility

Hole Number: AP-8696

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ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 2 of 2
Date: 13 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,675 m
Easting: 471,208 m

Top of Hole Elevation: 138.2 m

Hole Number, Field: Permanent:
UAC-13 AP-8696

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled: _____
Total Depth: 15.5 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
13		9 Vx/Vc			51	GP-GM	Poorly graded GRAVEL with Silt and Sand	64	30	6	51		6	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals
14		10 Vx/Vc			55/125mm	GP	Poorly graded GRAVEL with Sand	71	26	3	38		11	Gray, frozen, rounded gravel, fine to coarse sand, cloudy ice crystals to 9 millimeters
15		11 Vx/Vc			30 52/75mm	GP	Poorly graded GRAVEL with Sand	53	43	4	51		11	Gray, frozen, rounded gravel, fine to coarse sand, cloudy ice crystals to 6 millimeters Bottom of Hole 15.5 m Elevation 122.8 m Groundwater Not Encountered
16														
17														
18														
19														
20														
21														
22														
23														
24														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 2

Date: 18 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,683 m
Easting: 471,245 m

Top of Hole
Elevation: 138.3 m

Hole Number, Field: Permanent:
UAC-14 AP-8697

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
15.2 m

Total Depth:
15.5 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
													Surface: Tundra	
			Nbe		Grab	PT	PEAT						Black, frozen, surface organics	
1		2	Vx	F4	7 9 12	ML	SILT					47	Brown, frozen, nonplastic (NP) fines, cloudy ice crystals to 2 millimeters	
2		3	Vx	F4	9 15 15	ML	SILT						Brown, frozen, NP fines, ice crystals, visible by melting	
3		4	Nbn	PFS	27 20/25mm	GP	Poorly graded GRAVEL with Sand			25		6	Brown, frozen, rounded gravel, medium to coarse sand	
4		5	Vx	PFS	60	GP	Poorly graded GRAVEL with Sand			25		7	Gray, frozen, rounded gravel, medium to coarse sand, cloudy ice crystals less than 1 millimeter	
5		6	Vx/Vc		54	GP	Poorly graded GRAVEL with Sand			25		11	Gray, frozen, rounded gravel, fine to medium sand, cloudy ice crystals to 1 millimeter	
6		7	Vx		36 27/25mm	GP	Poorly graded GRAVEL with Sand			25		8	Gray, frozen, rounded gravel, fine to medium sand, cloudy ice crystals less than 1 millimeter	
7		8	Vx		44 30/25mm	GP	Poorly graded GRAVEL with Sand			32		8	Gray, frozen, rounded gravel, fine to coarse sand, cloudy ice crystals less than 1 millimeter	
8		9	Vx/Vc		50 50/75mm	GP	Poorly graded GRAVEL with Sand			13		9	Gray, frozen, rounded gravel, medium to coarse sand, cloudy ice crystals to 1 millimeter	
9														
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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Project: Modified MOUT and Range Upgrade Facility

Hole Number:
AP-8697

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ALASKA DISTRICT
CORPS OF ENGINEERS
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Soils and Geology Section
EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 2 of 2
Date: 18 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,683 m
Easting: 471,245 m

Top of Hole Elevation: 138.3 m

Hole Number, Field: UAC-14
Permanent: AP-8697

Operator:
William Tester

Inspector:
Steven Henslee

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
15.2 m

Total Depth:
15.5 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
10		Vx/Vc			30 55/125mm	GP	Poorly graded GRAVEL with Sand				13		9	Gray, frozen, rounded gravel, medium to coarse sand, cloudy ice crystals to 3 millimeters
11		Nbe			25 55/75mm	GP	Poorly graded GRAVEL with Sand				25		10	Gray, frozen, rounded gravel, fine to coarse sand
12		Vx			30 50/100mm	GP	Poorly graded GRAVEL with Sand				25		8	Gray, frozen, rounded gravel, fine to coarse sand, clear ice crystals less than 1 millimeter Bottom of Hole 15.5 m Elevation 122.8 m Groundwater Not Encountered

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 2
Date: 8 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,679 m
Easting: 471,289 m

Top of Hole Elevation: 138.3 m

Hole Number, Field: Permanent:
UAC-15 AP-8698

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
2.1 m WD

Depth Drilled:
12.2 m

Total Depth:
13.7 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class: TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0						PT	PEAT						Surface: Tundra	
1		1	Vx	F4	7 9 6	OL	Organic SILT						Brown, frozen, surface organics	
2		2		F4	2 2 2	ML	SILT						Brown, frozen, nonplastic (NP), ice crystals 50% by volume	
3		3		NFS	2 4 4 4	GP	Poorly graded GRAVEL with Sand	53	44	3	38	10	Gray with iron stains, moist, fine sand, nonplastic fines	
4		4			2 5 5 5	GP	Poorly graded GRAVEL with Sand				38		Gray, wet, rounded gravel, fine to coarse sand	
5		5			2 4 4 4	GP	Poorly graded GRAVEL with Sand	64	34	2	38	7	Gray, wet, rounded gravel, fine to coarse sand	
6		6			6 5 5 4	GP	Poorly graded GRAVEL with Sand				25		Gray, wet, rounded gravel, fine to coarse sand	
7		7	Vx/Vc		13	GP	Poorly graded GRAVEL with Sand				25		Gray, frozen to wet, rounded gravel, fine to coarse sand	
8		8	Vx/Vc		53/25mm	GP	Poorly graded GRAVEL with Sand				19		Gray, frozen, rounded gravel, fine to coarse sand	
9														
10														
11														
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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Project: **Modified MOUT and Range Upgrade Facility**

Hole Number:
AP-8698

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Soils and Geology Section
EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 2 of 2
Date: 8 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,679 m
Easting: 471,289 m

Top of Hole Elevation: 138.3 m

Hole Number, Field: UAC-15
Permanent: AP-8698

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
2.1 m WD

Depth Drilled:
12.2 m

Total Depth:
13.7 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
13		Vx/Vc			54	GP	Poorly graded GRAVEL with Sand				25			Surface: Tundra Gray, frozen, rounded gravel, fine to coarse sand, clear and cloudy ice to 50 millimeters Rod bound in auger, terminated hole at 13.7 meters
14														Bottom of Hole 13.7 m Elevation 124.6 m Groundwater Encountered While Drilling: at depth 2.1 m Piezometer measured on 4/14/03 water level at 2.1 meters
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 2
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,659 m Easting: 471,212 m		Top of Hole Elevation: 138.2 m
Hole Number, Field: UAC-16	Permanent: AP-8699	Operator: William Tester
		Inspector: Gregory Carpenter

Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: NE	Depth Drilled:	Total Depth: 15.3 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0						PT-OL	Peat with Oranic Silt						Surface: Tundra	
1		1	Vx	F4	7 9 10	ML	SILT						Dark brown, frozen, nonplastic (NP) fines, surface organics	
2		2	Vx	F4	13 18 17	ML	Sandy SILT					47	Gray, frozen, NP fines, small white ice crystals	
3		3	VxVc	S1	52	GP-GM	Poorly graded GRAVEL with Silt and Sand	54	41	5	25	7	Gray, frozen, rounded gravel, fine to coarse sand	
4		4	Vx	NFS	19 50	SP	Poorly graded SAND	0	98	2		31	Gray, frozen, fine sand, small white ice crystals	
5		5	Vx		50/125mm	GP	Poorly graded GRAVEL with Sand and Cobbles				>76	8	Gray, frozen, rounded gravel, fine to coarse sand,	
6		6	VxVc		55	GP-GM	Poorly graded GRAVEL with Silt, Sand, and Cobbles	52	43	5	>76	9	Gray, frozen, rounded gravel, fine to coarse sand, small ice crystals	
7		7	Vx		54/75mm	GP	Poorly graded GRAVEL with Sand and Cobbles				>76	10	Gray, frozen, rounded gravel, fine to coarse sand, small ice crystals	
8		8	VxVc		52/125mm	GP	Poorly graded SAND						Drill action indicates sand	
9						SP	Poorly graded SAND						Drill action indicates sand	
10						GP	Poorly graded GRAVEL with Sand and Cobbles				>76	10	Gray, frozen, rounded gravel, fine to coarse sand, small ice crystals	
11						SP	Poorly graded SAND						Drill action indicates sand	
12						GP	Poorly graded GRAVEL with Sand				38	9	Gray, frozen, rounded gravel, fine to coarse sand, small ice crystals	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 2 of 2 Date: 12 Apr 2003
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,659 m Easting: 471,212 m		Top of Hole Elevation: 138.2 m

Hole Number, Field: UAC-16	Permanent: AP-8699	Operator: William Tester	Inspector: Gregory Carpenter
Type of Hole: <input type="checkbox"/> other _____ <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer		Depth to Groundwater: NE	Depth Drilled: _____ Total Depth: 15.3 m

Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
9					36	GP	Poorly graded GRAVEL with Sand and Cobbles				>76		10	Surface: Tundra Gray, frozen, rounded gravel, fine to coarse sand, small ice crystals
13					43/25mm									Noticeably easier drilling effort beginning at 13.1 meters, suspect presence of excess ice
14		10	Vx		23	GP	Poorly graded GRAVEL with Sand	80	16	4	25		19	Gray, frozen, rounded gravel, fine to coarse sand, clear and cloudy ice to 13 millimeters
15			Vx		54/75mm	GP	Poorly graded GRAVEL with Sand				25		9	Gray, frozen, rounded gravel, fine to coarse sand, small ice crystals Bottom of Hole 15.3 m Elevation 122.9 m Groundwater Not Encountered

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 2
Date: 15 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,665 m
Easting: 471,249 m

Top of Hole Elevation: 138.3 m

Hole Number, Field: UAC-17
Permanent: AP-8700

Operator: William Tester

Inspector: Gregory Carpenter

Type of Hole: other
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater: NE

Depth Drilled: 15.2 m

Total Depth: 15.4 m

Hammer Weight: 154 kg

Split Spoon I.D.: 64 mm

Size and Type of Bit: 203 mm HSA

Type of Equipment: CME 850 with Automatic Hammer

Type of Samples: Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0			Vx			PT	PEAT						Surface: Tundra Dark brown, frozen, surface organics	
1		1	Vx	F4	5 5	ML	SILT				64		Brown, frozen, fine sand, nonplastic (NP) fines, small white ice crystals	
2		2	Vx/Vc	NFS	10 36 50/75mm	GP	Poorly graded GRAVEL with Sand				38	7	Brown with iron staining, frozen, rounded gravel, fine to coarse sand, NP fines, small white ice crystals	
3		3	Vx	NFS	12 54/125mm	SM	Silty SAND	85	15			29	Gray, frozen, fine sand, small white ice crystals	
4														
5		4	Vx	NFS	50	GP	Poorly graded GRAVEL with Sand				25	10	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
6		5	Vx		50/125mm	GP	Poorly graded GRAVEL with Sand	68	27	5	38	6	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
7														
8		6	Vx		50	GP	Poorly graded GRAVEL with Sand				64	6	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
9		7	Vx		59	GP	Poorly graded GRAVEL with Sand				64	7	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
10														
11		8	Vx		50	GP	Poorly graded GRAVEL with Sand				64	12	Gray, frozen, rounded gravel, fine to coarse sand, white and clear ice crystals to 6 millimeters	
12														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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Project: Modified MOUT and Range Upgrade Facility

Hole Number: AP-8700

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**ALASKA DISTRICT
CORPS OF ENGINEERS
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**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 2 of 2
Date: **15 Apr 2003**

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: **7,186,665 m**
Easting: **471,249 m**

Top of Hole
Elevation: **138.3 m**

Hole Number, Field: Permanent:
UAC-17 AP-8700

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
15.2 m

Total Depth:
15.4 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
13			Vx/Vc		16 43	GP	Poorly graded GRAVEL with Sand	55	41	4	64		19	Surface: Tundra Gray, frozen, rounded gravel, coarse sand, ice crystals to 6 millimeters
14			Vx/Vc		12 51/75mm	GP	Poorly graded GRAVEL with Sand				64		15	Gray, frozen, rounded gravel, coarse sand, ice crystals to 13 millimeters
15			Vx/Vc		60	GP	Poorly graded GRAVEL with Sand				38		7	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals Bottom of Hole 15.4 m Elevation 122.9 m Groundwater Not Encountered

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 1
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,669 m Easting: 471,291 m		Top of Hole Elevation: 138.4 m

Hole Number, Field: UAC-18	Permanent: AP-8701	Operator: William Tester	Inspector: Gregory Carpenter
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Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: NE	Depth Drilled: 11.9 m	Total Depth: 11.9 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0							Poorly graded GRAVEL						Surface: Tundra	
0.5		1	Vx	F4	6 9 10	GP PT ML	PEAT SILT						Dark gray, frozen, angular gravel, FILL	
1.5		2		F4	4 2 2	ML	SILT	0	12	88		46	Dark brown, frozen, surface organics Brown, frozen, fine sand, nonplastic (NP) fines, clear and cloudy ice crystals to 2 millimeters	
2.5		3		NFS	3 3 3	GP	Poorly graded GRAVEL with Sand				38		Brown with gray mottling, frozen to wet, NP fines	
4.5		4		PFS	4 7 8 8	GW	Well-graded GRAVEL with Sand	59	38	3	25	8	Gray, wet, rounded gravel, coarse sand	
6.5		5			7 7 7 4	GP	Poorly graded GRAVEL with Sand				51		Gray, wet, rounded gravel, fine to coarse sand	
8.5		6	Nbn		7 10 32 52	GP	Poorly graded GRAVEL with Sand				38		Gray, wet to frozen, rounded gravel, fine to coarse sand	
10.5		7	Nbn		50	GP	Poorly graded GRAVEL with Sand				38		Gray, frozen, rounded gravel, fine to coarse sand	
12.5		8	Nbn		29 58/75mm	GP	Poorly graded GRAVEL with Sand and Cobbles				>76		Gray, frozen, rounded gravel, fine to coarse sand	
12													Rod bound in hole, terminated boring Bottom of Hole 11.9 m Elevation 126.5 m Groundwater Not Encountered	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

**Soils and Geology Section
EXPLORATION LOG**

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 2
Date: 12 Apr 2003		
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other	Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other	
Location: Northing: 7,186,639 m Easting: 471,215 m	Top of Hole Elevation: 138.2 m	

Hole Number, Field: Permanent: UAC-19 AP-8702	Operator: William Tester	Inspector: Gregory Carpenter
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Type of Hole: <input checked="" type="checkbox"/> other <u>Installed PVC for thermister string</u> <input type="checkbox"/> Test Pit <input type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: NE	Depth Drilled:	Total Depth: 15.4 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0						PT	PEAT						Surface: Tundra	
0.5						OL	Organic SILT						Dark brown, frozen, surface organics	
1.0		1	Nbn	F4	9 10 8	ML	SILT						Dark brown, frozen, nonplastic (NP) fines, plant roots	
1.5		2	Nbn	F4	12 11 7	ML	SILT						Gray, frozen, fine sand, NP fines	
2.0						OL	Organic SILT					36	Gray and dark brown, frozen, fine sand, nonplastic (NP) fines	
2.5													Dark brown, frozen, NP fines, plant roots	
3.0		3	Vx	PFS	39 51/100mm	GW	Well-graded GRAVEL with Sand and Cobbles	58	37	5	>76	7	Gray, frozen, rounded gravel, fine to coarse sand, gravel fractured by sampler, small white ice crystals	
4.0		4	Vx	NFS	58/125mm	GP	Poorly graded GRAVEL with Sand					64	7	Gray, frozen, rounded gravel, fine to coarse sand, gravel fractured by sampler, small white ice crystals
5.0														
6.0		5	Vx/Vc		53/125mm	GW-GM	Well-graded GRAVEL with Silt and Sand	53	39	8	38	6	6	Gray, frozen, rounded gravel, fine to coarse sand, small ice crystals
7.0														
8.0		6	Vx/Vc		63	GP	Poorly graded GRAVEL with Sand and Cobbles				>76	8	8	Gray, frozen, rounded gravel, fine to coarse sand, small ice crystals
9.0														
10.0		7	Vx/Vc		53	GP-GM	Poorly graded GRAVEL with Silt and Sand	57	36	7	38	8	8	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals
11.0														
12.0		8	Vx/Vc		28 52/75mm	GP	Poorly graded GRAVEL with Sand	51	45	4	25	10	10	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
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**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 2 of 2
Date: **12 Apr 2003**

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: **7,186,639 m**
Easting: **471,215 m**

Top of Hole
Elevation: **138.2 m**

Hole Number, Field: **UAC-19** Permanent: **AP-8702**

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other Installed PVC for thermister string
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
Total Depth:
15.4 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
9		Vx			52/75mm	NR	No Recovery							Surface: Tundra No Recovery
13														
14		Vx/Vc			23 52/75mm	GP- GM	Poorly graded GRAVEL with Silt and Sand	66	29	5	51		8	Gray, frozen, rounded gravel, fine to coarse sand, NP fines, small ice crystals
15		Vx/Vc			55/125mm	GP	Poorly graded GRAVEL with Sand				25		7	Gray, frozen, rounded gravel, fine to coarse sand, small ice crystals Bottom of Hole 15.4 m Elevation 122.8 m Groundwater Not Encountered
16														
17														
18														
19														
20														
21														
22														
23														
24														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 2
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,647 m Easting: 471,253 m		Top of Hole Elevation: 138.1 m

Hole Number, Field: UAC-20	Permanent: AP-8703	Operator: William Tester	Inspector: Gregory Carpenter
Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer		Depth to Groundwater: NE	Depth Drilled: 15.2 m Total Depth: 15.4 m

Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0						PT	PEAT						Surface: Tundra Dark brown, frozen, surface organics	
1		1	Vx	F4	8 8 12	ML	SILT						Light brown, frozen, fine sand, nonplastic (NP) fines	
2		2	Vx	F4	10 13 11	OL	Organic SILT						Gray with dark brown organic, frozen, NP fines, clear and cloudy ice crystals to 2 millimeters	
3		3a 3b	Vx Vx	NFS NFS	18 22 19	GP SP	Poorly graded GRAVEL with Sand Poorly graded SAND			38			Gray, frozen, rounded gravel, fine to coarse sand Gray, frozen, fine sand, some wood present	
5		4	Vx	NFS	53/125mm	GP	Poorly graded GRAVEL with Sand			25			Gray, frozen, rounded gravel, fine to coarse sand	
6		5	Vx		51/100mm	GP	Poorly graded GRAVEL with Sand			25			Gray, frozen, rounded gravel, fine to coarse sand	
8		6	Vx		62/75mm	GP	Poorly graded GRAVEL with Sand			25			Gray, frozen, rounded gravel, fine to coarse sand, small white crystals	
9		7	Vx		51/75mm	GP	Poorly graded GRAVEL with Sand			51			Gray, frozen, rounded gravel, fine to coarse sand	
11		8	Vx		52/100mm	GP	Poorly graded GRAVEL with Sand			25			Gray, frozen, rounded gravel, fine to coarse sand	

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**Soils and Geology Section
EXPLORATION LOG**

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 2 of 2
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,647 m Easting: 471,253 m		Top of Hole Elevation: 138.1 m

Hole Number, Field: UAC-20	Permanent: AP-8703	Operator: William Tester	Inspector: Gregory Carpenter
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Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer	Depth to Groundwater: NE	Depth Drilled: 15.2 m	Total Depth: 15.4 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
13		9	Vx		22 51/25mm	SP-SM	Poorly graded SAND with Silt	8	87	5	64		21	Surface: Tundra Gray, frozen, fine sand, small white ice crystals
14		10	Vx		62/75mm	GP-GM	Poorly graded GRAVEL with Silt and Sand	56	39	5	64		14	Gray, frozen, rounded gravel, fine to coarse sand, clear ice crystals to 6 millimeters
15		11	Vx		51/125mm	GP	Poorly graded GRAVEL with Sand	69	27	4	64		14	Gray, frozen, rounded gravel, fine to coarse sand, clear and cloudy ice crystals to 10 millimeters Bottom of Hole 15.4 m Elevation 122.8 m Groundwater Not Encountered

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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Soils and Geology Section
EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska	Page 1 of 2
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other	Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,528 m Easting: 471,236 m	Top of Hole Elevation: 138.4 m

Hole Number, Field: UAC-21	Permanent: AP-8704	Operator: William Tester	Inspector: Gregory Carpenter
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Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> Piezometer	Depth to Groundwater: 2.7 m WD	Depth Drilled: 15.2 m	Total Depth: 15.4 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0.0			Vx			PT	PEAT						Surface: Tundra	
0.5		1			6	ML	SILT				0.4		Dark Brown, frozen, surface organics	
1.0					2	SM	Silty SAND						Gray, frozen, nonplastic (NP) fines	
1.5													Gray, wet, fine sand, NP fines	
2.0		2			2	GP-GM	Poorly graded GRAVEL with Silt and Sand	48	43	9	19	10	Gray, wet, rounded gravel, fine to coarse sand	
3.0		3			1	GP	Poorly graded GRAVEL with Sand				38		Gray, wet, rounded gravel, fine to coarse sand	
4.0													250 millimeters of heaving sand	
5.0		4			5	GP	Poorly graded GRAVEL with Sand	63	35	2	38	6	Gray, wet, rounded gravel, fine to coarse sand	
6.0		5			13	GP	Poorly graded GRAVEL with Sand				25		450 millimeters of heaving sand, water from above	
7.0			Vx										Gray, frozen, rounded gravel, fine to coarse sand	
8.0		6			54/125mm	GP	Poorly graded GRAVEL with Sand				38		600 millimeters of heaving sand, water from above	
9.0			Vx										Gray, frozen, rounded gravel, fine to coarse sand	
10.0		7			52	GW-GM	Well-graded GRAVEL with Silt, Sand, and Cobbles	55	38	7	>76	8	Gray, frozen, rounded gravel, fine to coarse sand	
11.0		8			51	GW-GM	Well-graded GRAVEL with Silt and Sand	60	32	8	38	14	Gray, frozen, rounded gravel, fine to coarse sand, ice to 9 millimeters	
12.0			Vc											

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
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**Soils and Geology Section
EXPLORATION LOG**

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 2 of 2
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,528 m Easting: 471,236 m		Top of Hole Elevation: 138.4 m
Hole Number, Field: UAC-21	Permanent: AP-8704	Operator: William Tester
		Inspector: Gregory Carpenter

Type of Hole: <input type="checkbox"/> other _____ <input type="checkbox"/> Test Pit <input type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> Piezometer	Depth to Groundwater: 2.7 m WD	Depth Drilled: 15.2 m	Total Depth: 15.4 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
9					58/125mm	GP	Poorly graded GRAVEL with Sand				25			Surface: Tundra Gray, frozen, rounded gravel, fine to coarse sand, sample was recovered thawed
10					52/125mm	GP	Poorly graded GRAVEL with Sand				25			Gray, frozen, rounded gravel, fine to coarse sand
11					60/125mm	GP	Poorly graded GRAVEL with Sand				25			Gray, frozen, rounded gravel, fine to coarse sand, small ice crystals Bottom of Hole 15.4 m Elevation 123.0 m Groundwater Encountered While Drilling: at depth 2.7 m PID = (Hot) Photo Ionization Detector

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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ALASKA DISTRICT
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Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 1 of 2

Date: 8 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,705 m
Easting: 471,612 m

Top of Hole Elevation: 138.8 m

Hole Number, Field: BF-1
Permanent: AP-8705

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other Installed PVC for thermister string
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
15.2 m

Total Depth:
15.4 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0-0.5						PT	PEAT						Surface: Tundra	
0.5-1.0						OL	Organic SILT						Dark brown, frozen, surface organics	
1.0-1.5		1	Vx/Vc	F4	11	ML	SILT					79	Brown, frozen, nonplastic (NP) fines, surface organics	
1.5-2.0		2	Vx	F4	13	ML	SILT					33	Brown, frozen, fine sand, NP, layers of organics (roots)	
2.0-2.5					11								Brown, frozen, fine sand, NP fines	
2.5-3.0					13									
3.0-3.5		3	Vx/Vc	PFS	10	GW	Well-graded GRAVEL with Sand	63	32	5	51	13	Gray with iron staining, frozen, rounded gravel, fine to coarse sand	
3.5-4.0					29									
4.0-4.5					42									
4.5-5.0		4	Vx		51	GP	Poorly graded GRAVEL with Sand				38	8	Gray, frozen, rounded gravel, fine to coarse sand, small ice crystals	
5.0-5.5					54/125mm									
5.5-6.0														
6.0-6.5		5	Vx		34	SP	Poorly graded SAND with Gravel	37	59	4	25	13	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
6.5-7.0					50/75mm									
7.0-7.5														
7.5-8.0		6	Vx/Vc		65	GP	Poorly graded GRAVEL with Sand				25	10	Gray, frozen, rounded gravel, fine to coarse sand, ice crystals to 13 millimeters	
8.0-8.5														
8.5-9.0														
9.0-9.5		7	Vx		55/125mm	GP	Poorly graded GRAVEL with Sand				25	10	Gray, frozen, rounded gravel, fine to coarse sand, white ice crystals to 13 millimeters	
9.5-10.0														
10.0-10.5														
10.5-11.0		8	Vx/Vc		25	GP	Poorly graded GRAVEL with Sand	72	24	4	19	13	Gray, frozen, rounded gravel, fine to coarse sand, cloudy white ice crystals to 13 millimeters	
11.0-11.5					50/75mm									
11.5-12.0														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

NPA Form 19-E
May 94 Prev. Ed. Obsolete

Project: Modified MOUT and Range Upgrade Facility

Hole Number:
AP-8705

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Soils and Geology Section EXPLORATION LOG

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 2 of 2
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,705 m Easting: 471,612 m		Top of Hole Elevation: 138.8 m

Hole Number, Field: BF-1	Permanent: AP-8705	Operator: William Tester	Inspector: Gregory Carpenter
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Type of Hole: <input checked="" type="checkbox"/> other <u>Installed PVC for thermister string</u>	Depth to Groundwater: NE	Depth Drilled: 15.2 m	Total Depth: 15.4 m
<input type="checkbox"/> Test Pit <input type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> Piezometer			

Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME 850 with Automatic Hammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class: TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
13		9	Vx		56/100mm	GP	Poorly graded GRAVEL with Sand				19		11	Surface: Tundra Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals
14		10	Vx		50	GP	Poorly graded GRAVEL with Sand	50	47	3	25		10	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals
15		11	Vx		51/125mm	GP	Poorly graded GRAVEL with Sand				25		11	Gray, frozen, rounded gravel, fine to coarse sand Bottom of Hole 15.4 m Elevation 123.4 m Groundwater Not Encountered

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03

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**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

**Soils and Geology Section
EXPLORATION LOG**

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)
Fort Wainwright, Alaska**

Page 1 of 2

Date: 7 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,515 m
Easting: 471,669 m

Top of Hole
Elevation: 138.6 m

Hole Number, Field: **BF-2** Permanent: **AP-8706**

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
15.2 m

Total Depth:
15.3 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class: TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
0						PT	PEAT						Surface: Tundra	
0						OL	Organic SILT						Dark brown, frozen, surface organics	
1		1	Vr	F4	13	ML	SILT					54	Dark brown, frozen, nonplastic (NP) fines, surface organics	
1					15									
1					13									
1					24									
2		2	Vx/Vr	F4	10	ML	SILT					34	Brown to gray, frozen, NP fines, ice to 19 millimeters	
2					12									
2					12									
2					21									
3		3	Vx	PFS	60	GP	Poorly graded GRAVEL with Sand	56	40	4	25	8	Gray, frozen, rounded gravel, fine to coarse sand	
4		4	Vx		54	GP	Poorly graded GRAVEL with Sand	52	45	3	25	8	Gray, frozen, rounded gravel, fine to coarse sand	
5		5	Vx		55	GP	Poorly graded GRAVEL with Sand				25	12	Gray, frozen, rounded gravel, fine to coarse sand, ice crystals to 6 millimeters	
6		6	Vx		52/125mm	GP	Poorly graded GRAVEL with Sand				38	8	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
7		7	Vx		40	GP	Poorly graded GRAVEL with Sand	57	40	3	25	8	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
8		8	VxVc		29	GP	Poorly graded GRAVEL with Sand				19	8	Gray, frozen, rounded gravel, fine to coarse sand, small white ice crystals	
9					50/50mm									
10														
11														
12														

EXPLORATION LOG FTW254 LOGS.GPJ ACE_ANC.GDT 7/25/03

NPA Form 19-E
May 94 Prev. Ed. Obsolete

Project: **Modified MOUT and Range Upgrade Facility**

Hole Number:
AP-8706

W911KB-04-B-0002, Amendment # R0003



ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES

Soils and Geology Section EXPLORATION LOG

Project: **Modified MOUT and Range Upgrade Facility (FTW254)**
Fort Wainwright, Alaska

Page 2 of 2
Date: 7 Apr 2003

Drilling Agency: Alaska District
 Other

Elevation Datum:
 MSL other

Location: Northing: 7,186,515 m
Easting: 471,669 m

Top of Hole Elevation: 138.6 m

Hole Number, Field: Permanent:
BF-2 AP-8706

Operator:
William Tester

Inspector:
Gregory Carpenter

Type of Hole: other _____
 Test Pit Auger Hole Monitoring Well Piezometer

Depth to Groundwater:
NE

Depth Drilled:
15.2 m

Total Depth:
15.3 m

Hammer Weight:
154 kg

Split Spoon I.D.:
64 mm

Size and Type of Bit:
203 mm HSA

Type of Equipment:
CME 850 with Automatic Hammer

Type of Samples:
Grab and Drive

Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks
								%Gravel	%Sand	%Fines				
13		9	Vx		14 55/100mm	SP	Poorly graded SAND with Gravel	35	61	4	19		13	Surface: Tundra Gray, frozen, rounded gravel, fine to coarse sand
14		10	VxVc		55	GP	Poorly graded GRAVEL with Sand				19		10	Gray, frozen, rounded gravel, fine to coarse sand, clear and white ice crystals to 2 millimeters
15		11	Vx		60/100mm	GP	Poorly graded GRAVEL with Sand				25		8	Gray, frozen, rounded gravel, fine to coarse sand Bottom of Hole 15.3 m Elevation 123.3 m Groundwater Not Encountered

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 7/25/03



**ALASKA DISTRICT
CORPS OF ENGINEERS
ENGINEERING SERVICES**

**Soils and Geology Section
EXPLORATION LOG**

Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 1 of 2
Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
Location: Northing: 7,186,928 m ± Easting: 471,210 m ±		Top of Hole Elevation: 138.2 m ±

Hole Number, Field: TB-1a-P	Permanent: AP-8899-P	Operator: Ronnie Ngirailid	Inspector: Steven Henslee
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Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> Piezometer	Depth to Groundwater: 2.8 m WD	Depth Drilled: 15.1 m	Total Depth: 15.5 m
---	---------------------------------------	------------------------------	----------------------------

Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME850 w/Autohammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks Surface: Ice and snow (open water during summer months)
								%Gravel	%Sand	%Fines				
0		1a			1	ICE OL	ICE with Sand/Fines inclusions Organic SILT							Snow and ice
1		2		F4	2	ML	SILT	0	1	99			37	Black and brown, moist, fine sand, nonplastic (NP) fines, estimate 60% fines by volume, strong organic odor
1		3		F4	2	ML	SILT							Black and brown, moist, NP fines, strong organic odor
2		4		F4	1	ML	SILT with Sand	0	19	81			38	Dark gray, moist, fine sand, NP fines, organic odor
4		5		NFS	3	GP	Poorly graded GRAVEL with Sand	65	34	1	64			Gray, wet, subrounded to rounded gravel, fine and coarse sand
5		6			5	GP	Poorly graded GRAVEL with Sand				25			Gray, wet, subrounded to rounded gravel, fine to coarse sand, organic odor, gravel fractured while driving
7		7			4	GP	Poorly graded GRAVEL with Sand				44			Gray, wet, subrounded to rounded gravel, fine to coarse sand, organic odor
8		8			5	GP	Poorly graded GRAVEL with Sand				57			Gray, wet, subangular to rounded gravel, fine to coarse sand, organic odor
11		9			4	GP	Poorly graded GRAVEL with Sand				51			Gray, wet, rounded gravel, fine to coarse sand, faint organic odor

EXPLORATION LOG FTW254 LOGS.GPJ ACE_ANC.GDT 16/04

NPA Form 19-E May 94 Prev. Ed. Obsolete	Project: Modified MOUT and Range Upgrade Facility (FTW254)	Hole Number: AP-8899-P
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 <p>ALASKA DISTRICT CORPS OF ENGINEERS ENGINEERING SERVICES</p> <p>Soils and Geology Section</p> <p>EXPLORATION LOG</p>	Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 2 of 2 Date: 9 Nov 2003
	Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other
	Location: Northing: 7,186,928 m ± Easting: 471,210 m ±		Top of Hole Elevation: 138.2 m ±

Hole Number, Field: TB-1a-P	Permanent: AP-8899-P	Operator: Ronnie Ngirailid	Inspector: Steven Henslee
------------------------------------	-----------------------------	-----------------------------------	----------------------------------

Type of Hole: <input type="checkbox"/> other _____ <input type="checkbox"/> Test Pit <input type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> Piezometer		Depth to Groundwater: 2.8 m WD	Depth Drilled: 15.1 m	Total Depth: 15.5 m
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Hammer Weight: 154 kg	Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA	Type of Equipment: CME850 w/Autohammer	Type of Samples: Grab and Drive
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Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks Surface: ice and snow (open water during summer months)
								%Gravel	%Sand	%Fines				
13		10			4 3 3	GP	Poorly graded GRAVEL with Sand				64		Gray, wet, subrounded to rounded gravel, fine to coarse sand, limited sample recovery	
14		11			5 7 17	GP	Poorly graded GRAVEL with Sand	52	44	4	25		Gray, wet, subrounded to rounded gravel, fine to coarse sand	
15		12			3 2 3	GP	Poorly graded GRAVEL with Sand				25		Gray, wet, subrounded to rounded gravel, fine to coarse sand	
16													Bottom of Hole 15.5 m Elevation 122.7 m ± Groundwater Encountered While Drilling: at an elevation of 135.4 m PID = (Cold/Hot) Photo Ionization Detector	
17													Heaving sand present at all sample depths below the water table.	
18														
19														
20														
21														
22														
23														
24														

EXPLORATION LOG FTW254LOGS.GPJ ACE ANCGDT 1/6/04

NPA Form 19-E May 94 Prev. Ed. Obsolete	Project: Modified MOUT and Range Upgrade Facility (FTW254)	Hole Number: AP-8899-P
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 <p>ALASKA DISTRICT CORPS OF ENGINEERS ENGINEERING SERVICES</p> <p>Soils and Geology Section EXPLORATION LOG</p>		Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska			Page 1 of 2										
		Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other			Date: 9 Nov 2003										
Location: Northing: 7,186,923 m ± Easting: 471,224 m ±			Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other												
Hole Number, Field: TB-2a		Permanent: AP-8900		Operator: Ronnie Ngrailild		Inspector: Steven Henslee									
Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer			Depth to Groundwater: 2.7 m WD		Depth Drilled: 15.1 m	Total Depth: 15.1 m									
Hammer Weight: 154 kg		Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA		Type of Equipment: CME850 w/Autohammer		Type of Samples: Grab and Drive								
Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks Surface: ice, snow, and native grasses (open water during summer months)	
								%Gravel	%Sand	%Fines					
0-1		1		F4	Grab	OL	Organic SILT					-	1.0	Brown, moist, fine sand, nonplastic (NP) fines	
1-2		2		F4	Grab	ML	SILT with Sand	0	26	74		-	0.5	35	Gray and brown, moist, fine sand, NP fines
2-3		3		F2	3	SM	Silty SAND	0	78	22		-	0.0	24	Gray, moist, fine sand
3-4		4		S1	7	GP-GM	Poorly graded GRAVEL with Silt and Sand	54	40	6	44				Gray, wet, subrounded to rounded gravel, fine to coarse sand, organic odor
4-5		5		PFS	5	GW	Well-graded GRAVEL with Sand	58	37	5	38				Gray, wet, subrounded to rounded gravel, fine to coarse sand
5-6		6			4	GP	Poorly graded GRAVEL with Sand				32				Gray, wet, subrounded to rounded gravel, fine to coarse sand
6-7		7			5	GP	Poorly graded GRAVEL with Sand	68	30	2	32				Gray, wet, subrounded to rounded gravel, fine to coarse sand
7-8		8			4	GP	Poorly graded GRAVEL with Sand				32				Gray, wet, subrounded to rounded gravel, fine to coarse sand
8-9		9			3	GP	Poorly graded GRAVEL with Sand				25				Gray, wet, subrounded to rounded gravel, fine to coarse sand
9-10		10			4	GP	Poorly graded GRAVEL with Sand				32				Gray, wet, subrounded to rounded gravel, fine to coarse sand
10-11		11			3	GP	Poorly graded GRAVEL with Sand				25				Gray, wet, subrounded to rounded gravel, fine to coarse sand
11-12		12			3	GP	Poorly graded GRAVEL with Sand				25				Gray, wet, subrounded to rounded gravel, fine to coarse sand

EXPLORATION LOG FTW254LOGS.GPJ ACE ANC.GDT 1/6/04

NPA Form 19-E
May 94 Prev. Ed. Obsolete

Project: **Modified MOUT and Range Upgrade Facility
(FTW254)**

Hole Number:
AP-8900

 <p>ALASKA DISTRICT CORPS OF ENGINEERS ENGINEERING SERVICES</p> <p>Soils and Geology Section EXPLORATION LOG</p>		Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska				Page 2 of 2 Date: 9 Nov 2003								
		Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other				Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other								
		Location: Northing: 7,186,923 m ± Easting: 471,224 m ±				Top of Hole Elevation: 138.2 m ±								
Hole Number, Field: TB-2a Permanent: AP-8900			Operator: Ronnie Ngrailild		Inspector: Steven Henslee									
Type of Hole: <input type="checkbox"/> other _____ <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer			Depth to Groundwater: 2.7 m WD		Depth Drilled: 15.1 m	Total Depth: 15.1 m								
Hammer Weight: 154 kg		Split Spoon I.D.: 64 mm	Size and Type of Bit: 203 mm HSA		Type of Equipment: CME850 w/Autohammer		Type of Samples: Grab and Drive							
Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks Surface: ice, snow, and native grasses (open water during summer months)
								%Gravel	%Sand	%Fines				
10-13		10			7 7 3	GP	Poorly graded GRAVEL with Sand				44			Gray, wet, subrounded to rounded gravel, fine to coarse sand
14-15		11			2 3 4	NR	No Recovery							No recovery. Gravel and sand suspected by drill action and cuttings
15-16														Heaving sand plugged several hundred centimeters of the lead auger. Unable to sample. Gravel and sand suspected by drill action and cuttings
16-17														Bottom of Hole 15.1 m Elevation 123.1 m ± Groundwater Encountered While Drilling: at an elevation of 135.5 m PID = (Cold/Hot) Photo Ionization Detector
17-18														Heaving sand present at all sample depths below the water table.
18-19														
19-20														
20-21														
21-22														
22-23														
23-24														

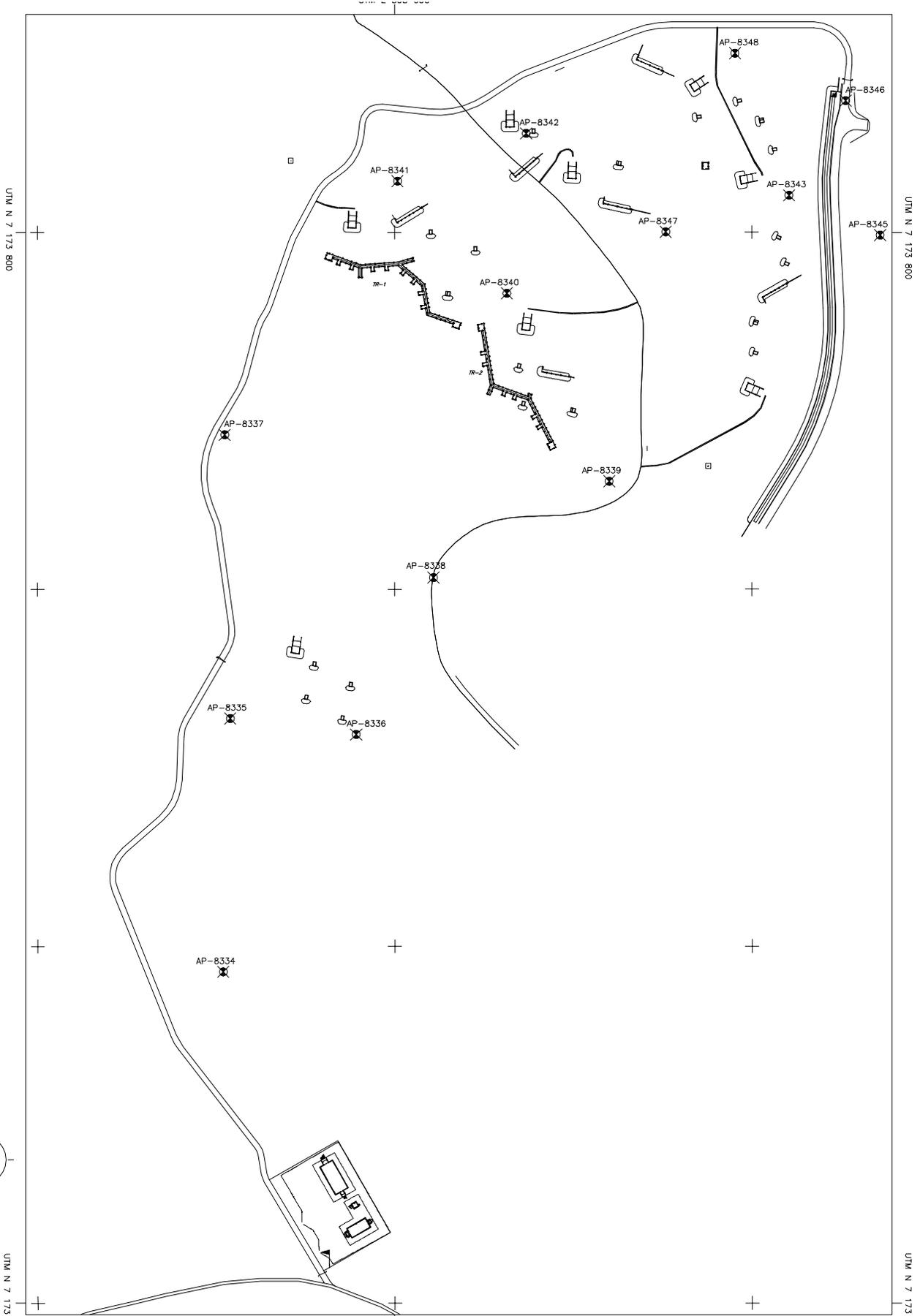
EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 1/6/04

 <p>ALASKA DISTRICT CORPS OF ENGINEERS ENGINEERING SERVICES</p> <p>Soils and Geology Section EXPLORATION LOG</p>		Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska			Page 1 of 2									
		Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other			Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other									
Hole Number, Field: TB-3a Permanent: AP-8901			Operator: Ronnie Ngirailid			Inspector: Steven Henslee								
Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer			Depth to Groundwater: 1.4 m WD			Depth Drilled: 15.1 m Total Depth: 15.1 m								
Hammer Weight: 154 kg		Split Spoon I.D.: 64 mm		Size and Type of Bit: HSA		Type of Equipment: CME850 w/Cathead and rope								
						Type of Samples: Grab and Drive								
Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks Surface: Tussocks
								%Gravel	%Sand	%Fines				
0-1		1		F4	Grab	OL	Organic SILT							Brown to black, fine sand, nonplastic (NP) fines, estimate 60% organic by volume, strong organic odor
1-1.5		2a		F4	2	ML	SILT	0	12	88				Gray, moist, fine sand, NP fines, organic odor
1.5-2		2b		S2	4	SP	Poorly graded SAND with Silt	0	94	6				
2-2.5		3		NFS	4	SM	Poorly graded SAND							Brown, moist, fine sand
2.5-3					5	SP	Poorly graded SAND							Gray, wet, fine to medium sand, organic odor
3-3.5		4		NFS	7	GP	Poorly graded GRAVEL with Sand				57			Gray, wet, subrounded to rounded gravel, fine to coarse sand, organic odor
3.5-4					8									
4-4.5		5		NFS	6	GW	Well-graded GRAVEL with Sand	63	35	2	51			Gray, wet, subrounded to rounded gravel, fine to coarse sand
4.5-5					12									
5-5.5		6			11	GP	Poorly graded GRAVEL with Sand				38			Gray, wet, subrounded to rounded gravel, fine to coarse sand, organic odor
5.5-6					14									
6-6.5		7			15	SP	Poorly graded SAND							Commence 3.3-meter sample interval. Heaving sand complicating sample collection.
6.5-7					10									Gray, wet, fine to medium sand, (suspect sample is composed of heaving sand and not representative of in-situ soil)
7-7.5					15									
7.5-8					10									
8-8.5					10									
8.5-9					10									
9-9.5					10									
9.5-10					10									
10-10.5					10									
10.5-11					10									
11-11.5					10									
11.5-12					10									

EXPLORATION LOG FTW254LOGS.GPJ ACE ANC.GDT 1/6/04

 <p>ALASKA DISTRICT CORPS OF ENGINEERS ENGINEERING SERVICES</p> <p>Soils and Geology Section</p> <p>EXPLORATION LOG</p>		Project: Modified MOUT and Range Upgrade Facility (FTW254) Fort Wainwright, Alaska		Page 2 of 2										
		Drilling Agency: <input checked="" type="checkbox"/> Alaska District <input type="checkbox"/> Other		Elevation Datum: <input checked="" type="checkbox"/> MSL <input type="checkbox"/> other										
Hole Number, Field: TB-3a		Permanent: AP-8901		Operator: Ronnie Ngirailid										
Inspector: Steven Henslee		Location: Northing: 7,186,909 m ± Easting: 471,216 m ±		Top of Hole Elevation: 132.7 m ±										
Type of Hole: <input type="checkbox"/> other <input type="checkbox"/> Test Pit <input checked="" type="checkbox"/> Auger Hole <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Piezometer		Depth to Groundwater: 1.4 m WD		Depth Drilled: 15.1 m										
Total Depth: 15.1 m		Hammer Weight: 154 kg		Split Spoon I.D.: 64 mm										
Size and Type of Bit: HSA		Type of Equipment: CME850 w/Cathead and rope		Type of Samples: Grab and Drive										
Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 2488	Grain Size			Max Size (mm)	PID (ppm)	% Water	Description and Remarks Surface: Tussocks
								%Gravel	%Sand	%Fines				
13	[Pattern]	8			32	NR	No Recovery							While floating the spoon, the spoon advanced ahead of the auger. Drove spoon only 330 centimeters. Spoon was full of heaving sand.
14														No sample attempted. Smooth easy drilling with no evidence of permafrost encountered during advance. Gravel and sand suspected by drill action and cuttings
15														Bottom of Hole 15.1 m Elevation 117.7 m ± Groundwater Encountered While Drilling: at an elevation of 131.4 m PID = (Cold/Hot) Photo Ionization Detector
16														Broken autohammer. Operated hammer using cathead and rope for all samples.
17														Heaving sand present at all sample depths below the water table.
18														
19														
20														
21														
22														
23														
24														

EXPLORATION LOG FTW254LOGS.GPJ ACE_ANC.GDT 1/6/04



UTM N 7 173 800

UTM N 7 173 800

A
B
C
D
E
F
G
H

UTM N 7 173 200

UTM N 7 173 200

UTM E 805 000



FT. WAINWRIGHT, ALASKA
 MODIFIED MOUT AND RANGE UPGRADE
 PN 55847 FY 04
 YTA SITE
 SOIL BORINGS

JAN 2004
 I: 2000
 SHEET 11
 W911KB-04-B-0002
 ANCHORAGE, ALASKA
 RANGE DESIGN, INC.
 DRAWN BY: J. T. 554
 CHECKED BY: J. T. 554
 DATE: 1-17-04

SYMBOL	DESCRIPTION	DATE	BY

CONTRACT NO. _____
 CONTRACTOR _____
 CITY _____ STATE _____
 APPROVED: _____
 ASSISTANT ENGINEER: _____
 DATE: _____



W911KB-04-B-0002, Amendment # R0003

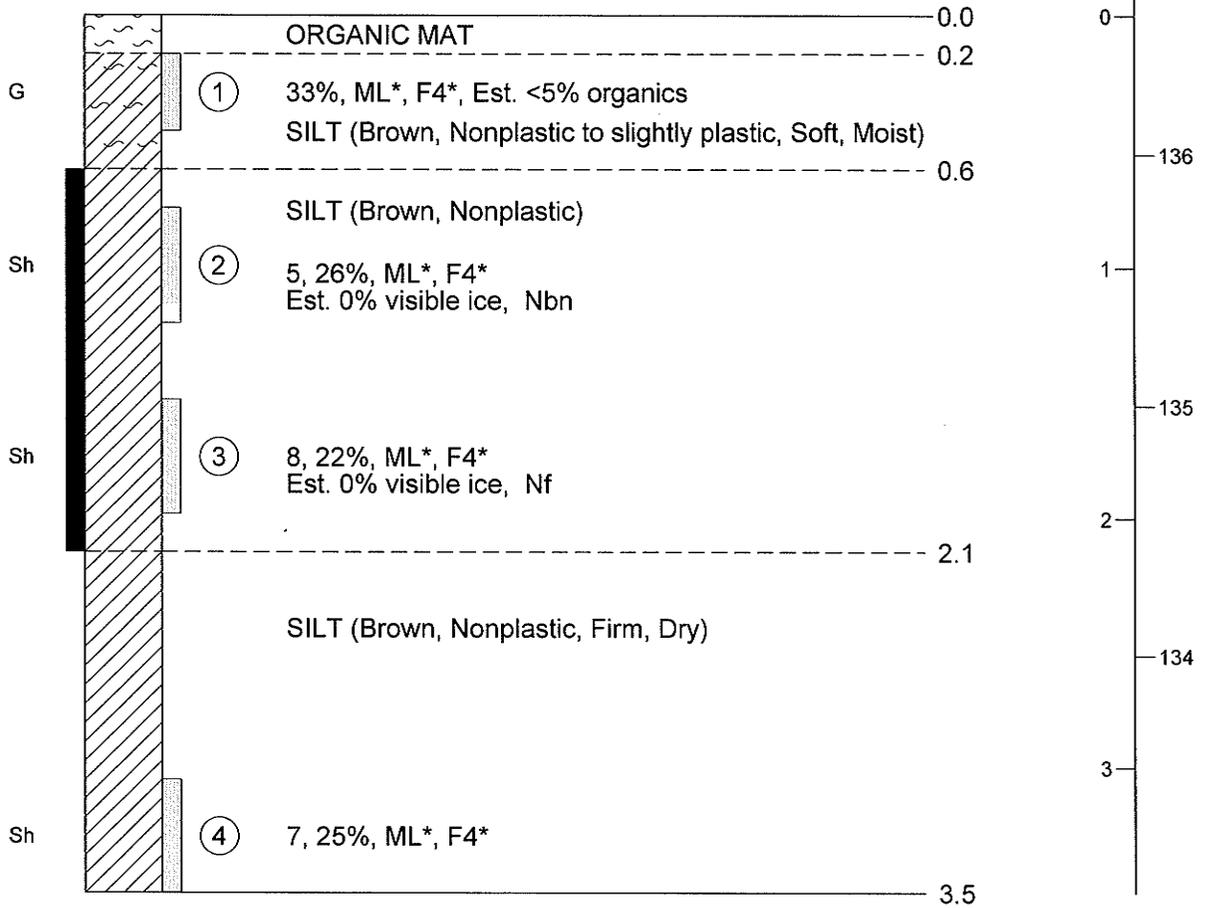
AP-8742 (IB-5003)

N 7173228.696

E 508190.725

Elev. 447.99

6/14/03



* Estimated Classification
 Groundwater was not observed while drilling
 Geologist: Kevin Pendergast
 Drill Company/Rig: Denali Drilling / Mobil B-60
 Drilling Method: 200 mm hollow-stem augers
 Drill Crew: Ed Carmen and Casey Davis

Z:\PROJECT\03\031454\ISBC.GPJ

MASTER ONE COUPAGE ISBC.GPJ MASTER2.GDT 8/4/03

DWN:	K.J.P.
CKD:	C.H.R.
DATE:	AUG 03
SCALE:	1: 30

R&M CONSULTANTS, INC.
 ENGINEERS GEOLOGISTS SURVEYORS TESTLAB
 PLANNERS COMPUTER SERVICES
 9101 Vanguard Drive, Anchorage, Alaska 99507 (907) 522-1707

ROC Area-Mod. MOUT, YTA Location
FORT WAINWRIGHT, AK
LOG OF TEST BORING
AP-8742

FB:	NA
GRID:	BIG DELTA
PROJ.NO:	031454
DWG.NO:	5

W911KB-04-B-0002, Amendment # R0003

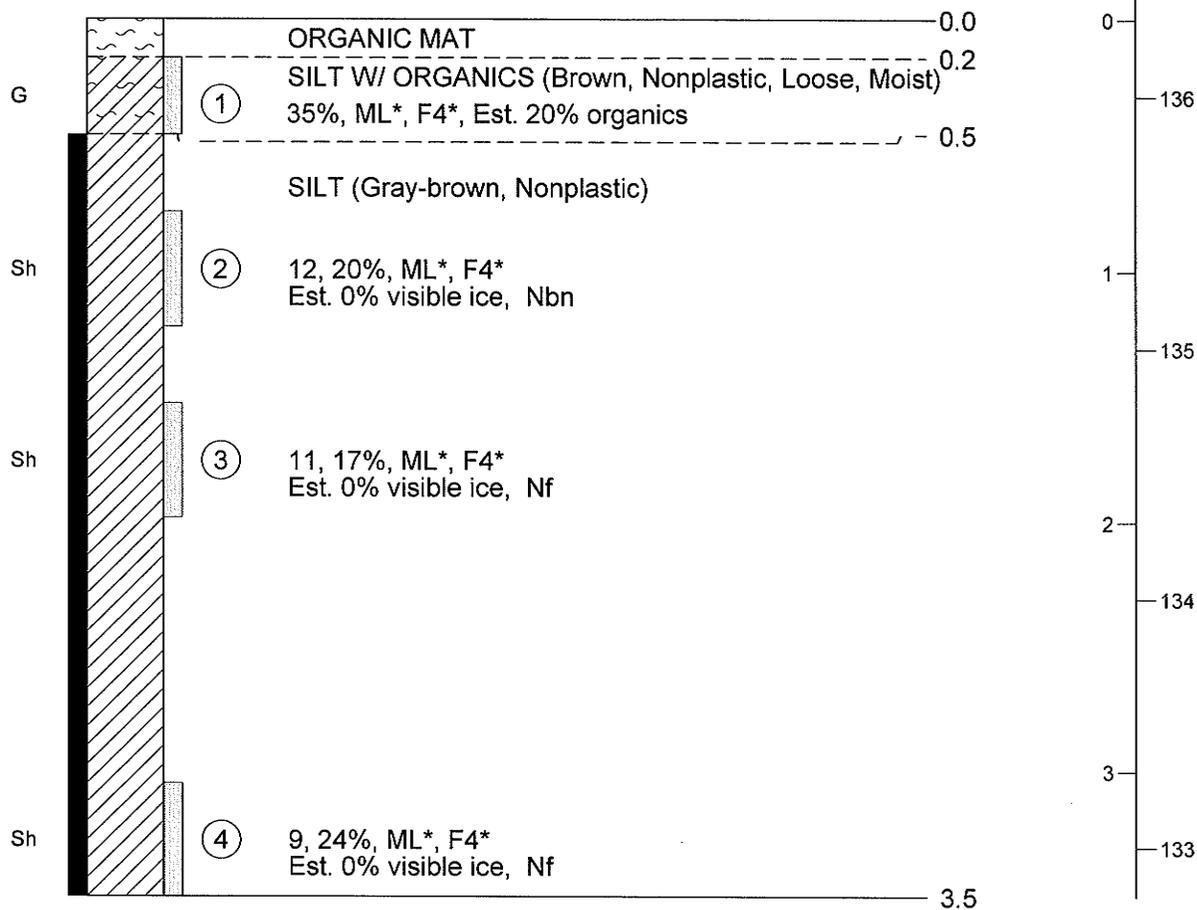
AP-8743 (IB-0004)

N 7173233.536

E 508219.785

Elev. 447.17

6/14/03



* Estimated Classification
 Groundwater was not observed while drilling
 Geologist: Kevin Pendergast
 Drill Company/Rig: Denali Drilling / Mobil B-60
 Drilling Method: 200 mm hollow-stem augers
 Drill Crew: Ed Carmen and Casey Davis

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MASTER ONE COPY/PAGE ISBC.GPJ MASTER2.GDT 8/4/03

DWN:	K.J.P.
CKD:	C.H.R.
DATE:	AUG 03
SCALE:	1: 30

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 ENGINEERS GEOLGISTS SURVEYORS TESTLAB
 PLANNERS COMPUTER SERVICES
 9101 Vanguard Drive, Anchorage, Alaska 99507 (907) 522-1707

ROC Area-Mod. MOUT, YTA Location
 FORT WAINWRIGHT, AK
LOG OF TEST BORING
AP-8743

FB:	NA
GRID:	BIG DELTA
PROJ.NO:	031454
DWG.NO:	6

W911KB-04-B-0002, Amendment # R0003

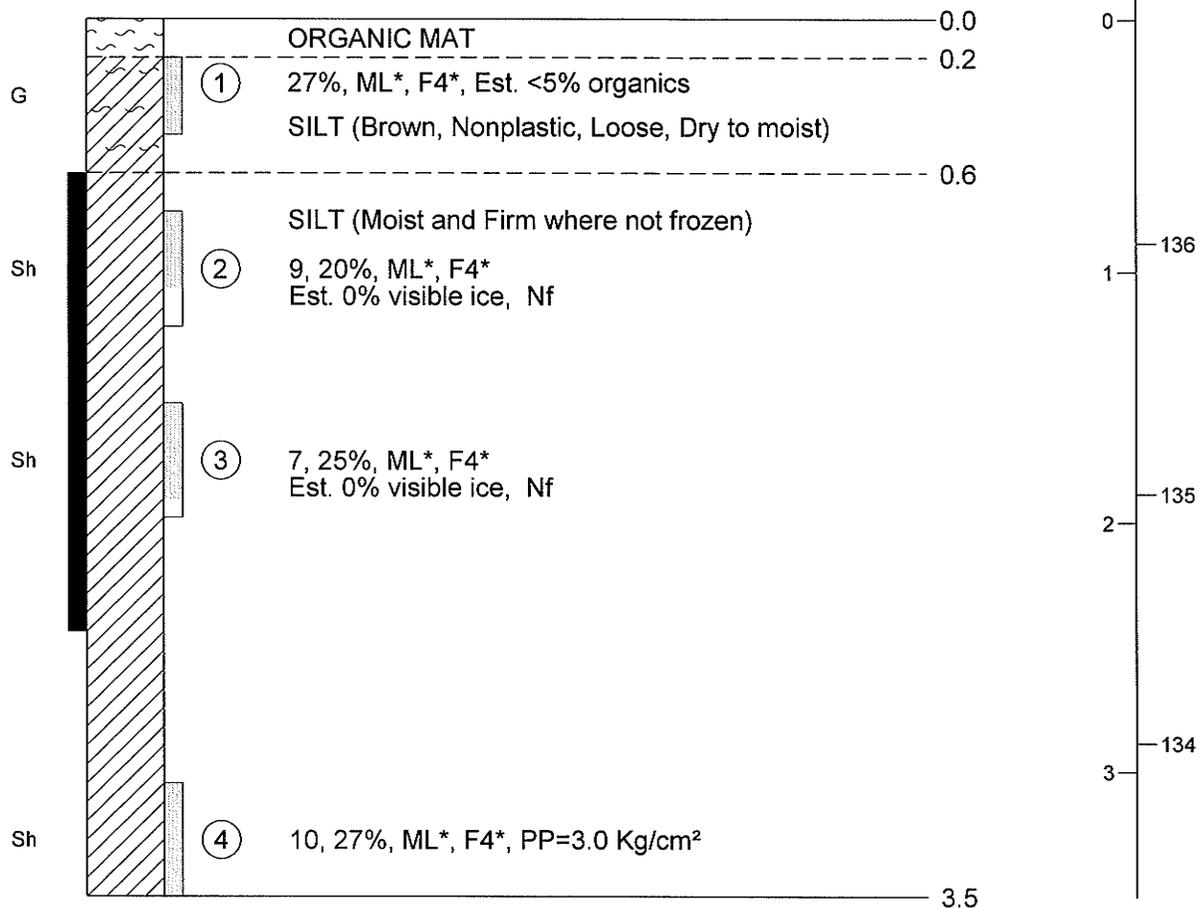
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N 7173215.246

E 508226.946

Elev. 449.08

6/14/03



* Estimated Classification
 Groundwater was not observed while drilling
 Geologist: Kevin Pendergast
 Drill Company/Rig: Denali Drilling / Mobil B-60
 Drilling Method: 200 mm hollow-stem augers
 Drill Crew: Ed Carmen and Casey Davis

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MASTER ONE COPY PAGE ISBC.GPJ MASTER2.GDT 8/4/03

DWN:	K.J.P.
CKD:	C.H.R.
DATE:	AUG 03
SCALE:	1: 30

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 ENGINEERS GEOLOGISTS SURVEYORS TESTLAB
 PLANNERS COMPUTER SERVICES
 9101 Vanguard Drive, Anchorage, Alaska 99507 (907) 522-1707

ROC Area-Mod. MOUT, YTA Location
 FORT WAINWRIGHT, AK
LOG OF TEST BORING
AP-8744

FB:	NA
GRID:	BIG DELTA
PROJ.NO:	031454
DWG.NO:	7

W911KB-04-B-0002, Amendment # R0003

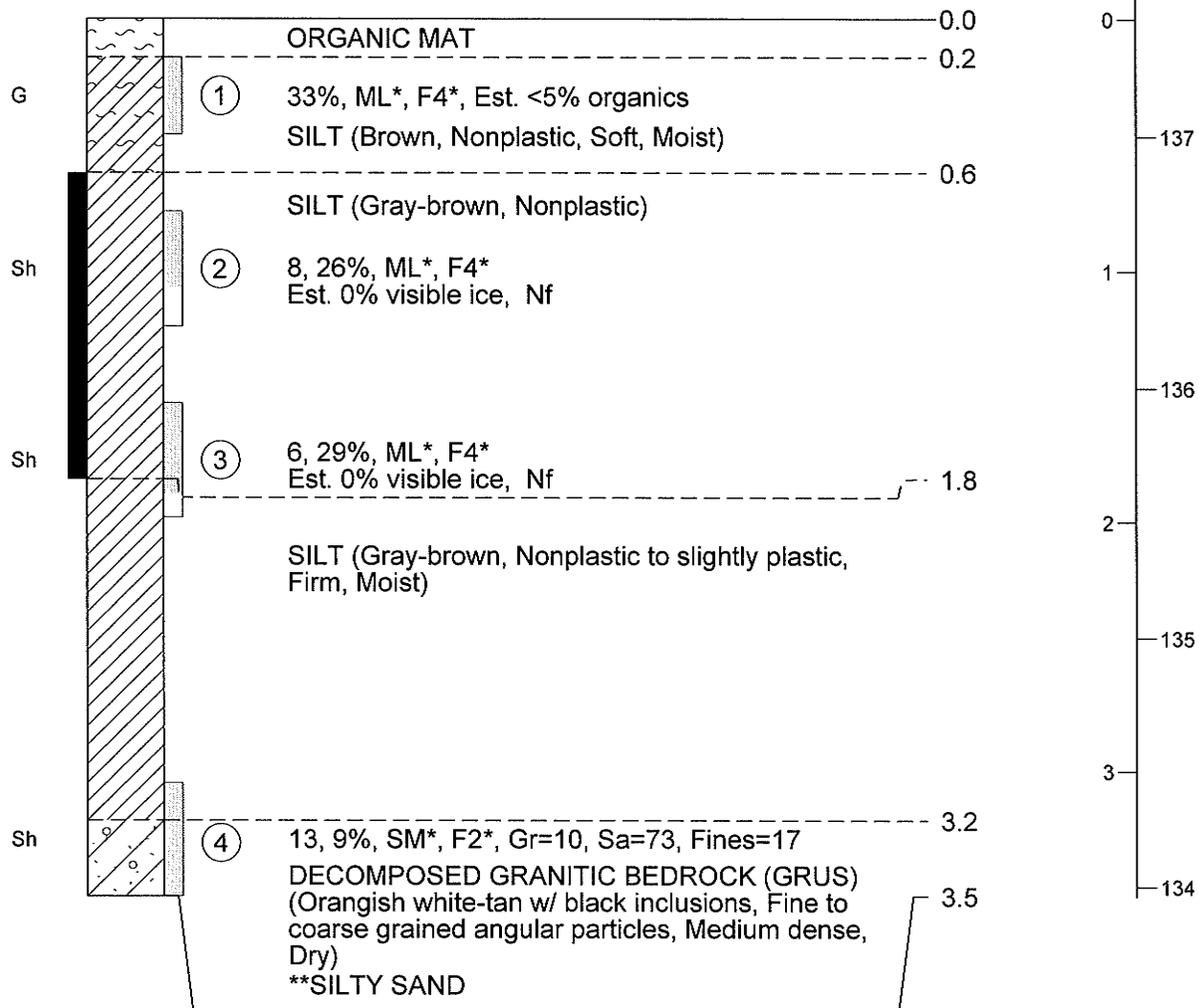
AP-8745 (1B-3000)

N 7173197.134

E 508225.668

Elev. 451.00

6/14/03



* Estimated Classification
 **Soil terminology applied to bedrock
 (See report for mechanical breakdown of samples)
 Groundwater was not observed while drilling
 Geologist: Kevin Pendergast
 Drill Company/Rig: Denali Drilling / Mobil B-60
 Drilling Method: 200 mm hollow-stem augers
 Drill Crew: Ed Carmen and Casey Davis

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MASTER ONE COUPAGE ISBC.GPJ MASTER2.GDT 8/4/03

DWN:	K.J.P.
CKD:	C.H.R.
DATE:	AUG 03
SCALE:	1: 30

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 9101 Vanguard Drive, Anchorage, Alaska 99507 (907) 522-1707

ROC Area-Mod. MOUT, YTA Location
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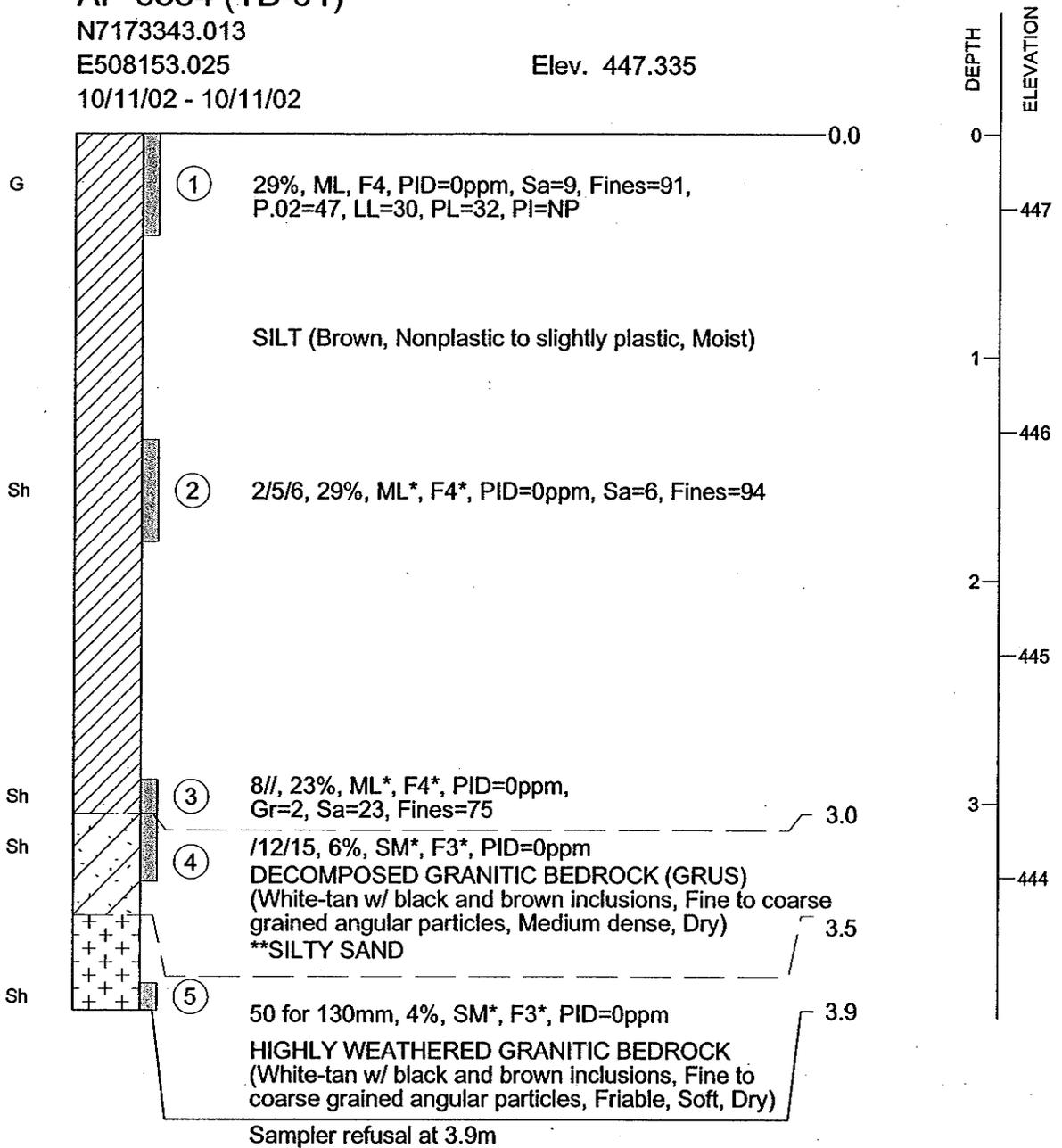
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E508153.025

Elev. 447.335

10/11/02 - 10/11/02



* Estimated Classification
 ** Soil terminology applied to bedrock.
 (See report for mechanical breakdown of samples)

Groundwater was not observed while drilling

Geologist: Aaron Banks
 Drill company/rig: Homestead Drilling Company/ Acker AD-II
 Drilling method: 200mm hollow-stem augers
 Drill crew: G. Halmstad, N. Borland

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DWN:	A.T.B.
CKD:	R.M.P.
DATE:	NOV 02
SCALE:	1: 30

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TISBC
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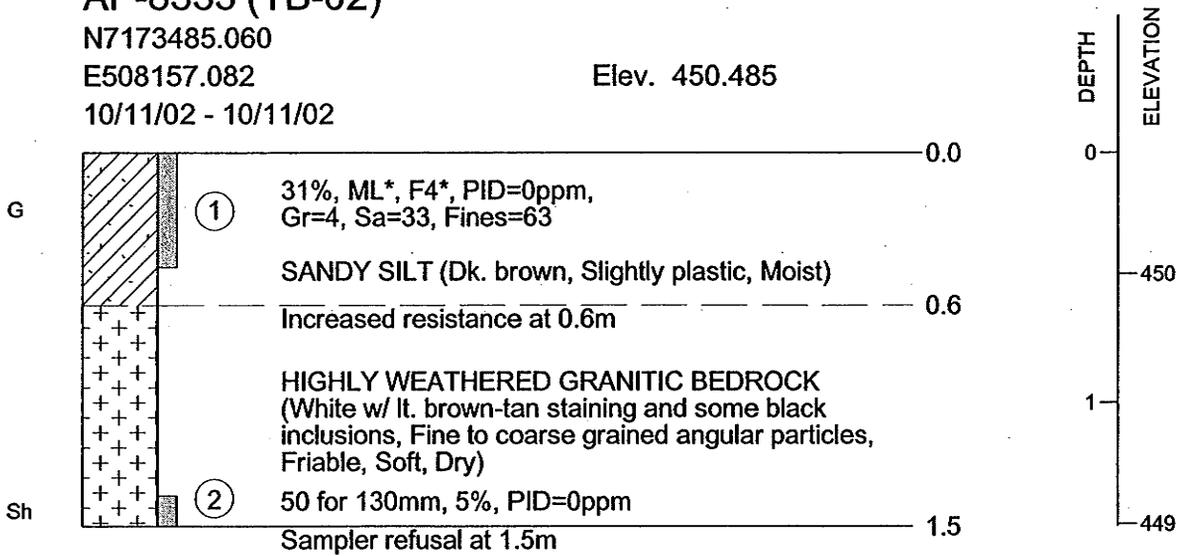
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10/11/02 - 10/11/02



* Estimated Classification

Groundwater was not observed while drilling

Geologist: Aaron Banks

Drill company/rig: Homestead Drilling Company/ Acker AD-II

Drilling method: 200mm hollow-stem augers

Drill crew: G. Halmstad, N. Borland

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CKD:	R.M.P.
DATE:	NOV 02
SCALE:	1: 30

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TISBC
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 LOG OF TEST BORING
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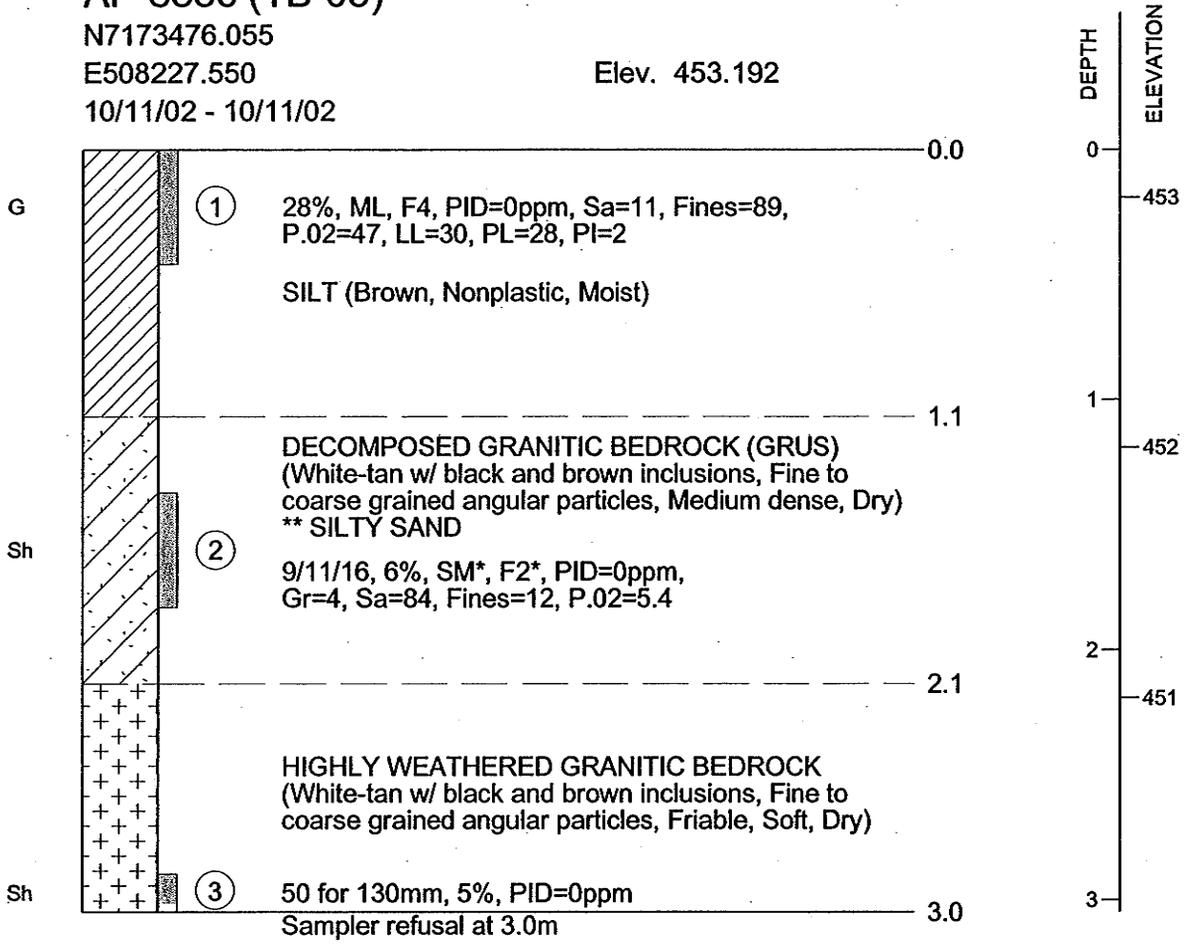
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Elev. 453.192

10/11/02 - 10/11/02



* Estimated Classification
 ** Soil terminology applied to bedrock.
 (See report for mechanical breakdown of samples)

Groundwater was not observed while drilling

Geologist: Aaron Banks
 Drill company/rig: Homestead Drilling Company/ Acker AD-II
 Drilling method: 200mm hollow-stem augers
 Drill crew: G. Halmstad, N. Borland

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DWN:	A.T.B.
CKD:	R.M.P.
DATE:	NOV 02
SCALE:	1: 30

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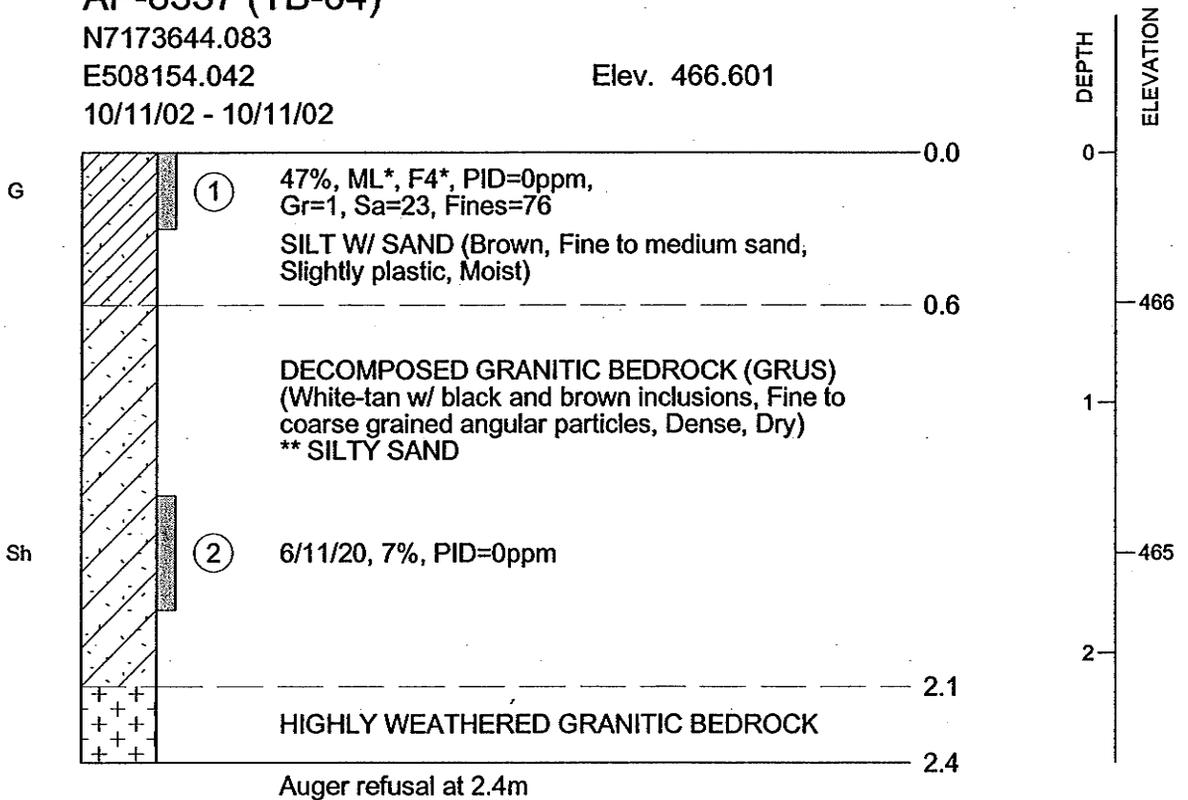
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E508154.042

Elev. 466.601

10/11/02 - 10/11/02



* Estimated Classification
 ** Soil terminology applied to bedrock.
 (See report for mechanical breakdown of samples)

Groundwater was not observed while drilling

Geologist: Aaron Banks
 Drill company/rig: Homestead Drilling Company/ Acker AD-II
 Drilling method: 200mm hollow-stem augers
 Drill crew: G. Halmstad, N. Borland

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DWN:	A.T.B.
CKD:	R.M.P.
DATE:	NOV 02
SCALE:	1: 30

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 FORT WAINWRIGHT
 LOG OF TEST BORING
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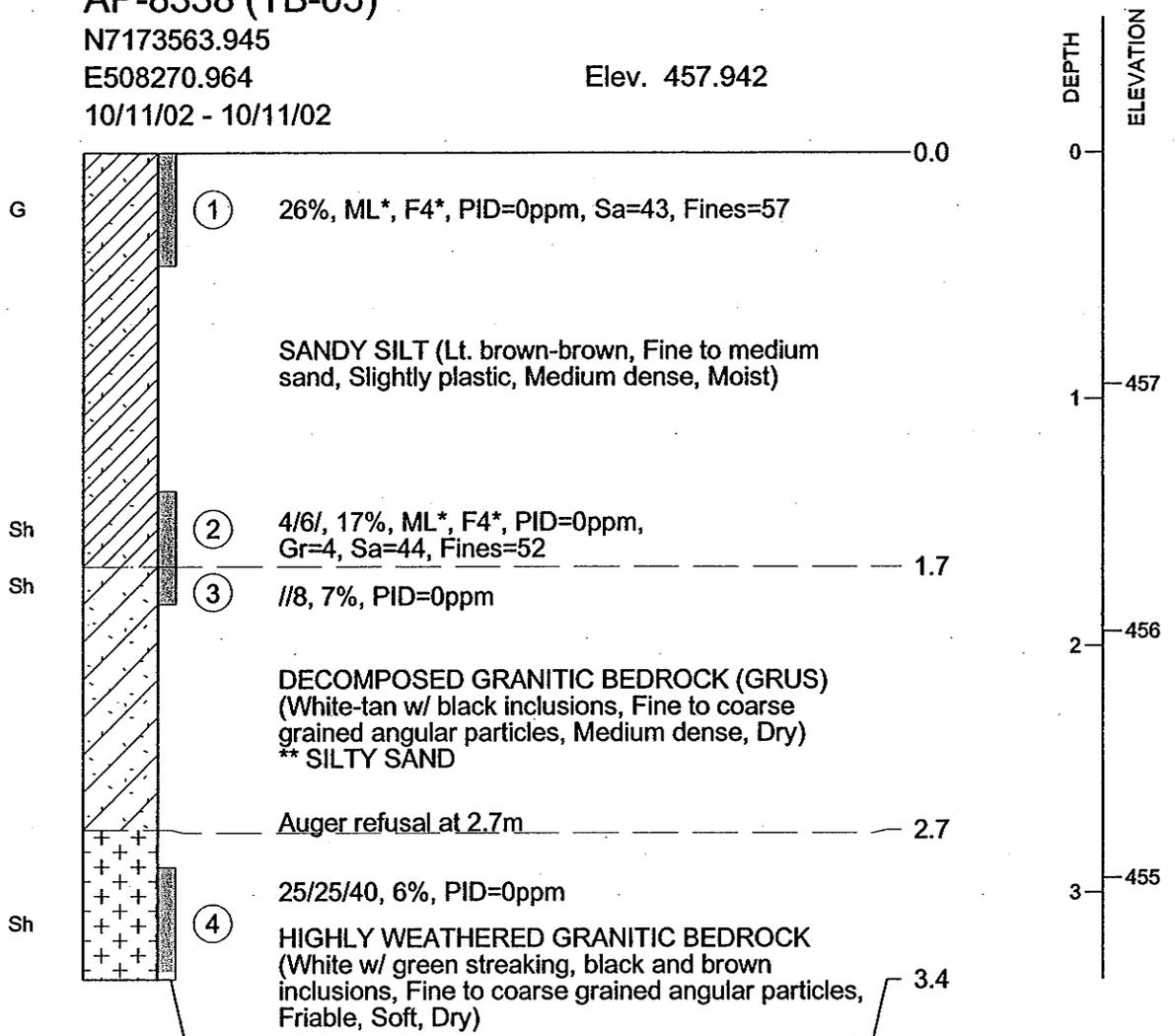
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Elev. 457.942

10/11/02 - 10/11/02



* Estimated Classification
 ** Soil terminology applied to bedrock.
 (See report for mechanical breakdown of samples)

Groundwater was not observed while drilling

Geologist: Aaron Banks
 Drill company/rig: Homestead Drilling Company/ Acker AD-II
 Drilling method: 200mm hollow-stem augers
 Drill crew: G. Halmstad, N. Borland

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DWN:	A.T.B.
CKD:	R.M.P.
DATE:	NOV 02
SCALE:	1: 30

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 LOG OF TEST BORING
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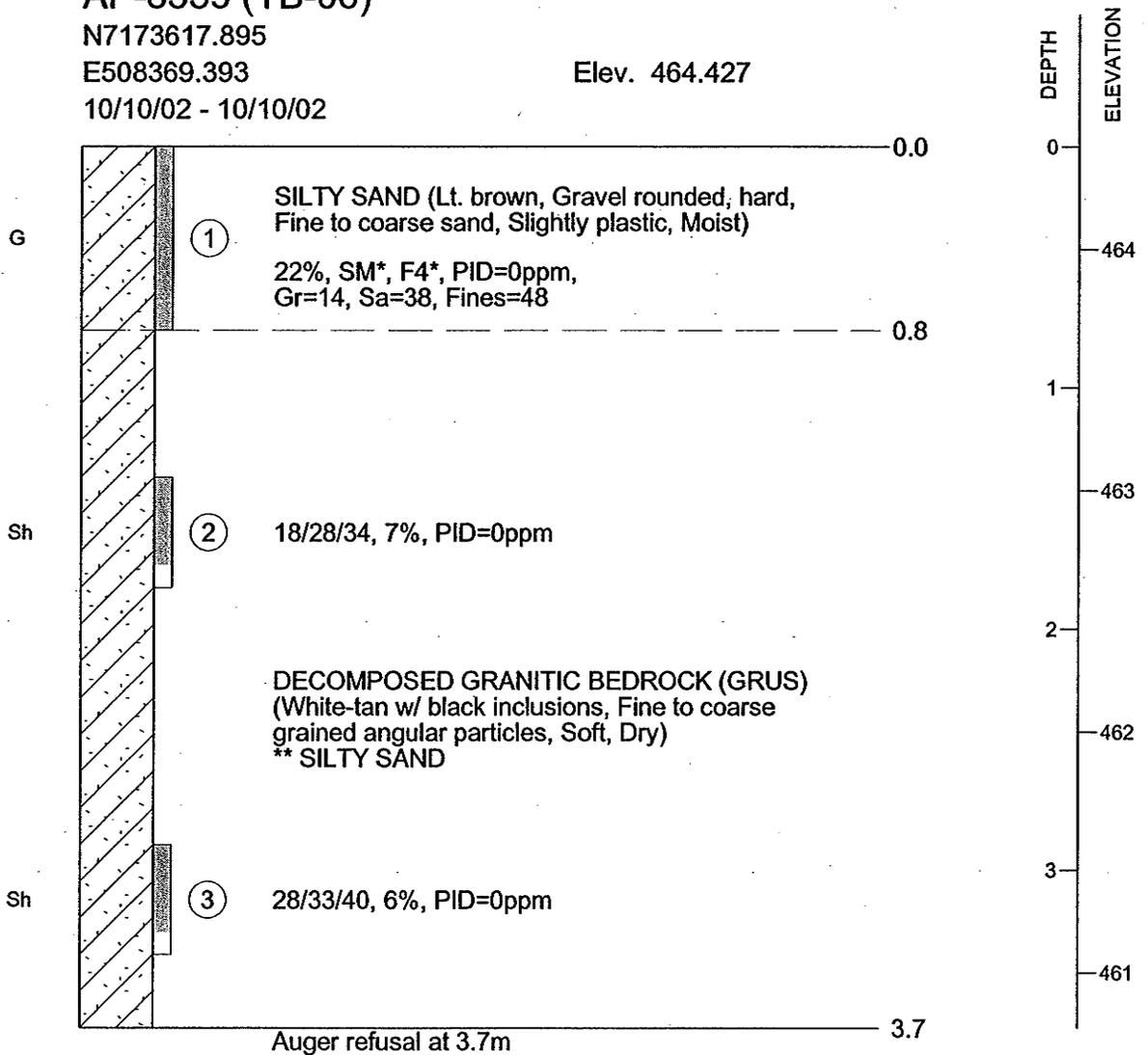
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10/10/02 - 10/10/02



* Estimated Classification

** Soil terminology applied to bedrock.
(See report for mechanical breakdown of samples)

Groundwater was not observed while drilling

Geologist: Aaron Banks
Drill company/rig: Homestead Drilling Company/ Acker AD-II
Drilling method: 200mm hollow-stem augers
Drill crew: G. Halmstad, N. Borland

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DWN:	A.T.B.
CKD:	R.M.P.
DATE:	NOV 02
SCALE:	1: 30

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AP-8339

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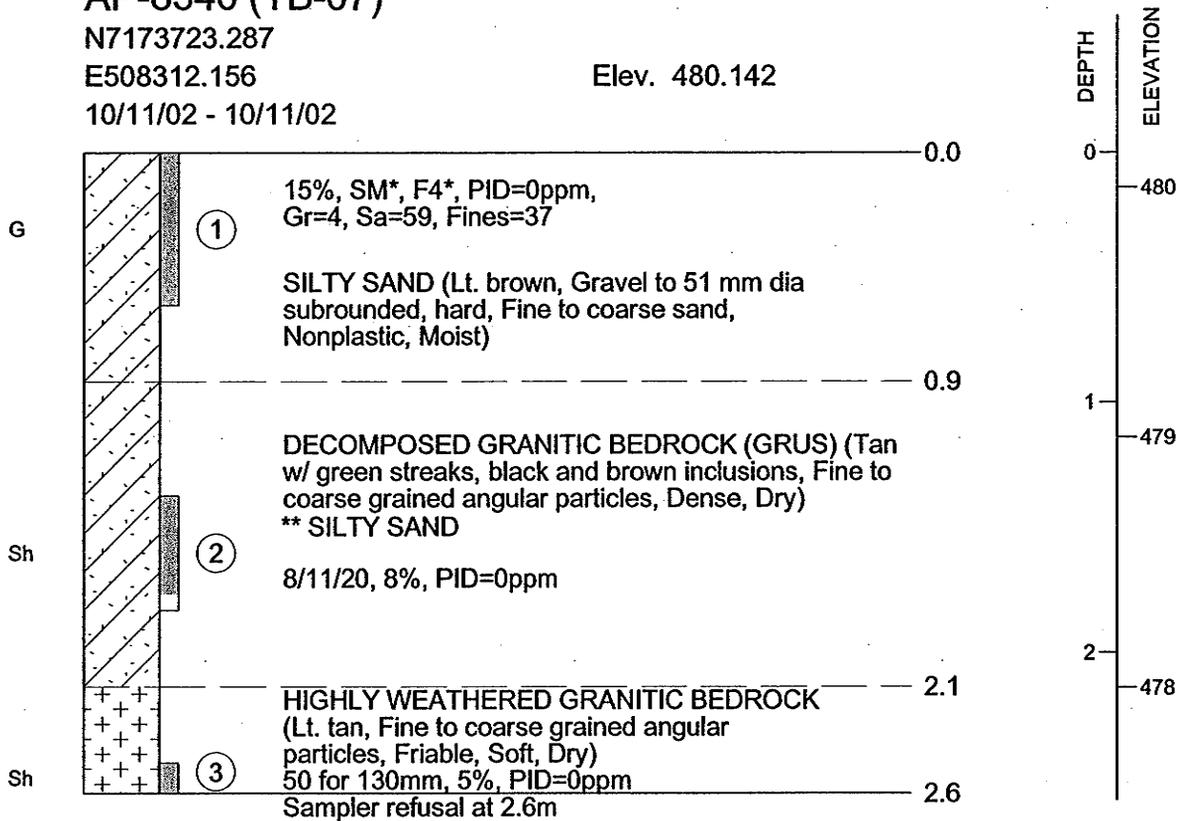
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Elev. 480.142

10/11/02 - 10/11/02



* Estimated Classification
 ** Soil terminology applied to bedrock.
 (See report for mechanical breakdown of samples)

Groundwater was not observed while drilling

Geologist: Aaron Banks
 Drill company/rig: Homestead Drilling Company/ Acker AD-II
 Drilling method: 200mm hollow-stem augers
 Drill crew: G. Halmstad, N. Borland

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DWN:	A.T.B.
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 LOG OF TEST BORING
2-8340

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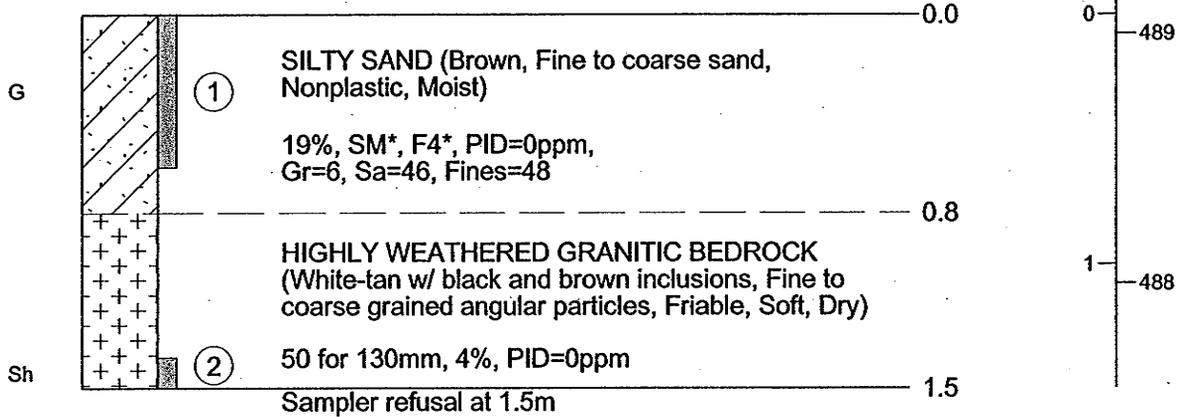
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Elev. 489.076

10/11/02 - 10/11/02



* Estimated Classification

Groundwater was not observed while drilling

Geologist: Aaron Banks

Drill company/rig: Homestead Drilling Company/ Acker AD-II

Drilling method: 200mm hollow-stem augers

Drill crew: G. Halmstad, N. Borland

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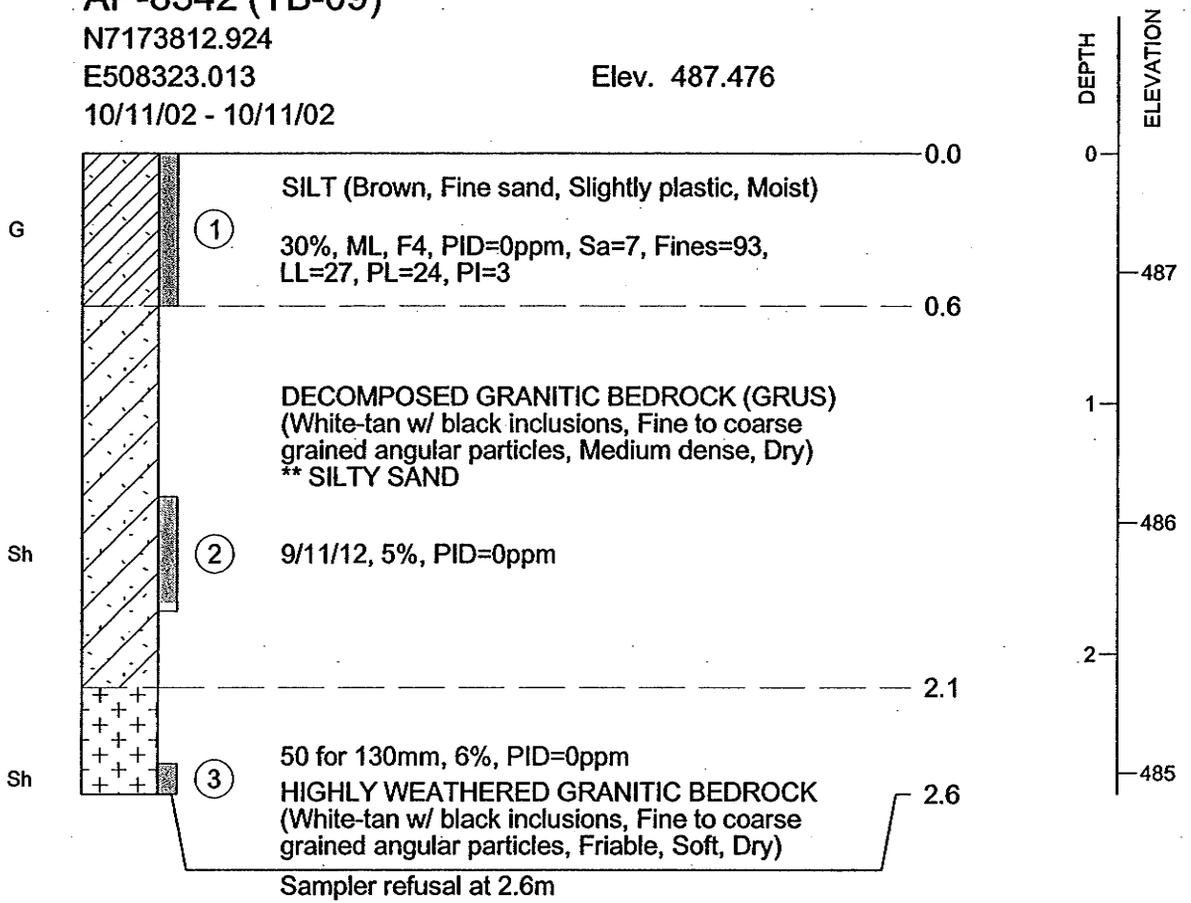
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Elev. 487.476

10/11/02 - 10/11/02



* Estimated Classification
 ** Soil terminology applied to bedrock.
 (See report for mechanical breakdown of samples)

Groundwater was not observed while drilling

Geologist: Aaron Banks
 Drill company/rig: Homestead Drilling Company/ Acker AD-II
 Drilling method: 200mm hollow-stem augers
 Drill crew: G. Halmstad, N. Borland

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DWN:	A.T.B.
CKD:	R.M.P.
DATE:	NOV 02
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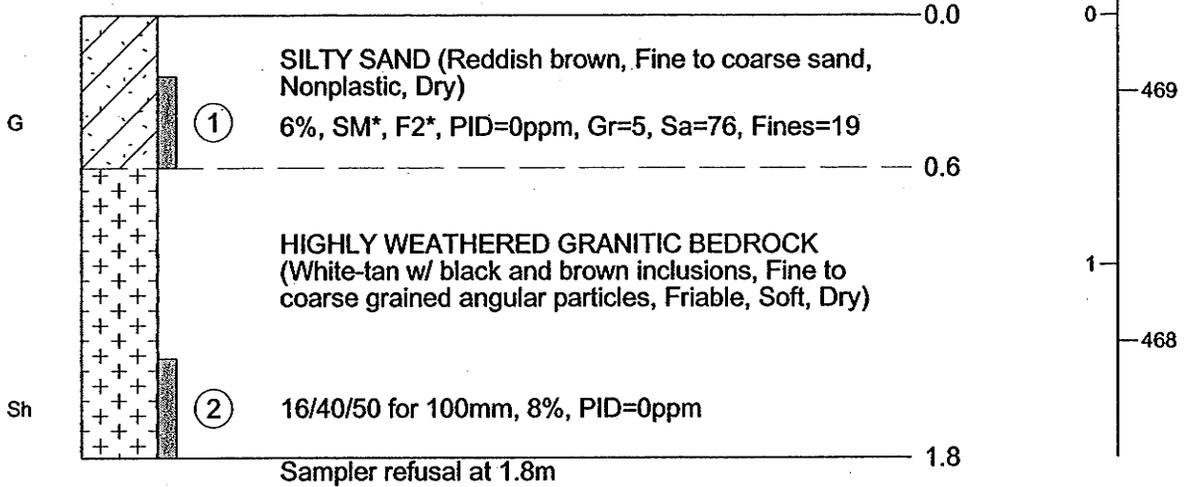
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E508470.233

Elev. 469.307

10/11/02 - 10/11/02



* Estimated Classification

Groundwater was not observed while drilling

Geologist: Aaron Banks

Drill company/rig: Homestead Drilling Company/ Acker AD-II

Drilling method: 200mm hollow-stem augers

Drill crew: G. Halmstad, N. Borland

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DWN:	A.T.B.
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DATE:	NOV 02
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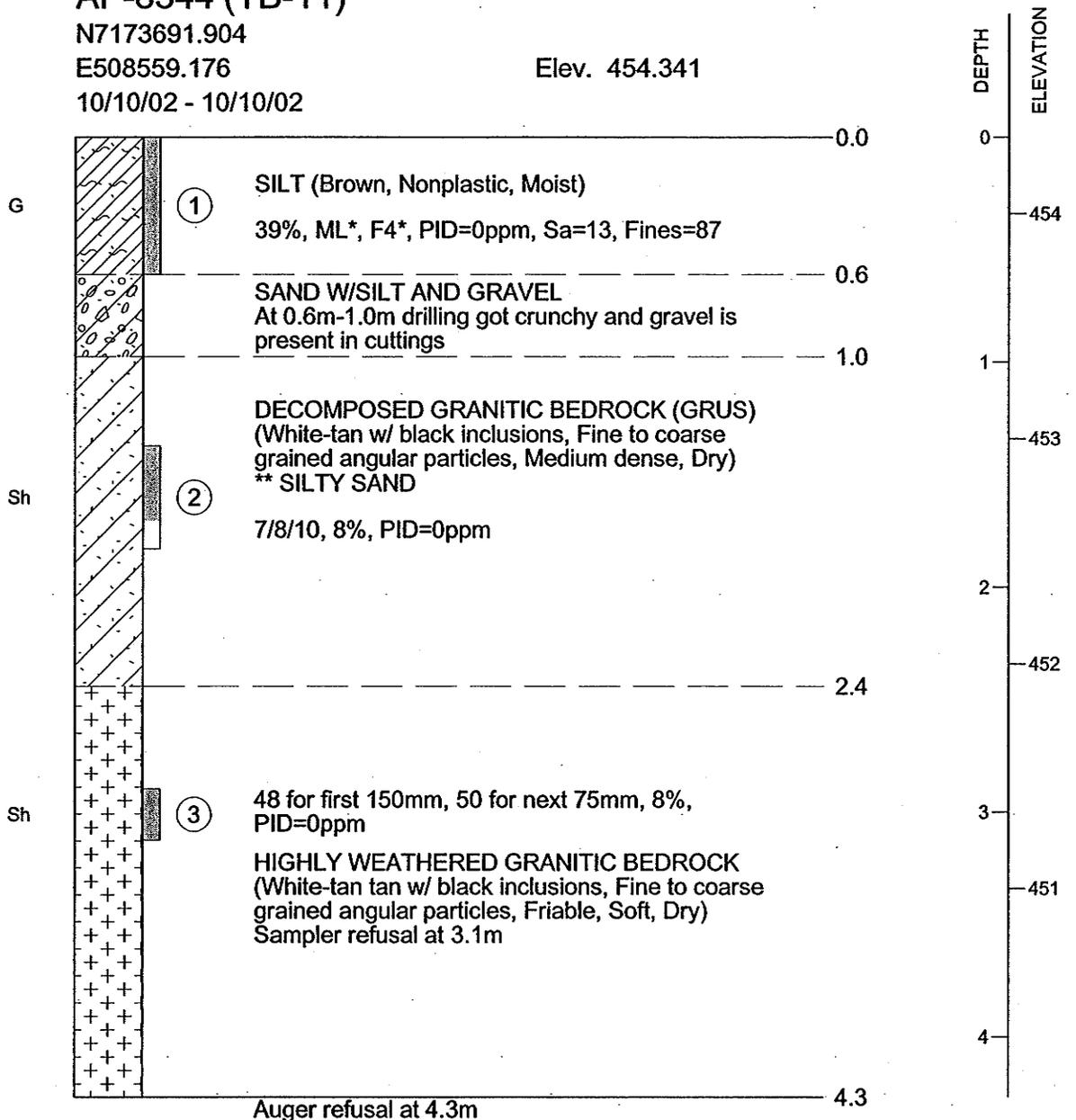
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Elev. 454.341

10/10/02 - 10/10/02



* Estimated Classification

** Soil terminology applied to bedrock.
(See report for mechanical breakdown of samples)

Groundwater was not observed while drilling

Geologist: Aaron Banks
Drill company/rig: Homestead Drilling Company/ Acker AD-II
Drilling method: 200mm hollow-stem augers
Drill crew: G. Halmstad, N. Borland

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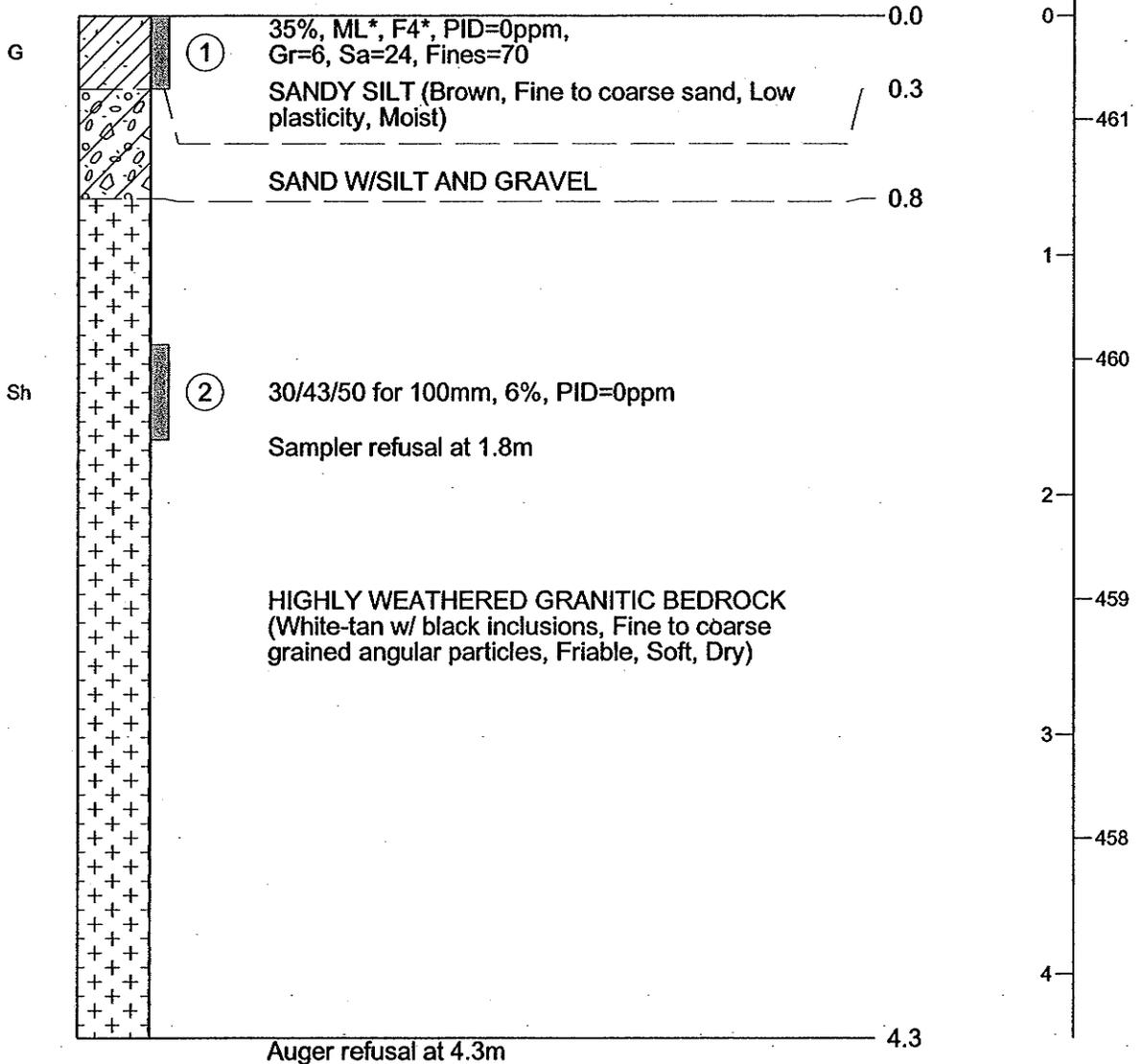
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Elev. 461.433

10/10/02 - 10/10/02



* Estimated Classification

Groundwater was not observed while drilling

Geologist: Aaron Banks

Drill company/rig: Homestead Drilling Company/ Acker AD-II

Drilling method: 200mm hollow-stem augers

Drill crew: G. Halmstad, N. Borland

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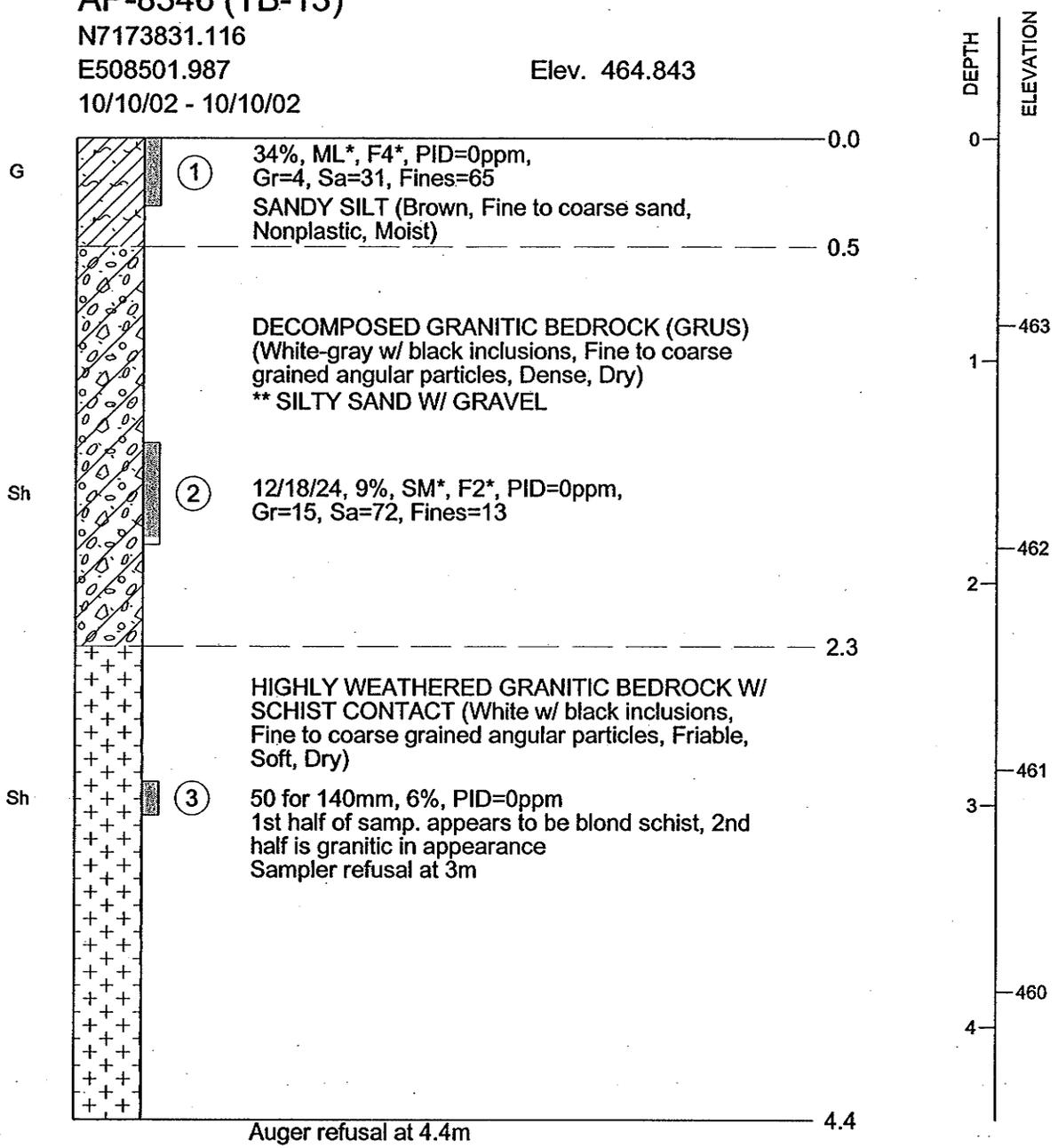
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10/10/02 - 10/10/02



* Estimated Classification

** Soil terminology applied to bedrock.
(See report for mechanical breakdown of samples)

Groundwater was not observed while drilling

Geologist: Aaron Banks

Drill company/rig: Homestead Drilling Company/ Acker AD-II

Drilling method: 200mm hollow-stem augers

Drill crew: G. Halmstad, N. Borland

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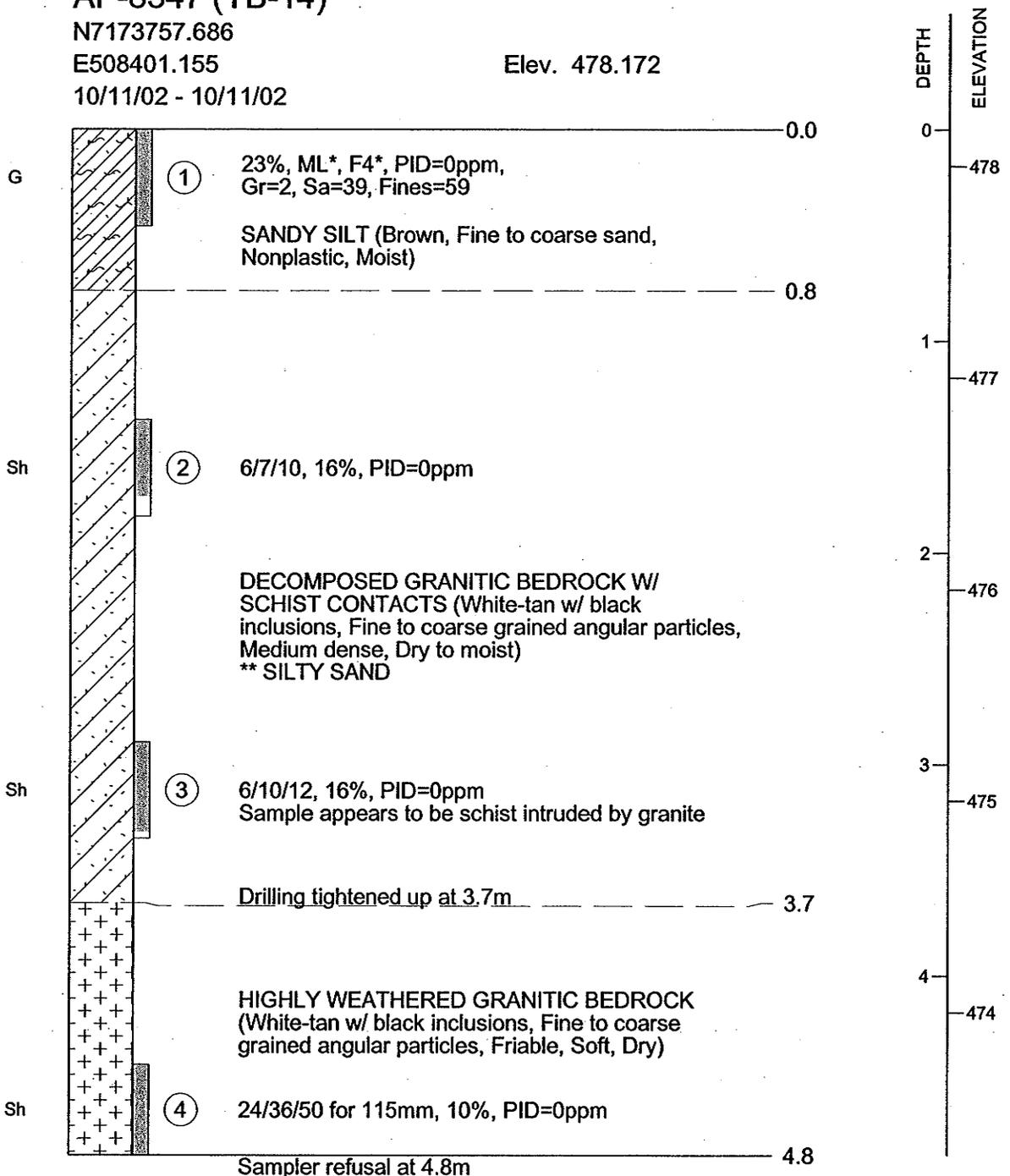
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10/11/02 - 10/11/02



* Estimated Classification
 ** Soil terminology applied to bedrock.
 (See report for mechanical breakdown of samples)
 Groundwater was not observed while drilling
 Geologist: Aaron Banks
 Drill company/rig: Homestead Drilling Company/ Acker AD-II
 Drilling method: 200mm hollow-stem augers
 Drill crew: G. Halmstad, N. Borland

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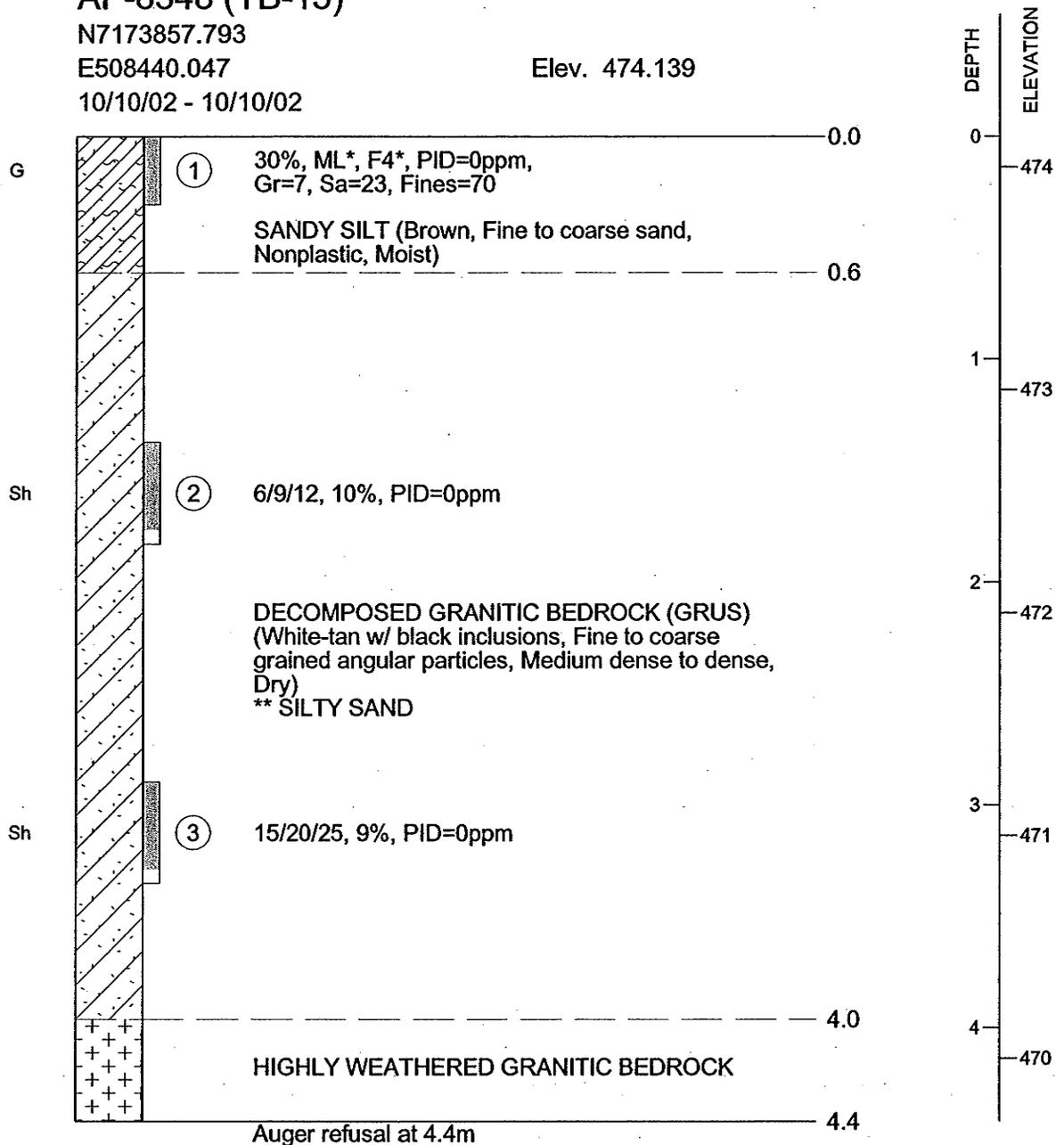
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Elev. 474.139

10/10/02 - 10/10/02



* Estimated Classification

** Soil terminology applied to bedrock.
(See report for mechanical breakdown of samples)

Groundwater was not observed while drilling

Geologist: Aaron Banks
Drill company/rig: Homestead Drilling Company/ Acker AD-II
Drilling method: 200mm hollow-stem augers
Drill crew: G. Halmstad, N. Borland

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DWN:	A.T.B.
CKD:	R.M.P.
DATE:	NOV 02
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 AP-8348

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DWG.NO:	B-17

SECTION TABLE OF CONTENTS

DIVISION 02 - SITE WORK

SECTION 02319

EARTHWORK FOR VEHICLE TRAFFIC AREAS, SIDEWALKS, CURBS AND GUTTERS, TARGET
EMPLACEMENTS AND AREA GRADING

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- 1.3 DEFINITIONS
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 - 1.3.2 Subbase
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SECTION 02319

EARTHWORK FOR VEHICLE TRAFFIC AREAS, SIDEWALKS,
CURBS AND GUTTERS, TARGET EMPLACEMENTS AND AREA GRADING

PART 1 GENERAL

1.1 SCOPE

This section covers the excavation, embankment, preparation of subgrades and grading for roadways, parking areas, driveways, and area grading including excavation, filling, and shaping of drainageways to a point 1.5 moutside of buildings.

1.2 ITEMS SPECIFIED IN OTHER SECTIONS

The following listed items shall conform to the requirements in Section 02313.

REFERENCES

MAXIMUM DENSITY DETERMINATIONS

SUBSURFACE INVESTIGATIONS

OPERATION OF BORROW PITS

ACCESS TO JOBSITE

WEATHER LIMITATIONS

REPAIR OF EXISTING WORK

CLEANING UP

BLASTING

1.3 DEFINITIONS

As specified in Section 02313, except as follows:

1.3.1 Subgrade

Subgrade applies to the natural soil in place or to fill material upon which a subbase or base course is constructed.

1.3.2 Subbase

The subbase shall extend from the top of the subgrade to the underside of the base course under surfacing.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation;

submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Compaction Test Plan

The proposed locations of all compaction tests, in 3 copies prior to commencing placing operations.

SD-09 Manufacturer's Field Reports

Compaction Test Report

Test results, with amended compaction test plan, as specified herein. A copy must be provided before the fill or backfill will be accepted as completed work.

1.5 MATERIALS

1.5.1 Classified and Unclassified

Classified fill and backfill and unclassified fill and backfill shall be obtained by selection from the excavated materials. If the excavation is insufficient in quantity or unsuitable, additional material may be obtained from the designated borrow pit, or if no borrow pit is indicated on the drawings, it shall be the Contractor's responsibility to obtain satisfactory borrow material.

1.5.2 Excavated

Excavated material shall be used to the maximum extent possible for fill and backfill or as directed. Excavated material not used shall be wasted as directed, provided, however, that no material shall be wasted prior to approval.

1.5.3 Subbase

Subbase, greater than 900 mm below finish grade, shall consist of nonfrost susceptible pit run gravel, sand, combination of these, or other approved nonfrost susceptible classified material. Subbase within 900 mm of finish grade shall consist of classified fill or backfill material deposited, spread, processed, and compacted on the prepared subgrade or subbase.

1.5.4 Base Course

Base course shall conform to Section 02313 EARTHWORK FOR BUILDINGS.

1.5.5 Ditch Lining Material

Conform to Specification Section 02635 CHANNEL LINING.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 CLEARING

3.1.1 General

The areas to serve as subgrade foundation shall be cleared of all trees, stumps, roots, and other obstructions which will interfere with the construction operations. All logs, stumps, roots, brush and other refuse from the clearing operations shall be disposed of by the Contractor. Disposal shall be as specified in Section 02313.

3.1.2 Removal Criteria

No stumps or roots or topsoil containing organic matter shall be permitted to remain within 750 mm of finished grade. At depths greater than 750 mm below finish grade, embedded stumps and roots will be permitted to remain provided stumps are not over 200 mm in height above existing ground.

3.2 CONSERVING TOPSOIL

Material determined by the Contracting Officer to be suitable for the support of plant life shall be removed from the area within the limits of excavation and spread on areas already graded and prepared for topsoil or shall be stockpiled for later use, as directed. Topsoil shall be kept separated from other excavated materials, and shall be piled free of roots and other undesirable material.

3.3 EXCAVATION

3.3.1 General

The Contractor shall perform all excavation of every description and of whatever substances encountered to the lines, grades, and cross sections indicated on the drawings or specified herein. Any excavation beyond the authorized lines, grades, and cross sections shall be backfilled with suitable compacted material without additional cost to the Government. The Contractor shall control the banks of all excavated areas as necessary to prevent movement of soil in areas supporting existing foundations or slabs.

3.3.2 Excavation of Suitable Materials Above Subgrade Line

Where nonfrost susceptible soils are encountered within the depth below finished grade as indicated on the drawings for depth of excavation, the Contractor shall excavate only to depths such that the nonfrost susceptible soils are uncovered or to the bottom of the base course, whichever depth is greater. The excavations shall be uniformly shaped so that classified backfill material or base course can be properly placed and compacted, and the area shall be feathered to any adjoining areas where frost susceptible materials occur below the subgrade line. The top 150 mm of suitable insitu material shall be compacted to 95 percent compaction.

3.3.3 Field Modifications

If unsuitable soil conditions in the opinion of the Contracting Officer are encountered at the excavation lines specified, he may direct that extra excavation be performed. The Contractor shall perform such extra

excavation only when so directed in writing, and the extra work shall include both the necessary excavation and the placement and compaction of backfill material required to restore the excavation to the depth indicated on the drawings. If they are not within the limits stated, an equitable modification of the contract will be made.

3.3.4 Area Grading

Area grading consists of that type of work also commonly referred to by such terms as "site grading" or "overlot grading" and excavation therefore shall consist of the removal of all materials to the lines and grades indicated on the drawings. No special consideration will be given to whether or not frost-susceptible material exists in the subgrade for area grading and its removal there from will not be required.

3.3.5 Ditches

Ditches shall be cut accurately to the cross-sections and grades indicated on the drawings. All roots, stumps, and other foreign matter in the sides and bottom of ditches shall be cut to conform to the slopes, grade, and shape of the section shown. Care shall be taken not to excavate ditches below the grades indicated. Any excessive ditch excavation shall be backfilled to grade either with suitable, thoroughly compacted material, or with suitable stone or cobbles to form an adequate gutter paving, as directed. The Contractor shall maintain all ditches excavated under this specification free from detrimental quantities of leaves, sticks, and other debris until final acceptance of the work. All suitable material excavated from ditches shall be utilized as hereinafter specified. No excavated material shall be deposited within a distance of 900 mm from the edge of a ditch. Any ditches with a slope greater than 2% shall be lined with ditch lining material.

3.3.6 Existing Service Lines and Utility Structures

All existing service lines and utility structures uncovered or encountered during all classes of excavation, including borrow, and during all operations incidental to all grading work, construction of embankments, and backfilling shall be safeguarded and protected from damage. When utility lines are encountered, the Contractor shall notify the Contracting Officer in ample time for the necessary measures to be taken to prevent interruption of the service. The existing utilities that are shown on the drawings or the location of which is made known to the Contractor prior to excavation shall be protected from damage during the excavation and backfilling and if damaged during excavation, shall be repaired by the Contractor at its own expense. If the Contractor damages any existing utility lines that are not shown or the location of which are not known to the Contractor, report thereof shall be made immediately to the Contracting Officer. If so directed by the Contracting Officer, repairs shall be made by the Contractor, and adjustment in payment will be made by the Government at the rates determined or approved by the Contracting Officer. Inactive or abandoned utilities shall be removed and the remaining ends capped outside the excavation line.

3.4 FILLING AND BACKFILLING

3.4.1 General

Ground surface shall be cleared of all debris and organic materials. All depressions or holes below the general area surface level, whether caused by removal of debris or unacceptable materials, or otherwise, shall be backfilled with approved material and compacted to specified percent compaction and to a level, uniform surface before the construction of other embankment layers. Embankment is not to be placed on ground having a slope greater than one vertical to four horizontal unless specifically so ordered by the Contracting Officer, and, if so ordered, the surface of such ground shall be plowed, stepped, or broken-up, as directed, in such manner that the embankment material will bond with the existing surface. Prepared surfaces shall be wetted and compacted where directed.

3.4.2 Embankments

Embankments shall be exclusive of the base course and shall be constructed of classified and unclassified materials placed at the locations and to the lines and grades indicated on the drawings. The materials shall be deposited and spread uniformly in successive horizontal layers not exceeding 300 mm in loose thickness, except that the subbase shall be constructed in layers not exceeding 200 mm in loose thickness. The maximum dimension of any particle in the subbase shall be not greater than two thirds of the compacted thickness of the layer in which the particle is included. The layers shall be carried up full width from the bottom of the fill to avoid the necessity of widening the edges after the center has been brought up to grade. The layers shall be compacted to 95 percent compaction, as determined by the testing methods stated in Paragraph, MAXIMUM DENSITY DETERMINATIONS. Blading, rolling, and tamping shall continue until the surface is smooth and free from waves and irregularities, and conforms to the elevations shown on the drawings. Water required as an aid in compaction shall be applied in an approved manner. If at any time the subbase material is excessively moistened by rain, it shall be aerated by means of blade graders, harrows, or other suitable equipment until the moisture content is satisfactory, and then compacted and finished as specified above. If specified percent compaction cannot be attained in any one layer, the Contractor shall remove the portions of the layer necessary to permit full compaction, replace, and compact the portions of the layer removed.

No payment will be made for excavation or replacement of any material so removed and replaced. Portions of any layer in which the materials become segregated to the extent that the required percent compaction cannot be attained shall be removed and replaced with satisfactory material, mixed, or blended with additional material until segregation is eliminated and specified percent compaction can be attained. The top of the finished embankments shall be struck off and leveled to the elevations specified, and shall be maintained fully compacted with sufficient moisture content to prevent drying out prior to placing of the base course thereon.

3.4.3 Backfill

Material used to bring the excavated area of unsuitable material up to grade as the subbase shall be classified material from excavation or borrow. The backfill material shall be spread uniformly in the same layers, brought up to grade, compacted and finished as specified for embankments.

3.4.4 Preparation of Subbase

Subbase preparation shall consist of the dressing, shaping, wetting and compacting of the subbase of roads and parking areas. Surfaces shall be cleaned of all foreign substances. Any ruts, or soft yielding spots that may appear in the subbase surface shall be corrected by loosening, removing and adding approved material, reshaping and recompacting the affected areas to line and grade and to the specified percent compaction requirements shown on the drawings and shall extend to include the shoulders.

3.4.5 Sidewalk Subbase

The subbase for portland cement concrete sidewalks shall be of approved classified material placed to a depth of 300 mm below the bottom of the concrete and extending one foot beyond the edge of walk, unless otherwise indicated on the drawings. It shall be placed in layers and compacted to 95 percent compaction.

3.4.6 Area Grading Fill

Area grading fill shall be constructed of unclassified fill materials reasonably free from organic, frozen, or other objectionable materials which may cause excessive settlement. Where shown on the drawings the top 150 mm of area grading fill shall be topsoil as specified in paragraph, CONSERVING TOPSOIL. The fill material shall be placed in successive horizontal layers not exceeding 300 mm in loose thickness and shall be compacted by the routing of the hauling equipment in such a manner that vehicles do not track one another. Soil compacted by construction equipment or soil on compacted cut slopes or grades shall be scarified to a 50 mm depth before applying topsoil. The elevation for area grading shall be such as to provide a finish grade at an elevation as indicated on the drawings. The finish grade surface shall be reasonably smooth and free from irregular surface changes. The degree of smoothness shall be that ordinarily obtainable from either bladegrader or scraper operations. The finish grade surface shall be not more than 50 mm above or below the established finish grade. In those areas where the grade at the limit of grading is above or below the elevation of the adjoining natural surface, the finish grade shall be maintained to the limit of grading, and the edge of the cut or fill feathered off to the natural slope as shown on the drawings.

3.4.7 Utilization of Excavated Materials

All suitable material removed from the excavation shall be used, insofar as practicable, for fill and backfill, and for such other purposes as directed. No excavated material shall be wasted without authorization. Frost-susceptible materials removed from the excavations shall be utilized in the formation of area grading fill as directed. Materials unsuitable or excess to the requirements for area grading fill will be authorized to be wasted and shall be disposed of in areas adjacent to the work as shown on the drawings; or if the drawings do not indicate disposal areas, waste materials shall be deposited in approved areas adjacent to the work and in such a manner not to obstruct the flow characteristics of any streams or to impair the efficiency or appearance of any structure. No excavated material shall be deposited at any time in a manner that may endanger a partly finished structure by direct pressure, by overloading banks contiguous to the operations, or that may in any other way be detrimental to the completed work.

3.4.8 Ditch Lining Material

Conform to Specifications Section 02635, Channel Lining. Ditch lining material shall be placed wherever the ditch slope exceeds 2%. Layer thickness shall be as shown, however, the minimum layer thickness shall not be less than 300 mm in all cases.

3.5 TESTING

Compaction, gradation, and nonfrost susceptibility tests shall be performed on each layer of compacted material placed. Testing shall be the responsibility of the Contractor and shall be performed by an independent testing agency satisfactory to the Contracting Officer. The Contracting Officer may direct that the tests be taken at locations other than those shown on the submitted compaction test plan and that additional tests be taken to supplement these required tests. The Contractor shall remove and replace nonconforming materials and shall recompact and retest failed and replaced areas until the specified degree of compaction is obtained. The Contractor shall amend its submitted compaction test plan to show the exact location and number of tests taken. This plan shall be keyed to the test results. The record of each test shall reflect the type of test procedure and, for compaction tests, the volume or unit weight of the standard and the volume or unit weight of the compacted soil. The Compaction Test Report shall also reflect the firm or person that performed the test, the project title, and contract number. The area referred to hereinafter which determines the minimum number of tests required shall be an area that is compacted in one continuous operation.

a. For roadways, driveways, and parking areas, the number of density tests required shall conform to the following requirements for each layer of material placed:

(1) Roadways and driveways up to 90 meters in length and parking areas up to 550 square meters.

(a) Subbase and Base Course: A minimum of two tests or one test for each 20 meters of length or each 140 square meters of area, whichever provides the greatest number of tests.

(b) Subgrade: A minimum of two tests or one test for each 30 meters of length or each 200 square meters of area, whichever provides the greatest number of tests.

(2) Roadways between 90 and 300 meters in length and parking areas between 550 and 1,800 square meters.

(a) Subbase and Base Course: A minimum of four tests or one test for each 45 meters of length or 280 square meters of area, whichever provides the greatest number of tests.

(b) Subgrade: A minimum of four tests or one test for each 60 meters of length or 370 square meters of area, whichever provides the greatest number of tests.

(3) Roadways over 300 meters in length and parking areas over 1,800 square meters.

(a) Subbase and Base Course: A minimum of seven tests or one test for each 75 meters of length or 450 square meters of area, whichever provides the greatest number of tests.

(b) Subgrade: A minimum of five tests or one test for each 90 meters of length or 550 square meters of area, whichever provides the greatest number of tests.

b. Subbase and classified materials in-place shall be sampled and tested for gradation and nonfrost susceptibility requirements at least once for every 75 cubic meters of compacted volume or portion thereof. Gradation shall be determined in accordance with ASTM C 136, with ASTM C 117 used to determine minus 0.075 mm sieve material and ASTM D 422 used to determine minus 0.02 mm material.

c. Base course in-place shall be sampled and tested in accordance with Section 02313, ADOT&PF Specifications and as specified herein.

AM# 3...d. Target Berms and Target Emplacements shall be tested for density as follows:

(1) Target Berms and Emplacements less than 1000 cubic meters in total fill requirement will receive a minimum of 1 test for density and gradation per berm or emplacement. These berms and emplacements are to be unclassified material and a nonfrost susceptibility test is not required.

(2) Target Berms and Emplacements containing 1000 cubic meters or more in total fill requirement will receive 1 test for density and gradation per berm or emplacement. These berms and emplacements are to be unclassified material and a nonfrost susceptibility is not required....AM# 3

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SECTION 02456

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SECTION 02456

STEEL H-PILES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A 36/A 36M (2002) Carbon Structural Steel

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M (2002) Structural Welding Code - Steel

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Fabricated Additions

Detail drawings of required fabricated additions to plain pile, prior to commencing work or ordering materials.

File Driving

A complete and accurate record of each driven pile, within 3 days of completion of driving. The record shall indicate the pile location (as driven), size, driven length, embedded length, final elevations of tip and top, pile weight, number of splices and locations, blows required for each 305 mm of penetration throughout the entire length of the pile and for the final 150 mm of penetration, and the total driving time. The record shall also include the type and size of the hammer used, the rate of operation, and the type and dimensions of driving helmet and cushion block used. Any unusual conditions encountered during pile installation shall be recorded and immediately reported to the Contracting Officer.

SD-03 Product Data

Equipment

Description of pile driving equipment to be employed in the work, prior to commencement of pile installations; including details of the pile hammer, power plant, leads, cushion material, and helmet.

SD-06 Test Reports

AM# 3...Deleted Text...AM# 3

SD-07 Certificates

Materials

Certified copies of mill test reports for structural steel prior to commencement of pile installations.

1.3 EXPERIENCE

The work shall be performed by a general contractor or a specialty subcontractor specializing in the specified foundation system and having experience installing the specified foundation system under similar subsurface conditions.

1.4 SUBSURFACE DATA

Subsurface soil data logs are shown in the specifications. The subsurface investigation reports are available for examination at the Contracting Office.

PART 2 PRODUCTS

2.1 MATERIALS

Piles shall be of sections, sizes, materials, and weights indicated. Pile tips as driven shall be square and blunt as received from the mill. Pile tip reinforcements or cast steel points occasionally may be required to obtain the required penetration. Steel shall conform to ASTM A 36/A 36M. Test piles shall be identical to those used elsewhere in the project. Fabricated additions shall conform to the same material requirements as the piles.

2.2 EQUIPMENT

2.2.1 Pile Hammers

The hammer used shall have a delivered energy suitable for the total weight of the pile, the character of subsurface material to be encountered, and the pile capacity to be developed. The driving energy of the hammer shall be not less than 20,350 J.

2.2.2 Driving Helmets and Pile Cushions

A driving helmet or cap, including a pile cushion, shall be used between the top of the pile and the ram to prevent impact damage to the pile. The driving helmet, or cap and pile cushion combination, shall be capable of protecting the head of the pile, minimizing energy absorption and dissipation, and transmitting hammer energy uniformly over the top of the pile. The driving helmet or cap shall fit loosely around the top of the pile so that the pile is not restrained by the driving cap if the

pile tends to rotate during driving. The pile cushion may be made of solid wood or of laminated construction using plywood, softwood, or hardwood boards or other cushion material as approved by the Contracting Officer. The pile cushion shall completely cover the top surface of the pile and shall be retained by the driving helmet. The minimum thickness of the pile cushion shall be 75 mm and the thickness shall be increased so as to be suitable for the size and length of pile, character of subsurface material encountered, hammer characteristics, and required driving resistance.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Pile Driving

AM# 3...Excavation shall be stopped at 305 mm above foundation grade before piles are driven. When pile driving is completed, excavation shall be completed to lines and grades shown. Piles shall be driven to or below the tip elevation. Diesel-powered hammers shall be operated at the rate recommended by the manufacturer throughout the entire driving period. Sufficient pressure shall be maintained at the steam hammer so that: for a double-acting hammer, the number of blows per minute during and at the completion of driving of a pile is equal approximately to that at which the hammer is rated; for a single-acting hammer, there is full upward stroke of the ram; for a differential type hammer, there is a slight rise of the hammer base during each upward stroke. The pile cushion shall be replaced whenever it has become highly compressed, charred, burned, or deteriorated in any manner during driving. Each pile shall be driven continuously and without interruption until the required depth of penetration has been attained....AM# 3

3.1.2 Pre-Drilling

AM# 3...Pre-drilled starter holes may be required for penetrating through extra hard natural strata or rolled fills. Drilling or augering will be permitted only with the approval of the Contracting Officer. The hole shall be 25 mm less in diameter than the diagonal dimension of the pile and shall be backfilled with coarse grained soil after installation of the pile. The drilling or augering shall not be deeper than required to bypass the obstructing layer....AM# 3

3.1.3 ~~AM# 3...Deleted Paragraph...AM# 3~~

3.1.4 Splices

AM# 3...When authorized by the Contracting Officer, splices shall be of the full penetration butt-weld type. Unless otherwise authorized by the Contracting Officer, only one splice will be permitted per length of pile. Splices shall be designed and constructed to maintain the true alignment and position of the pile sections. Splices shall develop the full strength of the pile in both bearing and bending. Proprietary prefabricated splicer sleeves may be used upon prior approval by the Contracting Officer....AM# 3

3.1.5 Welding

Shop and field welding, qualification of welding procedures, welders, and welding operators shall be in accordance with AWS D1.1/D1.1M.

3.1.6 Tolerances in Driving

Top of pile at elevation of cut off shall be within 10 mm of the location indicated. Manipulation of piles to force them into position will not be permitted. Piles damaged or driven outside the above tolerances shall be replaced at no expense to the Government.

3.1.7 Cutting of Piles

Piles shall be cut off at the elevations indicated by a method approved by the Contracting Officer.

3.2 FIELD TESTS AND INSPECTIONS

3.2.1 **AM# 3...**Deleted Paragraph...**AM# 3**

3.2.2 **AM# 3...**Deleted Paragraph...**AM# 3**

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DIVISION 13 - SPECIAL CONSTRUCTION

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