48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

Invitation to Bid No. 2023C0XX

PROJECT NUMBER
06-26

65% Design

PRELIMINARY (FEB 2022)

Municipality of Anchorage
PROJECT MANAGEMENT & ENGINEERING DEPARTMENT
PO Box 196650
Anchorage, Alaska 99519

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT
48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

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PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

MUNICIPALITY OF ANCHORAGE

PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

I

INVITATION TO BID

MUNICIPALITY OF ANCHORAGE
PURCHASING DEPARTMENT

Invitation to Bid

No. 2023C0_____

Sealed bids will be received in accordance with the time schedule shown below by the Municipality of Anchorage at the Purchasing Department, 632 W. 6th Avenue, Suite 520; Anchorage, Alaska, 99501, for:

48TH AVENUE UPGRADES

CORDOVA STREET TO OLD SEWARD HIGHWAY

Consisting of approximately 19,100 C.Y. of Excavation; 25,100 Tons of Classified Fill and Backfill; 3,422L.F. of Curb and Gutter Removal; 12,645 S.Y. of Pavement Removal; 2,350 Tons A.C. Pavement; 3,768 L.F. Curb and Gutter Installation; 16 Curb Ramp Installations; 90,640 S.F. Insulation Installation (R-9); 8,910S.F. Insulation Installation (R-4.5); 344 S.Y. P.C.C. Sidewalk (4" Thick); 118 S.Y. Red Colored Concrete (4" Thick);86 C.Y. P.C.C. Structure/Retaining Walls; 2,357 L.F. of Storm Drain Pipe; 20 Storm Drain Manholes (Various Types); 16 Storm Drain Catch Basins; 2 Stormwater Treatment Structures; 778 L.F. Remove Pipe (Various Types); 1 Raise or Lower Water Main (10-inch DIP); 28 Roadway Luminaires (including spares); 1 Type 1A Load Center; 258 L.F. Remove and Reset Fence; 128 S.F. Standard Signs; Landscaping and related work.

ESTIMATED CONSTRUCTION COST: Between $2,000,000 and $4,000,000

Site Visit(s) at _____

Pre-Bid Conference at _____

REQUEST ANY QUESTIONS BE SUBMITTED IN WRITING TO WWPUR@MUNI.ORG. BEFORE THE PRE-BID CONFERENCE. Please reference the Project Title and Invitation to Bid No. 2023C0_____

Bids Opened at _____

Post-Bid Conference at _____

An electronic (.pdf) copy of the Invitation to Bid is available at Municipality of Anchorage, Purchasing Office's website; (http://purchasing.muni.org). Should you choose to obtain a copy of the Invitation to Bid from the website; it is your responsibility to periodically check the website for addenda.

At the above-indicated time, the bids will be opened publicly and read. Bids must be received by the Purchasing Officer prior to the time fixed for opening of the bids to be considered. Time of receipt will be as determined by the time stamp in the Purchasing Office, Suite 520.

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

Drawings, specifications, and contract documents may be examined and will be available for pickup at 632 W. 6th Avenue, Suite 520; Anchorage, Alaska; Monday through Friday, 8 a.m. until 12 noon and 1 p.m. until 5 p.m. These documents are available for sale on a non-refundable basis at $_____ per set (cash or check only).

Fees stated above include parcel post charges (1st class mail). Should expedited handling be desired, Federal Express or equivalent service will be utilized on a reverse billing basis only.

The Municipality of Anchorage reserves the right to reject any and all bids and to waive any informalities in the bids. No bidder may withdraw his bid after the hour set for the opening of bids or before the Award of Contract unless said award is delayed for a period exceeding forty-five (45) days from the time of the opening.

The Municipality shall not be responsible for bid preparation costs, nor for costs, including attorney fees, associated with any (administrative, judicial, or otherwise) challenge to the determination of the lowest responsive and responsible bidder and/or award of contract, and/or rejection of bids. By submitting a bid, each bidder agrees to be bound in this respect and waives all claims to such costs and fees.

Contracts shall be awarded by written notice issued by the Purchasing Officer to the lowest responsive and responsible bidder; however, preference will be given to local bidders in compliance with Anchorage Municipal Code, Section 7.20.040.

A pre-bid conference will be held at the above-indicated time in the Purchasing Office for the purpose of answering any questions bidders may have and to consider any suggestions they may wish to make. Any changes resulting from this conference will be made by Addendum immediately following the conference. This conference is held for the benefit of the bidders. It is requested that some person of authority from the office of the prospective bidder attend this meeting.

The Municipality of Anchorage assumes no responsibility for any interpretations or presentations made by any of its officers or agents unless such interpretations or presentations are made by written addendum to this Invitation to Bid.

Bonding requirements are per M.A.S.S.B./M.A.S.S. or as per Special Provisions.

PUBLISH ONE TIME

Date _____

_____
Ronald S. Hadden
Purchasing Officer

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

II

SPECIAL PROVISIONS

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

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MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

SPECIAL PROVISIONS

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

SECTION 95.01 LOCATION AND SCOPE

All proposed Work is located within the Municipality of Anchorage corporate limits and is more particularly located on East 48th Avenue between Cordova Street and Old Seward Highway. Work is also located within Old Seward Highway at the East 48th Avenue intersection, see Drawings for detailed location. The Work included under this Contract consists of but is not limited to:

- Coordination with utility companies for relocation work within the project limits and protection of existing utilities in place as shown on the Drawings.
- Reconstructing East 48th Avenue roadway within the project limits with a new insulated roadway structural section and constructing high/low spots in the roadway profile as shown on the Drawings.
- Reconstructing the adjacent driveways with a new structural section to match the new roadway profile.
- Installing sidewalks, curb ramps and pathways at locations shown in the Drawings.
- Installing a retaining wall along segments of East 48th Avenue at locations as shown on the Drawings.
- Removing and replacing the existing storm drain system and extending the storm drain system as shown on the Drawings.
- Installing new roadway lighting.
- Reconstructing the center right turn only median on Old Seward Highway.
- Installing signing and striping and landscaping as shown on the Drawings.
- Furnishing all labor, materials, equipment, supervision, and other facilities necessary to successfully complete the Work set forth in the Drawings and Specifications.

It is the responsibility of the bidder to prepare the bid so that all materials and/or fittings shall harmoniously conform to the intent of the Contract Drawings, Specifications, and Special Provisions.

65% Design

Below are the schedules of Work that are presented in the Bid Proposal of this Contract:

SCHEDULE DESCRIPTION

A. Roadway Improvements

B. Drainage Improvements

C. Illumination Improvements

D. Landscaping Improvements

SECTION 95.02 REFERENCE TO MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS

This Contract is subject to and hereby incorporates by reference the Municipality of Anchorage Standard Specifications, dated 2015, hereinafter referred to as M.A.S.S.; the Alaska Sign Design Specifications (ASDS) as adopted and amended by the Municipality; the Municipality of Anchorage Sign Manual; the Alaska Traffic Manual (ATM)-Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition, with the Alaska supplement, dated 1/13/12; the National Electrical Safety Code (NESC) as amended and adopted by the Municipality; the National Electrical Code as amended and adopted by the Municipality of Anchorage; the AWWU Design and Construction Practices Manual (hereinafter referred to as D.C.P.M.) and the Edition of the Standard Specifications for Structural Supports for Highway Sign, Luminaires and Traffic Signals provided in the appropriate divisions. When conflicts exist between M.A.S.S. and MUTCD, the requirements of M.A.S.S. and these Special Provisions shall govern.

The M.A.S.S. and D.C.P.M. are available for download at the following links:

M.A.S.S.: http://www.muni.org/departments/project_management/pages/mass.aspx

D.C.P.M.:https://www.awwu.biz/about-us/reliable-infrastructure/design-and-construction-practices-manual

SECTION 95.03 TIME OF COMPLETION

This Project shall be completed within one hundred twenty (120) calendar days after the Notice to Proceed is issued.

SECTION 95.04 MODIFICATIONS AND/OR ADDITIONS TO MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS

The following listed provisions of M.A.S.S. are amended as hereinafter stated:

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

A. DIVISION 10 STANDARD GENERAL PROVISIONS

Add the following Section:

SECTION 10.00 ALL APPLICABLE M.A.S.S. ARTICLES

Delete all references to and requirements for compliance with Anchorage Municipal Code Chapter 7.60 the Disadvantaged/Women Owned Business (DBE/WBE) program and specifications.

SECTION 10.01 DEFINITIONS

Add the following item to the list of definitions:

BMP – Best Management Practices

CEA – Chugach Electric Association

FHWA - Federal Highway Administration

NPDES – National Pollutant Discharge Elimination System

Record Drawings – Detailed drawings which accurately depict all changes in location (both horizontal and vertical), material, equipment, and other elements of Work accomplished by Contractor. The drawings shall also depict the horizontal and vertical locations of all other utilities and obstructions encountered during construction. Final elevations and locations shall be clearly marked with actual dimensions, or existing dimensions shall be noted with "ASB" if no changes occur.

UL – Underwriters Laboratories, Inc.

SECTION 10.04 SCOPE OF WORK

Article 4.8 Work Incidental to the Contract

Add the following items which shall be incidental to the cost of the Contract:

14. Sawcutting.
15. Repair of existing infrastructure or areas outside of demolition limits that are damaged by Contractor.
16. Furnishing and installing grounding conductors, ground rods, and ground rod clamps.
17. Removal and/or abandonment of soil boring caps, borings and piezometer tubes.
18. Remove and salvage existing signs, posts, and foundations.
19. Removing and resetting gardens, planters, landscaping, retaining walls, play equipment, and other on property private improvements and personal property in all areas disturbed by the Work unless Pay Item is specifically identified on the Drawings.
20. Securing, permitting, maintaining, and restoring a stockpile/materials staging area as necessary to complete the Work.

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

21. All Work required to shore and protect existing luminaires and utility poles scheduled to remain in place, including coordinating utility pole owner.
22. All Work required to shore and protect existing underground utility lines in place that are scheduled to remain including coordinating with Chugach Electric Association, General Communications, Inc, Alaska Communications and/or Enstar Natural Gas.
23. Removal, handling, and disposal of asbestos cement pipe where encountered within the project limits.
24. Utility coordination.

Article 4.9 Disposal Sites

Add the following paragraph after the first paragraph:

Contractor shall dispose of unusable excavation and other unusable or surplus material which contains regulated contaminants in accordance with Environmental Management Plan prepared for this project and included in Appendix D. Contractor shall also follow all local, State, and Federal requirements as necessary for the specific contaminants encountered.

Article 4.17 Utilities

Add the following sentence to the end of the seventh paragraph:

Utilities are the responsibility of the Contractor to request locates for, coordinate with the Work, maintain, and protect.

Add the following after the first sentence of the ninth paragraph:

The Contractor shall be responsible for coordination of utility work with the Owner and utility companies during construction. The Contractor shall work with the utility companies to determine the most efficient phasing of utility and Contract Work. As part of the Contractor's utility coordination efforts, the Contractor shall ensure that all utility work shall not conflict with vertical and horizontal location of Contract improvements. Contractor shall contact the utilities fourteen (14) calendar days prior to construction and each call-out to coordinate these efforts. Prior to the start of Work the Contractor shall attend a Pre-Construction Utility Coordination Meeting hosted by the Owner. The time and date of this meeting shall be set by the Owner in coordination with the utilities and the Contractor. Preparation, attendance and participation in the Pre-Construction Utility Coordination meeting, and coordination of utility work are incidental to the Contract and no separate payment shall be made.

Contractor shall have no right to proceed first with the Work under this Contract in advance of any utility company. Utility work being done by others within the project area shall generally take place while the Contractor is performing Work necessary for this project. The utility companies shall be provided adequate work area during normal working hours to perform the proposed work with a minimum of work required at night, weekends and holidays. In the event that the Contractor is unable to continue Work without interfering with utility or protection Work by others,

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

the Engineer may direct the Contractor to Work in a different area. The Engineer may choose to suspend Work until the conflict is resolved. The Contractor shall not be entitled to additional compensation resulting from suspension of Work because of conflicts with existing utilities, utility relocation and/or betterment Work, or Work incidental to utility activities by others.

Contractor shall be responsible for covering any utility work disturbance within the project area in the project SWPPP. The Contractor shall coordinate with the utilities to determine the extent of the needed SWPPP coverage. Payment for including utility work in the project SWPPP and all required erosion and sediment controls shall be made under the Section 20.02, Storm Water Pollution Prevention Plan pay item and the Contractor shall not be entitled to additional compensation. Work required for the Contractor to coordinate and accommodate utility work is incidental to the Contract and no separate payment shall be made.

The Contractor shall provide all necessary clearing and grubbing Work within the project area required for utility work. Measurement and payment shall be made for clearing and grubbing under the Section 20.04, Clearing and Grubbing unit pay item.

The Contractor shall provide all necessary removal and restoration Work within the project area required for utility work. Measurement and payment shall be made for removal and restoration Work (pavement, curb & gutter, concrete, topsoil, seeding, etc.) under respective Contract bid items. Contractor shall install temporary pavement in the roadway and/or driveways as directed by the Engineer.

The Contractor shall provide survey project controls and staking of project and utility easements necessary for utility work. Payment for providing survey project controls shall be made under the Section 65.02, Construction Survey Measurement pay item and the Contractor shall not be entitled to additional compensation.

Contractor shall be responsible for coordinating and providing traffic control for utility work within the project area. Payment for all required traffic controls shall be made under the Section 70.12, Traffic Maintenance pay item and the Contractor shall not be entitled to additional compensation.

Below is a summary of contacts names and numbers and the work to be performed by utility companies within the project area. Appendix C includes drawings of proposed utility work available at time of bidding but is not all inclusive of the utility relocation work required for this project. Field conditions of existing utilities may vary including depth of cover and location. Additional conflicts with utility lines and facilities may be present that will require relocation by others. No additional compensation shall be owed to the Contractor due to any delay caused by utility companies even if the work is not specifically stated below or included in the drawings in Appendix C.

Chugach Electric Association, Inc. (CEA): CEA has existing electrical facilities in the project area including overhead/underground lines, pedestals, poles, light poles, switch cabinets, transformers and junction boxes. CEA will be relocating

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION - FEB 2024

their facilities as shown in their drawings in Appendix C. The following is a brief summary of their work:

1. **To be provided at 95% Design**

CEA estimates the work above to take approximately **XX** working days. The working days do not include Sundays, holidays or night time work.

Contractor shall remove and replace driveway/parking area pavement outside of the disturbance limits shown on the demolition sheets as required for CEA to complete their relocation work. This work shall be measured and paid for under the applicable work items in Schedule A.

The CEA contact is Mike Miller at 762-4490.

Alaska Communications (ACS): ACS has existing telephone facilities within the project area, including underground/overhead lines and pedestals. ACS will be relocating their facilities as shown in their drawings in Appendix C. The following is a brief summary of their work:

1. **To be provided at 95% Design.**

ACS estimates the work above to take approximately **XX** working days. The working days do not include Sundays, holidays or night time work.

Contractor shall remove and replace driveway/parking area pavement outside of the disturbance limits shown on the demolition sheets as required for ACS to complete their relocation work. This work shall be measured and paid for under the applicable work items in Schedule A.

The ACS contact is Francisco Martin at 564-1785 (office) or 231-7369 (mobile).

Enstar Natural Gas (Enstar): Enstar has existing steel and plastic underground gas mains and services in the project area. Enstar shall be relocating their facilities as shown in their drawings in Appendix C. The following is a brief summary of their work:

1. **To be provided at 95% Design.**

ENSTAR estimates the work above to take approximately **XX** working days. The working days do not include Sundays, holidays or night time work.

Contractor shall remove and replace driveway/parking area pavement outside of the disturbance limits shown on the demolition sheets as required for ENSTAR to complete their relocation work. This work shall be measured and paid for under the applicable work items in Schedule A.

The ENSTAR contact is Cody Harvey at 334-7748.

General Communications, Inc. (GCI): GCI has existing underground and overhead coaxial cable, fiber optics lines, and structures within the project area. GCI shall be relocating their facilities as shown in their drawings in Appendix C. The following is a summary of the GCI work:

1. **To be provided at 95% Design.**

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GCI estimates this work above to take approximately **XX** working days. The working days do not include weekends, holidays or nighttime work.

Contractor shall remove and replace driveway/parking area pavement outside of the disturbance limits shown on the demolition sheets as required for GCI to complete their relocation work. This work shall be measured and paid for under the applicable work items in Schedule A.

The GCI contact is Mitchell Stivers at 727-9945 (mobile).

Add the following paragraph:

Underground utilities shall be continuously supported during backfill placement and compaction. Geotextile shall be separated from nearby utilities with a minimum of 1 foot of backfill material to prevent undue stress during the compaction and settlement process.

C. Gas

Add the following paragraph:

The Contractor shall download and follow the most current construction guidelines published by ENSTAR. Those guidelines can be downloaded from:

https://www.enstarnaturalgas.com/safety-education/natural-gas-safety/safety-for-excavators-contractors/

(Click on the link in the last sentence of the first paragraph.)

The Final Rule from the Pipeline and Hazardous Material Safety Administration (PHMSA) website can be obtained from:

https://www.federalregister.gov/documents/2015/07/23/2015-17259/pipeline-safety-pipeline-damage-prevention-programs

D. Electrical and Telecommunications

Add the following paragraph:

The Contractor shall download and follow the most current construction guidelines published by CEA. Those guidelines can be downloaded from:

http://www.chugachelectric.com/media-room/publications-request

Click on the link titled "Electrical facility Clearance Requirements".

The following contact information is provided as a courtesy to the Contractor and is the most currently available:

The following contact information is provided as a courtesy to the Contractor and is the most current list available.

Alaska Communication Systems (ACS) North ANC – Francisco Martin, 564-1785 or 231-7369

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Alaska Communication Systems (ACS) South ANC – Duilio Guerrero, 564-1522

Anchorage Water & Wastewater Utility (AWWU) – Shawn Dooley, 564-2786

AT&T – Mike Barsalou, 264-7325

Chugach Electric Association (CEA) – Mike Miller, 762-4490

ENSTAR Natural Gas – Cody Harvey at 334-7748

GCI – Mitchell Stivers, 727-9945

Municipal Street and Storm Drain Maintenance – Eric Hodgson, 343-8100

Municipal Street Light Maintenance – Eric Hodgson, 343-8100

Municipal Traffic Signals Section – Levi Piehl, 343-8355

Solid Waste Services (SWS) – Evalu Filitaula, 343-6258 or 317-6863

Matanuska Electric Association (MEA) – John Foutz, 761-9265

Matanuska Telephone Assoc. (MTA) – Robbie Nash, 761-2704 or 355-1687

Alaska Waste – Josh James, 688-4446

Add the following Articles:

Article 4.22 Project Information Signs

Prior to beginning of any Work on the project, Contractor shall install two owner-furnished project information signs and posts, in accordance with Section 70.12, Article 12.7 - Traffic Control Devices, in a location directed by the Engineer. The skid mounted project information signs, frames, and post skids shall be available for pick up at 5701 Northwood Drive, Monday through Thursday from 8:00 a.m. to 4:00 p.m. Owner-supplied materials for each sign assembly are as follows:

- Project Information Sign - one (1) 4'x8'x¾" MDO wood sign
- Sign Frame - one (1) 2"x4" Pressure Treated (PT) lumber pre-assembled in a rectangular shape measuring 4-foot by 8-foot
- Post Skids - two (2) 4"x4" PT Lumber pre-assembled measuring 6-foot at the base and standing 8-foot in height

Signs shall be affixed to frame; frame and sign shall be affixed to the post skids accordingly. Once assembled and positioned as directed by the Engineer, the Contractor shall supply and secure each post skid with two (2) each 50-pound sand bags, or provide equivalent anchoring system as approved by the Engineer. The Contractor shall be responsible for maintaining placement and possible location adjustment if required per the Engineer, and for overall maintenance of the signs.

Following final completion of the project, Contractor shall disassemble the signs and return the owner-provided materials to 5701 Northwood Drive. This Work shall be considered incidental to the project.

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Article 4.23 Responsibility of Contractor to Act in Emergency

In case of an emergency that threatens loss and/or injury of property and/or safety of life, the Contractor shall act, without previous instructions from the Engineer, as the situation may warrant. The Contractor shall notify the Engineer thereof immediately thereafter. Any claim for compensation by the Contractor, together with substantiating documents in regard to expense, shall be submitted to the Owner through the Engineer. The amount of compensation shall be determined by agreement.

The Contractor shall supply the Engineer, prior to commencement of Work, with an emergency telephone number through which a responsible Contractor's representative can be contacted on a twenty-four (24) hour a day basis, seven (7) days a week.

Article 4.24 Payment for Common Work Items

The following Common Work Items may be necessary for more than one Work Schedule within the project Base Bid. For these Common Work Items, all of the necessary Work for all Schedules in the Base Bid shall be considered part of Schedule A - Roadway Improvements.

MASS Section	Common Work Item
20.02	Storm Water Pollution Prevention Plan (Type 3)
20.04	Clearing and Grubbing
65.02	Construction Survey Measurement
70.12	Traffic Maintenance

The following Common Work Items may be necessary for more than one Work Schedule within the project Base Bid. For these Common Work Items, all of the necessary Work for all Schedules in the Base Bid shall be considered part of Schedule B – Drainage Improvements.

MASS Section	Common Work Item
55.27	Storm Drain Bypass System

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SECTION 10.05 CONTROL OF WORK

Article 5.27 Liquidated Damages

Add the following paragraph:

The Owner may withhold from any progress payment the sum of Five Hundred Dollars ($500.00) per day as Liquidated Damages for each and every calendar day that the Substantial Completion Date is delayed beyond Contract Completion Date. The Owner may withhold out of any progress payment the sum of Five Hundred Dollars ($250.00) per day as Liquidated Damages for each and every calendar day that the Final Acceptance Date is delayed beyond the Contract Completion Date. If no money is due Contractor, the Owner will have the right to recover said sums from Contractor, the Surety, or both.

Article 5.31 Winter Suspension

C. Suitable Conditions for Winter Maintenance

Add the following paragraphs:

8. Contractor shall install temporary flexible delineators at the end of culverts, end of retaining walls, field inlets, and other locations as determined by the Engineer.

Add the following Article:

Article 5.34 Work Plan

Contractor shall prepare a Work Plan for approval by the Engineer prior to beginning construction. The goals of the Work Plan shall include the following:

- Maintain a safe transportation corridor through the project area for vehicles and pedestrians.
- Minimize impacts to existing utilities and protect existing utilities where required.
- Minimize impacts to vehicular and pedestrian traffic.
- Coordinate with and minimize impacts to other Contractors working in the area.
- Minimize dust and erosion generated by Construction activities.
- Minimize overall construction noise.
- Finish the project within the time of completion requirement.

Contractor shall submit a project Work Plan for approval by the Engineer within seven (7) days after signature of the Contract. Contractor shall coordinate the Work Plan with the Traffic Control Plan, Dewatering/Trench Dewatering Plan, SWPPP Plan, Storm Drain Bypass System Plan, Sewer Flow Control Plan, utility relocation work and adhere to all permit requirements. Work shall not proceed until the Engineer has approved in writing the Work Plan. The Work Plan shall include estimated dates of completion for each significant element of Work.

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No separate payment shall be made for the Work described in this Article and all Work required to provide an approved Work Plan and all other Plans in this Section are incidental to the Contract. The Work Plan shall be updated as the work progresses.

At a minimum, the Work Plan shall include the following requirements:

A. Contractor, including project manager, superintendent, foreman, and traffic control supervisor shall attend one initial kickoff meeting with local businesses and residents. The Owner shall schedule the meeting and provide a venue. The Municipal Project Engineer shall facilitate the meeting. At the meeting the Contractor shall make a presentation of the Work Plan including Traffic Control Plans and schedule and answer questions raised by the local businesses and residents. Should special needs or considerations be identified, the Engineer may direct the Contractor to modify the Work Plan to accommodate those needs.

B. Contractor shall attend and participate in weekly progress/coordination meetings with the Owner. Contractor shall submit an updated schedule of work anticipated within the next two weeks at the weekly progress/coordination meetings. Preparation, attendance and participation in the meetings are incidental to the Contract and no separate shall be made.

C. Incidental Work beyond the edge of the existing roadway, that does not impact traffic flow, is allowed in areas outside of the active construction Phase with written approval from the Engineer.

D. Disruption of driveways shall be kept to a minimum. Driveway surfacing shall not be removed until necessary for excavation or regrading. Contractor shall provide and maintain access to all adjacent properties and side streets in accordance with M.A.S.S. 10.04.10 and 10.04.12.

E. Contractor shall provide for emergency vehicle access at all times in accordance with M.A.S.S 10.04.10.

F. The Contractor shall protect existing surfaces located beyond the limits of the proposed improvements identified in the demolition plan.

G. Contractor shall maintain at least two lanes, two-way traffic along the areas of the project except within the active construction zone. Contractor shall not allow traffic delays in excess of 10 minutes per incident unless a full road closure is approved.

H. Contractor shall coordinate with utility companies performing other work in the project area as described in Section 10.04.17. The utility work schedule may require that the Contractor perform some work tasks, including removing pavement, implementing the SWPPP Plan, removing fences, and installing temporary fences outside of the active Work zone.

I. Contractor shall provide for uninterrupted utility service to nearby residents except as specifically allowed for proposed work and shall accommodate trash

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collection, paper delivery and mail delivery in a manner satisfactory to the utility provider.

J. Contractor shall provide proper notification to residents of impending construction activities. Contractor shall provide residents with contact name(s) and phone number(s) for Contractor personnel with responsibility to inform and coordinate with residents. The Contractor shall give written notice to the residents of any adjacent property having direct driveway or parking access to the project area, 48 hours in advance of installing curb and gutter, sidewalk, or approach aprons across the driveway, or driveways serving the adjacent property.

SECTION 10.06 LEGAL RELATIONS AND RESPONSIBILITIES

Article 6.1 Laws to be Observed

Add the following paragraph:

Contaminated materials within the project limits were identified during the geotechnical investigation as provided in Section V. This material shall be handled and disposed of as described in the Contract Documents. Owner is not aware of any other contaminated material within the project limits. If such material is encountered, Contractor shall notify the Engineer immediately for direction. This shall be treated as a changed condition unless the contamination was caused by Contractor's operation.

Article 6.6 Permits

Add the following paragraphs:

The Municipality has attained or plans to attain Temporary Construction Permits and easements from property owners for the purpose of constructing the proposed improvements on or near adjacent property. These permits are included in Section VI, Temporary Construction Permits and Easements.

The Contractor shall confine his operations to the existing right-of-way, existing easements, or designated Easements/Temporary Construction Permit areas. The Contractor shall comply with all special conditions, stipulations and restrictions thereof. Prior to the start of construction, the Contractor shall verify that all easements and permits necessary for construction of the project have been obtained. The Contractor shall have a copy of all permits on the job site at all times.

The Contractor shall comply with the terms of the Temporary Construction Permits. The permits are granted for the construction of the improvements as shown on the Drawings. The Contractor shall not use the permitted areas for any other construction activities including stockpiling materials, storing equipment, or performing equipment maintenance.

No private property within the permitting areas shall be damaged except as necessary to construct the proposed improvements and the Contractor shall repair or replace damaged property to pre-project conditions to the satisfaction of the Engineer.

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The Contractor shall order the Work such that the permitted areas are occupied only for brief intervals and that the permitted construction is progressing at a normal rate during the time the areas are occupied.

The Engineer reserves the right to limit the Contractor access and use of the permitted areas.

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B. DIVISION 20 STANDARD CONSTRUCTION SPECIFICATIONS FOR EARTHWORK

SECTION 20.01 GENERAL

Article 1.6 Subsurface Investigation

Add the following paragraph:

The soils information for the project is located in Section V.

SECTION 20.02 STORMWATER POLLUTION PREVENTION PLAN

Article 2.1 General

Add the following paragraph:

Utilities: Utilities will be relocated/protected in place by others concurrently with construction of this project. All utility companies performing ground disturbing activity on the project shall be identified in the SWPPP. The Contractor shall be responsible for controlling sediment and erosion and stabilizing areas disturbed during all underground and overhead utility relocation/removal/protection work.

Article 2.14 Construction Requirements

A. Prior to Construction

Add the following item:

9. Coordinate with each utility company prior to submitting the SWPPP to determine scope of utility relocation/removal/protection work and schedule for relocation/removal/protection work. The SWPPP shall identify any ground disturbing activity in the project area by the utility company and shall include a detailed plan to prevent pollution and minimize erosion by the utility's work effort.

SECTION 20.04 CLEARING AND GRUBBING

Article 4.2 Construction

Add the following paragraph:

The Contractor shall protect migratory bird habitat in compliance with the most current version of the "Construction Advisory for Protecting Migratory Birds (pdf)" handout located at https://www.fws.gov/alaska/mbsp/mbm/index.htm. Additionally, Contractor shall notify the Engineer immediately if any active nests are found at any time during construction of the project.

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SECTION 20.07 REMOVAL OF SIDEWALK AND CONCRETE APRON

Article 7.4 Basis of Payment

Add the following pay item:

ITEM	UNIT
Remove Sidewalk or Concrete Apron	Square Yard

SECTION 20.08 REMOVAL OF CURB AND GUTTER

Article 8.3 Measurement

Add the following to the end of the first paragraph:

Where gutter pan is widened to accommodate cross street drainage, the widened portion shall not be measured separately and shall be included in the linear foot measurement for the Remove Curb and Gutter Pay Item.

SECTION 20.09 REMOVAL OF PAVEMENT

Article 9.1 General

Add the following to the first paragraph after the word 'pavement':

…or RAP

Article 9.2 Construction

Delete the second paragraph and replace with the following:

Contractor shall keep all asphalt surfacing designated for removal free from objectionable material (concrete, steel, etc.). Contractor shall deliver all asphalt surfacing that does not contain objectionable material to Street Maintenance. Contractor shall coordinate exact location and time of delivery with the Maintenance & Operations Department, Street Maintenance Division, at 343-8102. If the removed asphalt surfacing, under this Section, contains objectionable material, as identified by the Engineer, Contractor shall dispose of this asphalt surfacing in accordance with Division 10, Section 10.04, Article 4.9 – Disposal Sites.

SECTION 20.10 EXCAVATION FOR TRAFFIC WAYS

Article 10.1 General

Add the following to the end of the first sentence:

", and for planting of trees and other vegetation as shown on the Drawings."

Article 10.6 Excavation

Add the following paragraph:

Contractor's methods and equipment utilized for excavation of contaminated soils shall also conform to the requirements identified in the Environmental Management Plan prepared for this project and provided in Appendix D.

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Contractor shall also follow all local, State, and Federal requirements as necessary for the specific contaminants encountered.

Article 10.5 Utilization or Disposal of Excavated Material

Add the following paragraph:

Contaminated material excavated during construction is unsuitable for use as backfill and shall be disposed of in accordance with the requirements of the Environmental Management Plan prepared for this project and provided in Appendix D.

Article 10.7 Measurement

Add the following paragraph:

Unsusable contaminated excavation will be measured per cubic yard by cross section or at the option of the Engineer per cubic yard by truck count. Computation of truck volumes will be by actual measurement to arrive at truck loading, adjusted by an appropriate swell factor as approved by the Engineer.

Article 10.8 Basis of Payment

Add the following sentence at the end of the second paragraph:

Payment for Unusable Contaminated Excavation shall include excavation, handling, and disposal.

Add the following pay item:

ITEM	UNIT
Unusable Contaminated Excavation	Cubic Yard

SECTION 20.12 DEWATERING

Article 12.3 Construction

Add the following paragraph after the second paragraph:

The Contractor's dewatering methods in areas where contaminated soils are present shall also conform to the requirements identified in the Environmental Management Plan prepared for this project and provided in Appendix D. Contractor shall also follow all local, State, and Federal requirements as necessary for the specific contaminants encountered. If disposal of contaminated water includes discharge to the AWWU sanitary sewer system, the Contractor shall submit a copy of the approved permit to the Engineer.

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SECTION 20.13 TRENCH EXCAVATION AND BACKFILL

SECTION 20.21 CLASSIFIED FILL AND BACKFILL

Article 21.2 Material

Add the following paragraph after the second paragraph:

Crushed waste glass (cullet) may be combined with soil-aggregate material and used in Type II or Type II-A classified fill and backfill. If glass cullet is incorporated, classified fill and backfill shall contain not more than ten percent (10%) by weight glass cullet smaller than three-eighths-inch (3/8”). Contractor shall ensure that glass cullet is uniformly blended with natural soil aggregate material prior to project delivery and placement. Glass cullet must conform to the specifications in SubArticle G – Glass Cullet of this Article. In addition to the normal gradation documentation for classified fill or backfill, when glass cullet is used the Contractor shall provide documentation certifying that the glass cullet (1) is comprised only of eligible types of glass, (2) does not contain prohibited materials, (3) meets debris content requirement, and (4) meets blending percentage requirements to the Engineer prior to placement of the material.

Add the following SubArticles G & H:

G. Crushed Waste Glass (Cullet)

Glass cullet shall be free of prohibited or hazardous substances and the cullet shall contain no more than two percent (2%) debris as determined in AASHTO M318.

Eligible glass products from which glass cullet may be produced include:

- food and beverage container glass;
- plain ceramic or china dinnerware; and
- building window glass.

Prohibited glass products include:

- automobile windshields or other glass from automobiles;
- light bulbs of any type;
- porcelain products;
- laboratory glass; or
- television, computer, or other cathode ray monitor tubes.

Article 21.3 Construction

Add the following after the last paragraph:

Contractor shall not use classified fill and backfill incorporating glass cullet:

- within 4 feet (4’) from the face of any embankment slope;
- within one hundred and fifty feet (150’) of any surface water body;

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- in embankment areas where culvert placement is required;
- in contact with any geotextile or geosynthetic material; or
- in any soil-aggregate base or subbase courses that are not covered by surfacing material.

Article 21.4 Measurement

Add the following after the last paragraph:

Use of glass cullet is incidental to the bid item Classified Fill and Backfill and no additional payments shall be made.

SECTION 20.22 LEVELING COURSE

Article 22.2 Material

Add the following paragraph after the second paragraph:

Crushed waste glass (cullet) may be combined with soil-aggregate materials and used in leveling course. If glass cullet is incorporated, leveling course shall contain not more than ten percent (10%) by weight glass cullet smaller than three-eighths-inch (3/8”). Contractor shall ensure that glass cullet is uniformly blended with natural soil aggregate material prior to project delivery and placement. Glass cullet must conform to the specifications in SubArticle D – Glass Cullet of this Article. In addition to the normal gradation documentation for classified fill or backfill, when glass cullet is used the Contractor shall provide documentation certifying that the glass cullet (1) is comprised only of eligible types of glass, (2) does not contain prohibited materials, (3) meets debris content requirement, and (4) meets blending percentage requirement to the Engineer prior to placement of material.

Upon written approval by the Engineer, recycled concrete aggregate (RCA) may be substituted for leveling course, on an inch for inch basis. RCA shall conform to this specification.

Add the following SubArticles:

D. Crushed Waste Glass (Cullet)

Glass cullet shall be free of prohibited or hazardous substances and the cullet shall contain no more than two percent (2%) debris as determined in AASHTO M318.

Eligible glass products from which glass cullet may be produced include:

- food and beverage container glass;
- plain ceramic or china dinnerware; and
- building window glass.

Prohibited glass products include:

- automobile windshields or other glass from automobiles;
- light bulbs of any type;

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- porcelain products;
- laboratory glass; or
- television, computer, or other cathode ray monitor tubes.

E. Recycled Concrete Aggregate

RCA shall consist of a manufactured aggregate material and natural aggregate particles derived from the crushing, processing, and classification of Portland cement concrete construction debris recovered from roadways, sidewalks, building, bridges and other sources, which conforms to AASHTO M-319 - Reclaimed Concrete Aggregate for Unbound Soil-Aggregate Base Course, and this specification. This material shall not contain deleterious substances in excess of the following amounts by mass-weight:

Deleterious Material	%, By weight
Bituminous concrete materials	5%
Brick or concrete masonry unit block	5%
Solid waste or hazardous materials	0%
Wood,metal,plaster,gypsum	0.1%

Both Coarse and Fine Aggregate shall conform to this specification and the quality requirements from AASHTO M-147 - Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses. Additionally RCA shall have a minimum of seventy percent (70%) of particles with one or more mechanically fractured faces when the RCA is tested in accordance with AASHTO TP-61.

The Maximum Moisture Content is four percent (4.0%) for RCA.

The RCA Liquid Limit shall not exceed 35 when tested in accordance with AASHTO T-89 and the Plasticity Index of the fraction of RCA passing the No. 40 sieve shall not exceed 6 when tested in accordance with AASHTO T-90.

In accordance with ASTM 306, the percent of flat and elongated pieces in RCA shall not exceed eight percent (8%).

Restrictions to Use of Recycled Concrete Aggregate: RCA shall not be placed over a geotextile layer, gravel drain fields, drain field piping, subdrains, or open soil-lined stormwater retention or detention facilities, because soluble minerals rich in calcium salts and calcium hydroxide can be hydraulically transported from the recycled concrete aggregate. RCA is not approved for use within five feet (5') of metal culverts due to its high alkalinity and because recycled concrete aggregate in contact with aluminum or galvanized steel pipes can cause corrosion in the presence of moisture.

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Article 22.3 Construction

Insert the following paragraph at the end of subArticle C. Placing:

If used, any portion of the RCA which becomes segregated and/or develops zones of paste or crushed conglomerates during the distribution/compaction process shall be corrected by the Contractor. This correction process shall be conducted full depth and continue until the on-grade RCA meets this specification. The Engineer reserves the right to sample (or resample) the RCA for acceptance after it has been placed, watered and compacted.

Add the following SubArticle F:

F. Crushed Waste Glass (Cullet)

Contractor shall not use classified fill and backfill incorporating glass cullet:

- within 4 feet (4') from the face of any embankment slope;
- within one hundred and fifty feet (150') of any surface water body;
- in embankment areas where culvert placement is required;
- in contact with any geotextile or geosynthetic material; or
- in any soil-aggregate base or subbase courses that are not covered by surfacing material.

Article 22.4 Measurement

Remove the first sentence and replace with the following:

The leveling course shall be measured in tons of materials delivered and placed in accordance with these Specifications and adjusted for excess moisture as provided.

Add the following after the last paragraph:

Use of glass cullet or recycled concrete aggregate is incidental to the bid item Leveling Course and no additional payments shall be made.

SECTION 20.26 INSULATION

Article 26.2 Materials

Add the following sentences after the first sentence:

Insulation board shall be provided in one inch-thick increments as required to meet the specified R-Value. Insulation board provided with fractional inch thickness shall be rejected. All insulation board placed above or between water/sewer pipes shall be rigid board, high density extruded polystyrene.

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SECTION 20.28 RECONSTRUCT DRIVEWAY

Article 28.4 Measurement

Delete this Article in its entirety and replace with the following:

Driveway reconstruction shall not be measured separately for payment. Measurement and payment for unusable excavation, classified backfill, geotextile fabric, insulation, leveling course, PCC concrete, and asphalt shall be made under the appropriate pay items. Measurement of these quantities shall be by survey measurement. No payment shall be made for temporary relocation of driveways or required driveway maintenance during construction. Removal and replacement of vegetation, structures, landscaping, planting beds, retaining walls and other private improvements, on private property or within the right-of-way, as is necessary to reconstruct driveways shall be considered incidental to the Project and no additional payment shall be made unless otherwise noted.

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C. DIVISION 30 STANDARD CONSTRUCTION SPECIFICATIONS FOR PORTLAND CEMENT CONCRETE

SECTION 30.04 PORTLAND CEMENT CONCRETE CURB RAMPS

Article 4.1 General

Add the following Sentence:

The Work covered under this Section shall also include construction of backing curb, as required.

Article 4.2 Materials

Add the following Subsection:

C. Backing Curb

Backing curb materials and installation shall conform to the requirements of MASS Section 30.02 Portland Cement Concrete, Curb and Gutter and Valley Gutter, the Drawings, details and these specifications. Location and height of backing curb shall be as required to retain the neighboring ground, as approved by the Engineer.

Article 4.5 Measurement

Add the following after the second paragraph:

The Work paid for under "P.C.C. Curb Ramp (Type)" shall be measured per each 6" thick curb ramp as furnished, constructed, finished and accepted in place for each curb ramp as detailed and shown on the Drawings. No separate payment shall be made for backing curbs as they shall be incidental to the "P.C.C. Curb Ramp (Type)" pay item. The Work paid for under "Detectable Warnings" is measured by the actual horizontal square footage of detectable warning tiles furnished, installed, and accepted in place.

SECTION 30.05 STRUCTURES AND RETAINING WALLS

Article 5.2 Construction

Add the following paragraphs:

Concrete mix for the P.C.C. Structure/Retaining Wall concrete shall conform to the requirements for Class AA-3 concrete except it shall be designed for a minimum 28-day compressive strength of 4,000 psi.

Article 5.3 Measurement

In the first paragraph, replace the last sentence with the following sentence:

Where sidewalks and curb ramps are constructed adjacent and conjunction with retaining walls/structures, the sidewalks and curb ramps concrete shall be measured by neat line per cubic yard along with the retaining wall/structure and be paid for under the P.C.C. Structure/Retaining Wall (Class) pay item. No separate

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measurement shall be made for the sidewalk or curb ramp under a different Section 30 pay item.

SECTION 30.10 COLORED CONCRETE

Article 10.2 Materials

A. Concrete

Replace the paragraph entirely with the following:

Concrete mix for colored concrete shall conform to M.A.S.S. requirements for Class AA-3, normal weight concrete. Coloring shall be integral for the full depth of the concrete. It shall be added at the redi-mix concrete manufacturer plant per the manufacturer's instructions and uniformly distributed throughout the mix.

Red concrete shall be made from integral color pigment "Baja Red" RG-2827R 6% (of cement material) as manufactured by Interstar or approved equal. The red color noted above may be modified by the Engineer. No separate payment shall be made if the red color is modified to color as requested and approved by the Engineer. Contractor shall submit color for approval by Engineer prior to ordering material.

Add the following Subsections:

D. Sealer

Sealer shall be a water-based acrylic sealer designed to provide UV protection, waterproofing, and chemical resistance. Sealer shall be manufactured by Interstar or approved equal.

Article 10.3 Construction

Add the following paragraphs at the end of this Article:

All colored concrete shall be sealed in accordance with the manufacturer of the sealer product. It may be necessary to seal the concrete approximately 28 days after the concrete has cured.

All vehicular traffic shall be kept off the colored concrete for the entire cure period. Pedestrian traffic may be allowed to travel on the concrete after 3 days upon approval by the Engineer. Concrete shall be protected against damage or defacement of any kind until it has been accepted by the Owner. Concrete which is not acceptable to the Engineer because of damage or defacement shall be removed and replaced at no additional cost to the Owner.

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D. DIVISION 40 STANDARD CONSTRUCTION SPECIFICATIONS FOR ASPHALT SURFACING

SECTION 40.01 GENERAL

Add the following Articles:

Article 1.7 Asphalt Price Adjustment

This provision provides a price adjustment for asphalt material by:

1. an increase to the contract amount, or
2. a deduction from the contract amount.

The provision shall apply to asphalt concrete pavement which:

- is a major bid item as defined in M.A.S.S. Division 10, Section 10.04, Article 4.5 – Increased Quantities;
- is placed in the second or later year of the contract;
- conforms to M.A.S.S. Division 40, Section 40.06 – Asphalt Concrete Pavement; and
- is paid pursuant to M.A.S.S. Division 40, Section 40.06 – Asphalt Concrete Pavement

This provision shall only apply to cost changes in the asphalt material that occurs between the date of bid opening and the date the asphalt material is incorporated into the project.

The asphalt price adjustment shall only apply when there is more than a seven and one-half percent (7.5%) increase or decrease in the Alaska Asphalt Material Price Index from the date of the bid opening to the date the asphalt material is incorporated into the project.

As used in this Article, the Alaska Asphalt Material Price Index is calculated bi-monthly on the first and third Friday of each month, and will remain in effect from the day of calculation until the next bi-monthly calculation. The Alaska Asphalt Material Price Index is posted on the ADOT&PF's Statewide Materials website and is calculated according to the formula posted therein.

The Asphalt Price Adjustment (APA) payment is cumulative and is calculated with each progress payment. Asphalt material price index in effect on the last day of the pay period is used to calculate the price adjustment for asphalt material incorporated into the project during that pay period. The Municipality will increase or decrease payment under this contract by the amount determined with the following asphalt material price adjustment formula:

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APA {price $^{increase}/_{decrease}$}* = [($\pm$ IPP $\mp$ IB) - (0.075 $*$ IB)] $*$ Q $*$ % AC

Where,

Q = quantity of asphalt concrete pavement incorporated into the project during the pay period, in tons, and documented by weight tickets;

IB = Index at bid: the bi-monthly Alaska asphalt material price index in effect on date of bid, in dollars per ton;

IPP = Index at Pay Periods: the bi-monthly Alaska asphalt material price index in effect on the last day of the pay period, in dollars per ton; and

%AC = percentage asphalt cement content in the asphalt concrete pavement, as determined by the average asphalt cement content in project's asphalt concrete quality control testing.

*****Note: a negative price adjustment (APA) results in a price reduction to the Contract.

Method of measurement for determining quantity, Q, is the weight of asphalt concrete pavement material that conforms to M.A.S.S. Division 40, Section 40.06 – Asphalt Concrete Pavement and is incorporated into the project.

No asphalt price adjustment will be paid based on estimated quantities.

Contingent Sum payment shall be made on the following basis:

The final asphalt price adjustment on a project is the aggregate of the price adjustments paid on a project's respective progress pay estimates, i.e.,

$APA = APA_1 + APA_2 + \ldots + APA_n$

Where n = partial payment estimate number.

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E. DIVISION 55 STANDARD CONSTRUCTION SPECIFICATIONS FOR STORM DRAIN SYSTEMS

SECTION 55.02 FURNISH AND INSTALL PIPE

Article 2.2 Material

A. General

Add the following:

Concrete thrust blocks are required on all bends, tees, and deflections in storm drain pipe. Thrust blocks shall be in accordance with MASS Standard Detail 60-06.

Replace the second sentence of E. Polypropylene Pipe (PP) with the following:

The pipe shall meet AASHTO M330.

Article 2.4 Measurement

Add the following:

This Work includes the following MASS Work items:

- Mechancial Compaction

No separate payment for the above Work items shall be made since they shall be considered incidental to the Work included in this Section.

Furnishing and installing thrust blocks is considered incidental to the Work described in this Section and no separate payment shall be made.

No separate measurement shall be made for Contractor performing the testing in accordance with MASS Section 50.02 for watertight pipe.

SECTION 55.04 CONNECTIONS TO EXISTING MANHOLES OR CATCH BASINS

Article 4.1 General

Add the following:

The Work under this Section shall also include the performance of all operations pertaining to the construction required for connections to existing storm drain pipes.

Article 4.2 Construction

Add the following paragraph:

When connection to an existing pipe to the new storm drain structure is called for on the Drawings, the Contractor shall minimize existing pipe removal. All additional existing pipe removal required beyond the length shown on the Drawings as required to connect the existing pipe to the new storm drain structure shall be removed and replaced by the Contractor at no cost to the owner. The Contractor shall reuse existing pipe or provide additional pipe (to match the existing pipe size

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and type and/or fittings as required to provide a connection acceptable to the Engineer.

Article 4.3 Measurement

Delete this Article in its entirety and replace it with the following:

Connection to existing storm drain systems (pipes, manholes and/or catch basins) shall be measured as complete units in place.

Reconstruction of existing manhole penetrations for installation of new pipe and plugging existing unused holes in manhole from removed pipe is considered incidental to the pay item and no separate payment shall be made.

Article 4.4 Basis of Payment

Add the following Pay Item:

ITEM	UNIT
Connect to Existing Storm Drain System	Each

SECTION 55.05 MANHOLES AND CATCH BASIN MANHOLES

Article 5.1 General

Add the following sentence to the first paragraph:

The Work also includes constructing bypass manholes complete with a gate, frames and cover.

Article 5.2 Materials

Add the following:

C. Bypass Manhole and Gate

The bypass manhole shall meet the previous sub-sections of Article 5.2 and contain a bypass gate that shall meet the following criteria:

1. The bypass gate shall be provided by the following manufacturer as indicated on the Drawings:
    a. CL-10 Canal Gate as manufactured by Waterman Valve, LLC, or approved equal.
    b. The bypass gate must have a non-rising stem such that the handwheel operator remains in static operating position within manhole when opening and closing gate and not interfere with manhole cover.
    c. The bypass gate must have a flat back frame (Type F) to attach to manhole mounting surface.
    d. The bypass gate components must have a galvanized finish.
5. The bypass gate mounting surface shall be cast by the manhole manufacturer.

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6. The bypass gate shall be installed by the manhole manufacturer.

7. When the gate is open, the complete size of the outlet pipe must be unobstructed.

8. The bypass gate must have a lift mechanism that can be operated by a single person standing outside of the manhole using both hands.

9. Two access points shall be provided for the manhole as shown in the Drawings. One access point provides access to operate the lift mechanism for the bypass gate. The second access point provides personnel access for cleaning and maintenance. Each access point must comply with MASS standard details.

D. Boot Style Connector.

Boot style connector shall be a flexible pipe to manhole connection that provides a flexible, watertight seal between a pipeline and concrete structure. The connector shall be cast integrally with the concrete structure when the structure is fabricated in such a manner that it will not pull out when coupling with the pipe. The seal shall be made by compressing the connector against the inside walls of the valley of the corrugated pipe by means of a stainless steel take-down clamp. Connector shall be manufactured in accordance with ASTM C-923.

Article 5.3 Construction

B. Storm Drain Manholes and Catch Basin Manholes

Add the following paragraph after the first sentence in the first paragraph:

Catch Basin Manholes shall be constructed as detailed in the Drawings with manhole access and catch basin functionality. All construction details and requirements not specified in the Drawings that are associated with Catch Basin Manholes shall be per M.A.S.S. Standard Details and Standard Specifications.

Delete the second paragraph and replace it with the following:

After connecting the storm drain pipe to reinforced concrete manhole or catch basin, seal annular space around pipe penetrations with cement mortar or boot style connector, or approved equal. Cement mortar shall conform to the requirements of ASTM C-150, Type II. Boot style connector shall conform to the requirements of this Section. After the mortar has firmly set, Contractor shall cut the pipe evenly so that no more than two inches (2”) of the pipe protrudes into the manhole. Boot style connectors shall be installed at all locations where watertight storm drain pipe connects to manholes.

Add the following:

C. Bypass Manhole

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Bypass Manhole shall be constructed as detailed in the Drawings. All construction details and requirements not specified in the Drawings associated with the Bypass Manhole shall be per MASS Standard Details and Standard Specifications.

Through the Engineer, the Contractor shall schedule in-field operational testing of the completed bypass gate system with the MOA Street Maintenance personnel.

The Contractor shall provide operational testing of the bypass gate system to demonstrate compliance with all criteria listed in these special provisions. The tests shall be conducted in the field following completion of the bypass structures/diversion systems, and shall demonstrate the unimpeded access to the manhole, operation of the bypass gate, and to ensure the gate remains in the non-bypass position when unattended.

Article 5.4 Measurement

Insert the following paragraphs immediately following the first paragraph:

No separate measurement for payment shall be made for multiple frames and/or covers on a single manhole.

Bypass Manhole shall be measured as a complete unit in place with a fully functioning bypass gate and shall include all appurtenances as shown on the Drawings.

Article 5.5 Basis of Payment

Add the following Pay Item:

ITEM	UNIT
Construct (Type) Bypass Manhole	Each

SECTION 55.22 OIL AND GRIT SEPARATOR

Article 22.2 Description

Delete the second paragraph including the model and contact information and replace with the following:

Contractor shall furnish and the following oil and grit separator as shown in the Drawings: Stormceptor model STC450i manufactured by:

CONTECH Engineered Solutions LLC

9025 Centre Point Drive, Suite 400

West Chester, OH 45069

Phone: 800-338-1122

Fax: 513-645-7993

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Article 22.3 Materials

Replace the last sentence of the first paragraph with the following:

If foundation material is required, it shall not be measured for payment and shall be considered incidental to the contract.

Delete the third paragraph in its entirety and replace with the following paragraph:

Contractor shall provide access to the Stormceptor Model STC 450i through a storm drain manhole frame and cover per MASS Standard Detail 55-4.

Article 22.4 Construction

Add the following paragraph:

1. Access

   At each round manhole access, Contractor shall provide ladder rungs on the side of the stormwater treatment structure in accordance with MASS Standard Details 50-6 and 55-4.

Article 22.5 Measurement

Replace the last sentence of the paragraph with the following:

Foundation material, if required, is incidental to this Work item.

Add the following Section:

SECTION 55.27 STORM DRAIN BYPASS SYSTEM

Article 27.1 General

The Work under this Section consists of providing all planning, coordination, materials and operations pertaining to rerouting storm drainage flows around those portions of the storm drainage facilities to be replaced/reconstructed or as required to perform other necessary items of Work. The existing flows include those from groundwater base flow and from upstream collection system components that contribute to the subject storm drainage mains or manhole facilities.

Article 27.2 Construction

The storm drainage flows shall be bypassed around sections of pipe or manholes designated for replacement/reconstructed or as required to perform other necessary items of Work on an as-required basis. The Contractor shall ensure that pumps and bypass lines are of appropriate capacity and size to accommodate the anticipated storm drainage flows during the duration of all operations requiring such bypass.

The estimated peak flow for the 10-year, 24-hour storm event for the storm drain system impacted by the Work are as follows:

- E. 48th Avenue (west end) 1.3 cfs
- E. 48th Avenue (east end) 14.1 cfs

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Prior to construction, the Contractor shall submit to the Engineer a Storm Drain Bypass Plan detailing the scheduled deployment of pumps, hoses, pipes and other equipment necessary to maintain storm drainage flows during construction. Acceptance of Contractor's plan by the Engineer shall not relieve the Contractor of responsibility for the exercise of reasonable precaution, sound engineering judgment, prudent construction practices, overloading or misuse of existing or new structures, the adequacy and safety of such Works, and potential damage or undermining of existing or completed Work. Acceptance of the Storm Drain Bypass Plan by the Engineer does not relieve the Contractor of the responsibility for providing additional Storm Drain Bypass infrastructure if implementation of the accepted Storm Drain Bypass Plan does not result in a dry and stable construction environment throughout the project. Contractor's Storm Drain Bypass Plan shall be in accordance with MOA and State of Alaska regulations.

The pumping system shall be such that the hydraulic gradient both upstream and downstream of the piping being bypassed will not reach elevations that will cause damage to the properties being served. This will require close attention to the elevation of the upstream head needed to actuate the pumping cycle and the rate of discharge flow from the pumps. The Contractor shall be liable for all damages which result from storm drainage flows not properly maintained during the progress of the Work, including all damages to private property which occur as a direct or indirect result of inadequate control of the storm drainage flow while the storm drainage bypass operation is ongoing. The Contractor is reminded that after-hours pumping may require a permit to exceed the allowable noise levels. Should such permit not be available for certain locations, the lack of availability shall not be cause for claim for additional compensation but may be eligible for a time extension.

This Work may include the installation of temporary drainage facilities including pipes or manholes. The Contractor shall remove all temporary drainage facilities prior to completion of this project.

The bypass plan needs to consider ways to quickly accommodate a storm event by using the existing storm drain system. This may affect the pipe installation methods used. The bypass plan should minimize damage to pipes, structures and excavations and to reduce erosion and sedimentation.

Article 27.3 Measurement

The method of measurement for furnishing and installing a storm drainage bypass system shall be lump sum for all Work described in this Section. There shall be no separate payment for additional systems to accomplish bypass of flows. There shall be no separate measurement or payment for the installation and removal of temporary drainage facilities used for bypass flows since they shall be considered incidental to this Work item.

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Article 27.4 Basis of Payment

Payment for this Work shall be in accordance with Division 10, Section 10.07 - Measurement and Payment, and shall include full payment for all Work described in this Section.

Payment shall be made under the following unit:

ITEM	UNIT
Storm Drain Bypass System	Lump Sum

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F. DIVISION 70 STANDARD CONSTRUCTION SPECIFICATIONS MISCELLANEOUS

SECTION 70.01 GENERAL

Add the following Article:

Article 1.3 Utility Facilities

Prior to commencing any Work covered under this Division or impacting utility facilities the Contractor shall contact the Utility and obtain any permits, approvals, or other requirements as required by the Utility to complete any Work on or in the vicinity of their facilities.

SECTION 70.07 REMOVE PIPE

Article 7.2 Construction

Add the following paragraph:

Sections of existing pipe that are abandoned in place shall be crushed or capped, as directed by Engineer, by Contractor such that no water or soil can enter into the existing pipe that remains in place.

Article 7.3 Measurement

Delete this Article in its entirety and replace it with the following paragraphs:

There shall be no separate measurement for crushing or capping sections of pipe that remain in place as it shall be considered incidental to this Work item.

SECTION 70.08 RESET FENCE

Article 8.1 General

Add the following sentences:

Work under this Section shall also include the removal of existing fence materials, posts, foundations, slats, chains, and materials mounted on fences as indicated on the Drawings, and the proper disposal of material not reset. For fence materials and miscellaneous materials listed above that are not able to be salvaged and reset, Work shall also include providing replacement materials, replacing and installing the existing fence posts with new fence posts as shown on the Drawings. Work shall also include removing and resetting gates as shown on the Drawings.

Article 8.3 Construction

Add the following paragraphs:

Any excavation required in the removal of the fence posts or the foundation shall be considered incidental to this bid item. Contractor shall backfill the excavation with suitable, non-frost-susceptible material and compact it to 80% of maximum density or as directed by the Engineer. Method of foundation abandonment, if necessary and approved, shall be approved by the Engineer, prior to performing Work.

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Any clearing and grubbing required for resetting the fence in a new location shall be considered incidental to this bid item.

Gate posts and foundations shall be protected in place where shown on the Drawings. Gate posts and foundations that are scheduled to be protected but are damaged by Contractor's operations, shall be replaced by Contractor including replacement of the foundation at no cost to Owner.

Article 8.4 Measurement

Add the following paragraphs:

Removal and proper disposal of existing fence materials, posts, foundations, slats, chains, and materials mounted on fence shall be measured by length in linear foot without regard to fence type.

Reset fence materials and miscellaneous materials including but not limited to posts, foundations, slats, chains, and materials mounted on fence that require replacement if they cannot be salvaged, are currently damaged or are damaged by the Contractor's operations shall be incidental to the Remove and Reset Fence pay item.

Signs mounted directly to fence shall be reinstalled on reset fence in the same location as originally mounted. Removal and remounting signs on fence shall be considered incidental to the Remove and Reset Fence pay item.

Remove and Reset Gate shall be per lump sum for all work to remove existing gates, store and protect gate during construction, and reinstall gate in original location including any new gate materials and all hardware necessary for a complete installation. Signs mounted directly to the gate or on gate posts shall be reinstalled on reset gate in the same location as originally mounted. Removal and remounting of sings on gate and gate posts shall be considered incidental to the Remove and Reset Gate pay item.

Article 8.5 Basis of Payment

Add the following Pay Item:

ITEM	UNIT
Remove and Reset Gate	Lump Sum

SECTION 70.10 TRAFFIC MARKINGS

Article 10.3 Construction

F. Application

3. Methyl Methacrylate

Delete the first sentence in paragraph b and replace it with the following:

Contractor shall apply methyl methacrylate pavement markings at a minimum thickness of 125 mils.

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Article 10.4 Measurement

Add the following sentence at the end of the first paragraph:

Curb nose median traffic marking shall be measured per each curb nose median traffic marking complete in place and accepted.

Article 10.5 Basis of Payment

Add the following Pay Item:

ITEM	UNIT
Curb Nose Traffic Marking (Type)	Each

SECTION 70.11 STANDARD SIGNS

Article 11.1 General

Delete the third sentence and replace it with the following:

Work under this Section shall also include the removal and relocation, as well as the removal and proper disposal of existing signs, sign posts, markers and foundations, as indicated on the Drawings.

Article 11.2 Materials

Add the following paragraph:

Contractor shall provide shop drawings of each sign to be installed for Engineer to review prior to fabrication. Shop drawings shall show all dimensions and fonts to be used. Signs fabricated or installed prior to attaining approval of sign shop drawings from the Engineer shall be removed and replaced with approved signs at no cost to Owner.

Article 11.3 Construction

Add the following paragraphs:

Payment for signs with double sided panels shall only be paid and measured for one side of the double sided sign panel.

SECTION 70.12 TRAFFIC MAINTENANCE

Article 12.1 General

Add the following paragraphs:

Utilities will be removed/relocated/protected in place by others concurrently with construction of this project. Contractor shall incorporate traffic control required for utility work in the Traffic Control Plan. The Contractor shall be responsible for implementing and maintaining all traffic control during all underground and overhead utility removal/relocation/protection work in the project area.

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Article 12.5 Materials

Delete items 8 and 9 and replace with the following items:

8. Portable Concrete Barriers. Provide portable concrete barriers that conform to ADOT&PF Standard Drawing G-46.11 and are equipped with warning lights.
9. Work Zone Pavement Markings. Work zone pavement markings shall be either paint with glass beads or preformed marking tape.
10. Street Sweeping. Street sweeper shall be capable of collecting and storing materials for later disposal rather than ejecting them to the shoulder of the road.
11. Watering. Watering trucks shall be capable of providing both a high-pressure water stream to flush the pavement and a light-water spray to control dust.
12. Plastic Safety Fence. Use 4-foot-high construction orange fence manufactured by one of the following companies or an approved equal:
    e. "Safety Fence" by Services and Materials Company, Inc., 2200 South "J" Street, Elwood, Indiana, 46036. Phone (800) 428-8185.
    f. "Flexible Safety Fencing" by Carsonite, 1301 Hot Springs Road, Carson City, Nevada, 89706. Phone (800) 648-7974.
    g. "Warning Barrier Fence" by Plastic Safety Systems, Inc. P.O. Box 20140, Cleveland, Ohio, 44120. Phone (800) 662-6338.

Article 12.6 Public Notice

Delete the first paragraph, inclusive of the list of local officials and transportation organizations, and replace with the following:

The Work Site Traffic Supervisor shall give notices of changes, delays, or lane/road closures to the following local officials and transportation organizations including, but not limited to:

1. Alaska Court System 264-8232
2. Alaska State Troopers 428-7200
3. Alaska Travel Industry Association..... 929-2842
4. Alaska Trucking Association..... 276-1149
5. Anchorage Chamber of Commerce..... 272-2401
6. Anchorage Fire Department 267-4950
7. Anchorage Police Department..... 786-8500
8. Anchorage Public Transportation 343-8253, 343-8386
9. ASD Pupil Transportation 742-1207

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10. Commercial Vehicle Enforcement 365-1203
11. Local Emergency Medical Services..... 267-4950
12. Local Schools and Universities..... Varies
13. Local Solid Waste Utilities 563-3717
14. MOA Parks and Recreation 343-4297
15. U.S. Postal Service..... 266-3261

SECTION 70.13 BOLLARDS

Article 13.1 General

Add the following paragraphs:

Work shall also include removal of existing flexible delineators as shown on the drawings.

Article 13.4 Method of Measurement

Add the following paragraphs:

Removal of flexible delineators shall be measured as “Remove Bollard” for each flexible delineator removed.

SECTION 70.18 CHAIN LINK FENCE

Article 18.2 Materials

Add the following subarticle:

O. Wood Cladding

1. Wood species shall be Douglas Fir-Larch, unless otherwise specified. In accordance with Western Wood Products Association (WWPA) and West Coast Lumber Inspection Bureau (WCLIB) grading rules, all boardwalk lumber and timber material shall be visually graded No. 1. Design strength values shall equal those listed for this species and grade in the 2012 edition of the American Wood Council National Design Specification, Design Values for Wood Construction-NDS Supplement.
2. Lumber and timber sizes are shown on the Plans in nominal dimensions, i.e.; 2x4, 3x12, etc., indicating surfaced four sides (S4S) or planed material. Manufacturing classification shall be S4S Dressed (Surfaced) Lumber. Size classification shall be nominal size designations of lumber and timber in accordance with PS-20, U.S. Department of Commerce Voluntary Product Standard for American Softwood Lumber.
3. All timber and lumber members shall be grade-stamped to indicate lumber grading agency, mill number, wood species and grade and moisture content at the time of surfacing.

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4. All lumber, plywood, and timber shall be preservative-treated and conform to AASHTO M133 and *Best Management Practices for the Use of Treated Wood in Aquatic Environments* (BMPs), published by the Western Wood Preservers Institute, 601 Main Street, Suite 405, Vancouver, WA 98660 (Phone: 800-279-9663). Use Copper Azole Type C with a retention of preservative. Kiln dry to an average moisture content of 19% after treatment

P. Steel Connectors For Wood Construction

1. General. All steel connectors for wood construction shall be installed with barrier membrane in accordance this section to prevent all their surfaces from contacting preservative-treated wood.

2. Manufactured steel connectors.

   a. Manufactured steel connectors shall be fabricated from steel sheet in accordance with ASTM A36, ASTM A653 or ASTM A1011.

   b. Corrosion Protection: All steel connectors shall be hot-dipped galvanized in accordance with ASTM A653, or be manufactured from stainless steel sheet in accordance with ASTM A240 or ASTM A480. Hot-dipped galvanized (HDG) connectors having a thickness of 16 gauge or less shall provide a G90 coating, and connectors having a thickness of 14 gauge or thicker shall provide a minimum zinc coating weight of 2.0 oz./sf. Where connectors are required to have special galvanized thickness, such as with Simpson Strong-Tie “Z-max”, such connectors shall provide a G185 (1.85 oz./sf) coating.

   c. Fasteners used with galvanized steel connectors shall be hot-dipped galvanized per ASTM A153, or be a galvanized or equivalent protective-coated product that is provided by the connector manufacturer for specific use with the connectors, such as Simpson Strong-Tie SD or SDS screws, or approved equal. Fasteners used with stainless steel connectors shall be Type 316L stainless steel.

4. Fasteners. Type, size and length as indicated in the Plans.

   a. Bolts, Nuts and Washers for wood-to-steel and wood-to-wood connections: conform to ASTM A307 with dimensions conforming to ANSI/ASME Standard B18.2.1. Nuts shall conform to ASTM A563, grade matching bolt material. Washers shall conform to ASTM F436. Bolts shall be installed with a minimum of one nut and two washers, unless otherwise noted. Bolts, nut and washers shall be hot-dipped galvanized in accordance with ASTM A153.

   b. Lag Screws: conform to AISI 1006 to 1022 steel with dimensions conforming to ANSI/ASME Standard B18.2.1. Bending yield strength of steel shall be minimum 45,000 psi for nominal diameters greater than or equal to 3/8 inches. Tensile strength shall be minimum 60,000 psi. Bolts, nut and washers shall be hot-dipped galvanized in accordance with ASTM A153.

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c. Wood Screws: self-tapping steel screws meeting SAE J78, with dimensions conforming to ANSI/ASME Standard B18.6.1. Bending yield strength of steel shall be minimum 80,000 psi for No. 9, 10 and 12 wood screw sizes. Wood screws shall be Type 304 or 316 stainless steel or bronze-ceramic-coated for specific use with ACQ or CA-C preservative-treated wood in exterior, wet environments.

d. Nails and Staples: conform to ASTM F-1667. Nails shall be common type and hot-dipped galvanized. Staples shall be hot-dipped galvanized.

Article 18.6 Basis of Payment

Add the following Pay Item:

ITEM	UNIT
Wood Clad Chain Link Fence	Linear Foot

Add the following New Sections:

SECTION 70.22 TEMPORARY FENCING

Article 22.1 General

The Work covered under this Section shall consist of all operations, labor, equipment and materials pertaining to furnishing, installing and removing temporary fencing including gates at properties where existing fencing has been removed as indicated on the Drawings. Work shall also include all operations, labor, equipment and materials to furnishing, installing and removing temporary fencing where fencing including gates is required to be removed to complete construction activities including utility relocation work.

Article 22.2 Materials

Temporary fencing shall be six (6) feet in height and consist of new or previously used chain-link fencing materials in good condition. Posts shall be galvanized steel pipe of diameter to provide rigidity and be suitable for anchoring with base plates or inserting in precast concrete blocks. Fabric shall be woven galvanized steel wire mesh provided in continuous lengths and wire tied to prefabricated pipe-framed fence panels. Gates shall be fabricated of the same material used for fencing and be capable of manual operation by one person. Gates shall be lockable.

Where removed fencing includes barbed wire and arms at the top of the fence, temporary fencing shall include barbed wire supported on arms at a 45-degree angle similar in appearance to the removed fence.

Article 22.3 Construction

Fence and gates shall be installed at locations where existing fencing has been removed. At least one gate shall be installed for each property for which temporary fencing is provided or where a gate is removed. Fencing shall extend the full width of the property or match the existing layout and prevent ingress and egress of

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personnel and animals through, under or around the fence. Temporary fence shall be installed immediately outside the construction area within 12-hours of removal of existing fences. Temporary fencing shall remain in place until permanent fence is installed.

Article 22.4 Measurement

All work described in this Section pertaining to the furnishing, installing, maintaining and removing Temporary Fencing shall be measured for payment per linear foot of temporary fence installed. There shall be no additional payment made for relocating temporary fencing multiple times on the same property during construction as may be necessary to accommodate construction activities or to facilitate property use by the property owner. Barbed wire and support arms and gates shall not be measured separately for payment and shall be considered incidental to the Temporary Fencing pay item.

Article 22.5 Basis of Payment

Payment of this Work shall be in accordance with MASS, Division 10 Standard General Provisions, Section 10.07 Measurement and Payment as amended in these specifications and shall include full payment for all Work as described in this Section.

Payment shall be made under the following unit:

ITEM	UNIT
Temporary Fencing	Linear Foot

SECTION 70.23 ADJUST MONITORING WELL

Article 23.1 General

The Work covered under this Section shall consist of all operations, labor, equipment and materials pertaining to adjusting existing monitoring wells to be flush with the final ground surface.

Article 23.2 Materials

Existing monitoring well materials shall be salvaged for reuse wherever possible. Materials remaining in roadway excavation area shall be protected in place during construction. Any materials damaged by Contractor's operations shall be replaced, at no cost to Owner, with similar materials in accordance with the Alaska Department of Environmental Conservation, Division of Spill Prevention and Response Contaminated Sites Program Monitoring Well Guidance, dated September 2013.

Article 23.3 Construction

Contractor shall adjust monitoring wells so that the tops of the well are flush with the surrounding final ground surface. Where existing monitoring wells are to be lowered, work will include cutting excessive length of well casing, and reinstalling well cap. Where existing monitoring wells are to be raised, work will included

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welding a casing extension of similar size and material to existing well casing as required to match final grade. All work shall be in accordance with the Alaska Department of Environmental Conservation, Division of Spill Prevention and Response Contaminated Sites Program Monitoring Well Guidance, dated September 2013.

Article 23.4 Measurement

Adjusting monitoring wells will be measured per unit, complete and in place.

Article 23.5 Basis of Payment

Payment of this Work shall be in accordance with MASS, Division 10 Standard General Provisions, Section 10.07 Measurement and Payment as amended in these specifications and shall include full payment for all Work as described in this Section.

Payment shall be made under the following unit:

ITEM	UNIT
Adjust Monitoring Well	Each

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G. DIVISION 75 STANDARD CONSTRUCTION SPECIFICATIONS FOR LANDSCAPING IMPROVEMENTS

SECTION 75.02 LANDSCAPING

Article 2.3 Construction

Delete and replace the existing Paragraph with the following:

D. Protection of Existing Trees

Contractor shall protect existing trees that are not designated for removal on the Drawings. Contractor shall identify a Tree Protection Zone (TPZ), in which activities are restricted, around each existing tree that is not designated for removal on the Drawings. The TPZ shall be submitted and approved by the Engineer. The TPZ shall measure as one foot of root area per one inch Diameter Breast Height (DBH), or as noted on the drawings The TPZ shall be defined with fencing materials that prohibit disturbance, excavation, trenching material storage, including soil or grade changes. Refer to Section 75.12 for Tree Protection Zone Fencing. The trees shall be protected within the TPZ. The Contractor shall not stage or store materials within the TPZ. Contractor shall ensure that all land disturbance, excavation, trenching and grade changes, directional boring, routing of utilities and irrigation systems, sidewalks, driveways, construction access roads, changes to street lighting, fire hydrants and utility boxes takes place outside of the TPZ. Do not permit vehicle or foot traffic within the TPZ and prevent all compaction over root systems.

Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations. Contractor shall thoroughly water exposed root systems and cover them with a waterproof sheet until backfilled. Contractor shall ensure bark, branches, roots, and balls of plants are adequately protected at all times from damage, including sun, drying winds, and frost.

Contractor shall ensure tree branches, trunk, and roots of existing trees are protected during construction. Measures for protection may include effective barrier fencing, branch and/or root pruning, protective mulch, supplementary water, soil aeration and information signage. When a tree is damaged by the Contractor, but is deemed salvageable by the Engineer, the Contractor shall prune existing branches and roots in compliance with with the American National Standard (ANSI) A300, Part 1, Standard Practices Pruning and ANSI Z133.1, Arboricultural Operations Safety. No pruning paint or wound dressing shall be used.

Contractor shall replace trees damaged beyond repair with trees of equivalent value based on the Guide for Plant Appraisal (latest edition) as appraised by a qualified International Society of Arboriculture Certified Arborist, at no additional cost to the Owner. Contactor shall remove and

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dispose of damaged trees and shall install replacement trees in accordance with this Section. Payment for this Work is incidental to the Contract.

Article 2.7 Basis of Payment

Add the following sentence:

Shovel cut edging is incidental to work described in Section 75.02 and no separate payment shall be made.

Add the following New Sections:

SECTION 75.12 TREE PROTECTION ZONE FENCE

Article 12.1 General

Work under this Section includes all equipment, labor, and transportation necessary to furnish, install, and remove Tree Protection Zone Fences as specified herein. Tree Protection Zone Fences are required where all work abuts mature tree plantings that are to remain in place. Tree Protection Zone Fences are to be removed when construction is complete.

Tree Protection Zone (TPZ): Tree Protection Zones shall be per Section 75.02

A. Submittals: Product Data

Article 12.2 Submittals

A. Certification: provide a certification from a certified arborist that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.

B. Maintenance Recommendations: From certified arborist, for care and protection of trees affected by construction during and after completing the Work.

Article 12.3 Quality Assurance

A. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed tree protection and trimming work similar to that required for this Project and that shall assign an experienced, qualified arborist to project site during execution of tree protection and trimming.

B. Arborist Qualifications: An arborist certified by ISA or licensed in the jurisdiction where Project is located.

C. Tree Pruning Standard: Comply with ANSI A300 (Part 1), "Tree, Shrub, and Other Woody Plant Maintenance--Standard Practices (Pruning)."

D. Pre-installation Conference: Before tree protection operations begin, meet with the Engineer, Arborist to review tree protection procedures and responsibilities and determine tree protection fencing limits on site.

E. Prior to any excavation, tree protection limits shall be staked by the Contractor and approved by the Engineer.

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F. Provide written acceptance from a certified arborist that trees indicated to remain and protected by Tree Protection Zones have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.

Article 12.4 Materials

A. Temporary Tree Protection Fencing: 4' High, high visible orange safety fence.

B. Steel T-Posts: with pointed end and reflective safety caps, green color.

Article 12.5 Construction

A. Construction Fencing: Install fencing around Tree Protection Zones to protect remaining trees and vegetation from construction damage. Maintain temporary fence in place continuously during construction. The temporary fencing shall remain in place during the duration of the Work and shall be removed when construction is complete.

B. Maintain Tree Protection Zones free of trash.

C. Do not allow fires within Tree Protection Zones.

Article 12.6 Measurement

Measurement for Temporary Tree Protection Fence shall be by the linear foot.

Article 12.8 Basis of Payment

Payment for the Work shall be in accordance with Division 10, Section 10.07 – Measurement and Payment, and shall include full payment for all Work described in this Section.

Unit cost payment shall be made on the following basis:

ITEM	UNIT
Temporary Tree Protection Fence	Linear Foot

SECTION 75.13 MOOSE PROECTION FENCE

Article 13.1 General

Work under this Section includes all equipment, labor, and transportation necessary to furnish, install, and remove Moose Protection Fencing as specified herein. Moose Protection Fencing is required around all new individual deciduous trees and/or deciduous tree groupings. Moose Protection Fences are to be removed at the completion of the plant establishment period, unless otherwise directed by the Engineer. The Engineer may notify the Contractor about damages to the Moose Protection Fencing, in which case the repairs shall be made within 24 hours. The Contractor shall repair and replace all materials damaged or destroyed within the scope of the Work, regardless of cause.

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Article 13.2 Materials

A. Fabric: 48” height, 1”x2” welded wire mesh. Min. 14-gauge wire diameter.

B. Steel T-Posts: 10’ height, green steel T-Posts with point..

Article 13.3 Construction

Workmanship and Procedure: Moose protection fencing shall be erected immediately following the tree installation. The moose protection fencing shall be placed at the outside edges of individual deciduous trees and/or deciduous tree groupings. All deciduous trees shall be enclosed within the fending without damaging branches or allowing branches to protrude. The fencing shall remain in place during the duration of the Work and shall be removed at the end of the maintenance period.

Article 13.4 Measurement

Measurement for Moose Protection Fending shall be by the linear foot.

Article 13.5 Basis of Payment

Payment for the Work shall be in accordance with Division 10, Section 10.07 – Measurement and Payment, and shall include full payment for all Work described in this Section.

Unit cost payment shall be made on the following basis:

ITEM	UNIT
Moose Protection Fence	Linear Foot

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H. DIVISION 80 STANDARD CONSTRUCTION SPECIFICATIONS FOR TRAFFIC SIGNALS AND ILLUMINATION

SECTION 80.01 GENERAL

Article 1.1 Scope of Work

Add the following at the end of the first paragraph:

The General requirements of this Section shall apply to all Sections within Division 80.

Article 1.2 Regulations and Codes

Add the following to the first paragraph:

For all Division 80 items furnish listed or labeled components, including individual components as well as complete assemblies, whenever those components are available with the listing or labeling.

SECTION 80.04 FOUNDATIONS

Article 4.1 General

Delete the first paragraph and add the following:

Install driven pile foundations for luminaire poles.

Article 4.5 Driven Pile Foundation

Add the following after the second paragraph:

For fixed base pile caps, 1/8" plasma cut from edge to hole is acceptable for plasma cut bolt holes.

Add the following to the end of the Article:

Contractor shall pre-excavate holes with vactor truck when proposed pole location is within 10-feet of an existing buried utility. Excavation depth shall be a minimum of 12-inches below the anticipated depth of the utility before driving pile. Excavation shall be backfilled and compacted after pile driving is complete.

Article 4.6 Measurement

Append the following to the last paragraph:

All survey and staking work required to locate the foundations shall be incidental to the work. All work to pre-excavate for driven pile foundations shall be considered incidental to the work.

SECTION 80.05 MAST ARMS, POLES, STEEL PEDESTALS AND POSTS

Article 5.11 Basis of Payment

Add the following Pay Unit:

ITEM	UNIT
Spare Fixed Base Luminaire Pole (ft Length)	Each

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SECTION 80.08 JUNCTION BOXES

Article 8.4 Measurement

Append the following to the last paragraph:

All survey and staking work required to locate the junction boxes shall be incidental to the work.

SECTION 80.13 BONDING AND GROUNDING

Article 13.1 General

Add the following after the first paragraph:

In junction boxes, provide enough slack in the grounding conductors to ensure the conduits remain securely bonded to ground should the conduits move for any reason.

SECTION 80.14 LOAD CENTERS

Article 14.9 Basis of Payment

Add the following Pay Unit:

ITEM	UNIT
Single-Meter Pad-Mount Load Center (Type)	Each

SECTION 80.23 LUMINAIRES

Delete this Section in its entirety and replace with the following:

Article 23.1 General

Provide the luminaire(s) specified on the Drawings. Furnish luminaires with the light distribution and light source specified, i.e. color enhanced high pressure sodium, metal halide, or induction lamps or light emitting diodes (LEDs). Furnish lamps of the wattages specified and/or the number of LEDs to be furnished. The light sources shall feature a color rendering index of at least 65 as determined by their manufacturer.

Provide LED luminaires that produce light with a color correlated temperature (CCT) specified on the Drawings.

After the luminaire poles have been installed and plumbed, the Contractor shall level each luminaire to ensure it provides the light distribution used to design the system.

When allowed on the Drawings, the Contractor may furnish approved equal luminaires. The Contractor shall submit the following documents for approval:

A. Luminaire specifications, including dimensions, and a photograph,

B. Electronic photometric data in Illuminating Engineering Society (I.E.S.) format, preferably by a link to the manufacturer's web site, including the photometric identification number(s),

C. The input and output of a lighting analysis program,

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D. The input shall include each lamp or LED bars lumen output, lumen maintenance factors, and each luminaire's photometric identification number, drawing pole number, mounting height, spacing, and offset from the traveled way.

E. The output shall verify each luminaire provides the average light levels, uniformity ratios, and veiling luminance criteria for the roadways, pedestrian facilities, and intersections listed on the Drawings.

F. Manufacturer's Warranty information for the substituted fixture. Ten year minimum is required.

Article 23.2 Light Distribution

The luminaires furnished shall provide the light distribution(s) specified on the Drawings in the following terms as defined by the Illuminating Engineering Society (IES). The distribution along a roadway (longitudinal) shall be short, medium, or long; the luminaire cutoff angle cutoff angle shall be full cutoff for all fixtures and the distribution across a roadway (lateral) shall be Type 1, Type 2, Type 3, Type 4, or Type 5.

Prior to installation, Contractor shall check the socket position in the luminaire to verify it corresponds to the setting indicated in the instructions for the light distribution type shown on the Drawings.

Article 23.3 Luminaire Features

Luminaires shall feature:

1. Corrosion-resistant enclosures with space for the driver or ballast and a gray or silver paint finish.
2. Third party certification for use in wet locations.
3. Terminal blocks for attaching the illumination tap conductors.
4. Optical components free of substances that affect photometric performance, e.g. paint.
5. Housings cast with no provision for a photoelectric control receptacle, except those luminaires specified to be furnished with a photoelectric control.
6. Gaskets that are securely held in place and are composed of material capable of withstanding the temperatures generated by an operating luminaire on the hottest day.
7. 7-pin twist-lock receptacle compliant with NEMA standard C136.41 to provide ON/OFF and dimming control with shorting cap.

Article 23.4 Measurement

Luminaires shall be measured as units complete, leveled, and in place, including all labor, equipment, and materials to provide a complete and functioning unit.

Spare Luminaire shall be measured as complete units delivered to the MOA Orca Street Pole Yard (Contact: Paul VanLandingham at 343-8372 for specific delivery instructions).

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No measurement for payment shall be made until a functional field test has been completed in accordance with Section 80.16, Article 16.2 Field Tests.

Article 23.5 Basis of Payment

Payment of this Work shall be in accordance with Division 10 Standard General Provisions, Section 10.07 Measurement and Payment, of this Specification, and shall include full payment for all Work described in this Section.

Payment shall be made under the following units:

ITEM	UNIT
Luminaire (No. of Lumens) (Longitudinal) (Lateral)	Each
Spare Luminaire (No. of Lumens) (Longitudinal) (Lateral)	Each

*****END OF SPECIAL PROVISIONS*****

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

APPENDIX A

ENVIRONMENTAL PERMITS

ENVIRONMENTAL PERMITS (IF REQUIRED)

WILL BE PROVIDED FOR 95% DESIGN

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

APPENDIX B

UTILITY CLEARANCE REQUIREMENTS

CHUGACH
POWERING ALASKA'S FUTURE

April 2014

ELECTRICAL FACILITY CLEARANCE REQUIREMENTS

Enclosed is a copy of the Chugach Electric Association, Inc. (Chugach) Electrical Facility Clearance Requirements policy. Periodically, copies of the policy are mailed out to various companies and agencies whose activities may bring their personnel in close proximity to electrical facilities. Chugach distributes copies of this policy in an effort to help minimize and identify potential hazards for construction personnel and the general public. In addition, we are concerned with preventing possible damage to our electrical facilities and disruption of electrical service to our customers. Please note that the Electrical Facility Clearance Requirements publication is now on Chugach's web site at: www.chugachelectric.com. Click on the "Customer Service" tab and go to either "For your Home" or "For Your Business", click on "Electrical Facility Clearance Requirements" (April 2014).

For your additional information, Alaska State Statute ("Article 6. Locating Underground Facilities") has been included as an attachment.

Please thoroughly read and understand the entire document. It could save your life or the life of your employees, and the general public. We request that particular attention be paid to the following provisions:

(Paragraph B. 2.) "Under no circumstances will Chugach allow any of its underground cable(s) to remain energized after it has been exposed, unless it is protected by supplementary mechanical protection approved by Chugach or unless a *qualified person* is on site at all times".

(Paragraph H. 7.) "Chugach defines a *qualified person* as a journeyman lineman who holds a current Certificate of Fitness in the Journeyman Lineman category issued by the State of Alaska". These two provisions clearly emphasize Chugach's position relating to the exposure and approach to energized facilities.

Chugach strongly recommends that prior coordination with us, either during the design phase of a project or prior to the start of actual construction, can help eliminate or minimize conflicts. If you have questions please contact the Line Operations Division at 762-7655 and your call will be directed to the appropriate department for assistance.

Sincerely,

William J. Bernier

William J. Bernier
Director, Substations and Line Operations
Enclosures

cc: Statewide Bonding Companies; State of Alaska OSHA Inspector; State of Alaska Electrical Inspector; Alaska General Contractors

Chugach Electric Association, Inc.
5601 Electron Drive, P.O. Box 196300, Anchorage, Alaska 99519-6300 • (907) 563-7494 Fax (907) 562-0027 • (800) 478-7494
www.chugachelectric.com • info@chugachelectric.com

CHUGACH ELECTRIC ASSOCIATION, INC.

ELECTRICAL FACILITY CLEARANCE REQUIREMENTS FOR CONSTRUCTION OR MAINTENANCE NEAR ELECTRICAL FACILITIES

Chugach's concern for the safety of non-qualified personnel working adjacent to its electrical facilities, its concern for the public in general, and its requirement that only *qualified personnel* under the employ of *qualified electrical contractors* handle electrical facilities such as cable, poles, padmounted equipment, etc., is based upon the following considerations:

- The potential for serious injury and resulting liability is extremely high when dealing with voltages as high as 230,000 volts on overhead and underground lines.

- Certain types of equipment, particularly cable, can easily be damaged by improper handling. For example, when cable is hit or improperly suspended (common during excavation adjacent to cables), the scraped, cut, or over-stressed insulation will almost always result in premature failure of the cable. The highest risk to personnel is a failure while the cable is being handled during excavation or construction. Undetected construction damage may result in a subsequent cable failure with consumer outages for periods of up to 48 hours during winter conditions.

- The stability of overhead pole lines or padmounted equipment is jeopardized with improper excavation and backfill. This may expose the public, as well as maintenance or construction personnel, to high voltages and create consumer power outages.

The above concerns can be minimized or eliminated by the use of properly trained, licensed, and certified electrical outside linework personnel. The National Electrical Safety Code (NESC), the United States Occupational Safety and Health Administration (OSHA) and the Alaska State OSHA support this position as well as the clearances addressed herein.

NESC, Section 2, *Definitions of Special Terms* defines *"qualified"* as *"Having been trained in and having demonstrated adequate knowledge of the installation, construction, or operation of lines and equipment and the hazards involved, including identification of and exposure to electric supply and communication lines and equipment in or near the workplace."* Only qualified persons are permitted to handle or work on or adjacent to energized electrical facilities. This includes not only overhead pole lines but also padmounted and underground facilities. Within the NESC, two rules specifically address the need for qualified persons to perform work on or near energized facilities:

> Rule 420B1 states, *"Employees whose duties require working on or in the vicinity of energized equipment or lines shall perform only those tasks for which they are trained, equipped, authorized, and so directed. Inexperienced employees shall:*

(a) work under the direction of an experienced and qualified person at the site; and (b) perform only directed tasks."

Rule 420B4 states, *"Employees who do not normally work on or in the vicinity of electric supply lines and equipment but whose work brings them into these areas for certain tasks shall proceed with this work only when authorized by a qualified person."*

OSHA 29CFR 1910.269 contains the training and documentation requirements for a qualified person.

OSHA 29CFR 1926.550 (a) (15) addresses crane operations near electrical lines. For lines rated over 50 kilovolts (kV), minimum clearance between the lines and any part of the crane or load must be 10 feet plus 0.4 inch for each 1 kV over 50 kV -- or twice the length of the line insulator, but never less than 10 feet.

CHUGACH SYSTEM VOLTAGES	
Normal Voltage (Phase-to-Phase)	**Minimum Clearance Required**
Operations Near High-Voltage Overhead Power Lines to 50 kV	10 Feet
Over 50 kV to 200 kV	15 Feet
Over 200 kV to 350 kV	20 Feet

Specifically, 29CFR1926 (a) (15) (iv) requires a "Safety Observer" during crane operations if the equipment is operating where it is difficult for the operator to maintain the desired clearance to the overhead power line(s) by visual means. Alaska Statutes (AS) Sections 18.60.670 through Section 18.60.695 govern placement and operation of equipment near overhead electrical lines or conductors. 29CFR1926, Subpart P addresses the specific requirements involved with trenching operations. These include prior notice to utility companies, prior location of utility facilities, and proper supports once the facilities are exposed. Furthermore 29CFR Sections 1910.180; 1910.333; 1926.416; 1926.550; and 1926.651 regulate activities relative to job site electrical facilities.

Again, Chugach's concern for the safety of all personnel affected by work adjacent to its energized facilities has led to the development of the attached policy.

ELECTRICAL FACILITY CLEARANCE REQUIREMENTS

The following requirements have been developed to help provide a safer work site to those personnel working adjacent to Chugach's electrical facilities and to protect Chugach facilities that are located in the area of work being done by State or Municipal entities and private construction and maintenance projects.

A. NOTIFICATION

It is recommended that Chugach be informed of construction/maintenance activities as early as possible in the design process and be included in timely plan reviews. Any work that needs to be performed on Chugach facilities must have prior Chugach approval.

1. Overhead Facilities

Any work in the proximity of overhead power lines shall be preceded by a call to Chugach at 762-7659 or 762-7669, 48 hours in advance, to notify the Line Construction and Maintenance Department of the planned work and be in compliance with OSHA 29CFR1926 (a) (15), and AS 18.60.670. If equipment, tools, machinery, or material must work in proximity closer than the minimum clearances outlined in OSHA 29CFR1926 (a) (15), and AS 18.60.670, the requirements of AS 18.60.680 shall be complied with before work can proceed. All necessary arrangements to be made with Chugach by the requesting party for compliance with AS 18.60.680 shall be arranged in advance of the project start date.

2. Underground Facilities

Alaska Statutes 42.30.400 through 42.30.490, Anchorage Municipal Code, 24.40 and 26.90, and 29CFR1926, Subpart P place requirements on contractors who will be excavating around or adjacent to underground utilities. Advance notification requirements, underground facility locates, and the responsibilities for protection of utility facilities by contractors are specified in these regulations. All requests for locates of Chugach underground facilities are to be made through the Alaska Digline at 811. In addition, prior to excavating, Chugach shall be contacted a minimum of two (2) business days in advance. Contact the Line Operations Division at 762-7655 and your call will be directed to the appropriate department for assistance.

Locate surface markings are only reasonably accurate to +/- two (2) feet. As a general rule, Chugach requires hand-digging within two (2) feet of locate marks but in some cases may require three (3) or four (4) feet, depending on the actual facility involved and field conditions at the project site. Maintaining locate marks is the responsibility of the party requesting the locate. Chugach may charge for re-locating and re-marking facilities that were previously marked.

B. UNDERGROUND CABLE EXCAVATION

1. Any excavation which is within a three (3) foot radius of a cable and parallels a cable for a distance greater than twenty (20) feet in length (see Section H-1 below) may require relocation of that cable. Excavations shorter in length and/or closer may also require relocation. At a minimum, cables that will require exposure must be exposed by *hand-digging* only, by a *qualified person* under the employ of a *qualified electrical contractor* (see Section H). See Drawing No. F-062388 attached.

2. Any excavation, such as a trench which crosses cable and/or conduit, shall be limited to twenty (20) feet in width and have provisions for the exposed cable/conduit to be supported every two (2) feet on a cross beam in such a manner that the outer cable jacket and/or conduit shall not be damaged in any way. The cable support work and excavation within the three (3) foot radius (see Section H-1) shall be done by a *qualified* person under the employ of a *qualified electrical contractor*.

   NOTE: When excavation must occur within the limits specified in B.1, and B.2, above, reasonable efforts will be made by Chugach to de-energize the direct buried cable if system conditions and personnel requirements allow. Even if the cable has been de-energized, a "Cable Watch" by a qualified person under the employ of a qualified contractor is still required. To request the de-energization of the cable, contact the Line Operations Division at 762-7655 and your call will be directed to the appropriate department for assistance. Requests must be made three (3) working days in advance of the outage date requested. After hours, contact Chugach's Power Control Center at 762-4660.

   Under no circumstances will Chugach allow any of its underground cable(s) to remain energized after it has been exposed, unless it is protected by supplementary mechanical protection approved by Chugach or unless a qualified person is on site at all times.

3. Should any cable be exposed by non-qualified personnel, Chugach must be immediately contacted for field investigation before work may resume in the immediate area of such exposed cable.

   Chugach recognizes that reasonable continuation of work may be required around energized underground cables after Chugach inspects the site. When this occurs, it is the responsibility of the construction contractor working at the site to arrange for qualified personnel as well as payment of the costs of said personnel and/or equipment. Chugach will neither arrange for, nor provide qualified personnel to satisfy this requirement unless it determines it is in its best interest on a case-by-case basis. Where Chugach is otherwise forced to subsequently take

steps to ensure the safety of the site, it will advise the construction contractor that it will pass these costs to the construction contractor.

4. In all cases, a final minimum burial depth of 40 to 60 inches (depending on the operating voltage) for high-voltage (above 1000 volts) primary cable/conduit and 30 inches for secondary low-voltage cable/conduit shall be maintained. If, however, existing Federal, State, or Municipal permit conditions require depths in excess of the 40 inches, then the cable/conduit shall be buried at the depth required in the permit. The depth is measured from the top of the cable/conduit to final grade at the shallowest depth. Burial shall be in compliance with Chugach Construction Standard SUR2-3 through 6 (supplied upon request).

5. Projects which increase the final grade over Chugach underground distribution cable that are direct buried shall require relocation if the final depth of burial exceeds 60" from the proposed final grade. Where the distribution cables are in conduit a review and written approval by Chugach are required for proposed grade increases resulting in a depth of burial above 60".

6. Projects which propose to modify the grade over Chugach underground transmission cables (voltages above 25kV) require review and written approval by Chugach.

7. In addition to the foregoing, excavations near transmission underground cable/conduit will require the following:

   a) Excavation Adjacent to Transmission Voltage Level Power Lines: Chugach will require its Locate Contractor to notify excavators when a locate request includes the locating of cables that exceed 25kV distribution voltages.

      When excavation is planned that will come within close proximity (ten (10) feet), expose, parallel or undermine sections of Chugach's transmission underground cables (voltages above 25kV), special precaution and safety consideration must be taken. These cables operate at voltages between 34,000 volts and 230,000 volts phase-to-phase, provide power to tens of thousands of Chugach customers and require extraordinary protection. The following guidelines shall apply:

      Chugach Operations Department shall be contacted at (907) 762-7655 in advance of the planned excavation a minimum of five (5) business days prior to beginning excavation. Chugach requires that a *qualified person* be on site at all times during excavation activity that comes within ten (10) feet of any transmission cable. The contractor shall arrange and pay for a *qualified person* from Chugach or, with approval, from one of Chugach's approved and *qualified contractors*. Excavations closer than ten (10) feet

shall require exposure of the cables at the intersecting point or at intervals of not less than every twenty-five (25) feet for parallel excavations by *qualified personnel* to determine the exact location of the cable prior to machine excavation.

Because of the high voltage, excavations within ten (10) feet of a transmission cable can expose unqualified workers to extremely unsafe conditions. Prior planning by the excavator with coordination through Chugach and Chugach approval of construction activity within ten (10) feet of transmission cable is required.

Chugach shall approve, in advance, any plan for directional drilling, boring, pile driving or other type of "trenchless" construction in the vicinity of its transmission cables prior to any construction activity.

Chugach may require a special locate utilizing Ground Penetrating Radar to locate critical facilities. "Pothole" locates utilizing vacuum excavation in conjunction with an air-knife tool may be used, with Chugach approval.

C. STRUCTURE EXCAVATION

1. Equipment Pads or Vaults

Temporary excavation is allowed with a maximum slope of 1:1 beginning three (3) feet from the exterior edge of a concrete pad or vault. The final grade shall consist of a level area radiating out a minimum of four (4) feet, measured from the exterior edge of the pad or vault, and a maximum slope of 2:1 beginning from that four (4) foot distance from the exterior edge of the pad or vault. For both temporary and final grade situations, a level area extending ten (10) feet out from the edge of the concrete pad in front of equipment doors or access panels is necessary. Refer to Drawing No. F-062388 attached.

If the slope cannot be maintained at the grades specified above, additional protection such as barriers or piling is required. All shoring and excavation (closer than the above limits) shall be done by a qualified person(s) under the employ of a qualified electrical contractor.

2. Concrete-Encased Duct

Excavation under a concrete-encased duct requires a method designed and certified by an Alaska-registered civil engineer and approved by Chugach. Installation of the temporary shoring or bracing shall be done under the supervision of a qualified person under the employ of a qualified electrical contractor.

D. POLE/GUY ANCHOR EXCAVATION

Excavation beginning no closer than a three (3) foot radius from a pole or guy anchor in stable soil conditions or a ten (10) foot radius from a pole or guy anchor in organic/unstable soil conditions is allowed, provided the slope from that point does not exceed 1:1. Refer to Drawing No. F-062388 attached.

Excavation closer than the limits defined above or within a ten foot radius of more than one consecutive pole where excavation will be open while more than one pole is affected, may require shoring of each pole. Chugach review and approval of shoring plan is required for all excavations where more than one pole is subject to an open excavation. Pole shoring shall conform to Chugach specifications XP-X/Y (steel pile shoring) or XM40/XM40A (wood pole shoring) as approved by Chugach for the specific excavation. Specifications will be supplied upon request. All work for installing the piles must be performed within the OSHA guidelines. Shoring by other methods requires prior approval by Chugach on a case-by-case basis. Street light poles may be temporarily removed, subject to a written agreement with Chugach, prior to excavation.

Any excavation that may expose the pole butt requires a structural analysis of the pole shoring method. The analysis shall be performed by an Alaska-licensed professional engineer familiar with electrical transmission and distribution design standards in use by Chugach.

All shoring and excavation (closer than the above limits) shall be done by a qualified person under the employ of a qualified electrical contractor.

E. RELOCATION REQUIRED

Where protection of the cable and structures cannot be maintained, as required in Sections A, B, and C, relocation of those facilities will be required prior to the intended work and at the contracting agency's expense.

F. BACKFILL

Replacement backfill for electrical facilities must be in accordance with Chugach specifications and done by a qualified person under the employ of a qualified electrical contractor.

A damaged underground facility may not be reburied until it is repaired or relocated to the satisfaction of Chugach.

G. INSPECTION AND APPROVAL

All work on or in the immediate vicinity of Chugach facilities, such as backfilling, temporary support, shoring, and relocations are subject to prior approval and

inspection by Chugach. On large projects where inspection time is substantial, all costs for inspection shall be the responsibility of the agency or entity contracting for the work. Reimbursement to Chugach shall be in accordance with Chugach's tariff, Section 8.

For any questions or approvals involving these requirements contact the Line Operations Division at 762-7655 and your call will be directed to the appropriate department for assistance.

H. MISCELLANEOUS

1. Depending on the soil type, depth and length of the excavation, type of Chugach facility involved, and the certainty of the cable locate, excavations can be approved within a two (2) foot radius of cable on a case-by-case basis.

2. Stable soil conditions are defined as all dry and non-organic. Soil conditions shall be evaluated and approved on a case-by-case basis by Chugach. The evaluation will be done using 29CFR1926, Subpart P, "*Excavations*" as a guide.

3. Excavation, except as noted, shall be defined as mechanically done by a backhoe, scraper, grader, auger, or other piece of equipment.

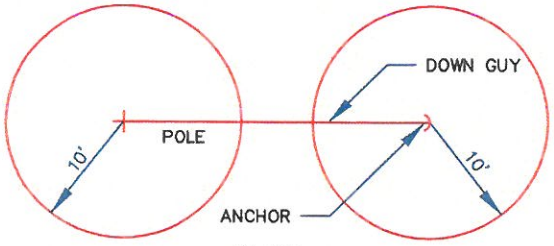
4. Cables are defined as insulated cable whether buried directly or in conduit. The guidelines for cables also include 600-Volt pedestals and other small electrical apparatus associated with cable but not included under pads or vaults.

5. Spare conduit is not included in these provisions except to the extent of providing temporary support when exposed and inspected by Chugach prior to the placement of proper backfill.

6. Chugach defines a *qualified electrical contractor* as a contractor registered in the State of Alaska who has an Electrical Administrator's License in the Outside Linework category; or who has an employee with an Electrical Administrator's License in the same category registered with the contractor.

7. Chugach defines a *qualified person* as a journeyman lineman who holds a current Certificate of Fitness in the Journeyman Lineman category issued by the State of Alaska.

8. Chugach defines *hand-digging* as the removal of soil with hand tools or with an air-knife tool (compressed air jet).

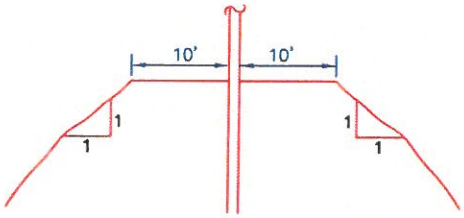


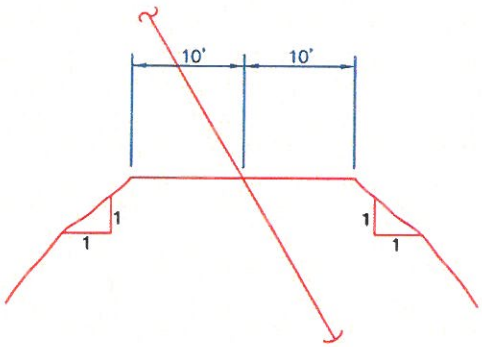
PLAN

(RADIUS OF UNDISTURBED SOIL)

NOTE:

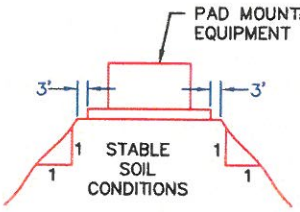
FOR VERY UNSTABLE SOIL CONTACT CHUGACH ELECTRIC.





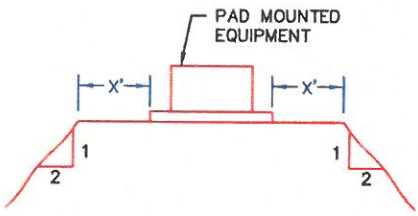
PROFILE

POLES/GUYS



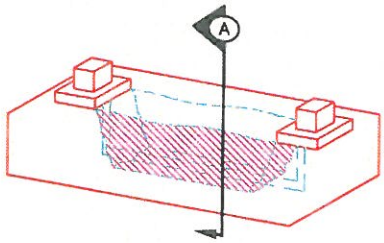
DURING CONSTRUCTION

SUPPLEMENTAL SUPPORT REQUIRED FOR EXCAVATIONS WITHIN 5' OF PADMOUNTED EQUIPMENT LOCATED ON UNSTABLE SOIL CONTACT CHUGACH ELECTRIC

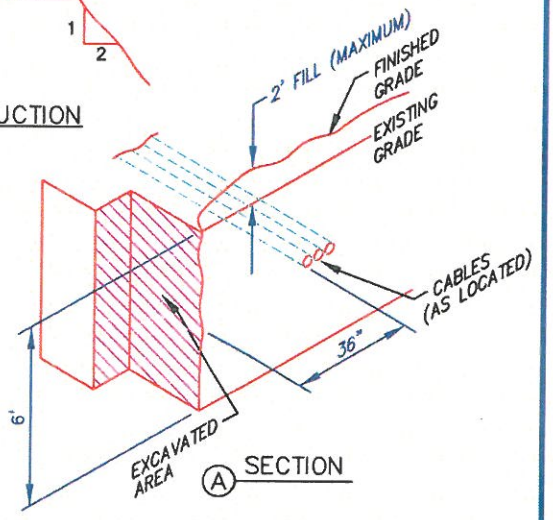


AFTER CONSTRUCTION

X': 10' ON DOOR/ACCESS SIDES. 4' ON OTHER SIDES.



PARALLEL EXCAVATION



STRUCTURES/CABLES

REV. NO.: 3 DATE: 1/28/98

Standards Engineer: _____

Mgr., Dist. Engineering: _____

Mgr., Const. & Maint.: _____

Dir., T&D Services Div.: _____

Chugach Electric Association, Inc.

EXCAVATION LIMITS

DEFINITION OF LIMITS REQUIRING NO ADDITIONAL STRUCTURAL SUPPORT

DRAWING NUMBER F-062388

SHEET 1 OF 1

Sec. 42.30.450. Waiver of requirements by written agreement.

An operator and an excavator may, by written agreement, waive the requirements of AS 42.30.400 - 42.30.490 that the excavator notify the operator of planned excavations and that the operator locate underground facilities. The agreement must identify the geographic areas to which the waiver applies and the time period for which the waiver is valid.

Sec. 42.30.460. Underground facility owner.

If the operator of an underground facility is not the owner of the facility and if the operator cannot be identified or has been identified but cannot be reached in a reasonable amount of time, the excavator may give the notice required by AS 42.30.400 - 42.30.490 to the owner of the underground facility and the owner shall assume the duties and responsibilities of the operator under AS 42.30.400 - 42.30.490.

Sec. 42.30.490. Definitions.

(1) "damage" means

(A) the substantial weakening of structural or lateral support of an underground facility;

(B) penetration, impairment, or destruction of any underground protective coating, housing, or other protective device; and

(C) the partial or complete severance of an underground facility to the extent that the project owner or facility operator determines that repairs are required;

(2) "emergency" means

(A) a condition that constitutes a clear and present danger to life, health, or property; or

(B) an unplanned service interruption;

(3) "excavation" means

(A) an activity in which earth, rock, or other material on or below the ground is moved or otherwise displaced by any means;

(B) road maintenance that changes the original road grade;

(C) demolition or movement of earth by equipment, tools, or explosive device except tilling of the soil less than 12 inches in depth for agricultural purposes;

(4) "excavator" means a person who conducts excavation in the state;

(5) "inaccessible" means impossible or unreasonably difficult to reach due to conditions beyond the control of the underground facility operator;

(6) "notification center" or "center" means a service through which a person is able to call one number to notify member operators of underground facilities that an excavation is proposed and to request the operators to mark facilities located inside of the proposed excavation area;

(7) "operator" means a person who supplies a service for commercial or public use by means of an underground facility;

(8) "person" means any individual, public or private corporation, political subdivision, government agency, municipality, industry, partnership, copartnership, association, firm, trust, estate, or any other entity whatsoever;

(9) "remote" means not accessible by road;

(10) "underground facility" means a pipe, sewer, conduit, cable, valve, line, or wire, including attachments and those parts of poles or anchors that are below ground, for use in connection with the storage or conveyance of water, sewage, telecommunications, cable television, electricity, petroleum, petroleum products, hazardous liquids, or flammable, toxic, or corrosive gas;

(11) "unstaffed" means not normally staffed with employees;

(12) "working day" means a day on which an underground facility operator is open for regular business.

ALASKA STATUTES

TITLE 42

PUBLIC UTILITIES & CARRIERS

Sec. 42.30.400. Excavator's notice of proposed excavation.

(a) Before beginning an excavation, an excavator shall give notice of the proposed excavation to each underground facility operator who has an underground facility in the area of the proposed excavation and request the operator to field mark the location of its underground facility. The excavator shall notify an underground facility operator who subscribes to a notification center by giving notice to the center. The excavator shall notify an underground facility operator listed in the applicable telephone directory who is not a subscriber to a notification center by giving notice directly to the operator.

(b) Except in the case of an emergency locate request or a request to locate in a remote, unstaffed, or inaccessible location, the excavator shall notify an underground facility operator who may have a facility in the area of a proposed excavation at least two but not more than 15 working days before the date scheduled for beginning the excavation. In the case of a request to locate in a remote or unstaffed location, the excavator shall notify the operator at least 10 but not more than 20 working days before the scheduled date for beginning excavation.

(c) In an emergency, the excavator shall immediately notify each underground facility operator in the area of the emergency and of the need for the excavation and request prompt location of underground facilities.

Sec. 42.30.410. Operator's response to request to locate; immunity related to unmarked or inaccurately marked facilities.

(a) An underground facility operator shall accept requests to locate underground facilities during the operator's regular business hours. An operator who receives a request to locate shall maintain for at least one year an accurate record of the request and responses to the request.

(b) When an underground facility operator receives a request to locate, it shall notify the excavator of the location of the underground facilities that the operator is able to field mark with reasonable accuracy and field mark those facilities. If the operator owns, uses, or operates an underground facility that is identified as being in the area of the proposed excavation but that the operator cannot field mark with reasonable accuracy, the operator shall provide the excavator with the best information available to the operator about its location and shall provide on-site assistance until the facility is located or until the excavator no longer needs assistance in locating that facility.

(c) The field marks for an underground facility buried 10 feet deep or less must be located within 24 horizontal inches of the outside dimensions of the facility. For a facility buried deeper than 10 feet, the operator shall locate the field marks within 30 horizontal inches of the outside dimensions of the facility. The operator shall use stakes, paint, or other clearly identifiable material to show the field location of the underground facility. The marker used to designate the approximate location of an underground facility must follow the current color code standard used by the American Public Works Association.

(d) Except for an underground facility in a remote, unstaffed, or inaccessible location, an underground facility operator shall respond to a request to locate promptly. A response is considered to be prompt if it is made within two working days after the operator receives the request or at a later time so long as the response occurs before the beginning of the excavation. For an underground facility in an accessible remote or unstaffed location, the operator shall respond within 10 working days after the operator receives the request or at a later time so long as the response occurs before the beginning of excavation.

(e) After an operator has field marked an underground facility, the excavator is responsible for maintaining the markings.

(f) An excavator may not begin to excavate until each underground facility has been field marked.

(g) When an operator has field marked an underground facility once at the request of an excavator, the operator has the right to receive compensation from the excavator for costs incurred in responding to subsequent requests to locate the same underground facility during the same excavation project if the excavator failed to maintain the original marking.

(h) If an excavator discovers an underground facility that was not field marked or was inaccurately field marked, the excavator shall immediately stop excavating in the vicinity of the facility and shall notify the operator of the discovery. The excavator may notify the operator by means of a notification center. The operator shall treat the notification as a request to locate in an emergency and shall respond accordingly. An excavator may not be held liable for inadvertent damage caused to an unmarked or an inaccurately marked underground facility.

(i) Unless the request to locate is made in response to an emergency, an underground facility operator has the right to receive compensation for costs incurred in responding to a request to locate that gives the operator less notice than the minimum notice required by this section. This subsection may not be interpreted to require the operator to respond to the request to locate within the time requested in the notice.

Sec. 42.30.420. Responsibility of construction project owners.

The owner of a construction project that will require excavation shall indicate in bid documents or contracts for construction the existence of underground facilities that the project owner knows are located inside of the proposed area of excavation. This requirement does not release the excavator from the excavator's responsibility under AS 42.30.400 - 42.30.490.

Sec. 42.30.430. Obligations concerning the conduct of excavations.

(a) An excavator shall use reasonable care to avoid damaging an underground facility. The excavator shall

(1) determine, without damage to the facility, the precise location of an underground facility whose location has been marked;

(2) plan the excavation to avoid damage to and minimize interference with an underground facility in or near the excavation area; and

(3) to the extent necessary to protect a facility from damage, provide support for an underground facility in and near the construction area during the excavation.

(b) An excavator who, in the course of excavation, contacts or damages an underground facility shall notify the operator. If the damage causes an emergency, the excavator shall also alert appropriate local public safety agencies and take reasonable steps to ensure public safety. A damaged underground facility may not be reburied until it is repaired or relocated to the satisfaction of the operator. The operator of an underground facility that was damaged during excavation shall arrange for repair or relocation of the facility as soon as practical.

Sec. 42.30.440. Penalties; injunctive relief.

(a) In addition to all other remedies provided by law, a person who violates a provision of AS 42.30.400 - 42.30.490 is subject to a civil penalty of not less than $50 nor more than $1,000 for each offense if the violation results in or significantly contributes to damage to an underground facility.

(b) If the court finds that an excavator is violating or threatening to violate a provision of AS 42.30.400 - 42.30.490 and the violation may result in damage to an underground facility, the court may grant injunctive relief to the underground facility operator.

Excavation Safety for Natural Gas Pipelines

Safety

ENSTAR Natural Gas Company provides natural gas service through 3,580 miles of gas mains to over 142,000 customers in South Central Alaska. ENSTAR's gas pipeline system is designed, installed, and maintained with the highest regard for safety in compliance with applicable federal, state, and local government statutes and regulations. ENSTAR is regularly inspected to ensure that its operation meets industry standards.

The US Department of Transportation, Pipeline & Hazardous Materials Safety Administration (PHMSA) oversees minimum safety regulations for the transportation of natural gas by pipelines. The DOT safety regulations are currently published in Title 49, Part 190, 191, 192 & 199 of the Code of Federal Regulations (CFR).

The Law

Call 811 before you dig; it's free and it's the law. Calling for locates is now as simple as dialing **811** or go online to www.akonecall.com. In Alaska, dialing **811** connects you with Alaska Digline Inc. Alaska Digline Inc. will take your excavation information and notify all affected utilities. Utilities have two business days to mark their utilities after receiving your call.

PHMSA is the excavation damage enforcement agency in the State of Alaska. The enforcement program protects the public from the risk of pipeline ruptures caused by excavation damage. Should an excavator violate any of the damage prevention requirements prescribed in 49 CFR part 196, Subpart B, they may face civil and or criminal penalties. Civil penalties of not more than $200,000 for each violation, not to exceed $2,000,000 may be levied. Criminal penalties may be enforced with imprisonment of not more than 5 years per violation. More information about the PHMSA ruling can be found at http://www.phmsa.dot.gov/.

Excavation Safety for Natural Gas Pipelines

Pipeline Markers

Do not assume there is not a pipeline if there is no marker.

ENSTAR transmission pipelines are generally marked above ground with pipeline markers similar to the one shown. Transmission pipelines are located in the vicinity of the pipeline markers. Transmission pipelines are steel and range in size from 2" to 20" in diameter. They are typically coated with a protective coating. Pipeline coatings are predominantly yellow and black, but may also be green or brown.

Typical ENSTAR Pipeline Marker

Distribution pipelines are steel, or High Density polyethylene with locate wire. These pipelines range in size from 1" diameter to 12" in diameter. Gas "Mains" are typically found in street right-of-ways or utility easements and supply the natural gas to an entire street or subdivision.
Natural gas service lines are connected to the gas main. Service lines generally serve a single building or small group of buildings on private property. Service lines are typically ½" to 2" in diameter. Service lines can be rigid steel, steel tubing, copper or polyethylene with locate wire. Gas mains and service lines are generally black or yellow in color.

Steps to Follow

1 **Line Locating: A Free Service:** To request a locate, dial **811**, the Nationally recognized One-Call number and you will be connected to Alaska Digline Inc. Call at least 2 but not more than 15 working days before the date scheduled for beginning the excavation.

2 **Request a Relocate Ticket when**: the marks have not been maintained, the excavator is unable to accurately "read" the locate marks, the marks have been destroyed, or the marks are more than 15 working days old.

3 **Excavating around Locate Marks:** In Alaska, you must use reasonable care when digging within 24 horizontal inches of the outside dimensions of the locate marks. If you are digging to a depth of 10 feet or greater, you must use reasonable care within 30 horizontal inches. *Treat all buried lines as if they were active.*
Typical means of excavating around locate marks:

- Hand Dig
- Air Knife
- Vac Truck

4 **Standby/Inspection Requirements:** Extreme caution must be exercised whenever pipelines are encountered. All excavations in the immediate vicinity of ENSTAR Natural Gas facilities (including backfill, compaction, temporary support, and shoring), are subject to prior approval and inspection by ENSTAR personnel. Pipeline inspections are provided whenever an excavator is working within 10 feet of a transmission pipeline, or within 5 feet of a distribution line. If excavation occurs without either locates or standby (qualified ENSTAR personnel), ENSTAR Natural Gas reserves the right to excavate to determine if there has been any damage to ENSTAR Natural Gas facilities. If damage has occurred ENSTAR Natural Gas has the right to charge the excavator for repairs.

Excavation Safety for Natural Gas Pipelines

5 **Support for Steel Pipeline Crossings:** If an excavation below a **steel gas** pipeline leaves the pipeline unsupported for a distance of more than 20 feet, the excavator must provide additional support for the pipeline. Support must be provided in a way as to not damage the pipe or its coating during construction, backfill placement, and compaction. Generally, a support spacing of 5 feet or less will provide the required support. ENSTAR Engineering must approve all excavations crossing steel pipelines above 4-inch diameter. If support is required, ENSTAR engineering written approval is required prior to beginning construction. Call ENSTAR Engineering (907)334-7740 for further information. Extra care must be taken when geotextile fabric and/or rigid insulation are used. Geotextile fabric and/or rigid insulation shall be sufficiently separated from steel pipeline and in addition to continuous support under the pipeline, compacted fill material shall be placed between the geotextile fabric/rigid insulation and the pipeline (see item 10 clearance). Care shall be taken to insure stability for the ENSTAR facility. Failure to properly protect ENSTAR's facilities could result in future damage if differential settlement occurs.

6 **Support for Polyethylene Line Crossings:** If an excavation is below a **polyethylene gas pipeline** the excavator must continuously support such pipeline during construction, backfill placement, and compaction. Geotextile fabric and/or rigid insulation shall be sufficiently separated from the polyethylene gas pipeline to prevent undue stress during the compaction/settlement process. (see item 10 clearance)

7 **Excavation Parallel to Pipeline: Whenever an excavation (horizontal or vertical) is performed within 5 feet of a distribution pressure pipeline and 10 feet of a transmission pressure pipeline, the gas pipeline must be exposed to visually determine the exact location.** When parallel excavations are expected to expose or undermine sections of pipeline, the excavator must notify ENSTAR engineering in advance. Care must be taken not to damage the pipeline, or to induce stresses due to differential settlement following construction**. Long parallel excavations exposing pipelines can be very dangerous if not properly performed and shall not be attempted without prior approval by ENSTAR.** Unless otherwise approved by ENSTAR engineering, all excavations parallel to a gas pipeline require that the pipeline be exposed at intervals no greater than every 25 feet to visually determine the pipeline's exact location. Contact ENSTAR Engineering at (907)334-7740 for additional information.

8 **Blasting:** All plans for blasting that will occur within 500' of any Company Facility, shall be reviewed by an ENSTAR engineer. The person performing the blasting shall take all appropriate measures as recommended by ENSTAR engineering, (i.e. require minimum distance from facilities, minimize blasting charge intensity, etc.) to protect the integrity of the Company's Facilities. A leak survey shall be performed before and after any blasting activity, within 500' of any Company Facility.

9 **Trenchless Excavation (Vertical or Horizontal): Whenever a trenchless excavation (horizontal or vertical) is performed within 5 feet of a distribution pressure pipeline and 10 feet of a transmission pressure pipeline, the gas pipeline must be exposed to visually determine the exact location.** If the trenchless excavation is expected to cross the pipeline within the aforementioned distances, the pipeline in question shall be fully exposed to a minimum of 1 foot beneath the pipeline prior to the expected crossing to ensure that the pipeline is not unduly damaged due to ground movement in the immediate vicinity of the pipeline. **When performing a trenchless excavation parallel to a gas pipeline, the gas pipeline must be exposed at intervals of 25 feet or less to visually determine the pipeline's exact location.** Trenchless excavation is defined as drilling, directional drilling, boring, pile installation etc.

10 **Clearance:** Natural Gas pipelines require a **12 inch minimum separation from other underground structures** not associated with ENSTAR's pipeline system. Additional clearance from other underground structures may be required to allow proper maintenance and reduce the possibility of damage due to

Excavation Safety for Natural Gas Pipelines

the proximity of other structures (49 CFR § 192.325.) This clearance requirement includes rigid insulation and geotextile fabrics. **ENSTAR requires a 36-inch minimum separation from certain electrical facilities, including any grounded components i.e. ground rods, non-insulated conductors and associated structures.**

11 **Pipeline Cover:** ENSTAR pipelines in public rights-of-way are generally installed with 36 inches to 48 inches of cover, and in private rights-of-way with 12 inches to 36 inches of cover. Projects that decrease cover or increase cover in excess of 60 inches must receive prior approval from ENSTAR Engineering Department (907)334-7740**.** ENSTAR has limited ability to prevent the removal of cover over gas pipelines. Increasing pipeline cover more than 5 feet or decreasing pipeline cover to less than 3 feet may be considered a damage that may result in relocation of the gas pipeline at the expense of the Excavator. The depth of cover listed above cannot be assumed after installation. The excavator is responsible for any damage to ENSTAR pipelines regardless of the depth at which they are encountered.

12 **Landscaping:** Most landscaping activities require locates, and when it is determined that landscaping activities are within 5 feet of a distribution pipeline, or 10 feet of a transmission pipeline, Inspection/Standby requirements as listed above are applicable. Planting of trees and shrubs over existing pipelines is not permissible and can present a safety and reliability hazard to the pipeline.

Damage Reporting

If you damage a gas line, immediately Call 911 and ENSTAR at 1-844-SMELL GAS (1-844-763-5542). It's the Law.

Gas lines that have been pulled, stretched, kinked or bent could be damaged underground away from where the line is connected. If you pull or stretch gas lines call ENSTAR at (907)277-5551 and an ENSTAR Representative will investigate for possible underground leakage.

Pipe Wall Protection

Dents, scrapes, gouges and scratches reduce pipeline wall thickness and affect the safety of the facility in two ways. First, the reduced wall thickness decreases the pressure at which the pipeline can safely operate. Second, the damage serves as a stress concentration that can cause a future brittle failure of the pipeline. **An ENSTAR representative must inspect each dent, scrape, gouge or scratch, no matter how small, before it is reburied.**

Corrosion Protection

ENSTAR's **steel** pipelines are protected from corrosion by a dielectric coating and an impressed current or galvanic anode cathodic protection system. Direct contact with metallic objects (a short) or removal of the protective coating can compromise this system. Contact the ENSTAR Engineering Department (907)334-7740, whenever coating damage or a short is encountered. **An ENSTAR representative must inspect each short or section of damaged coating before it is reburied.**

Locate Wire Protection

ENSTAR's **polyethylene** pipelines are installed with a parallel copper wire, which is used to locate the pipeline. If the locate wire or wire coating is damaged, ENSTAR's ability to properly locate the pipeline may be severely compromised. Electrical continuity must be maintained. **An ENSTAR representative must**

Excavation Safety for Natural Gas Pipelines

inspect and/repair each possible locate wire damage before it is reburied, accidental locate wire damage repair is free of charge.

Excess Flow Valves

An Excess Flow Valve (EFV) is a safety device installed in a natural gas service line near the gas main that is designed to automatically shut off the flow of natural gas in the event that the service line is broken. Effective April 14th, 2017, all gas companies nationwide are required to install an EFV or a curb-side shut off valve in any new or renewed service lines.

What does this mean to you as an Excavator?
Should you damage a natural gas service line that has an EFV, the gas will blow for a short duration and shut off automatically if the flow of gas is sufficient to close the EFV. Damages that do not sever the service line completely may not cause the EFV to close and the gas will continue to blow. Regardless, **you must report all damages to ENSTAR immediately**. EFVs are designed to allow a small amount of "bleed-by" so they can be reset without excavating the gas main. Backfilling a damaged service line with gas bleeding underground is extremely dangerous and could fuel an explosion if it is not repaired timely. **Do not assume a damaged service is dead or abandoned if it is not blowing gas**. The EFV may have shut down the flow of gas. Report all damages immediately by calling **1-844-SMELL-GAS.**

Please remember that the vast majority of ENSTAR service lines WILL NOT have an EFV. Should you damage a service line without an EFV, gas will blow at full line pressure until ENSTAR can arrive to shut it off. Your best protection against damaging underground utilities is to call **811** for locates and hand dig within 2 feet of the locate marks.

What to do if You Smell Gas

Natural gas actually does not have a natural odor, but mercaptan compounds are added to distribution system gas to enable you to smell a leak. If you smell the characteristic Sulphur odor, call ENSTAR at 1-844-SMELL GAS (1-844-763-5542)

Qualified Personnel Requirements

Only qualified individuals meeting all applicable requirements may perform work on Natural Gas facilities. At a minimum, such individuals must comply with applicable federal, state and local regulation, statutes, and ordinances.

Additional pipeline information can be found on the following websites:

PHMSA/DOT	https://phmsa.dot.gov/pipeline
Common Ground Alliance	http://www.commongroundalliance.com
Pipeline 101	http://www.pipeline101.com
Alaska Digline, Inc.	http://www.akonecall.com/

Excavation Safety for Natural Gas Pipelines

For further information about ENSTAR, visit our web site @ www.enstarnaturalgas.com

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

APPENDIX C

UTILITY COMPANY RELOCATION DRAWINGS

UTILITY COMPANY RELOCATION DRAWINGS

TO BE PROVIDED FOR FINAL DESIGN

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

APPENDIX D

ENVIRONMENTAL MANAGEMENT PLAN

ENVIRONMENTAL MANAGEMENT PLAN

TO BE PROVIDED FOR 95% DESIGN

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

III

SUBMITTAL LIST AND STANDARD FORMS

Submittal List

Certificate of Compliance

Design Clarification & Verification Request

48TH AVENUE UPGRADES

CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

SUBMITTAL LIST

Job #: 06-26 Contractor: .

Submittal Number	Rev.	Description
10.04.9		Private Property Disposal Site Permission; Fill Permit
10.04.13		Street Closures; Traffic Control Plan including Traffic Control for Utility Companies
10.04.15		Temporary Erosion Control and Storm Water Pollution Prevention Plan including SWPPP for Utility Companies
10.04.17		Utility Notification Verification
10.04.19		Record Drawings
10.04.22		Contractor's Emergency Contact Data
10.05.3		Construction Progress Schedule
10.05.3		Schedule of Values
10.05.3		Submittal Schedule
10.05.4		Notice of Unusual Working Hours
10.05.5		Shop Drawings
10.05.6		Product Data
10.05.7		Proposed Substitutions
10.05.9		Contractor's Authorized Representatives and Employees
10.05.10		Subcontractor's List
10.05.34		Work Plan

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (2022)

Submittal Number	Rev.	Description
10.06.9		Certificate of Insurance
10.06.12		Certified Payroll
20		All Imported Earthwork Materials Required from this Contract
20.02		Storm Water Pollution Prevention Plan
20.12/20.13		Dewatering/Trench Dewatering Plan
20.12/20.13		AWWU or ADEC Dewatering Plan Permit Approval
20.12/20.13		AWWU Approval if Dewatering Plan Includes Discharge to AWWU Sewer Main
20.25		Geotextile (all types)
20.26		Insulation Board (all types)
20.30		Trench Sheeting/Shoring Submittal
30.01.9		Concrete Temperature Maintenance Procedure Proposal
30.01		All concrete mix designs
30.10		Colored concrete including imprinting information
40.04.2		Certified Analysis of Asphalt for Tack Coat from Refining Laboratory
40.04.3		Tack Coat Test Strip and Notification
40.06.2		Certified Analysis of Asphalt for A.C. Pavement from Refinery Lab.
40.06.3		Asphalt Job Mix Formula for A.C. Pavement Laboratory
40.06.4		Contractor's Certificate of Compliance for bituminous paver segregation mechanism installation.
55.02		Storm Drain Televising Documentation
55.02		All Storm Drain Pipe including Watertight Pipe
55.02		Storm Drain Testing Documentation for Watertight Pipe

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

Submittal Number	Rev.	Description
55.03		Subdrain Pipe
55.03		Subdrain Pipe Televising Documentation
55.05 & 55.09		Storm Drain Structure Shop Drawings
55.05		Bypass Gate Control Shop Drawings
55.22		Oil and Grit Separator Shop Drawings
55.27		Storm Drain Bypass Plan
60		All Water Materials Required from this Contract
65.02.14		As-Built Surveys and Record Drawings
70.11		Sign Shop Drawings
70.12		Traffic Control Plan
70.12.4		Identify I.M.S.A./A.T.S.S.A. Person and Telephone Number
70.12.6		Proof of Advertisements
75.02		Landscape Maintenance Schedule
75.02		Tree Service Firm & Arborist Certification
75.03.2		Topsoil Analysis Test Reports
75.03		Topsoil Mix
75.04		Seed Certification
75.12		Temporary Tree Protection Fence Product Data, Arborist Certification
80.00		All Electrical Equipment and Materials Submittals
80.01		Temporary Illumination Plan
80.23		Luminaire Product Information

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

NOTE: The above list of submittals is not all inclusive. In addition to the above, the Contractor is required to comply with all submittal requirements as required or identified in the Drawings, specifications, M.A.S.S., or as directed by the Engineer.

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

CERTIFICATE OF COMPLIANCE

Project Name: 48th Avenue Upgrades Contract No. C-_____

I (WE) CERTIFY THAT ALL WORK HAS BEEN PERFORMED AND MATERIALS SUPPLIED IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND CONTRACT DOCUMENTS FOR THE ABOVE WORK, AND THAT:

A. Not less that the prevailing rates of wages as ascertained by the governing body of the contracting agency has been paid to laborers, workmen, and mechanics employed on this work;

B. There have been no unauthorized substitutions of subcontractors; nor have any subcontracts been entered into without the names of the subcontractors having been submitted to the Engineer prior to the start of such subcontracted work;

C. No subcontract was assigned or transferred or performed by any subcontractor other than the original subcontractor, without prior notice having been submitted to the Engineer together with the names of all subcontractors;

D. All claims for material and labor and other services performed in connection with these specifications have been paid;

E. All monies due the State Industrial Accident Fund, the State Unemployment Compensation Trust Fund, the State Tax Commission, hospital associations and/or other have been paid.

_____
(Company Name)

_____ _____
(Contractor's Signature) (Date)

STATE OF ALASKA)
)ss.
THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this _____ day of _____, 20 ___, by _____ to be the _____ of the company.

_____
Notary Public
My commission expires: _____

DESIGN CLARIFICATION/VERIFICATION REQUEST (DC/VR)

PROJECT 48th Avenue Upgrades **DC/VR NO.** _____

CONTRACTOR _____ **CONTRACT NO.** _____

ORIGINATOR _____ **SPEC. SECTION** _____

DATE SUBMITTED _____ **DRAWING NO.** _____ **SHEET** _____ **OF** _____

DESCRIPTION OF DC/VR

RESPONSE REQUESTED BY (Date) _____

RESPONSE TO DC/VR

RESPONSE BY (Name/Company) _____

ROUTING	RECEIVED BY NAME / COMPANY	DATE RECEIVED	DATE FORWARDED	COMMENTS
Project Manager				
Designer				
Project Manager				
Contractor				

DIRECTION

☐ **Proceed per Engineers Response. No change in contract price or time is recognized.**

☐ **Do not proceed until** _____

☐ _____

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

IV

SPECIAL DETAILS
Sign Drawings

SPECIAL DETAILS

TO BE PROVIDED FOR 95% DESIGN

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

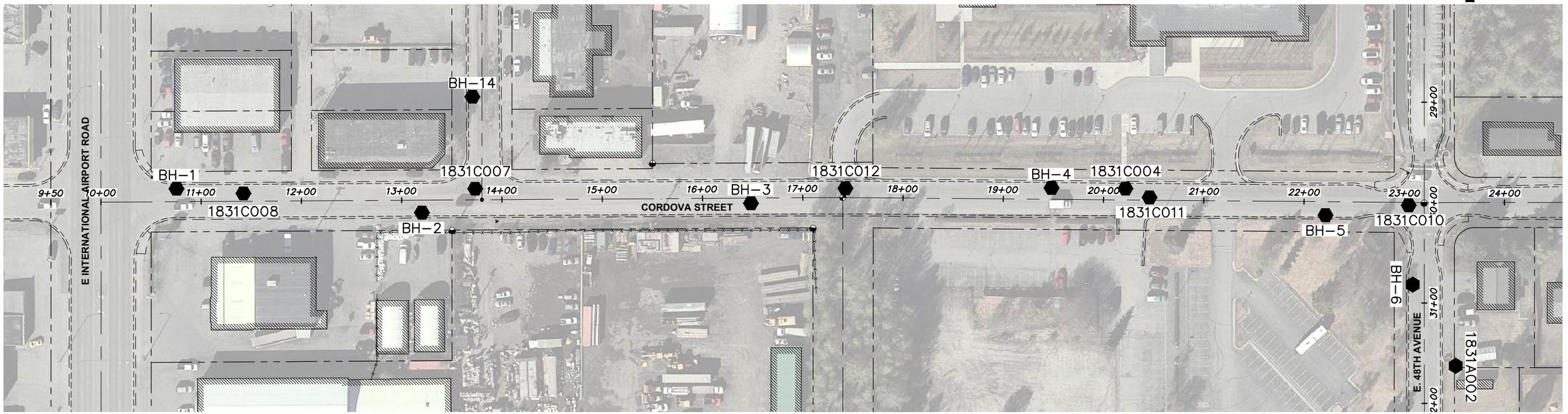
PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

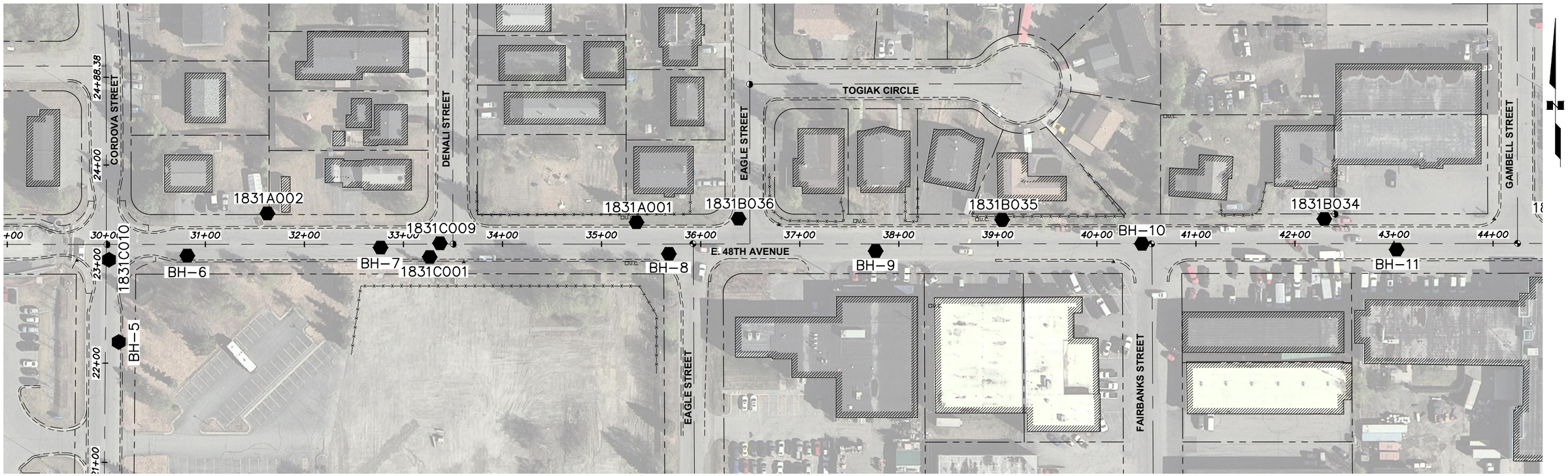
48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

V

SOILS INFORMATION





LEGEND

BH–X — BOREHOLE LOCATION AND NUMBER

1831X00X — HISTORIC BOREHOLE LOCATION AND REFERENCE

50' 0 50' 100'

PROJECT: 10143.00
STATUS: DRAFT

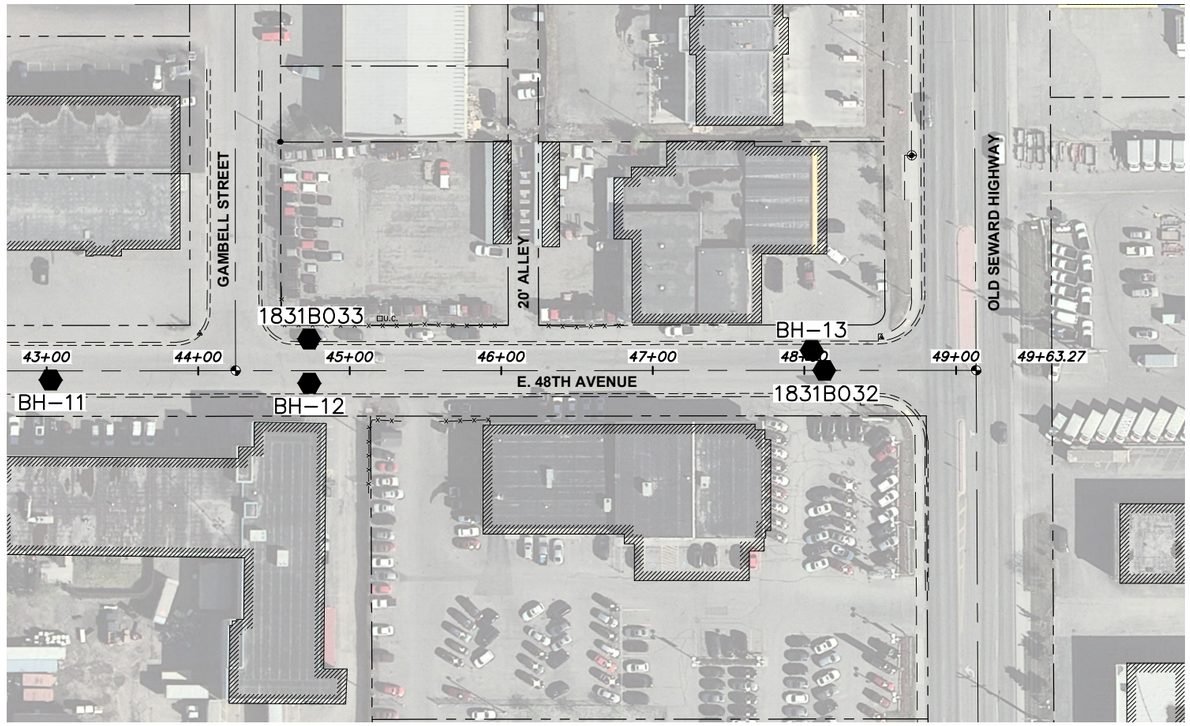
CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL882-AK

48TH AVE. & CORDOVA ST. RECONSTRUCTION MOA 06–26

BOREHOLE SITE PLAN

DATE: MAR 2019
SCALE: GRAPHIC
FIGURE: 2

File: J:\JobsData\10143.00 48th Ave And Cordova St Reconstruction\00 CADD\02 Figures\05 Geotech Exploration\Geotech Report Figures\10143.00 Geotech Map.dwg



LEGEND

BH–X — BOREHOLE LOCATION AND NUMBER

1831X00X — HISTORIC BOREHOLE LOCATION AND REFERENCE

50' 0 50' 100'

PROJECT: 10143.00

STATUS: DRAFT

CRW ENGINEERING GROUP, LLC
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PHONE: (907) 562-3252
#AECL882-AK

48TH AVE. & CORDOVA ST.
RECONSTRUCTION MOA 06–26

BOREHOLE SITE PLAN

DATE: MAR 2019

SCALE: GRAPHIC

FIGURE: 3

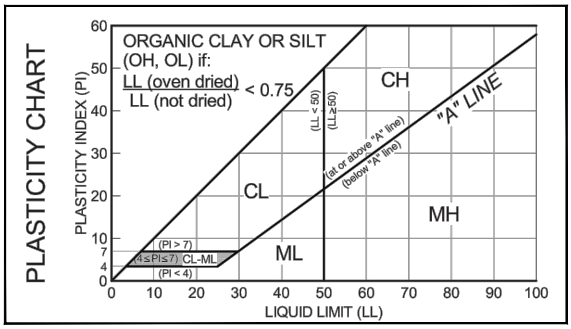
File: J:\JobsData\10143.00 48th Ave And Cordova St Reconstruction\00 CADD\02 Figures\05 Geotech Exploration\Geotech Report Figures\10143.00 Geotech Map.dwg

UNIFIED SOIL CLASSIFICATION (ASTM D 2487)

GROUP SYMBOL	SOIL GROUP NAMES & LEGEND	
GW	WELL-GRADED GRAVEL	If soil contains ≥15% sand, add "with sand"
GP	POORLY GRADED GRAVEL	
GM	SILTY GRAVEL	
GC	CLAYEY GRAVEL	
SW	WELL-GRADED SAND	If soil contains ≥15% gravel, add "with gravel"
SP	POORLY GRADED SAND	
SM	SILTY SAND	
SC	CLAYEY SAND	
CL	LEAN CLAY	If soil contains coarse-grained soil from 15% to 29%, add "with sand" or "with gravel" for whichever type is prominent, or for ≥30%, add "sandy" or "gravelly"
ML	SILT	
OL	ORGANIC CLAY OR SILT	
CH	FAT CLAY	
MH	ELASTIC SILT	
OH	ORGANIC CLAY OR SILT	
PT	PEAT	

Gravels or sands with 5% to 12 % fines require dual symbols (GW-GM, GW-GC, GP-GM, GP-GC, SW-SM, SW-SC, SP-SM, SP-SC) and add "with clay or "with silt" to group name. If fines classify as CL-ML for GM or SM, use dual symbol GC-GM or SC-SM.

Optional Abbreviations: Lower case "s" after USCS group symbol denotes either "sandy or "with sand" and "g" denotes either "gravelly" or "with gravel."



COMPONENT DEFINITIONS BY GRADATION

COMPONENT	SIZE RANGE
BOULDERS	ABOVE 12 IN.
COBBLES	3 IN. TO 12 IN.
GRAVEL	3 IN. TO NO. 4 (4.76 mm)
COARSE GRAVEL	3 IN. TO 3/4 IN.
FINE GRAVEL	3/4 IN. TO NO. 4 (4.76 mm)
SAND	NO. 4 (4.76 mm) TO NO. 200 (0.074 mm)
COARSE SAND	NO. 4 (4.76 mm) TO NO. 10 (2.0 mm)
MEDIUM SAND	NO 10 (2.0 mm) TO NO. 40 (0.42 mm)
FINE SAND	NO. 40 (0.42 mm) TO NO. 200 (0.074 mm)
SILT AND CLAY	SMALLER THAN NO. 200 (0.074 mm)
SILT	0.074 mm TO 0.005 mm
CLAY	LESS THAN 0.005 mm

DESCRIPTIVE TERMINOLOGY FOR PERCENTAGES (ASTM D 2488)

DESCRIPTIVE TERMS	RANGE OF PROPORTION
TRACE	0 - 5%
FEW	5 - 10%
LITTLE	10 - 25%
SOME	30 - 45%
MOSTLY	50 - 100%

RELATIVE DENSITY / CONSISTENCY ESTIMATE USING STANDARD PENETRATION TEST (SPT) VALUES (FROM TERZAGHI & PECK 1996)

COHESIONLESS SOILS[a]		COHESIVE SOILS[b]		
RELATIVE DENSITY	N_{60} (BLOWS/FOOT)[c]	CONSISTENCY	N_{60} (BLOWS/FOOT)[c]	UNCONFINED COMPRESSIVE STRENGTH (TSF)[d]
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 4	0.25 - 0.50
MED DENSE	10 - 30	MEDIUM	4 - 8	0.50 - 1.0
DENSE	30 - 50	STIFF	8 - 15	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	15 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

(a) Soils consisting of gravel, sand and silt, either separately or in combination possessing no characteristics of plasticity, and exhibiting drained behavior.
(b) Soils possessing the characteristics of plasticity, and exhibiting undrained behavior.
(c) Refer to ASTM D 1586-99 for a definition of N.
(d) Undrained shear strength, s_u = 1/2 unconfined compression strength, U_c. Note that Torvane measures s_u and Pocket Penetrometer measures U_c.

CRITERIA FOR DESCRIBING MOISTURE CONDITION (ASTM D 2488)

DRY	ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH
MOIST	DAMP BUT NO VISIBLE WATER
WET	VISIBLE FREE WATER, USUALLY SOIL IS BELOW WATER TABLE

SAMPLER ABBREVIATIONS

SS	SPT Sampler (2 in. OD, 140 lb hammer)	C	Core (Rock)
SSO	Oversize Spit Spoon (2.5 in. OD, 140 lb typ.)	TW	Thin Wall (Shelby Tube)
HD	Heavy Duty Split Spoon (3 in. OD, 300/340 lb typ.)	MS	Modified Shelby
BD	Bulk Drive (4 in. OD, 300/340 lb hammer typ.)	GP	Geoprobe
CA	Continuous Core (Soil in Hollow-Stem Auger)	AR	Air Rotary Cuttings
G	Grab Sample from surface / testpit	AG	Auger Cuttings

LABORATORY TEST ABBREVIATIONS

Consol	Consolidation	PM	Modified Proctor	TXCD	Consolidated Drained Triaxial
Dd	Dry Density	PP	Pocket Penetrometer	TXCU	Consolidated Undrained Triaxial
MA	Sieve and Hydrometer Analysis	MC	Moisture Content	TXUU	Unconsolidated Undrained Triaxial
NP	Non-plastic	SA	Sieve Analysis	LL	Liquid Limit
OLI	Organic Loss	SpG	Specific Gravity	PL	Plastic Limit
P200	Percent Fines (Silt & Clay)	TS	Thaw Consolidation	VS	Vane Shear
PID	Photoionization Detector	TV	Torvane	Ω	Soil Resistivity

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SOIL CLASSIFICATION / LEGEND

FIGURE A-1

FILE NAME: M:\Engineering_References\Tech_Geotechnical\Alaska Geotechnical Reports\Geotech.dwg

FROZEN SOIL CLASSIFICATION (ASTM D 4083)

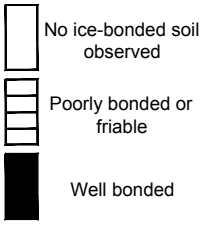
1. DESCRIBE SOIL INDEPENDENT OF FROZEN STATE	CLASSIFY SOIL BY THE UNIFIED SOIL CLASSIFICATION SYSTEM				
	MAJOR GROUP		SUBGROUP		
	DESCRIPTION	DESIGNATION	DESCRIPTION		DESIGNATION
2. MODIFY SOIL DESCRIPTION BY DESCRIPTION OF FROZEN SOIL	Segregated ice not visible by eye	N	Poorly bonded of friable		N_f
			Well bonded	No excess ice	Nbn
				Excess ice	Nbe
	Segregated ice visible by eye (ice less than 25 mm thick)	V	Individual ice crystals or inclusions		V_x
			Ice coatings on particles		V_c
			Random or irregularly oriented ice formations		V_r
			Stratified or distinctly oriented ice formations		V_s
			Uniformly distributed ice		V_u
3. MODIFY SOIL DESCRIPTION BY DESCRIPTION OF SUBSTANTIAL ICE STRATA	Ice greater than 25 mm thick	ICE	Ice with soil inclusions		ICE+soil type
			Ice without soil inclusions		ICE

FROST DESIGN SOIL CLASSIFICATION(1)

FROST GROUP(2)	GENERAL SOIL TYPE	% FINER THAN 0.02 mm BY WEIGHT	TYPICAL USCS SOIL CLASS
NFS(3)	(a) Gravels Crushed stone Crushed rock	0 - 1.5	GW, GP
	(b) Sands	0 - 3	SW, SP
PFS(4) [MOA NFS]	(a) Gravels Crushed stone Crushed rock	1.5 - 3	GW, GP
[MOA F2]	(b) Sands	3 - 10	SW, SP
S1 [MOA F1]	Gravelly soils	3 - 6	GW, GP, GW-GM, GP-GM, GW-GC, GP-GC
S1 [MOA F2]	Sandy soils	3 - 6	SW, SP, SW-SM, SP-SM, SW-SC, SP-SC
F1(5)	Gravelly soils	6 - 10	GM, GC, GM-GC, GW-GM, GP-GM, GW-GC, GP-GC
F2(5)	(a) Gravelly soils	10 - 20	GW, GP, GW-GM, GP-GM, GW-GC, GP-GC
	(b) Sands	6 - 15	SM, SW-SM, SP-SM, SC, SW-SC, SP-SC, SM-SC
F3(5)	(a) Gravelly soils	10 -20	GM, GC, GM-GC
	(b) Sands, except very fine silty sands	6 - 15	SM, SC, SM-SC
	(c) Clays, PI>12	--	CL, CH
F4(5)	(a) Silts	--	ML, MH, ML-CL
	(b) Very fine silty sands	Over 15	SM, SC, SM-SC
	(c) Clays, PI<12	--	CL, ML-CL
	(d) Varved clays or other fine-grained banded sediments	--	CL or CH layered with ML, MH, ML-CL, SM, SC, or SM-SC

(1) From the U.S. Army Corps of Engineers (USACE), EM 1110-3-138, "Pavement Criteria for Seasonal Frost Conditions", April 1984
(2) USACE frost groups directly correspond to frost groups in Municipality of Anchorage (MOA) Design Criteria Manual (DCM).
(3) Non-frost susceptible
(4) Possibly frost susceptible, requires lab test for void ratio to determine frost design classification.
(5) Consistent with MOA Definition.

ICE BONDING SYMBOLS



DEFINITIONS

Candled Ice is ice which has rotted or otherwise formed into long columnar crystals, very loosely bonded together.

Clear Ice is transparent and contains only a moderate number of air bubbles.

Cloudy Ice is translucent, but essentially sound and non-pervious.

Friable denotes a condition in which material is easily broken up under light to moderate pressure.

Granular Ice is composed of coarse, more or less equidimensional, ice crystals weakly bonded together.

Ice Coatings on particles are discernible layers of ice found on or below the larger soil particles in a frozen soil mass. They are sometimes associated with hoarfrost crystals, which have grown into voids produced by the freezing action.

Ice Crystal is a very small individual ice particle visible in the face of a soil mass. Crystals may be present alone or in a combination with other ice formations.

Ice Lenses are lenticular ice formations in soil occurring essentially parallel to each other, generally normal to the direction of heat loss and commonly in repeated layers.

Ice Segregation is the growth of ice as distinct lenses, layers, veins and masses in soils, commonly but not always oriented normal to direction of heat loss.

Massive Ice is a large mass of ice, typically nearly pure and relatively homogeneous.

Poorly-Bonded signifies that the soil particles are weakly held together by the ice and that the frozen soil consequently has poor resistance to chipping or breaking.

Porous Ice contains numerous void, usually interconnected and usually resulting from melting at air bubbles or along crystal interfaces from presence of salt or other materials in the water, or from the freezing of saturated snow. Though porous, the mass retains its structural unity.

Thaw-Stable frozen soils do not, on thawing, show loss of strength below normal, long-time thawed values nor produce detrimental settlement.

Thaw-Unstable frozen soils show on thawing, significant loss of strength below normal, long-time thawed values and/or significant settlement, as a direct result of the melting of the excess ice in the soil.

Well-Bonded signifies that the soil particles are strongly held together by the ice and that the frozen soil possesses relatively high resistance to chipping or breaking.

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FROZEN SOIL CLASSIFICATION / LEGEND

FIGURE A-2

FILE NAME: M:\Engineering_References\Tech_Geotechnical\Alaska Geotechnical Reports\Geotech.dwg

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BOREHOLE BH-01

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 10/30/18 **COMPLETED** 10/30/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING 2.50 ft
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 5.20 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40	WELL DIAGRAM
0	AC		ASPHALT CONCRETE, (AC) black	G 1	100				1.3	MA		
	SM		SILTY SAND WITH GRAVEL, (SM) 25% gravel, 57% sand, 18% fines, brown, moist, Fill, Frost Class = MOA F2 (9.3% finer than 0.02mm)	HD 2	63	14-5-3-2 (8)			1.5			Piezometer
5	CL		LEAN CLAY WITH GRAVEL, (CL) brown, moist, very stiff to hard	HD 3	83	2-4-5-7 (9)	4.5		1.2	AL		1-in. sch. 40. PVC
	CL		GRAVELLY LEAN CLAY WITH SAND, (CL) 27% gravel, 19% sand, 54% fines, brown, moist, very stiff	HD 4	83	2-5-5-6 (10)	2.5		2.2	LMA		
10	CL		LEAN CLAY WITH SAND, (CL) moist, very stiff, brown to gray, sand content increased with depth	HD 5	75	2-6-9-8 (15)	3.5		1.2			1-in. sch. 40. PVC slotted
15			Brown sand seams	HD 6	75	5-4-5-7 (9)	3.6		2.6			
			Bottom of borehole at 17.0 feet.									

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

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BOREHOLE BH-02

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 10/30/18 **COMPLETED** 10/30/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING 7.50 ft
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.00 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40	WELL DIAGRAM
0	AC		ASPHALT CONCRETE, (AC) black	G 1	100				2.5		○	
	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, moist, Fill	HD 2	75	10-8-6-6 (14)			2.1		○ ▲	Piezometer
5	GP		POORLY GRADED GRAVEL WITH SAND, (GP) brown, moist	HD 3	71	2-3-3-3 (6)			3		▲ ○	1-in. sch. 40. PVC
	GM		SILTY GRAVEL WITH SAND, (GM) 62% gravel, 18% sand, 20% fines, brown, moist to wet	HD 4	58	3-3-1-1 (4)			1.6	LMA	▲○	
10	SP-SC		POORLY GRADED SAND WITH CLAY AND GRAVEL, (SP-SC) gray, moist to wet	HD 5	75	1-2-3-3 (5)			1.2		▲ ○	1-in. sch. 40. PVC slotted
15	CL		LEAN CLAY WITH SAND, (CL) gray, moist, stiff to very stiff	HD 6	75	1-1-4-4 (5)	2.5		2.5	AL	▲ ○	

Bottom of borehole at 17.0 feet.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

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BOREHOLE BH-03

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 11/2/18 **COMPLETED** 11/2/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING 2.50 ft
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.00 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40	WELL DIAGRAM
0	AC		ASPHALT CONCRETE, (AC) black	G 1	100				0	MA	○	
	GW		WELL GRADED GRAVEL WITH SAND, (GW) 62% gravel, 34% sand, 4% fines, brown, moist, Fill, MOA Frost Class = NFS (1.9% finer than 0.02mm)									
	GW-GC		WELL GRADED GRAVEL WITH CLAY AND SAND, (GW-GC) gray, moist to wet	HD 2	33	7-10-8-6 (18)			3.2		▲ ○	Piezometer
5	SM		SILTY SAND WITH GRAVEL, (SM) grayish brown, moist to wet	HD 3	83	4-5-4-5 (9)			0		▲ ○	1-in. sch. 40. PVC
			SANDY SILT, (ML) 6% gravel, 26% sand, 68% fines, brown, moist to wet, stiff to very stiff, color turned to gray with depth, MOA Frost Class = F4 (12.1% finer than 0.02mm)	HD 4	83	2-3-4-5 (7)	1.5		2.8	MA	▲ ○	
10	ML			HD 5	83	2-3-5-6 (8)	2.8		2.6	AL	▲ ○ ⊢	1-in. sch. 40. PVC slotted
15	ML		SANDY SILT WITH GRAVEL, (ML) gray, moist, stiff	HD 6	67	1-3-4-5 (7)			0		▲ ○	

Bottom of borehole at 17.0 feet.

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BOREHOLE BH-04

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 10/30/18 **COMPLETED** 10/30/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING ---
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES Encountered water line at 11.5'
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	AC		ASPHALT CONCRETE, (AC) black								
	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, moist, Fill	G 1	100				0.3		○
	SM		SILTY SAND WITH GRAVEL, (SM) brown, moist	HD 2A / HD 2B / HD 2C	71	19-4-4-5 (8)			0.1		▲ ○
5	CL		LEAN CLAY WITH GRAVEL, (CL) brown, moist, medium stiff								
	GM		SILTY GRAVEL WITH SAND, (GM) 57% gravel, 22% sand, 21% fines, brown, moist	HD 3	63	4-4-3-3 (7)			0.5	LMA	▲ ○
	CL		LEAN CLAY WITH GRAVEL, (CL) gray, moist, medium stiff to stiff	HD 4	75	3-3-3-3 (6)	3.33		1.5		▲ ○
10				HD 5	100	1-1-2 (3)					▲ ○

Bottom of borehole at 11.5 feet.

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BOREHOLE BH-05

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING ---
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	AC		ASPHALT CONCRETE, (AC) black								
	SP-SM		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) 45% gravel, 46% sand, 9% fines, brown, moist, Fill, MOA Frost Class = F2 (5.5% finer than 0.02mm)	G 1	100				1.6	MA	○
				HD 2	17	26-9-9-10 (18)			3.2		○ ▲
5	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, moist, rock in sampler	HD 3	42	9-10-12-10 (22)			2.6		○ ▲
	GM		SILTY GRAVEL WITH SAND, (GM) 40% gravel, 30% sand, 30% fines, gray, moist	HD 4	71	2-5-5-5 (10)			1.4	LMA	▲ ○
10				HD 5	75	4-4-4-7 (8)			0.4		▲ ○
15	ML		SILT WITH GRAVEL, (ML) gray, moist, stiff to very stiff	HD 6	67	3-4-5-6 (9)	4.5		0.9	AL	▲ ○

Bottom of borehole at 17.0 feet.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

CRW Engineering Group, LLC
3940 Arctic Blvd Ste 300
Anchorage, AK 99503
Telephone: (907) 562-3252
Fax: (907) 561-2273

BOREHOLE BH-06

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING 5.00 ft
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 6.60 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40	WELL DIAGRAM
0	AC		ASPHALT CONCRETE, (AC) black	G 1	100				3.8			
	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, moist, Fill	HD 2	71	6-6-7-3 (13)			1.4			Piezometer
5	GM		SILTY GRAVEL WITH SAND, (GM) 53% gravel, 22% sand, 25% fines, brown, wet	HD 3	75	2-5-4-7 (9)			1.9	LMA		1-in. sch. 40. PVC
	CL		SANDY LEAN CLAY WITH GRAVEL, (CL) gray, wet, very stiff	HD 4	79	4-5-6-8 (11)	4.5		0.7			
10	GM		SILTY GRAVEL WITH SAND, (GM) gray, wet	HD 5	83	4-6-10-11 (16)			1.3			1-in. sch. 40. PVC slotted
15				HD 6	92	5-6-6-8 (12)			1			

Bottom of borehole at 17.0 feet.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

CRW Engineering Group, LLC
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Fax: (907) 561-2273

BOREHOLE BH-07

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING 5.00 ft
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 4.20 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40	WELL DIAGRAM
0	AC		ASPHALT CONCRETE, (AC) black	G 1	100				8.4	MA		
	SP-SM		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) 42% gravel, 49% sand, 9% fines, brown, moist, Fill, MOA Frost Class = F2 (5.2% finer than 0.02mm)	HD 2	50	5-10-8-8 (18)			17.5			Piezometer
5												
	ML		SANDY SILT WITH GRAVEL, (ML) brown, moist, stiff	HD 3	58	4-3-3-4 (6)			4.9	AL		1-in. sch. 40. PVC
			20% gravel, 27% sand, 53% fines, MOA Frost Class = F4 (37.7% finer than 0.02mm)	HD 4	75	1-2-3-5 (5)	2.0		1.1	MA		
10			SANDY SILT, (ML) gray, moist, stiff	HD 5	75	4-1-3-4 (4)			0.7			1-in. sch. 40. PVC slotted
	ML											
15				HD 6	75	3-2-5-6 (7)			0.5			

Bottom of borehole at 17.0 feet.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

CRW Engineering Group, LLC
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Anchorage, AK 99503
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BOREHOLE BH-08

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 11/5/18 **COMPLETED** 11/5/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING 5.00 ft
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 5.30 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40	WELL DIAGRAM
0	AC		ASPHALT CONCRETE, (AC) black	G 1	100				0.6			
	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, moist, Fill	HD 2	75	7-10-7-6 (17)			0.2			Piezometer
5	SM		SILTY SAND WITH GRAVEL, (SM) 26% gravel, 26% sand, 48% fines, gray, wet, MOA Frost Class = F4 (32.2% finer than 0.02mm)	HD 3	75	3-2-4-5 (6)			1.6	MA		1-in. sch. 40. PVC
	ML		SILT, (ML) gray, stiff to very stiff, moist to wet	HD 4	75	2-2-3-3 (5)			0	AL		
10			4% gravel, 8% sand, 88% fines, sand lenses	HD 5	83	2-2-3-4 (5)	2.25		0	LMA		1-in. sch. 40. PVC slotted
15				HD 6	75	2-3-4-4 (7)	2.25		0			

Bottom of borehole at 17.0 feet.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

CRW Engineering Group, LLC
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Anchorage, AK 99503
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Fax: (907) 561-2273

BOREHOLE BH-09

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 11/5/18 **COMPLETED** 11/5/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING 2.50 ft
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 3.30 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40	WELL DIAGRAM
0	AC		ASPHALT CONCRETE, (AC) black	G 1	100				1	MA		
	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 49% gravel, 42% sand, 9% fines, brown, moist, Fill, MOA Frost Class = F1 (5.4% finer than 0.02mm)									
	ML		SILT WITH GRAVEL, (ML) gray, moist to wet	HD 2	13	12-12-8-7 (20)			3			Piezometer
5	GM		SILTY GRAVEL WITH SAND, (GM) 46% gravel, 37% sand, 17% fines, brown, wet	HD 3	67	5-5-2-5 (7)			0.7	LMA		1-in. sch. 40. PVC
	SM		SILTY SAND, (SM) gray, wet	HD 4	83	3-6-6-6 (12)			1			
10	ML		SILT, (ML) gray, wet, stiff to very stiff, sand lenses	HD 5	83	2-4-6-6 (10)	4.5		0.8			1-in. sch. 40. PVC slotted
15	ML		SILT WITH GRAVEL, (ML) gray, wet, medium stiff, gravel up to 2"	HD 6	88	2-4-3-10 (7)	<1.0		0	AL		

Bottom of borehole at 17.0 feet.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

CRW Engineering Group, LLC
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Anchorage, AK 99503
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BOREHOLE BH-10

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 11/5/18 **COMPLETED** 11/5/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING 7.50 ft
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 8.40 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40	WELL DIAGRAM
0	AC		ASPHALT CONCRETE, (AC) black	G 1	100				1.3			
	GW-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GW-GM) brown, moist, Fill	HD 2	75	10-11-9-6 (20)			1.5			Piezometer
5	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 52% gravel, 39% sand, 9% fines, brown, moist, MOA Frost Class = NFS (1.1% finer than 0.02mm)	HD 3	42	3-5-4-5 (9)			1.2	MA		1-in. sch. 40. PVC
	SP		POORLY GRADED SAND WITH GRAVEL, (SP) 17% gravel, 81% sand, 2% fines, brown, moist to wet	HD 4	75	6-8-8-11 (16)			2.2	SA		
10				HD 5	75	7-9-8-8 (17)			1.2			1-in. sch. 40. PVC slotted
15	ML		SANDY SILT, (ML) 0% gravel, 49% sand, 51% fines, gray, moist, stiff	HD 6	75	6-8-4-5 (12)			2.6	LMA		

Bottom of borehole at 17.0 feet.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

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Anchorage, AK 99503
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BOREHOLE BH-11

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 11/5/18 **COMPLETED** 11/5/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING 2.50 ft
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING 5.00 ft

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40	WELL DIAGRAM
0	AC		ASPHALT CONCRETE, (AC) black	G 1	100				0.3	MA		
	SP-SM		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) 36% gravel, 53% sand, 11% fines, brown, moist to wet, Fill, MOA Frost Class = F2 (7.7% finer than 0.02mm)	HD 2	83	8-14-10-13 (24)			0.5			Piezometer
5	GP		POORLY GRADED GRAVEL WITH SAND, (GP) gray, wet	HD 3	83	7-4-3-5 (7)			0.3			1-in. sch. 40. PVC
			SILTY SAND, (SM) brownish gray, wet	HD 4	67	0-2-2-4 (4)			0.2			
10	SM		2% gravel, 85% sand, 13% fines	HD 5	67	4-4-3-4 (7)			0	SA		1-in. sch. 40. PVC slotted
15			8% gravel, 60% sand, 32% fines	HD 6	67	12-16-17-19 (33)			0.1	LMA		
			Bottom of borehole at 17.0 feet.									

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

CRW Engineering Group, LLC
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Anchorage, AK 99503
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BOREHOLE BH-12

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 11/2/18 **COMPLETED** 11/2/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING ---
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES No samples retained due to contamination.
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40
0	AC		ASPHALT CONCRETE, (AC) black								PL MC LL 10 20 30 40
	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, moist, Fill	G 1	100				110		
	GM		SILTY GRAVEL, (GM) gray, moist	HD 2A							
	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) blackish gray, moist	HD 2B	75	5-7-7-5 (14)			12		▲
5											

Bottom of borehole at 5.0 feet.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

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BOREHOLE BH-13

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING ---
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES No samples retained due to contamination.
AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40
0	AC		ASPHALT CONCRETE, (AC) black	G 1					210		PL MC LL 10 20 30 40
	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) brown, moist, Fill								

Bottom of borehole at 2.5 feet.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

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3940 Arctic Blvd Ste 300
Anchorage, AK 99503
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BOREHOLE BH-14

CLIENT Municipality of Anchorage
PROJECT NAME 48th Avenue and Cordova Street
PROJECT NUMBER 10143.00
PROJECT LOCATION Anchorage, AK
DATE STARTED 10/30/18 **COMPLETED** 10/30/18
GROUND ELEVATION
DRILLING CONTRACTOR Discovery Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger
AT TIME OF DRILLING 2.50 ft
LOGGED BY DMB **CHECKED BY** SMH
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

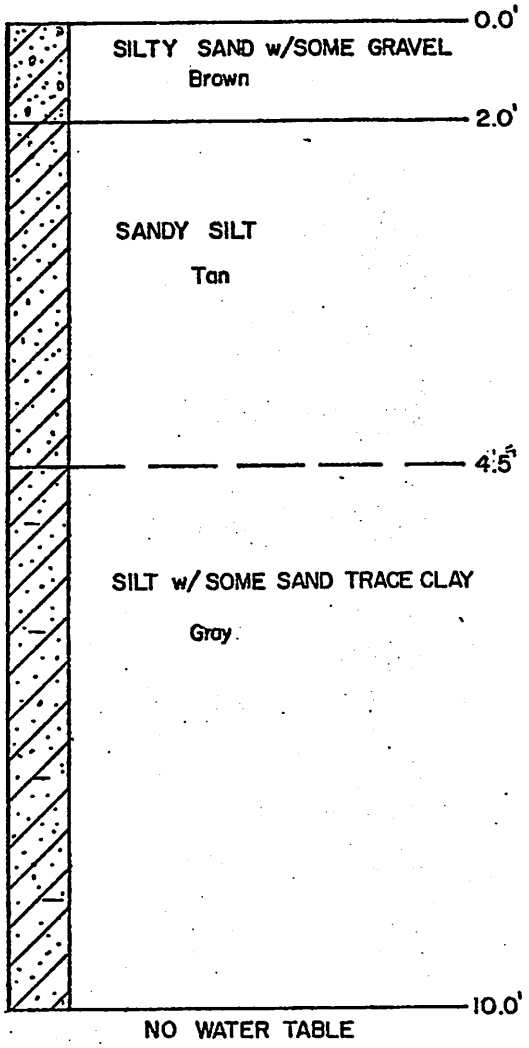
DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID (ppm)	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
0	AC		ASPHALT CONCRETE, (AC) black								
	GW-GM		WELL GRADED GRAVEL WITH SILT AND SAND, (GW-GM) 48% gravel, 42% sand, 10% fines, brown, moist, Fill, MOA Frost Class = F1 (5.0% finer than 0.02mm)	G 1	100				0.3	MA	○
	SM		SILTY SAND, (SM) brown, wet	HD 2	50	13-5-5-4 (10)			1		▲ ○
5	CL		LEAN CLAY, (CL) brown, wet, stiff to very stiff	HD 3	50	3-3-6-4 (9)	2.1		7.7	AL	▲ ○
	CL		SANDY LEAN CLAY, (CL) gray, wet, stiff	HD 4	50	2-2-4-4 (6)	1.5		0.6		▲ ○
10	SP		POORLY GRADED SAND, (SP) gray, wet	HD 5	50	4-6-8-9 (14)			3.5		▲ ○
15	CL		GRAVELLY LEAN CLAY, (CL) 40% gravel, 9% sand, 51% fines, blueish gray, wet, stiff to very stiff	HD 6	75	3-5-7-7 (12)	3.1		1.3	LMA	▲ ○

Bottom of borehole at 17.0 feet.

CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 12/12/19 14:07 - 10143.00 48TH AND CORDOVA.GPJ

1831A001

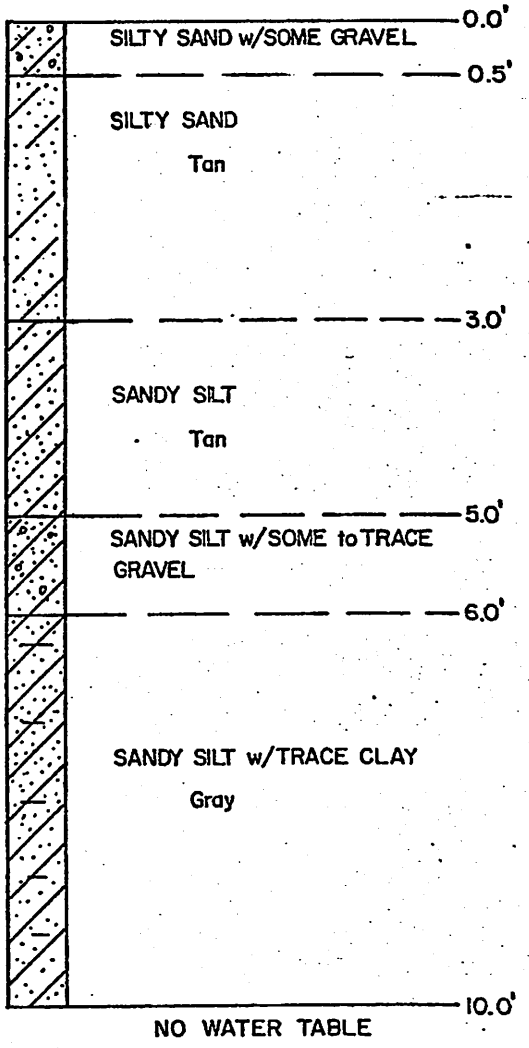
T.H.– 1
9/18/74



NO WATER TABLE

(1)

T.H.–2
9/18/74



NO WATER TABLE

(2)

LOG OF TEST HOLES
GAAB. R.I.D. 50
ANCHORAGE, ALASKA

R&M Engineering & Geological Consultants Inc.
ANCHORAGE FAIRBANKS ALASKA JUNEAU

DATE 9-19-74	SCALE 1" = 2'	DWN BY M.A.M.	CHKD BY W.D.	PROJ. NO. 451061	DWG NO. B – 03

1831A001

R & M CONSULTANTS, INC.

ANCHORAGE
FAIRBANKS
JUNEAU

249 EAST 51ST AVENUE • P. O. BOX 6087 • ANCHORAGE, ALASKA 99503 • TELEPHONE 907-279-0483 • TELEX 090-35419

September 19, 1974

R & M No. 451061

1-2

Greater Anchorage Area Borough
Department of Roads and Drainage
3500 Tudor Road
Anchorage, Alaska 99507

Attention: Mr. Charles Rainier

Re: RID 50 Subsurface Soil Investigation

Gentlemen:

The subsurface investigation for the Road Improvement District (RID) No. 50 has been completed. RID 50 is located on East 48th Avenue between Eagle Street and Cordova Street, Anchorage Alaska. Field exploration was inititated following receipt of Purchase Order No. 22742 providing notification to proceed in accordance with R & M's proposal submitted September 13, 1974. On site field exploration was conducted on September 18, 1974 in accordance with our September 13, 1974 proposal.

A total of two test holes were drilled to a depth of 10 feet below existing ground surface. The results obtained from these borings along with a location diagram are included with this letter. Vertical and horizontal control of the test holes are to be established by the Greater Anchorage Area Borough.

As disclosed by the two test holes, subsurface soil conditions consist generally of silt with varying amounts of sand with traces of gravel and clay, overlain by fill material comprised of silty sand with some gravel ranging in thickness from 4 inches to 2 feet.

Groundwater was not encountered in either test hole.

We appreciate being given this opportunity to perform this subsurface investigation. If you have any questions regarding this project, please do not hesitate to contact us.

Respectfully submitted,

R & M CONSULTANTS, INC.

P. L. Jackson

Paul L. Jackson
Senior Geologist

STATE OF ALASKA
49TH
James W. Rooney
NO. 1316-E
REGISTERED PROFESSIONAL ENGINEER

James W. Rooney
Vice President

PLJ/TWP/mt

1831A001

Lab No. 561025
PROJECT NO. 551030
PROJECT NAME GAAB-Heather Meadows

R & M CONSULTANTS, INC.

SUMMARY OF LABORATORY TEST DATA

DATE 6-27-75
PARTY NO. _____ PAGE NO. 1

LAB NO.	BORING NO.	SAMPLE NO.	DEPTH	1 1/2"	1"	3/4"	1/2"	3/8"	4	10	40	200	.02	.005	.002	FINE SPG	L.L.	P.I.	WET DENSITY	DRY DENSITY	MOISTURE CONTENT	CLASS
701	1	1	0.2 - 0.5			100	90	81	61	44	17	7										GW-GM
702	1	2	0.5 - 2.0																			
703	1	2B	2.0 - 2.5				100	96	94	89	75	51									28.1	GM
704	1	3	2.5 - 4.5				100	98	96	95	92	82				2.69	26	5	122.7	100.1	22.7	CL-ML
705	1	4	4.5 - 5.5					100	99	98	94	80									27.6	
706	1	5	7.0 - 9.0					100	99	97	92	79	59.0	29.6	13.4		26	8	137.9	120.1	14.8	CL
707	2	1	0.2 - 0.5	100	96	89	89	79	68	58	32	8									7.0	GW-GM
708	2	2	2.0 - 4.0					100	99	97	88	77					26	7			20.0	CL-ML
709	2	3	4.0 - 5.5			100	98	97	96	95	91	77	55.0	29.3	14.0		26	7	132.9	114.6	16.0	CL-ML
710	3	1	0.2 - 0.5	82	82	75	66	58	44	32	15	4										GW
711	3	2	2.0 - 4.0		100	96	96	96	96	96	94	85	67.0	38.1	12.2		27	7	131.7	115.5	14.0	CL-ML
712	3	3	4.0 - 6.0						100	99	98	89	56.0	26.7	11.1	2.68	27	7	131.0	108.4	20.9	CL-ML
713	4	1	2.5 - 4.0					100	99	99	97	90		12.6	2.8	2.68	28	5	120.8	98.0	23.3	CL
714	4	2	4.5 - 6.0				100	99	99	98	95	87	73.3	19.9	8.3		28	3	110.7	80.2	38.2	ML
715	5	1	0.2 - 0.5	83	76	70	62	59	50	40	17	3									4.3	GW
716	5	2	3.5 - 5.0				100	98	97	95	88	66	48.0	15.8	7.8	2.64	24	6	122.3	97.5	25.5	CL-ML
717	5	3	5.0 - 6.5			100	98	97	92	91	67	57	42.0	15.1	4.9		22	5	127.3	107.6	18.3	CL-ML
718	5	4	6.5 - 8.0							100	99	74	47.6	22.0	9.3		21	4			23.9	CL-ML
719	6	1	1.5 - 3.0			100	99	98	97	95	89	76	49.1	24.7	13.0	2.67	23	5	132.2	115.2	14.9	CL-ML
720	6	2	3.0 - 4.5			100	99	99	96	95	92	85	57.0	27.3	13.0		25	7	132.9	112.9	17.7	CL-ML

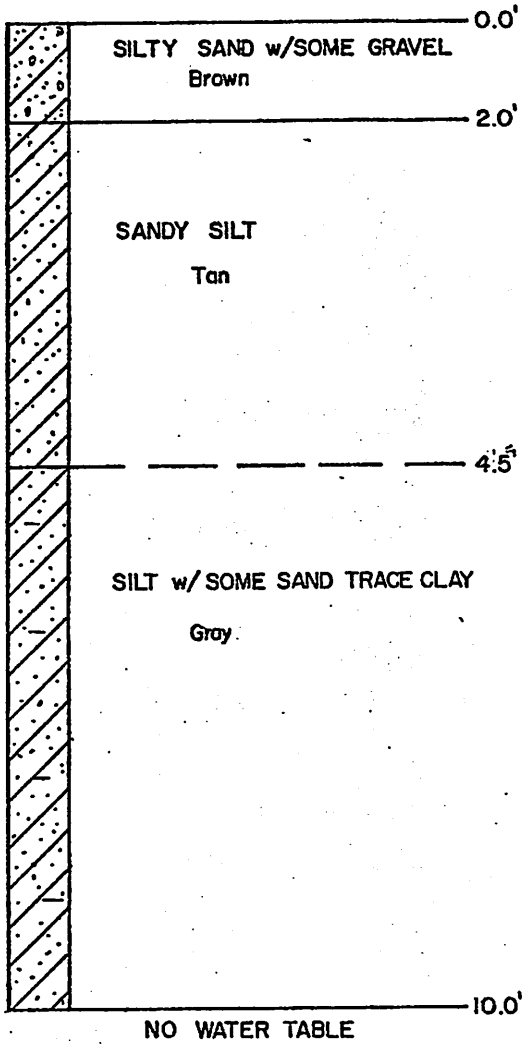
REMARKS: 75A-715 - 2" = 100% passing

NOTE: SIEVE ANALYSIS = PERCENT PASSING

James W. Toomey
APPROVED

1831A002

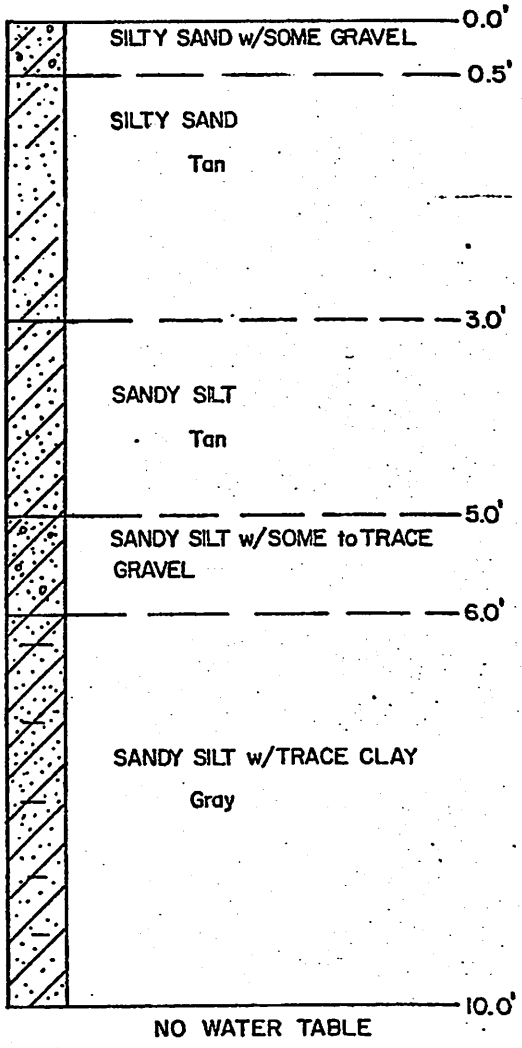
T.H.– 1
9/18/74



NO WATER TABLE

(1)

T.H.–2
9/18/74



NO WATER TABLE

(2)

R&M Engineering & Geological Consultants Inc.
ANCHORAGE FAIRBANKS ALASKA JUNEAU

LOG OF TEST HOLES
GAAB. R.I.D. 50
ANCHORAGE, ALASKA

DATE 9-19-74	SCALE 1" = 2'	DWN BY M.A.M.	CHKD BY W.D.	PROJ. NO. 451061	DWG NO. B – 03

1831A002

R & M CONSULTANTS, INC.

ANCHORAGE
FAIRBANKS
JUNEAU

249 EAST 51ST AVENUE • P. O. BOX 6087 • ANCHORAGE, ALASKA 99503 • TELEPHONE 907-279-0483 • TELEX 090-35419

September 19, 1974

R & M No. 451061

1-2

Greater Anchorage Area Borough
Department of Roads and Drainage
3500 Tudor Road
Anchorage, Alaska 99507

Attention: Mr. Charles Rainier

Re: RID 50 Subsurface Soil Investigation

Gentlemen:

The subsurface investigation for the Road Improvement District (RID) No. 50 has been completed. RID 50 is located on East 48th Avenue between Eagle Street and Cordova Street, Anchorage Alaska. Field exploration was inititated following receipt of Purchase Order No. 22742 providing notification to proceed in accordance with R & M's proposal submitted September 13, 1974. On site field exploration was conducted on September 18, 1974 in accordance with our September 13, 1974 proposal.

A total of two test holes were drilled to a depth of 10 feet below existing ground surface. The results obtained from these borings along with a location diagram are included with this letter. Vertical and horizontal control of the test holes are to be established by the Greater Anchorage Area Borough.

As disclosed by the two test holes, subsurface soil conditions consist generally of silt with varying amounts of sand with traces of gravel and clay, overlain by fill material comprised of silty sand with some gravel ranging in thickness from 4 inches to 2 feet.

Groundwater was not encountered in either test hole.

We appreciate being given this opportunity to perform this subsurface investigation. If you have any questions regarding this project, please do not hesitate to contact us.

Respectfully submitted,

R & M CONSULTANTS, INC.

P. L. Jackson

Paul L. Jackson
Senior Geologist

STATE OF ALASKA
49TH
James W. Rooney
NO. 1316-E
REGISTERED PROFESSIONAL ENGINEER

James W. Rooney
Vice President

PLJ/TWP/mt

1831A002

Lab No. 561025
PROJECT NO. 551030
PROJECT NAME GAAB-Heather Meadows

R & M CONSULTANTS, INC.

SUMMARY OF LABORATORY TEST DATA

DATE 6-27-75
PARTY NO. _____ PAGE NO. 1

LAB NO.	BORING NO.	SAMPLE NO.	DEPTH	1 1/2"	1"	3/4"	1/2"	3/8"	4	10	40	200	.02	.005	.002	FINE SPG	L.L.	P.I.	WET DENSITY	DRY DENSITY	MOISTURE CONTENT	CLASS
701	1	1	0.2 - 0.5			100	90	81	61	44	17	7										GW-GM
702	1	2	0.5 - 2.0																			
703	1	2B	2.0 - 2.5				100	96	94	89	75	51									28.1	GM
704	1	3	2.5 - 4.5				100	98	96	95	92	82				2.69	26	5	122.7	100.1	22.7	CL-ML
705	1	4	4.5 - 5.5					100	99	98	94	80									27.6	
706	1	5	7.0 - 9.0					100	99	97	92	79	59.0	29.6	13.4		26	8	137.9	120.1	14.8	CL
707	2	1	0.2 - 0.5	100	96	89	89	79	68	58	32	8									7.0	GW-GM
708	2	2	2.0 - 4.0					100	99	97	88	77					26	7			20.0	CL-ML
709	2	3	4.0 - 5.5			100	98	97	96	95	91	77	55.0	29.3	14.0		26	7	132.9	114.6	16.0	CL-ML
710	3	1	0.2 - 0.5	82	82	75	66	58	44	32	15	4										GW
711	3	2	2.0 - 4.0		100	96	96	96	96	96	94	85	67.0	38.1	12.2		27	7	131.7	115.5	14.0	CL-ML
712	3	3	4.0 - 6.0						100	99	98	89	56.0	26.7	11.1	2.68	27	7	131.0	108.4	20.9	CL-ML
713	4	1	2.5 - 4.0					100	99	99	97	90		12.6	2.8	2.68	28	5	120.8	98.0	23.3	CL
714	4	2	4.5 - 6.0				100	99	99	98	95	87	73.3	19.9	8.3		28	3	110.7	80.2	38.2	ML
715	5	1	0.2 - 0.5	83	76	70	62	59	50	40	17	3									4.3	GW
716	5	2	3.5 - 5.0				100	98	97	95	88	66	48.0	15.8	7.8	2.64	24	6	122.3	97.5	25.5	CL-ML
717	5	3	5.0 - 6.5			100	98	97	92	91	67	57	42.0	15.1	4.9		22	5	127.3	107.6	18.3	CL-ML
718	5	4	6.5 - 8.0							100	99	74	47.6	22.0	9.3		21	4			23.9	CL-ML
719	6	1	1.5 - 3.0			100	99	98	97	95	89	76	49.1	24.7	13.0	2.67	23	5	132.2	115.2	14.9	CL-ML
720	6	2	3.0 - 4.5			100	99	99	96	95	92	85	57.0	27.3	13.0		25	7	132.9	112.9	17.7	CL-ML

REMARKS: 75A-715 - 2" = 100% passing

NOTE: SIEVE ANALYSIS = PERCENT PASSING

James W. Toomey
APPROVED

1831B032

MUNICIPALITY OF ANCHORAGE

DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION DIVISION

SOILS LOG

HOLE NO. 1 (32)

LOCATION 48TH AVE RID / 100' W. ℄ OF THE (OLD) SEWARD HWY ℄ OF 48TH AVE

DATE 1/14/81

BY M.E. KRUEGER

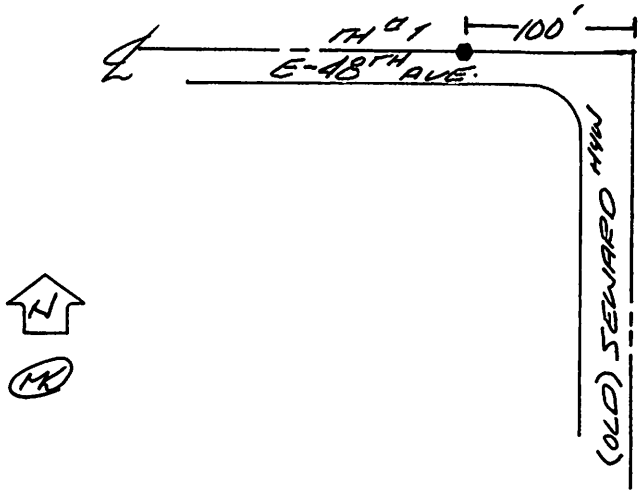
COMMENTS

DEPTH 10 0'

WATER TABLE NONE

	DEPTH	UNIFIED CLASS	FROST GROUP	DESCRIPTION
	0			EXIST. GROUND / ROAD SURFACE
EX-1 1-A	1	GW-GM	NFS	BRN. SOY (41%) GRAVEL W (54%) / SILT (5%) / MOIST. = 3% / NP / MED. DENSE
	2			
EX-2 1-B	3	SM	F-2	GR. SILTY (17%) - GULY (28%) - SAND (55%) / MOIST. = 6% / NP DENSE
EX-3 1-C	4	SM	F-4	GR. SILTY (34%) - (VERY-FINE) - SAND (65%) / MOIST. = 15% GRAVEL = 1% / DENSE
VISUAL	5	PT	N/A	BRN. ORG. (PEAT)
	6			
EX-4 1-D	7	SM	F-4	OLIVE SILTY (37%) - (VERY-FINE) SAND (60%) / GRAVEL = 3% NP / DENSE / MOIST. = 3%
	8			
	9			
	10			
	11			
	12			
	13			
	14			

LOCATION SKETCH:



LEGEND

SYMBOL

- TEST HOLE
- WATER TABLE
- FROZEN MATERIAL (2, 3, 4, 5)

ALL FROST CLASSIFICATION BASED ON THE .02mm = 50% OF THE -#200 UNLESS OTHERWISE NOTED

GRID NO. 1831

82-032 (2/81)

1831B032

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-1

PROJECT E-48th Ave RID — Test Holes — DATE Jan. 14, 1981

CONTRACTOR

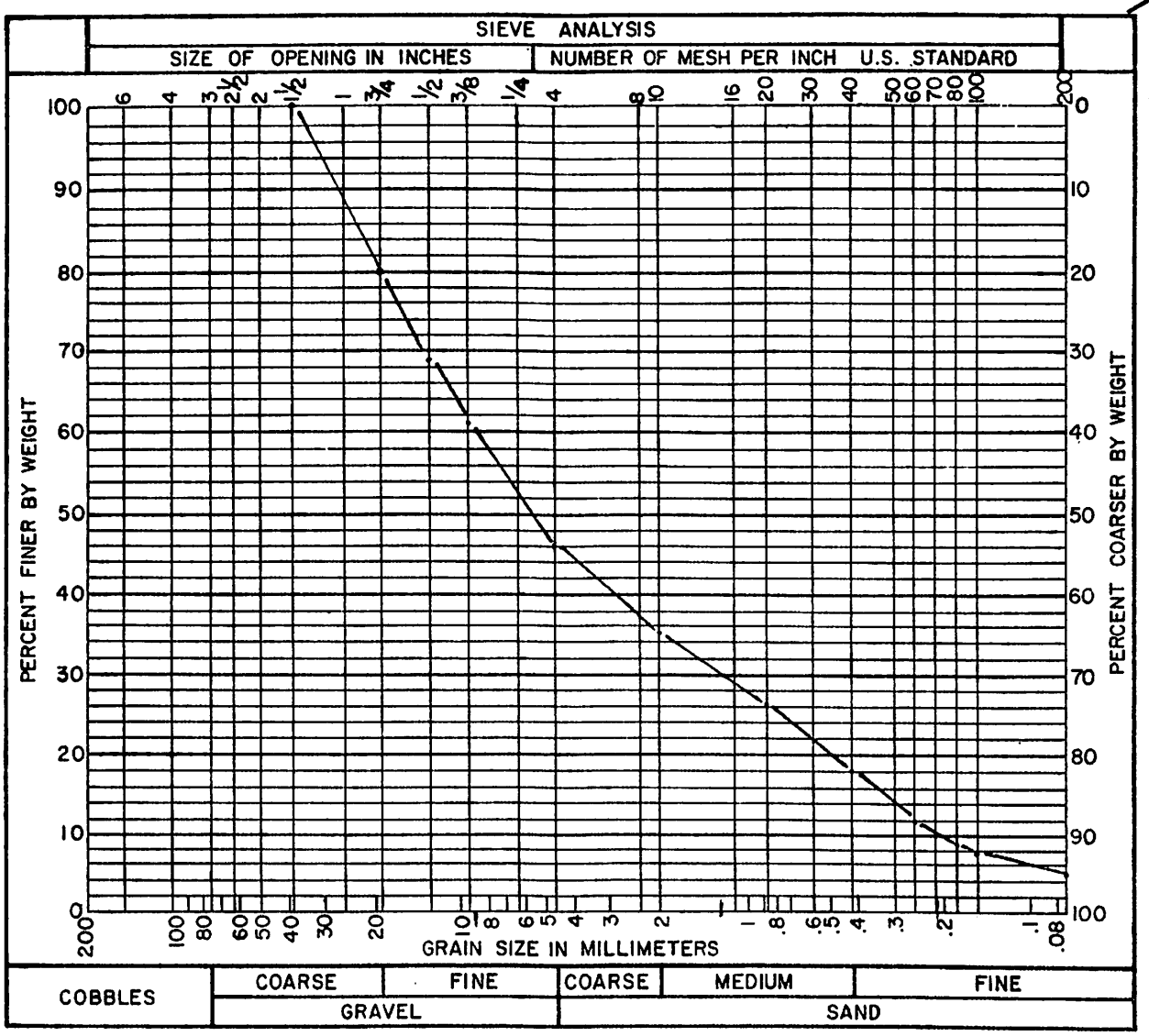
MATERIAL SOURCE 1-A/O to 2° below O.G.

LOCATION SAMPLED 100'±E Old Seward Hwy/E-48th Ave — BY M. Krueger

COMMENTS GW-GM/NFS/Sandy Gravel w/Silt/3% Moisture

REPORTED TO

PLOTTED BY [illegible] CHECKED BY BD MATERIALS SUPERVISOR [illegible]



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B032

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-2

PROJECT E-48th Ave RID Test Holes DATE Jan 14, 1981

CONTRACTOR

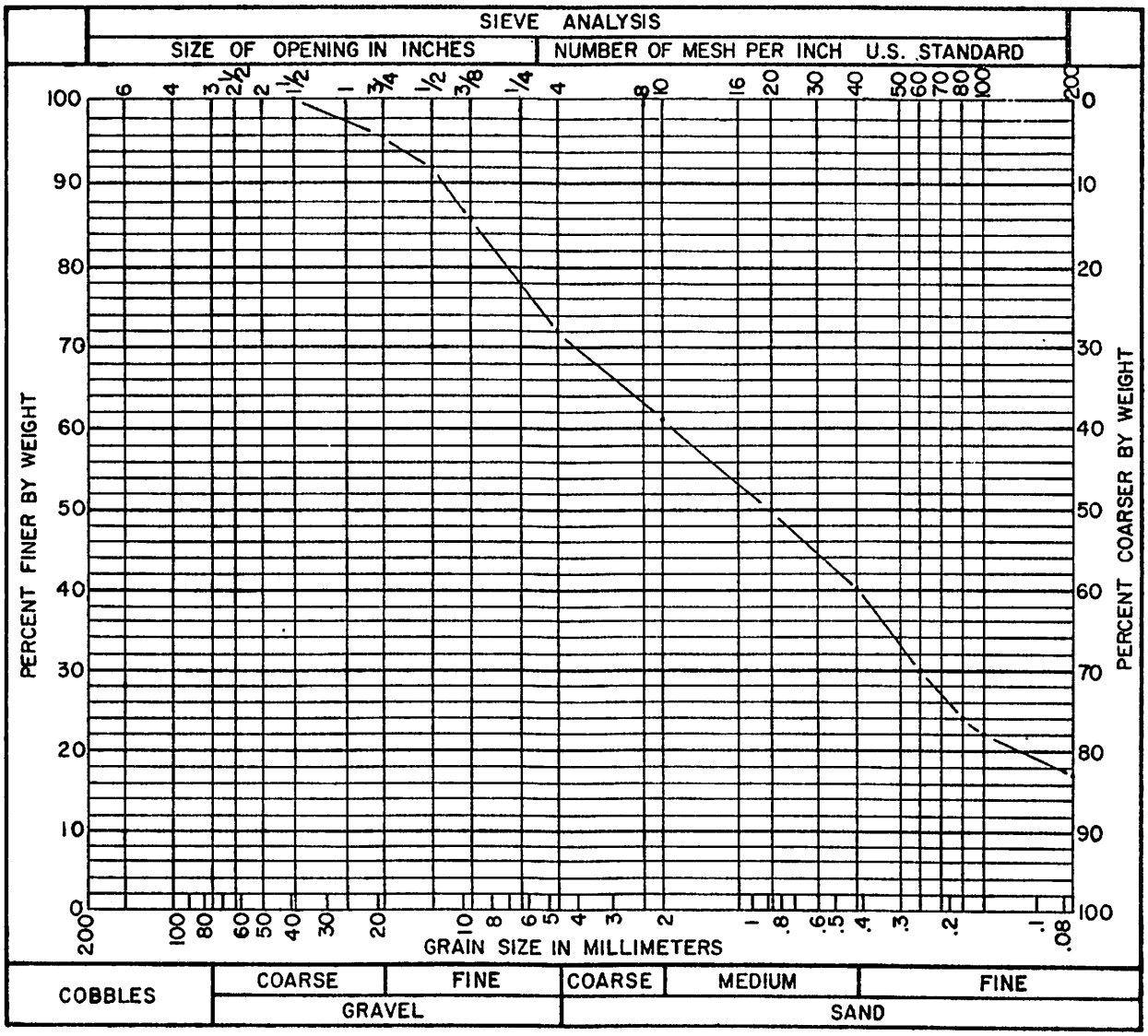
MATERIAL SOURCE 1-B/20' to 35' below O.G.

LOCATION SAMPLED 100' W/E Old Seward Hwy/E-48th Ave BY M. Krueger

COMMENTS SM/E-2/Silty 17% Gravely 28% Sand 55% /6% Moisture

REPORTED TO

PLOTTED BY BD CHECKED BY MATERIALS SUPERVISOR



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B032

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-3

PROJECT E-48th Ave RID Test Holes DATE Jan 14, 1981

CONTRACTOR

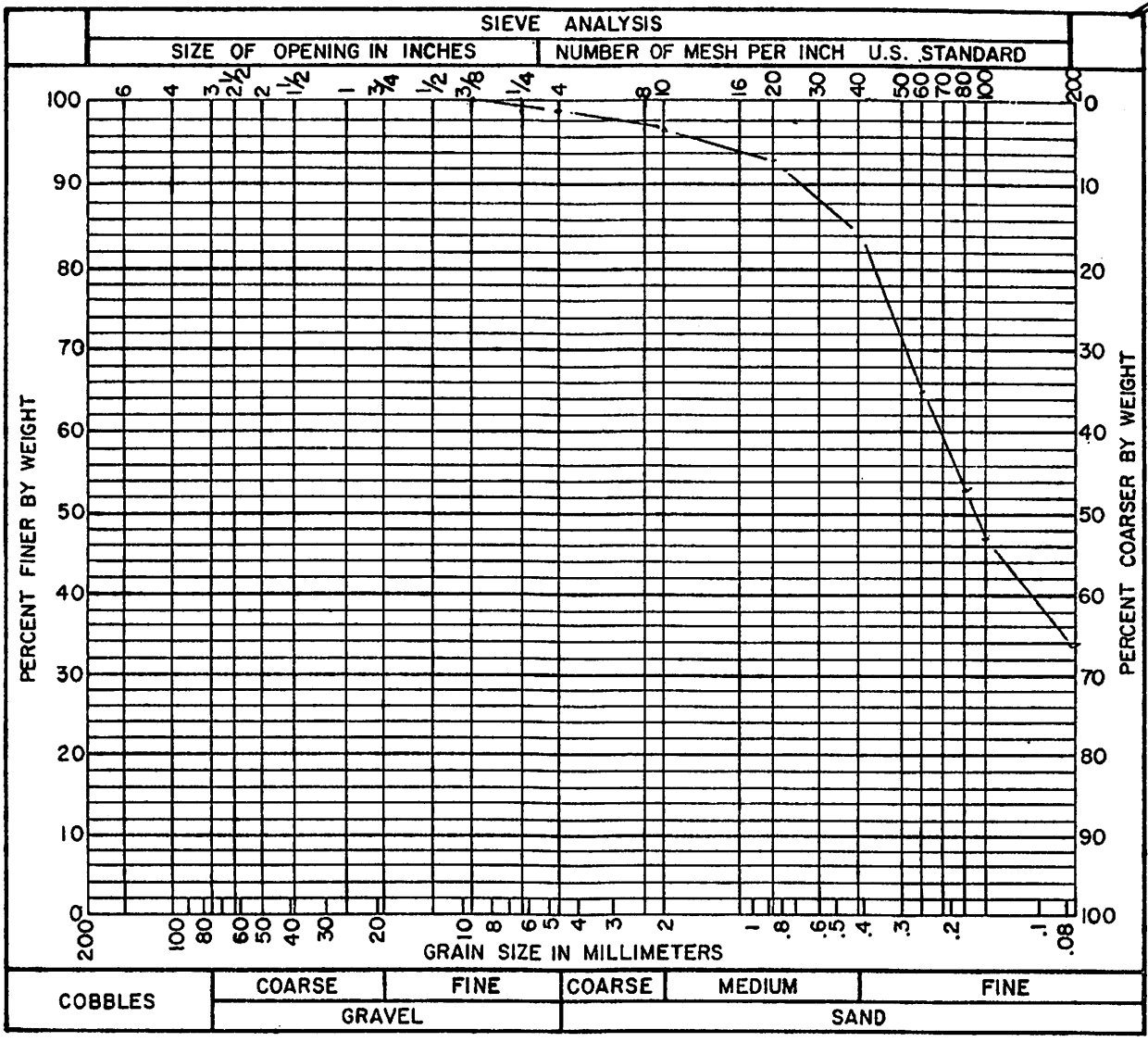
MATERIAL SOURCE 1-C/3.5' to 4.5' below O.G.

LOCATION SAMPLED 100' West of Old Seward Hwy / E-48th Ave BY M. Krueger

COMMENTS SM/E-4/Very fine Silty Sand/1.5% Moisture/1% Gravel (34% / 65%)

REPORTED TO

PLOTTED BY CHECKED BY BD MATERIALS SUPERVISOR T.O.P.



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B032

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-4

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

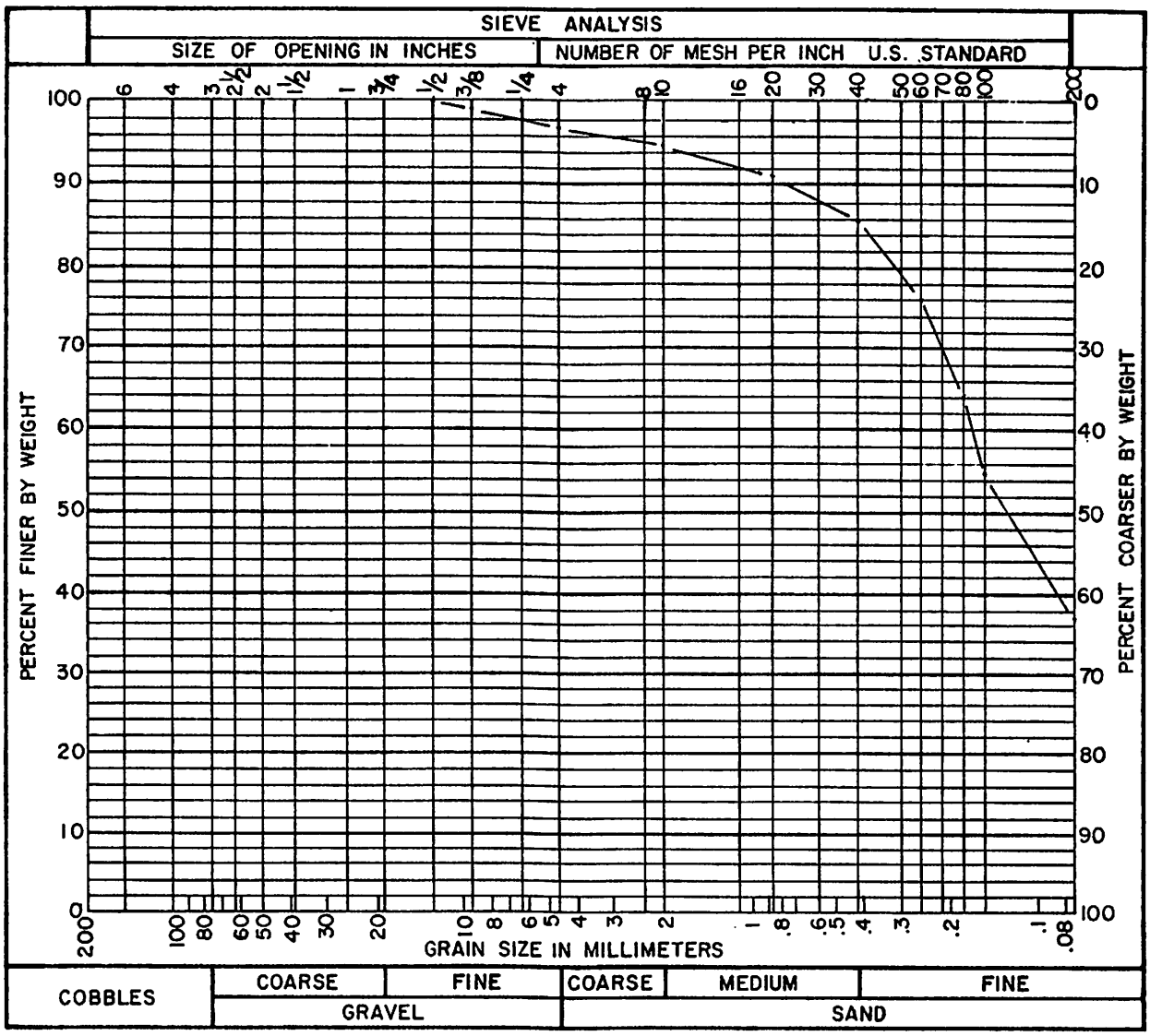
MATERIAL SOURCE 1-D/5.5' to 10.0' below O.G.

LOCATION SAMPLED 100' W ℄ Old Seward Hwy/℄ E-48th Ave. BY M. Krueger

COMMENTS SM/F-4/Very fine Silty Sand 37% 60%/17% Moisture/3% Gravel

REPORTED TO

PLOTTED BY BD CHECKED BY MATERIALS SUPERVISOR [signature]



INSPECTOR'S COMMENTS

82-009 (2/77)

MUNICIPALITY OF ANCHORAGE 1831B033

DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION DIVISION

SOILS LOG

HOLE NO. 2 (33)

LOCATION 48TH AVE R/D / 65' E. ℄ OF CAMPBELL ST ℄ OF 48TH AVE

DATE 1/14/81

BY M. E. KRUEGER

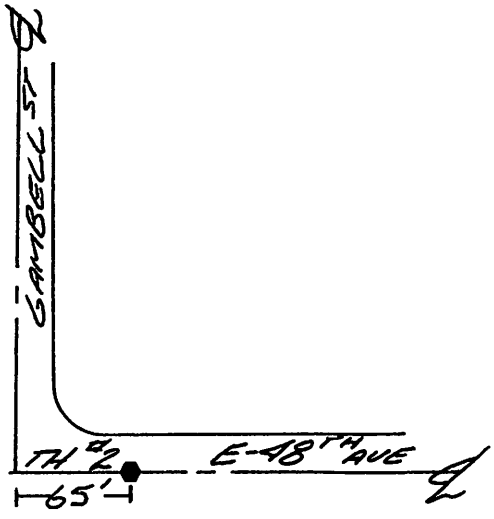
COMMENTS

DEPTH 10'

WATER TABLE NONE

	DEPTH	UNIFIED CLASS	FROST GROUP	DESCRIPTION
	0			EXIST. GROUND / ROAD SURFACE
EX-5 2-A	1	SW-SM	F-2	GR (37%) SAND (58%) w/ SILT (10%) / MOIST. = 4% / NP
EX-6 2-B	2	SM	F-3	DENSE GR (27%) - SAND (65%) / MOIST. = 20% / NP / GRAVEL = 1% MED. DENSE
VISUAL	3	PT	NA	BRN (ORG.) PEAT
	4			
EX-7 2-C	5	ML	F-4	OLIVE (39%) SAND (57%) - SILT / MOIST. = 22% / NP / DENSE (SEMI-ELASTIC)
	6			
EX-8 2-D	7	ML	F-4	OLIVE (39%) SAND (60%) - SILT / MOIST = 16% / GRAVEL = 1% DENSE (SEMI-ELASTIC)
	8			
EX-9 2-E	9	ML	F-4	GR. (42%) SAND (58%) / MOIST = 15% / NP / MED. DENSE
	10			
	11			
	12			
	13			
	14			

LOCATION SKETCH:



N

MK

LEGEND

SYMBOL

TEST HOLE

WATER TABLE

FROZEN MATERIAL

ALL FROST CLASSIFICATION BASED ON THE .02mm = 50% OF THE -#200 UNLESS OTHERWISE NOTED

GRID NO. 1831

82-032 (2/81)

1831B033

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-5

PROJECT E-48th Ave RID Test Holes DATE Jan 14, 1981

CONTRACTOR

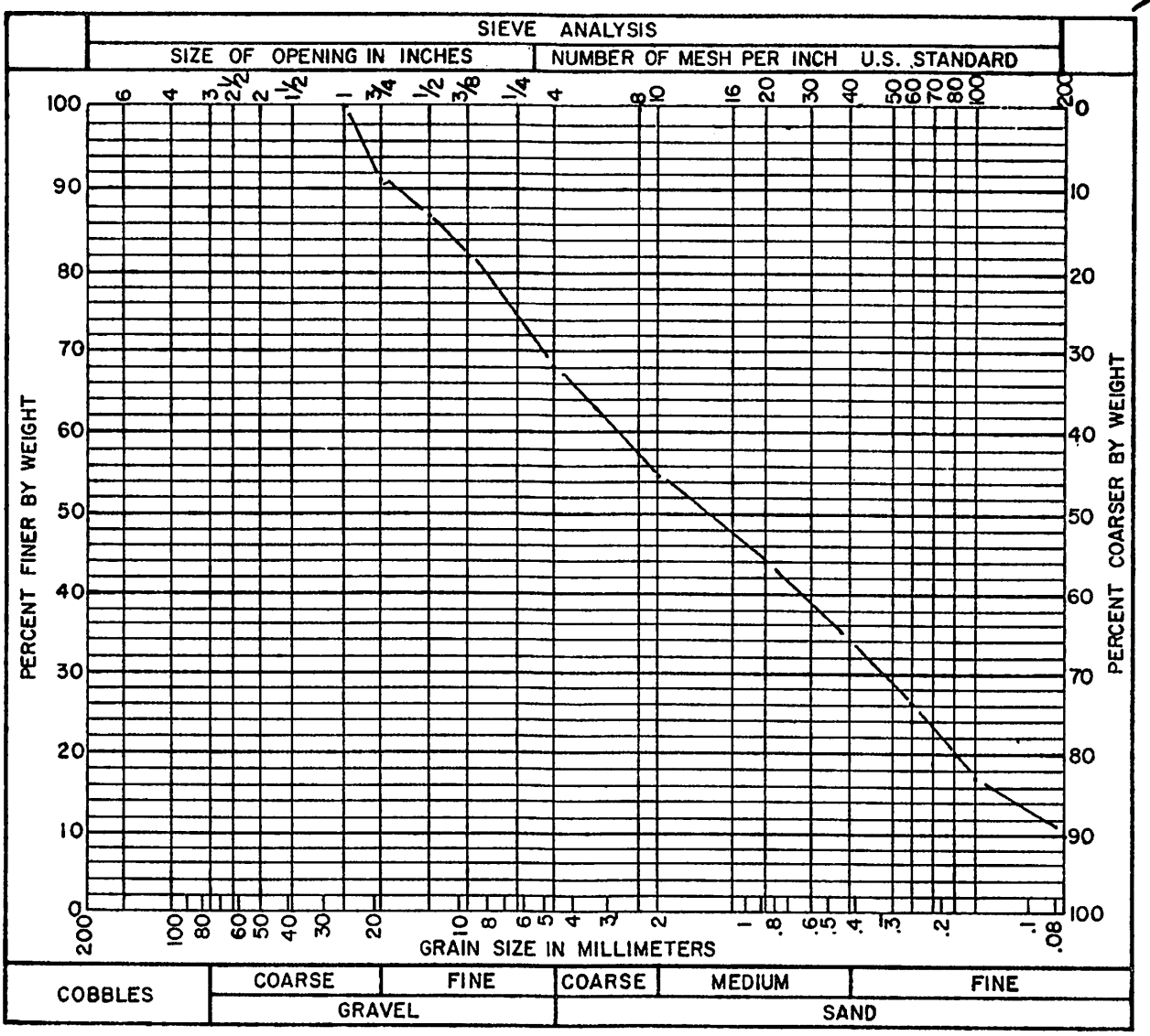
MATERIAL SOURCE 2-A / 0 to 15' below O.G.

LOCATION SAMPLED 65'E & Gambell St. / & 48th Ave BY M. Krueger

COMMENTS SW-SM / E-2 / Gravelly Sand w / Silt / 4% Moisture
32% 59% 10%

REPORTED TO

PLOTTED BY CHECKED BY BD MATERIALS SUPERVISOR



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B033

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-Co

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

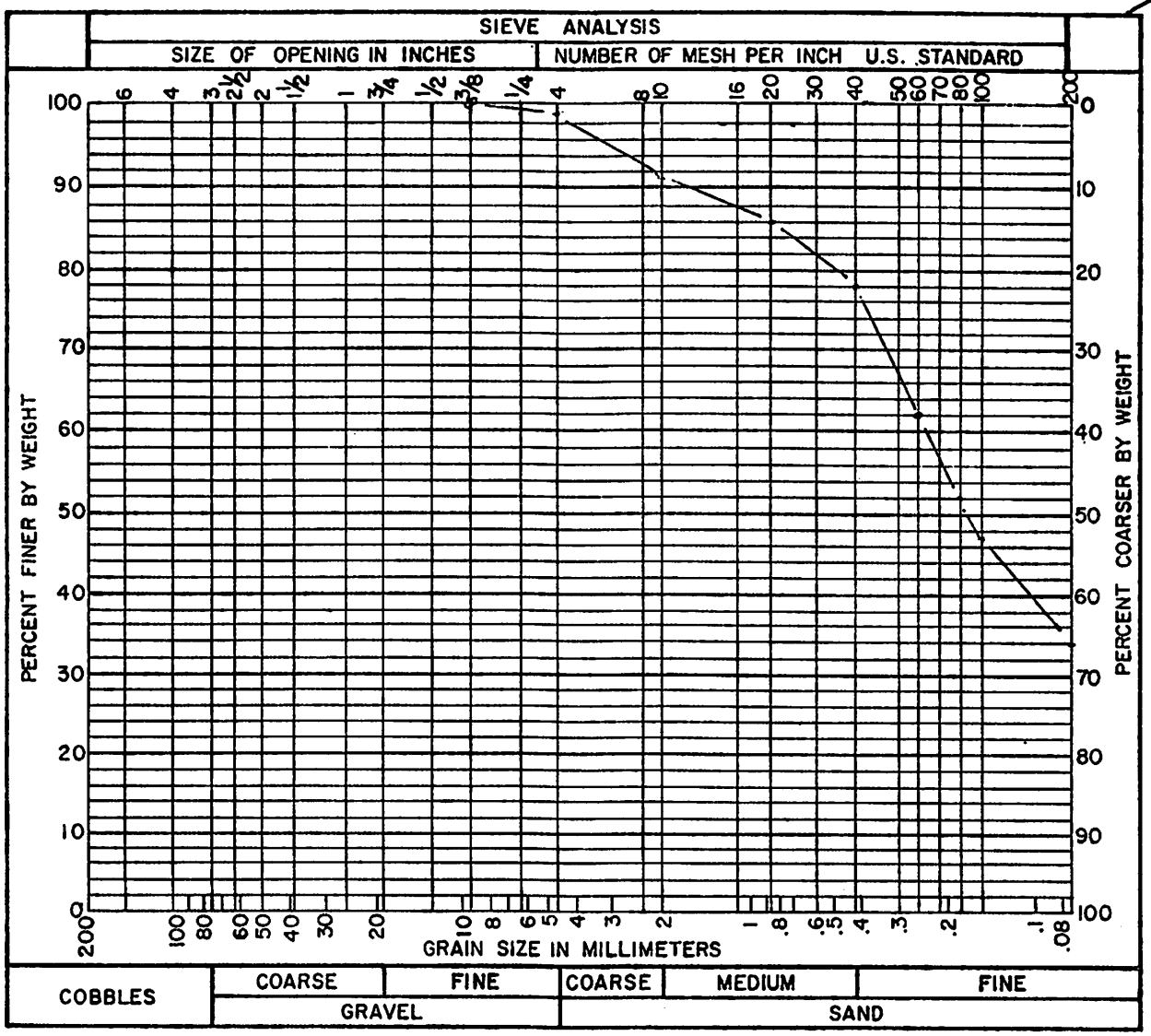
MATERIAL SOURCE 2-B/12' to 25' below O.G.

LOCATION SAMPLED 65' E & Gambell St/E 48th Ave BY M. Krueger

COMMENTS SM/E-3/Silty Sand 34% 65% /20% Moisture/1% Gravel

REPORTED TO

PLOTTED BY GG CHECKED BY BD MATERIALS SUPERVISOR T.D.R. Jr.



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B033

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-7

PROJECT E-48th Ave RID — Test Holes — DATE Jan. 14, 1981

CONTRACTOR

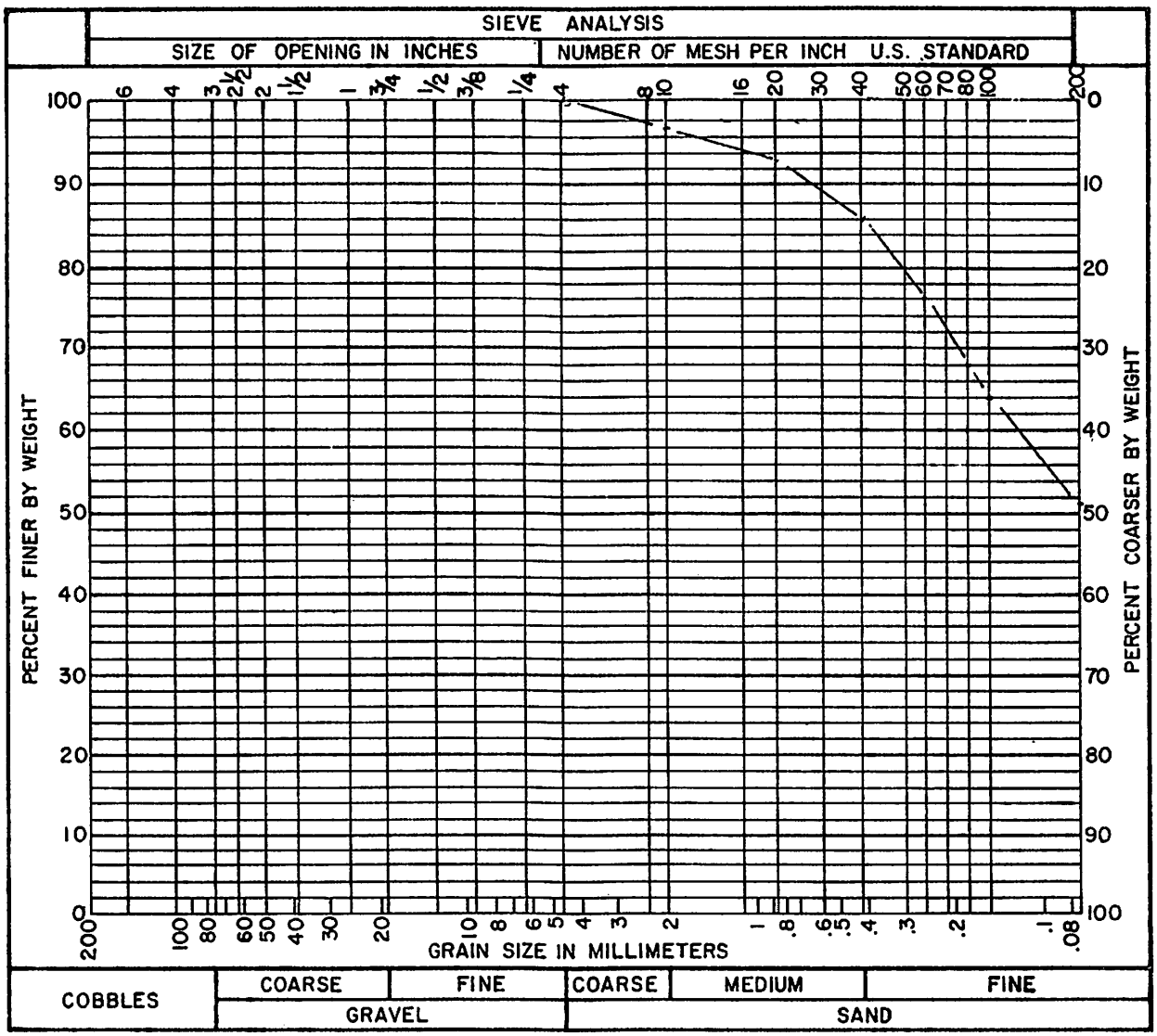
MATERIAL SOURCE 2-C/4½' to 6½' below O.G.

LOCATION SAMPLED 65' E & Gamball St./& E-48th Ave — BY M. Krueger

COMMENTS ML/F-4/Sandy 19% Silt 5% / 22% Moisture

REPORTED TO

PLOTTED BY ZZ — CHECKED BY BD — MATERIALS SUPERVISOR



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B033

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-8

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

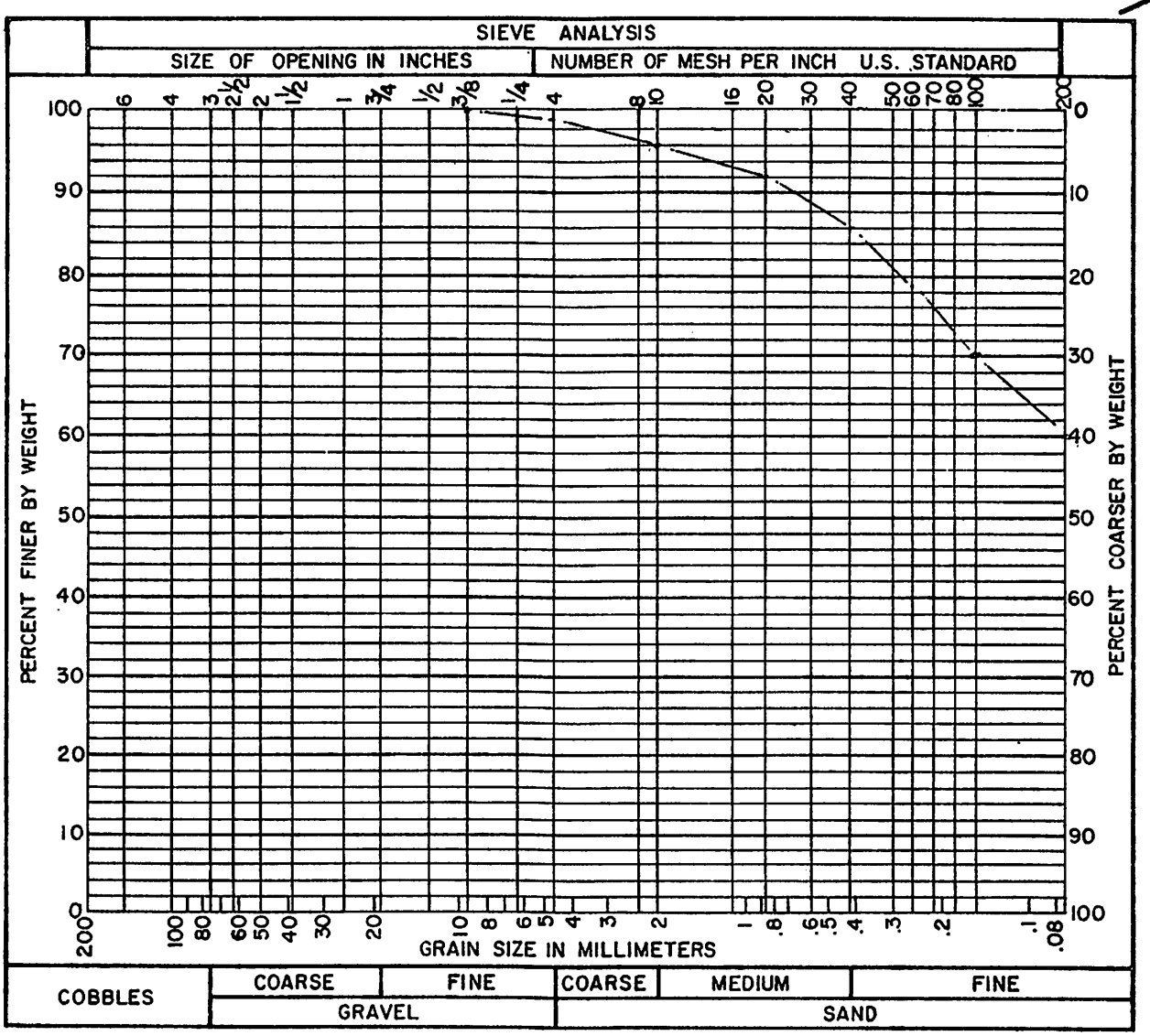
MATERIAL SOURCE 2-D/6.5' to 8.0' below O.G.

LOCATION SAMPLED 65' E ℄ Gambell St / ℄ E-48th Ave BY M. Krueger

COMMENTS ML/E-4/Sandy Silt (39% / 60%)/16% Moisture/1% Gravel

REPORTED TO

PLOTTED BY [signature] CHECKED BY BD MATERIALS SUPERVISOR [signature]



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B033

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-9

PROJECT E-48th Ave BID Test Holes DATE Jan 14, 1981

CONTRACTOR

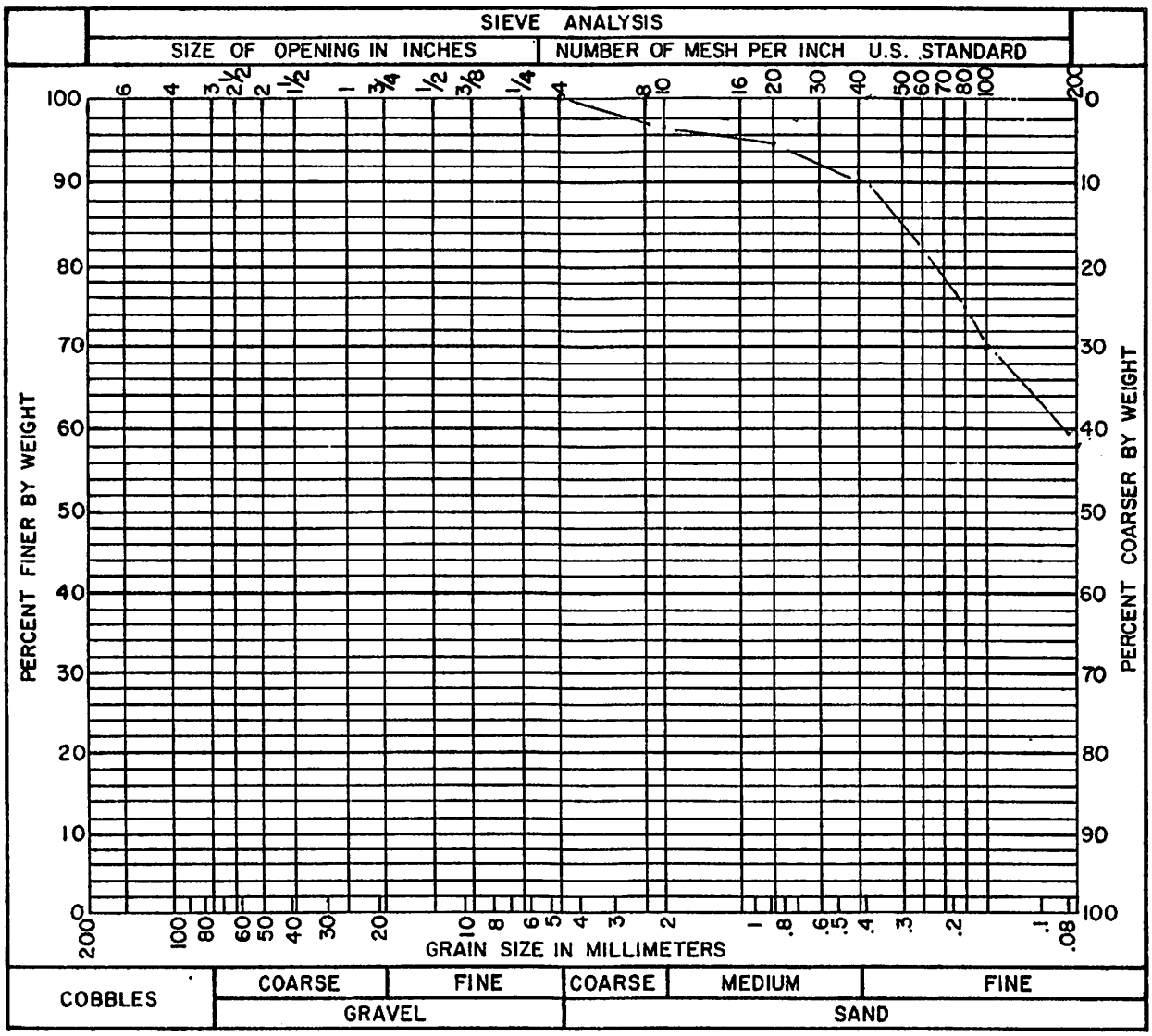
MATERIAL SOURCE 2-E/8.0' to 10.0' below O.G.

LOCATION SAMPLED 65'E & Gambell St/ & 48th Ave. BY M Krueger

COMMENTS ML/F-4/Sandy Silt 42% 58%/15% Moisture

REPORTED TO

PLOTTED BY [illegible] CHECKED BY BD MATERIALS SUPERVISOR [illegible]



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B034

MUNICIPALITY OF ANCHORAGE

DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION DIVISION

SOILS LOG

HOLE NO. 3 (34)

LOCATION 48TH AVE. RID / 170' E. ℄ OF FAIRBANKS ST ℄ OF 48TH AVE

DATE 1/14/81

BY M.E. KRUEGER

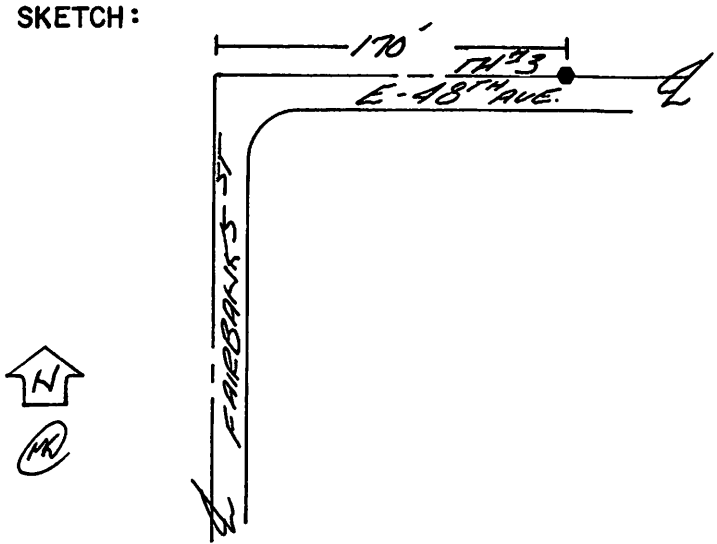
COMMENTS

DEPTH 10'

WATER TABLE NONE

	DEPTH	UNIFIED CLASS	FROST GROUP	DESCRIPTION
				EXIST. GROUND / ROAD SURFACE
EX-10 3-A	0	SM	F-2	BRN (21%) SLTY-(24%) GVLY-(55%) SAND / MOIST = 6% / NP DENSE
	1			
EX-11 3-B	2	ML	F-4	TAN (45%) SDY-(53%) SILT / MOIST. = 21% / GRAVEL = 2% NP / MED. DENSE
	3			
EX-12 3-C	4	SM	F-4	TAN (42%) SLTY-(VERY-FINE)-(57%) SAND / MOIST = 14% NP / GRAVEL = 1% / MED. DENSE
	5			
EX-13 3-D	6	ML	F-4	TAN (40%) SDY-(59%) SILT / MOIST. = 19% / NP / GRAVEL = 1% DENSE
EX-14 3-E	7	SM	F-2	BRN. (23%) SLTY-(77%) SAND w / INTERMITTEN SILT LENS / MOIST = 18% / NP / MED DENSE
	8			
	9			
	10			
	11			
	12			
	13			
	14			

LOCATION SKETCH:



LEGEND

SYMBOL

- TEST HOLE
- WATER TABLE
- 2 3 4 5 FROZEN MATERIAL

ALL FROST CLASSIFICATION BASED ON THE .02mm = 50% OF THE -#200 UNLESS OTHERWISE NOTED

GRID NO. 1831

82-032 (2/81)

1831B034

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-10

PROJECT E-48th Ave BID Test Holes DATE Jan 14, 1981

CONTRACTOR

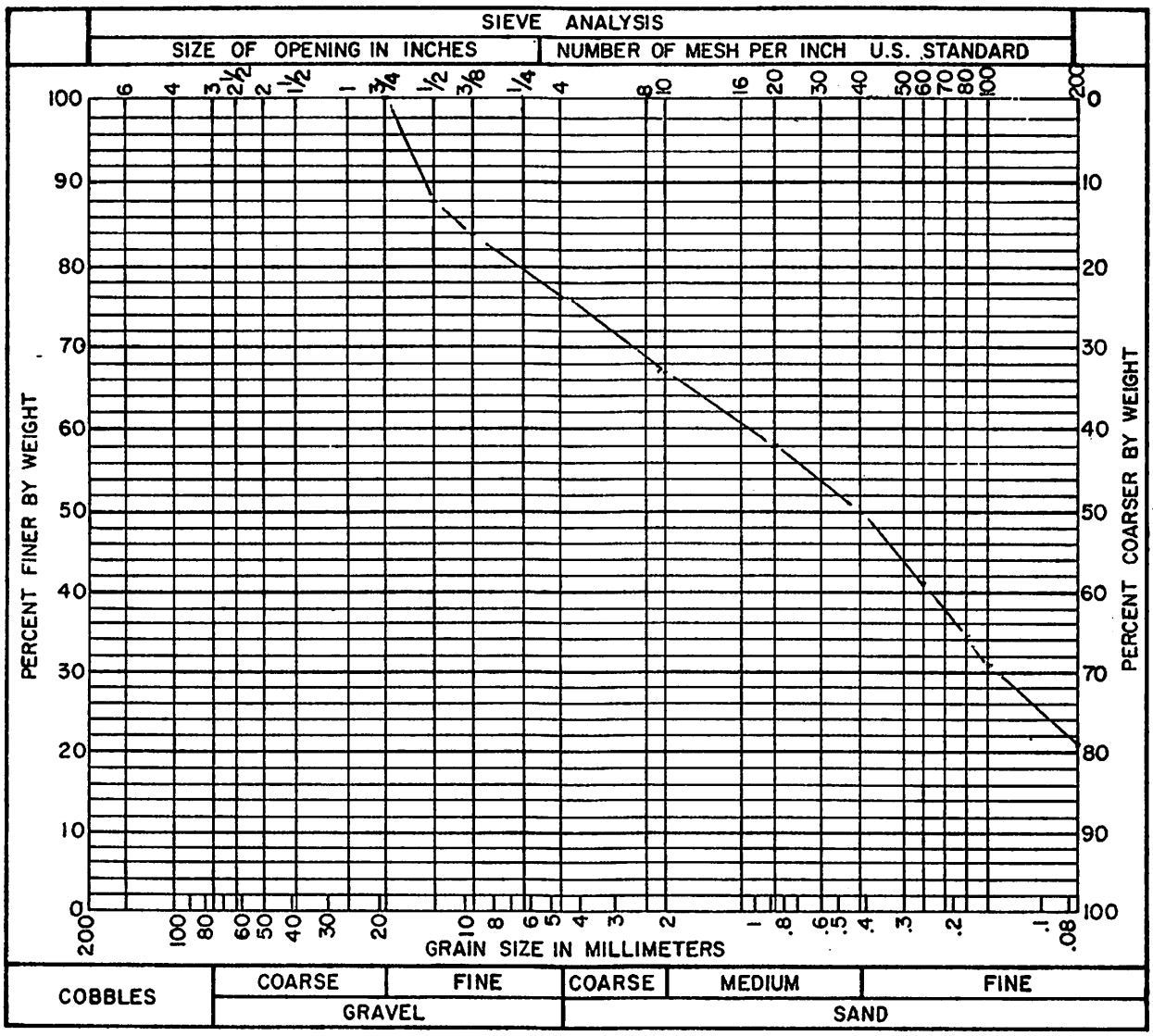
MATERIAL SOURCE 3-A/0 to 1.0' below O.G.

LOCATION SAMPLED 170' E & Fairbanks St / & E-48th Ave BY M. Krueger

COMMENTS SM/F-2/Silty 21% Gravely 24% Sand 55% / 6% Moisture

REPORTED TO

PLOTTED BY [signature] CHECKED BY BD MATERIALS SUPERVISOR [signature]



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B034

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-11

PROJECT E-48th Ave RID Test Holes DATE Jan. 13, 1981

CONTRACTOR

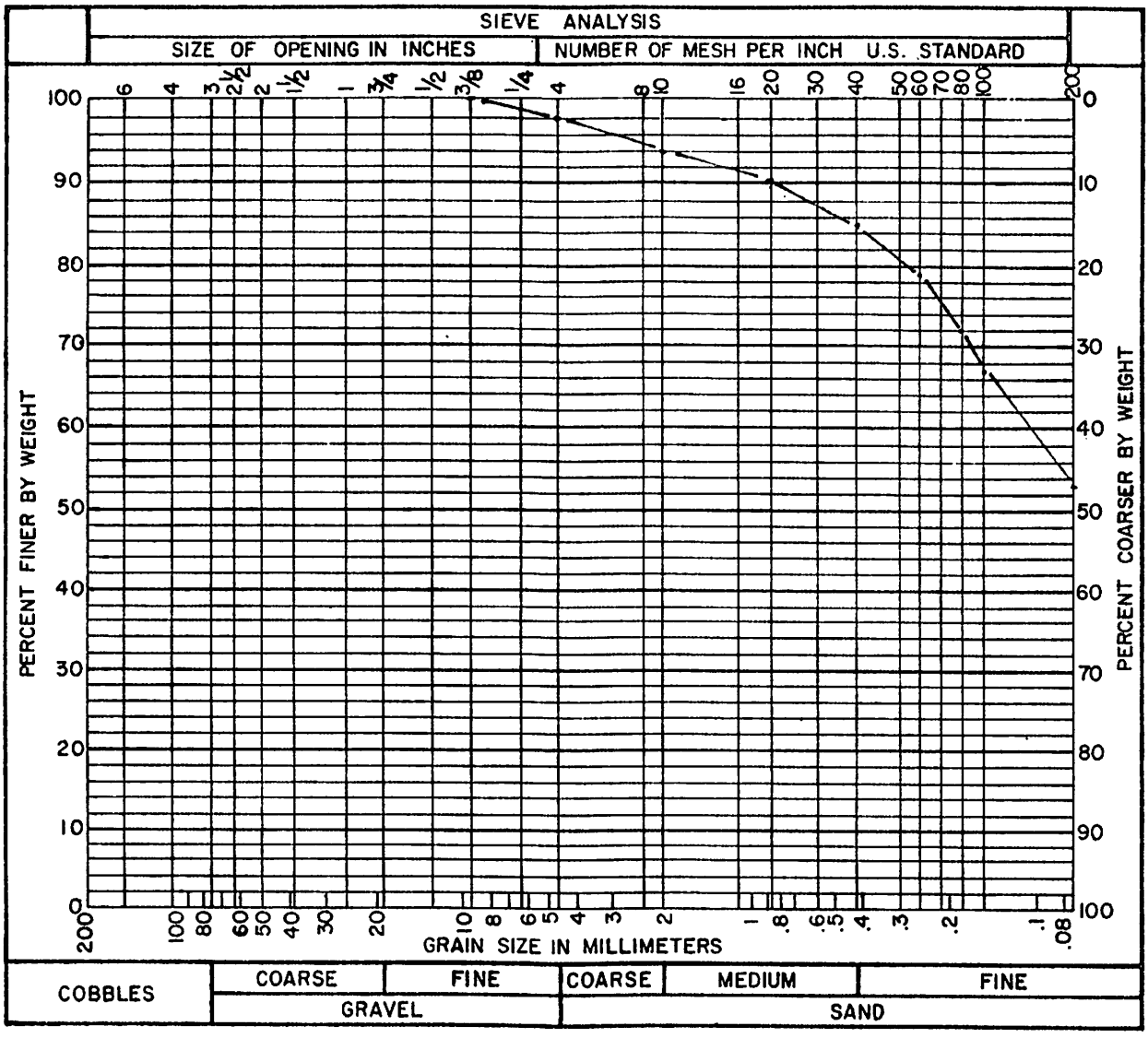
MATERIAL SOURCE 3-B/10' to 35' below O.G.

LOCATION SAMPLED 170' E. Fairbanks St. & 48th Ave BY M. Krueger

COMMENTS ML/E-4/Sandy Silt 53% 45%/21% Moisture/2% Gravel

REPORTED TO

PLOTTED BY CHECKED BY BD MATERIALS SUPERVISOR T.O. Penney



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B034

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-12

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

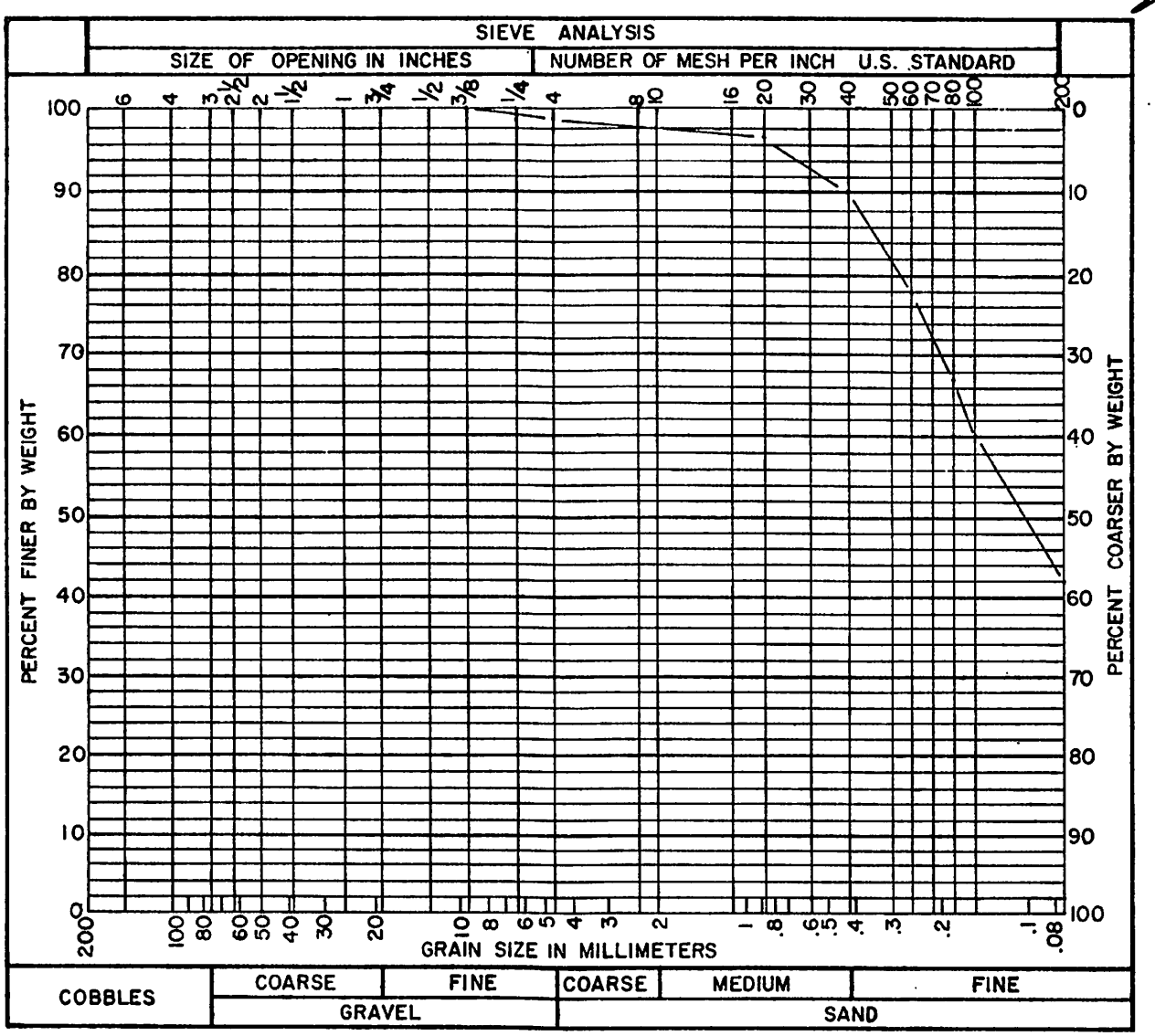
MATERIAL SOURCE 3-C/3½' to 5½' below O.G.

LOCATION SAMPLED 120' E/E Fairbanks St./E 48th Ave. BY M. Krueger

COMMENTS SM/E-4/Very fine Silty Sand 42% 57% /14% Moisture/1% Gravel

REPORTED TO

PLOTTED BY BD CHECKED BY MATERIALS SUPERVISOR T.O. Pomeroy



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B034

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-13

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

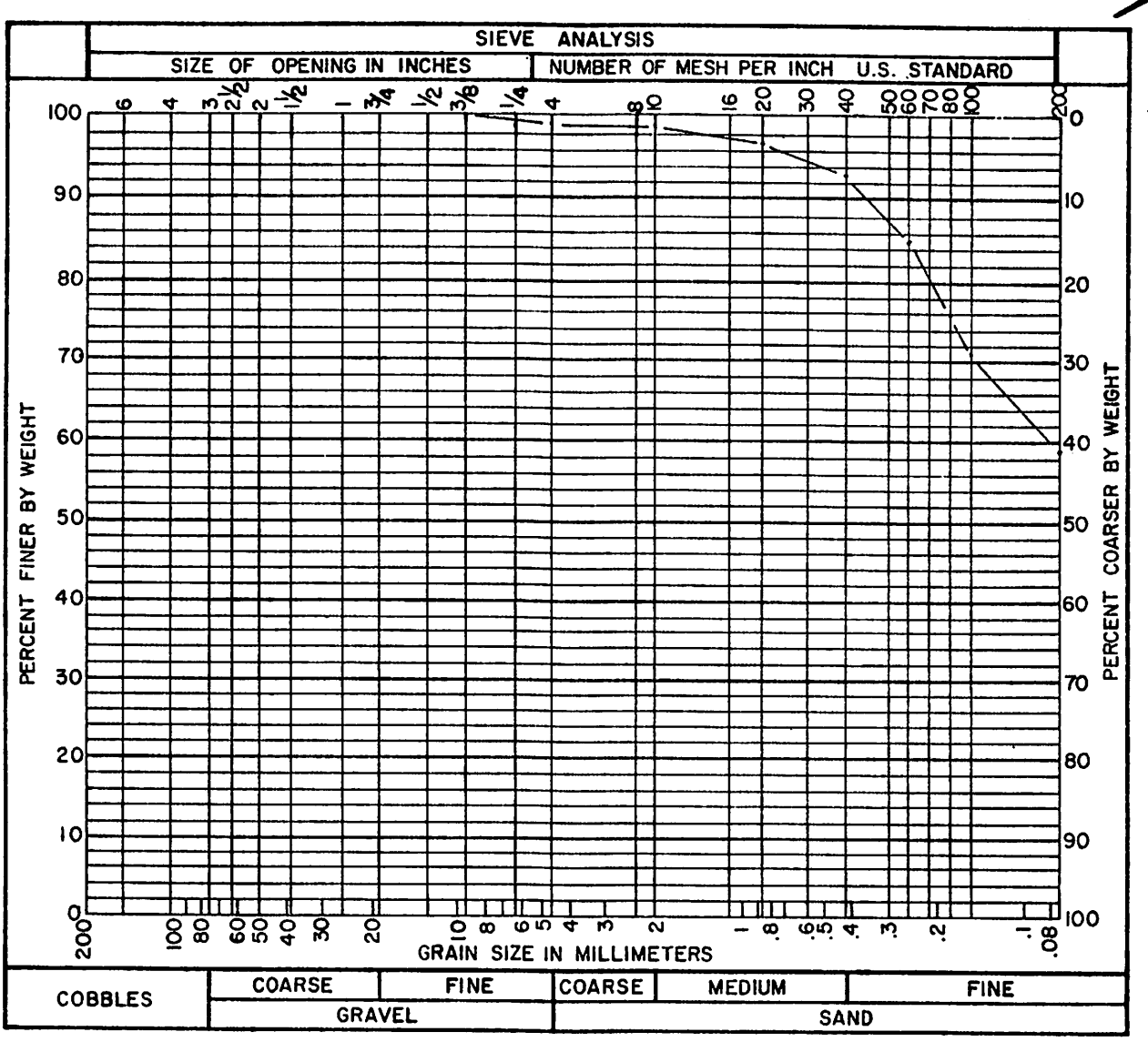
MATERIAL SOURCE 3-D/5'0" to 6'5" below O.G.

LOCATION SAMPLED 170' E/C Fairbanks St./C 48th Ave BY M. Kruegar

COMMENTS ML/F-4/Sandy 40% Silt 59%/19% Moisture/1% Gravel

REPORTED TO

PLOTTED BY BD CHECKED BY MATERIALS SUPERVISOR



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B034

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-14

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

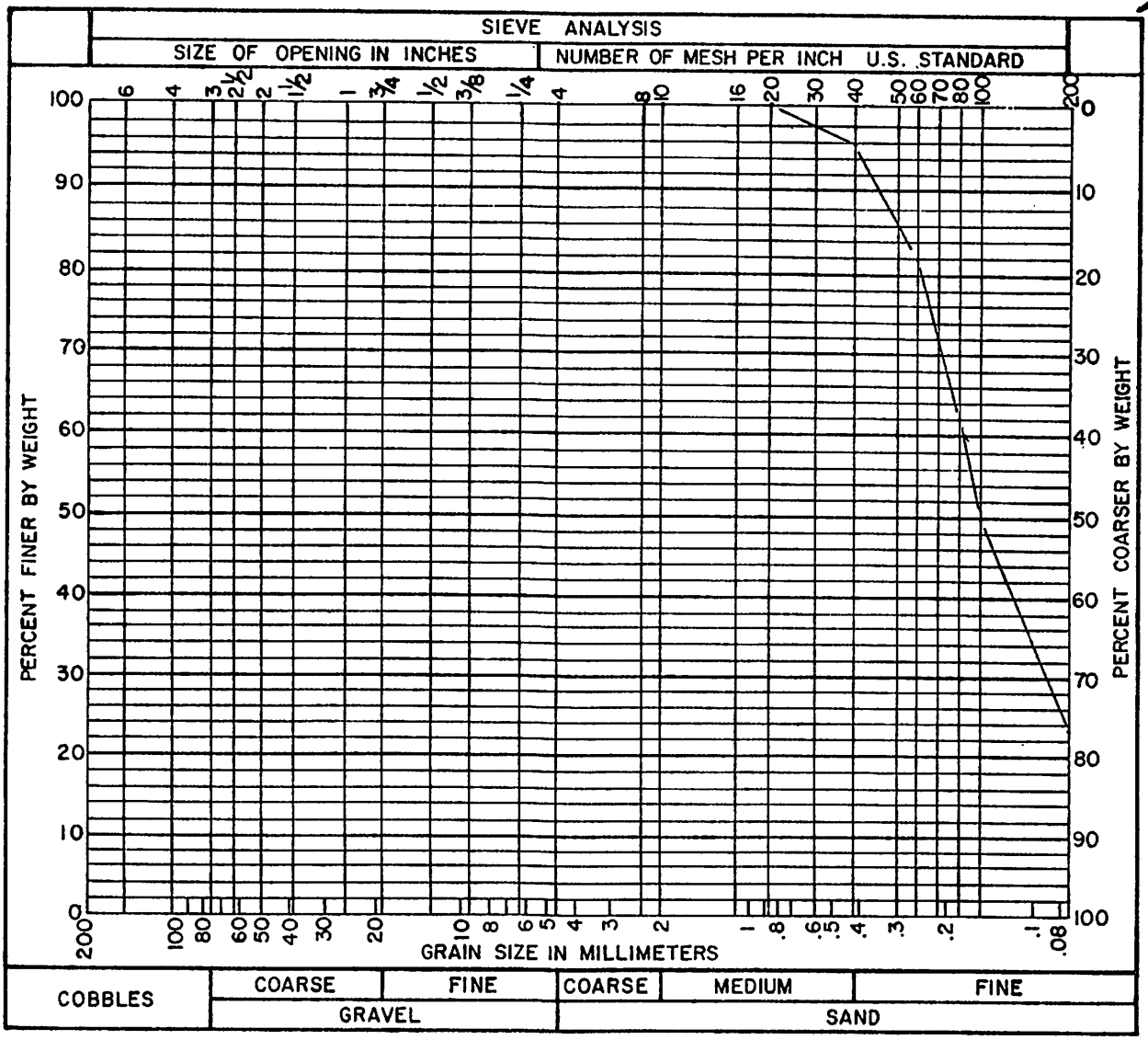
MATERIAL SOURCE 3-E/65' to 10' below O.G.

LOCATION SAMPLED 170 E & Fairbanks St/& 48th Ave BY M. Krueger

COMMENTS SM/E-2/Silty Sand 23% / 77% / 18% Moisture

REPORTED TO

PLOTTED BY BD CHECKED BY MATERIALS SUPERVISOR



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B035

MUNICIPALITY OF ANCHORAGE

DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION DIVISION

SOILS LOG

HOLE NO. 4 (35)

LOCATION 48TH AVE RID / 155' W. ℄ OF FAIRBANKS ST ℄ OF 48TH AVE.

DATE 1/19/81

BY M.E. KRUEGER

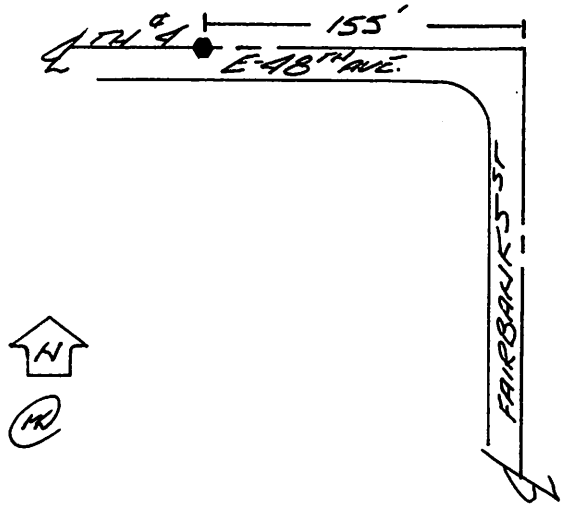
COMMENTS

DEPTH 10.2'

WATER TABLE NONE

	DEPTH	UNIFIED CLASS	FROST GROUP	DESCRIPTION
	0			EXIST GROUND / ROAD SURFACE
EX-15 4-A	1	SP-SM	F-2	BRN (39%) GVLY-SAND (99%) / SILT (12%) / MOIST. = 5% / HP MED. DENSE
	2			
EX-16 4-B	3	SM	F-4	TAN (96%) SILT-SAND (99%) / GRAVEL (5%) / MOIST. = 12% HP / MED. DENSE
	4			
EX-17 4-C	5	ML	F-4	TAN (3%) SAND-SILT (96%) / MOIST. = 29% / GRAVEL = 1% HP / DENSE
	6			
EX-18 4-D	7	ML	F-4	OLIVE (19%) SAND-SILT (80%) / MOIST. = 26% / GRAVEL = 1% SEMI-ELASTIC / DENSE
	8			
	9			
	10			
	11			
	12			
	13			
	14			

LOCATION SKETCH:



LEGEND

SYMBOL

- TEST HOLE
- WATER TABLE
- FROZEN MATERIAL (2, 3, 4, 5)

ALL FROST CLASSIFICATION BASED ON THE .02mm = 50% OF THE -#200 UNLESS OTHERWISE NOTED

GRID NO. 1831

82-032 (2/81)

1831B035

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-15

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

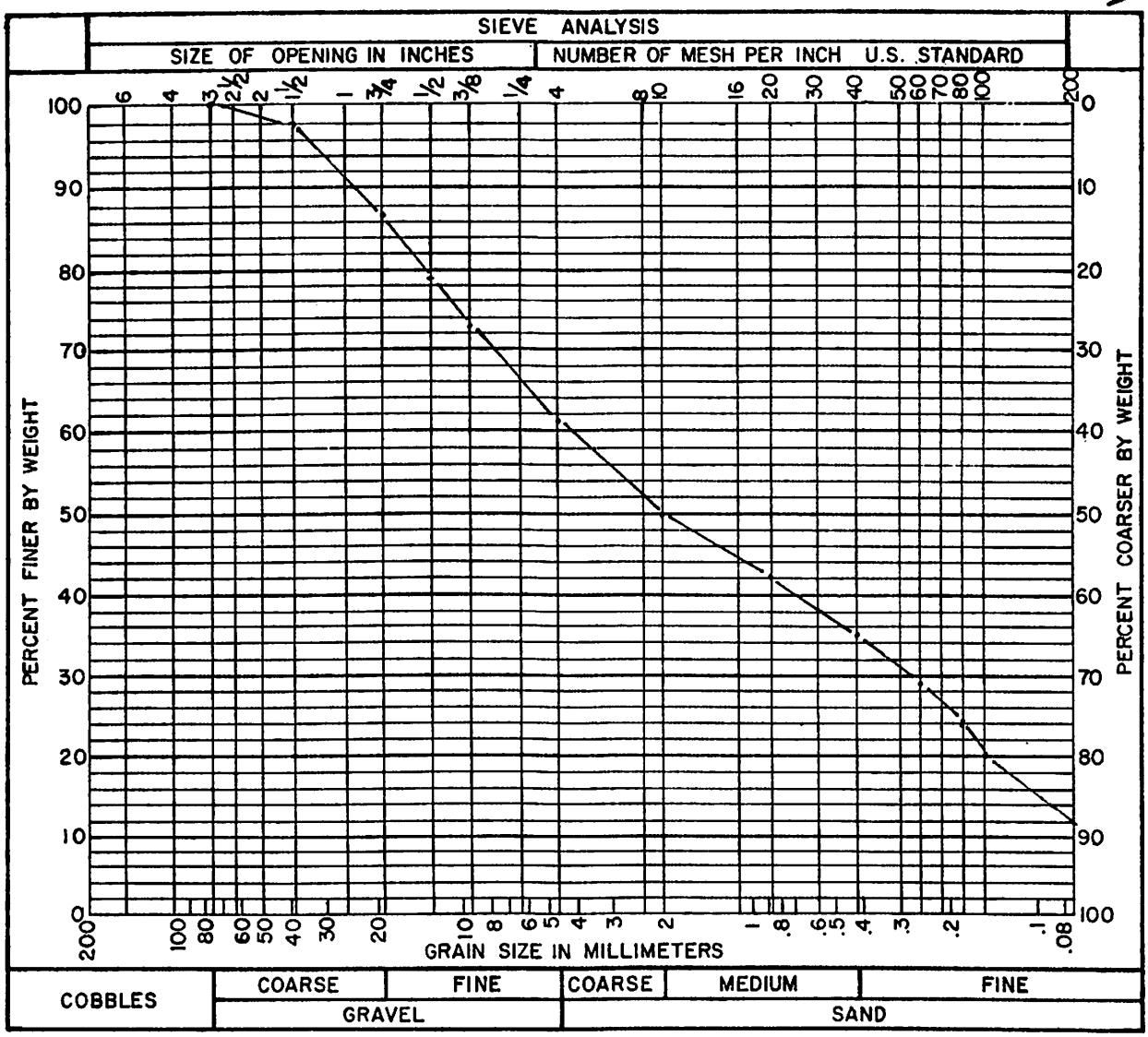
MATERIAL SOURCE 4-A / 0 to 1.0' below O.G.

LOCATION SAMPLED 155' W & Fairbanks St / & E-48th Ave. BY M. Krueger

COMMENTS SP-SM / E-2 / 39% Gravely 49% Sand w / 12% Silt / 5% Moisture

REPORTED TO

PLOTTED BY [signature] CHECKED BY BD MATERIALS SUPERVISOR [signature]



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B035

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-16

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

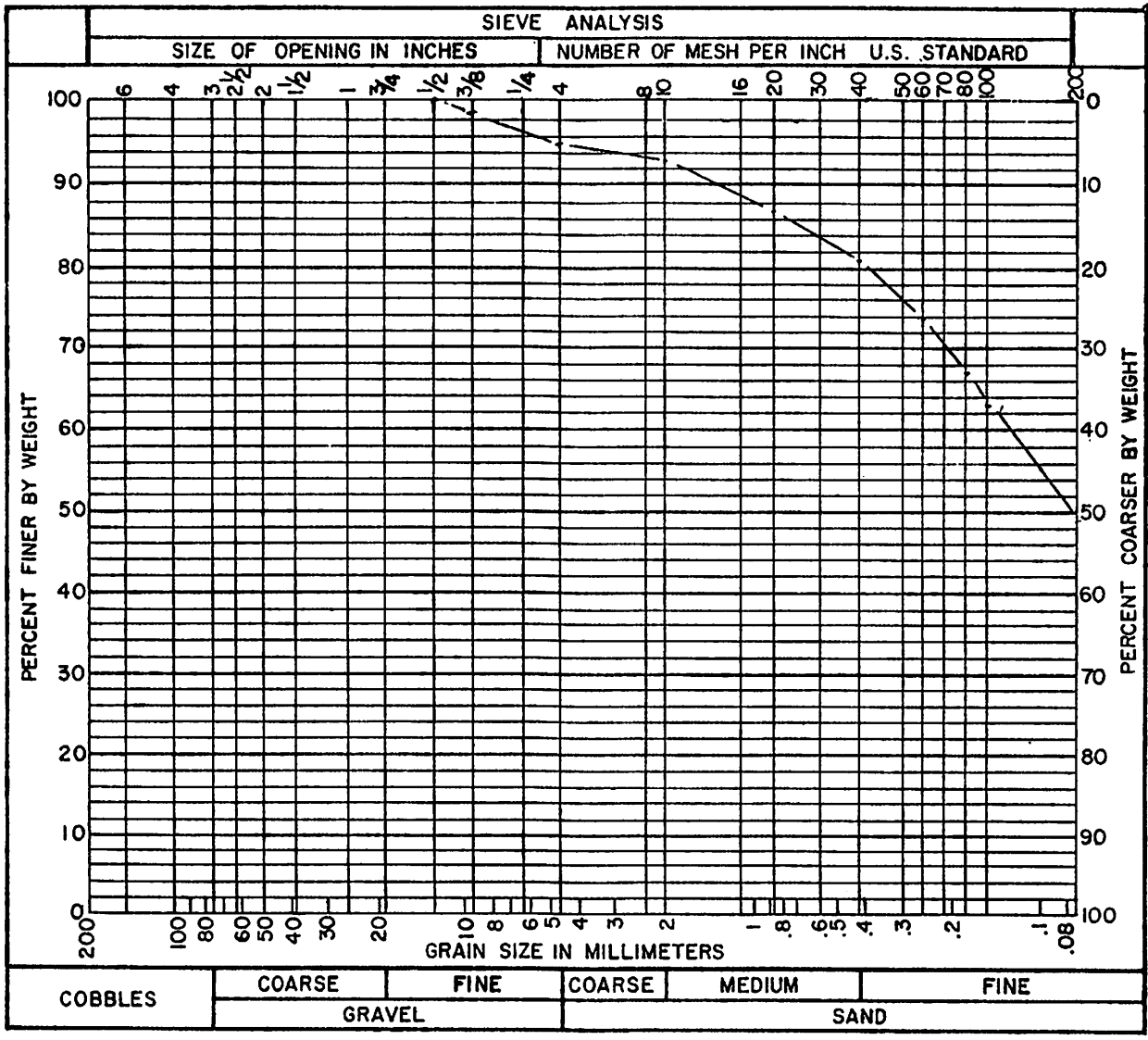
MATERIAL SOURCE 4-B/ 10' to 35' below O.G.

LOCATION SAMPLED 155' W & Fairbanks St. / & 48th Ave BY M. Krueger

COMMENTS SM/F-4/ 46% Silty Sand 49% w/ 5% Gravel / 12% Moisture

REPORTED TO

PLOTTED BY [signature] CHECKED BY BD MATERIALS SUPERVISOR [signature]



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B035

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. Ex-17

PROJECT E-48th Ave RID Test Holes

DATE Jan 14, 1981

CONTRACTOR

MATERIAL SOURCE 4-C/3.5' to 6.0' below O.G.

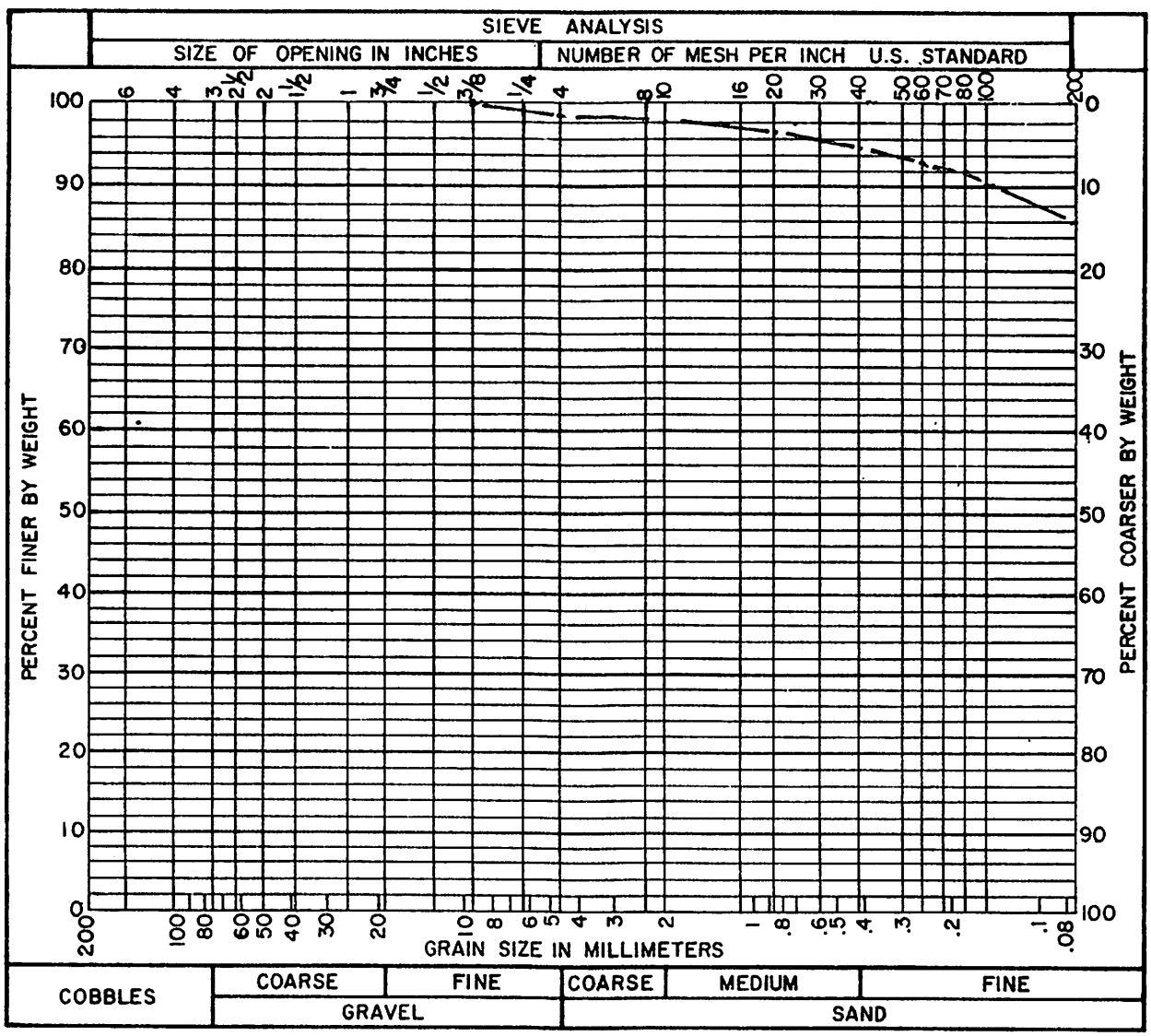
LOCATION SAMPLED 155'W ℄ Fairbanks St. / ℄ 48th Ave.

BY M. Krueger

COMMENTS ML/E-4/Sandy Silt (13% / 86%) / 29% Moisture / 1% Gravel

REPORTED TO

PLOTTED BY [illegible] CHECKED BY BD MATERIALS SUPERVISOR [illegible]



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B035

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-18

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

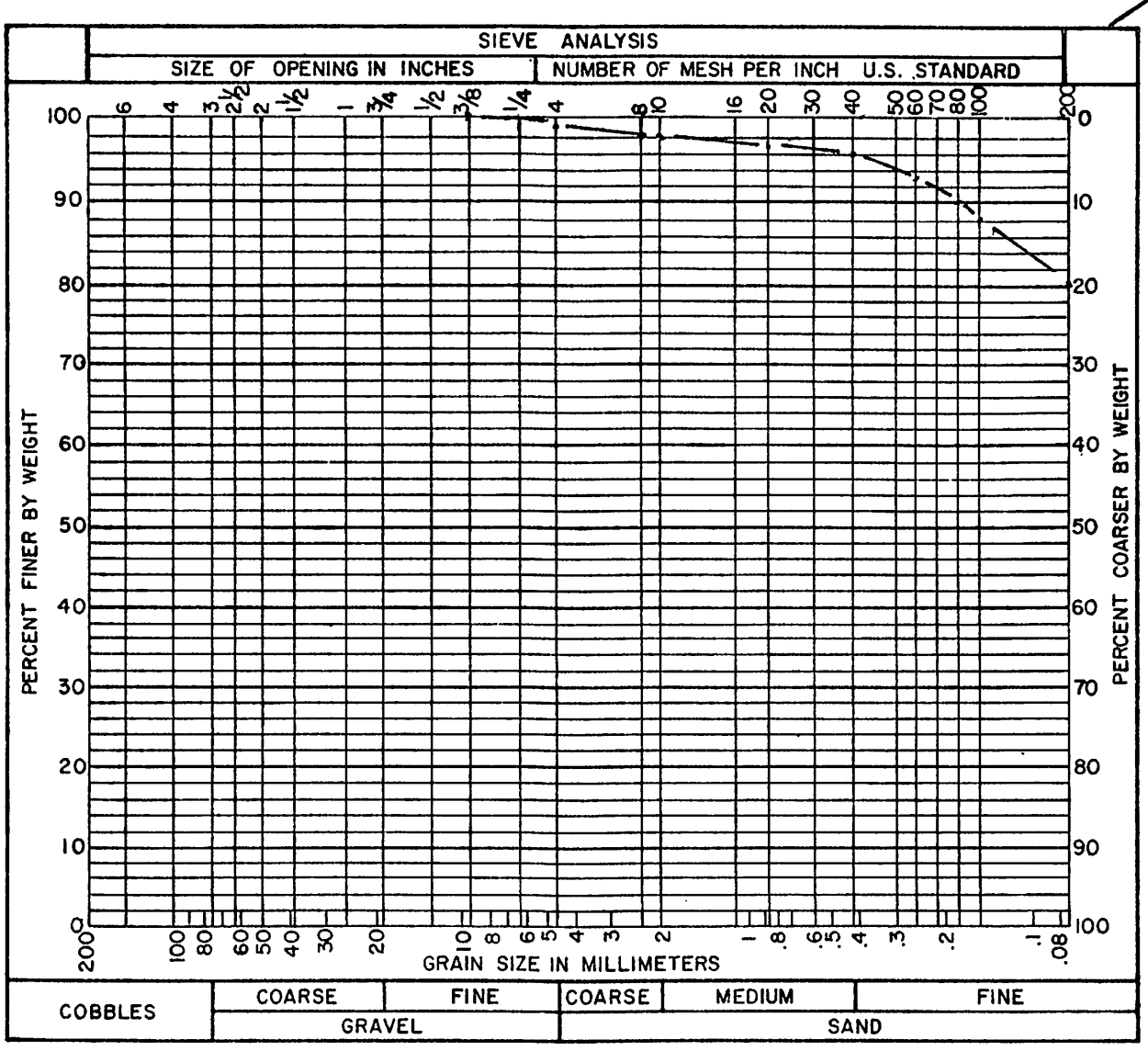
MATERIAL SOURCE 4-D / 6' to 10' below O.G.

LOCATION SAMPLED 155'W & Fairbanks St / & 48th Ave. BY M. Krueger

COMMENTS ML / E-4 / Sandy Silt / 19% / 80% / 26% Moisture / 1% Gravel

REPORTED TO

PLOTTED BY LF CHECKED BY BD MATERIALS SUPERVISOR



INSPECTOR'S COMMENTS

82-009 (2/77)

MUNICIPALITY OF ANCHORAGE

1831B036

DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION DIVISION

SOILS LOG

HOLE NO. 5 (36)

LOCATION 48TH AVE END / 10' WEST ℄ OF EAGLE ST (SO. OF 48TH AVE) ℄ OF 48TH AVE

DATE 1/19/81

BY M. E. KRUEGER

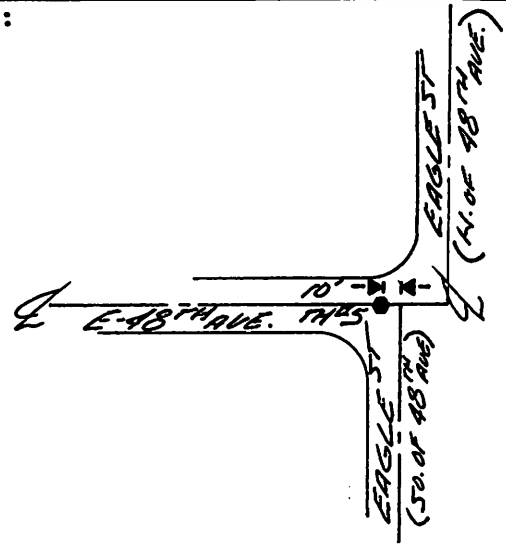
COMMENTS

DEPTH 10.0'

WATER TABLE CAVE

	DEPTH	UNIFIED CLASS	FROST GROUP	DESCRIPTION
	0			EXIST. GROUND / ROAD SURFACE
EX-19 S-A	1	GW-GM	F-1	BRN. SDY. GRAVEL (5%) (66%) / SLT (9%) / MOIST. = 4% / NP / MED. DENSE
EX-20 S-B	2	ML	F-4	DARK (38%) (53%) / MOIST. = 22% / GRAVEL = 1%
	3			NP / MED. DENSE
	4			
EX-21 S-C	5	ML	F-4	DARK (27%) (73%) / MOIST. = 18% / NP
	6			DENSE
	7			
EX-22 S-D	8	ML	F-4	OLIVE (27%) (73%) / MOIST. = 25% / NP
	9			GRAVEL = 1% / DENSE
	10			
	11			
	12			
	13			
	14			

LOCATION SKETCH:



LEGEND

SYMBOL

TEST HOLE

WATER TABLE

FROZEN MATERIAL

ALL FROST CLASSIFICATION BASED ON THE .02mm = 50% OF THE -#200 UNLESS OTHERWISE NOTED

GRID NO. 1831

82-032 (2/81)

1831B036

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-19

PROJECT E-48th Ave. RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

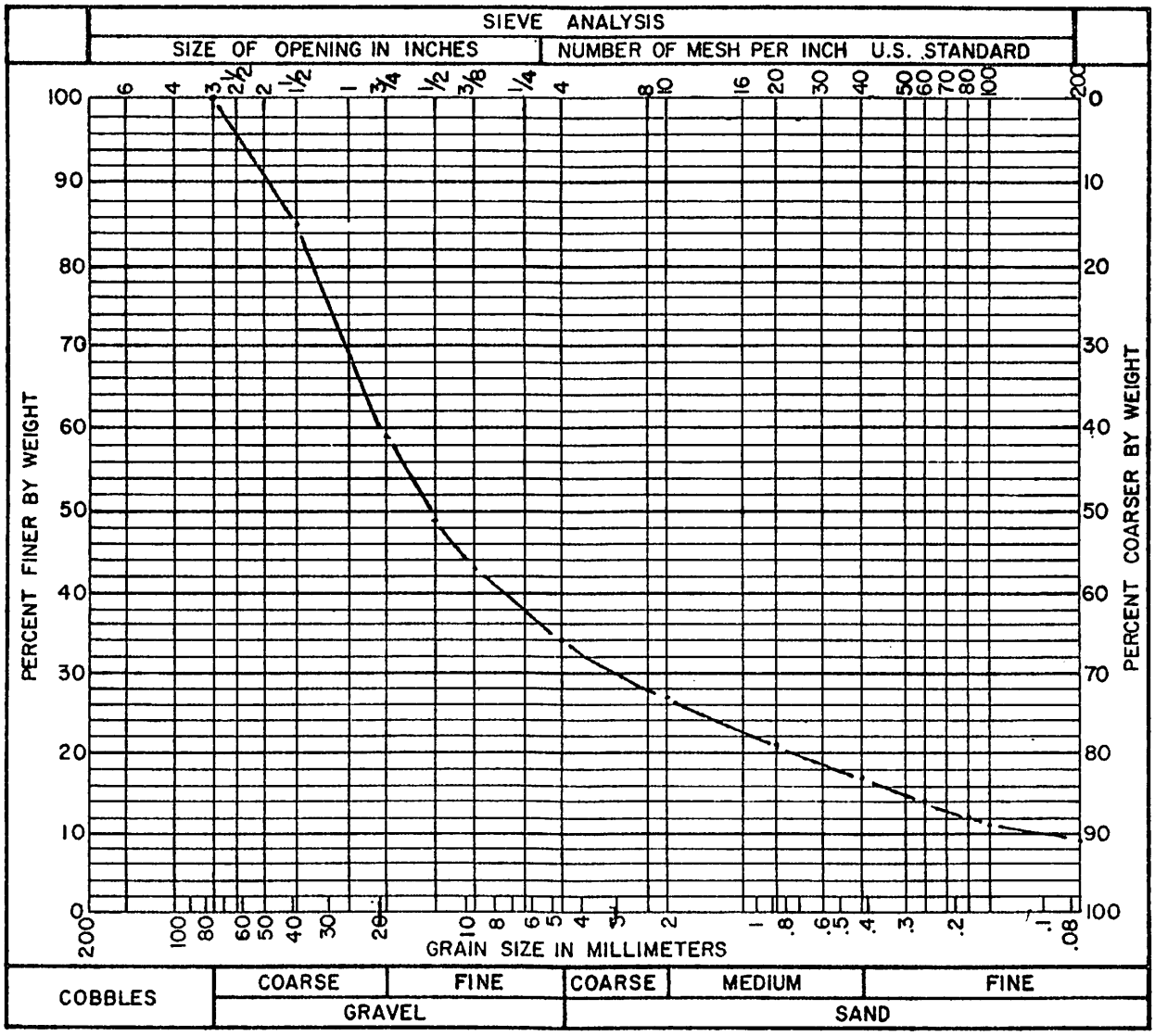
MATERIAL SOURCE 5-A/0 to 15' below O.G.

LOCATION SAMPLED 10' W/E Eagle St. / E 48th Ave. BY M. Krueger

COMMENTS GW-GM/F-1/ 25% Sandy 66% Gravel w/ 9% Silt / 4% Moisture

REPORTED TO

PLOTTED BY ~~KF~~ CHECKED BY BD MATERIALS SUPERVISOR T. O. Pennington



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B036

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-20

PROJECT E-48th Ave BID Test Holes DATE Jan. 14, 1981

CONTRACTOR

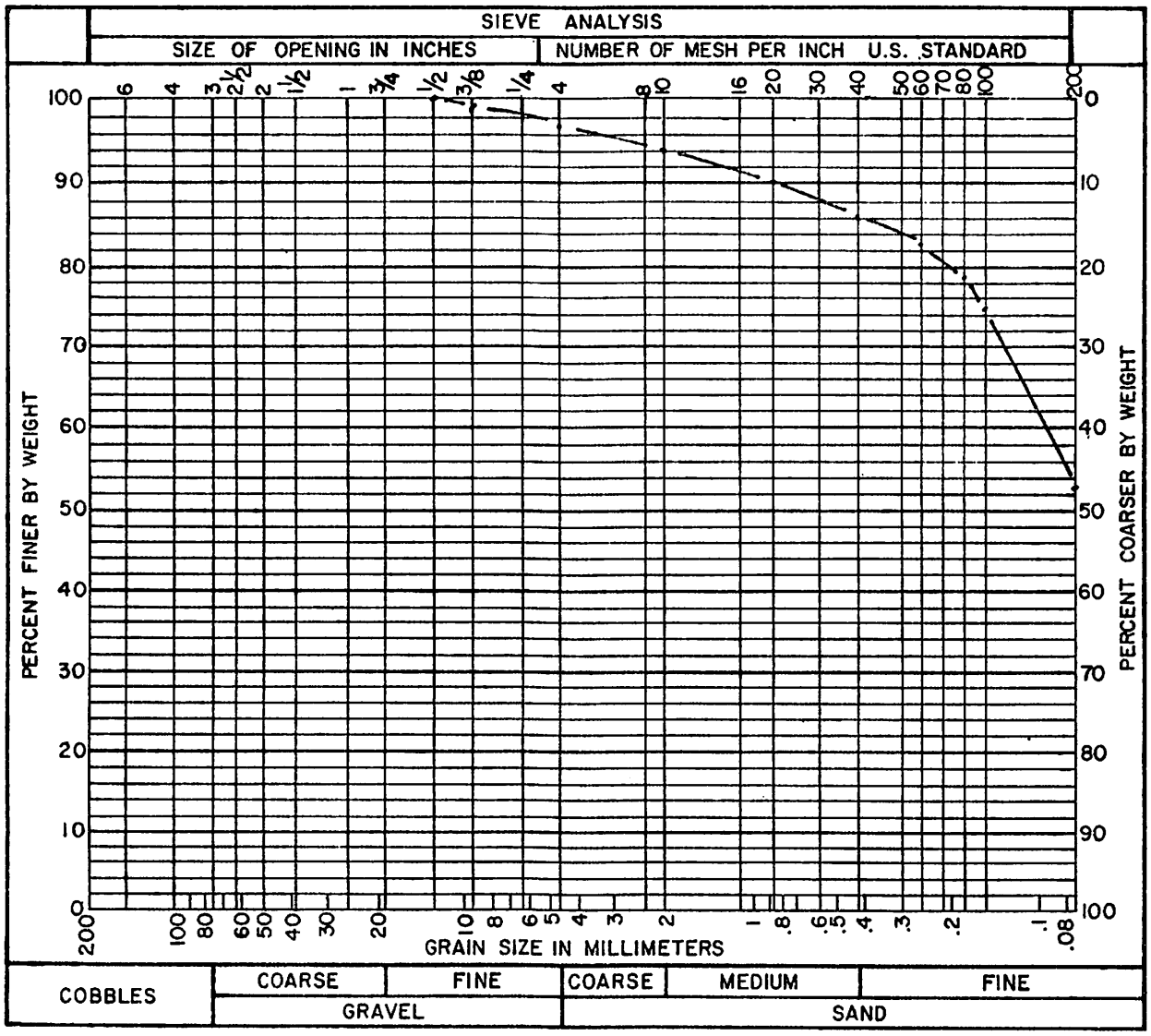
MATERIAL SOURCE 5-B/1.5' to 3.0' below O.G.

LOCATION SAMPLED 10' W ℄ Eagle St./℄ 48th Ave. BY M. Krueger

COMMENTS ML/F-4/44% Sandy 53% Silt/22% Moisture/3% Gravel

REPORTED TO

PLOTTED BY [signature] CHECKED BY BD MATERIALS SUPERVISOR [signature]



INSPECTOR'S COMMENTS

82-009 (2/77)

1831B036

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-21

PROJECT E-48th Ave. RID Test Holes

DATE M. Krueger

CONTRACTOR

MATERIAL SOURCE 5-C/3.0' to 6.5' below O.G.

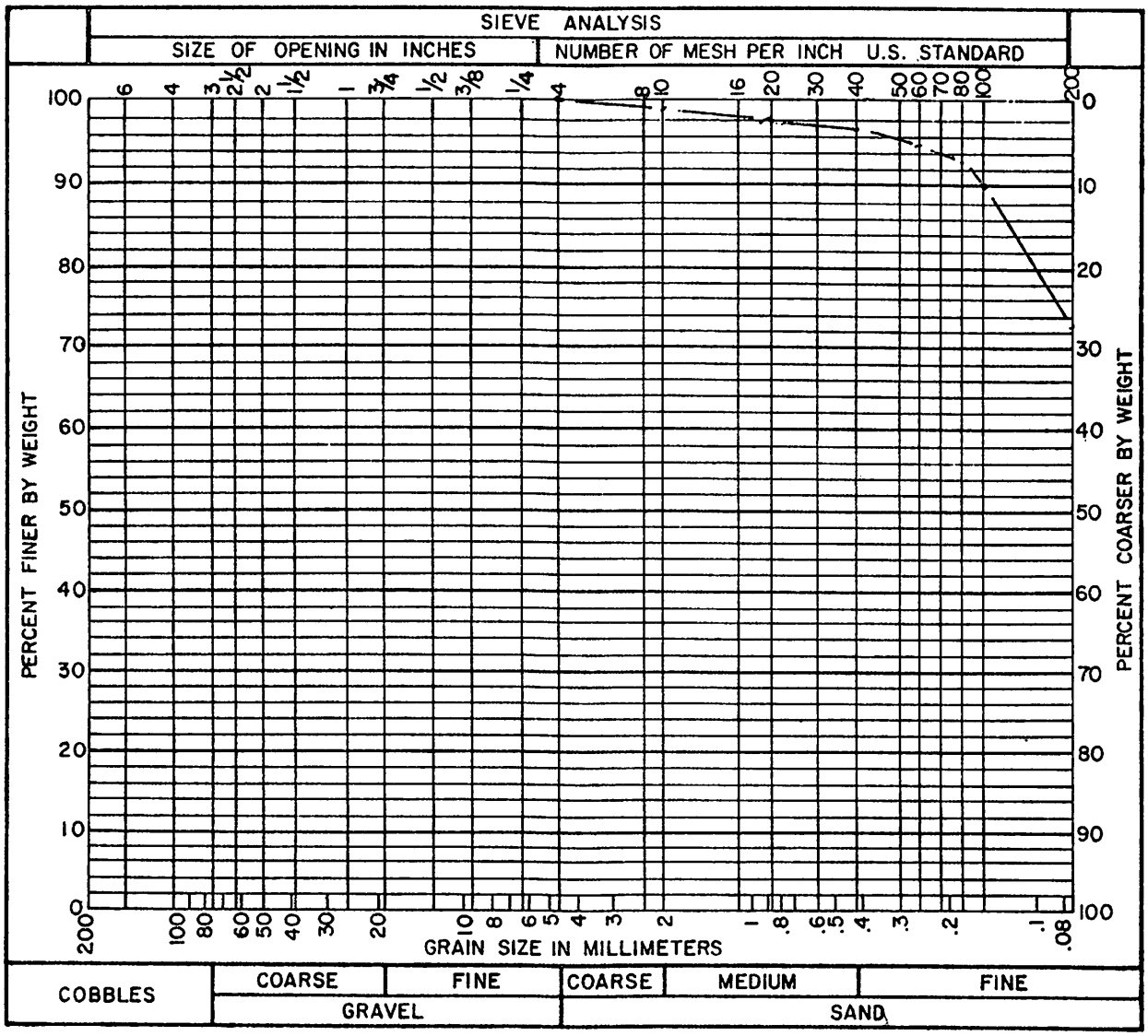
LOCATION SAMPLED 10' W ¢ Eagle St. / ¢ 48th Ave.

BY M. Krueger

COMMENTS ML/E-4/ Sandy Silt (27% / 73%) / 18% Moisture

REPORTED TO

PLOTTED BY [signature] CHECKED BY BD MATERIALS SUPERVISOR [signature]



INSPECTOR'S COMMENTS

82-009 (2/77)

MUNICIPALITY OF ANCHORAGE 1831B036

DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-22

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

MATERIAL SOURCE 5-D/6.5' to 10.0' below O.G.

LOCATION SAMPLED 10' west Eagle St/E 48th Ave BY M. Krueger

COMMENTS ML/F-4/Sandy Silt/25% Moisture/1% Gravel

REPORTED TO

PLOTTED BY CHECKED BY BD MATERIALS SUPERVISOR

SIEVE ANALYSIS

SIZE OF OPENING IN INCHES | NUMBER OF MESH PER INCH U.S. STANDARD

6 4 3½ 2½ 2 1½ 1 ¾ ½ ⅜ ¼ 4 8 10 16 20 30 40 50 60 70 80 100 200

PERCENT FINER BY WEIGHT

100 90 80 70 60 50 40 30 20 10 0

PERCENT COARSER BY WEIGHT

0 10 20 30 40 50 60 70 80 90 100

200 100 80 60 50 40 30 20 10 8 6 5 4 3 2 1 .8 .6 .5 .4 .3 .2 .1 .08

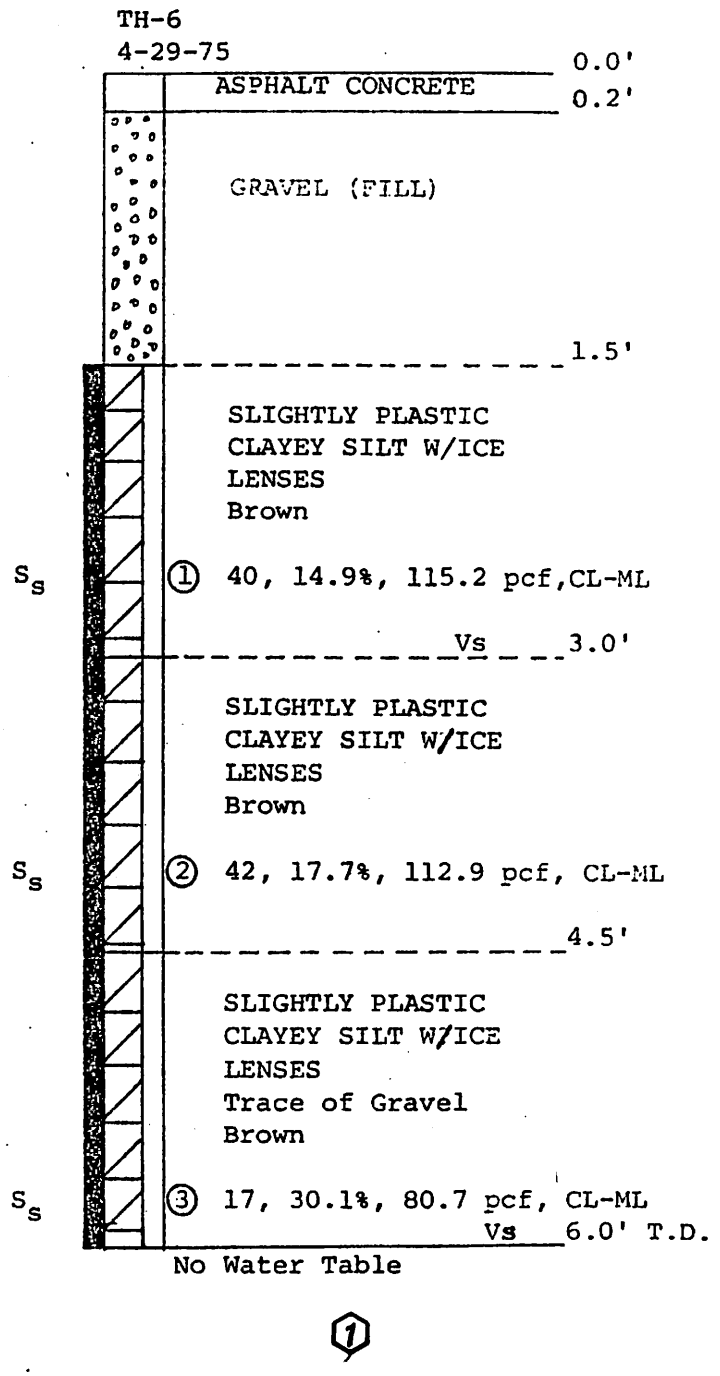
GRAIN SIZE IN MILLIMETERS

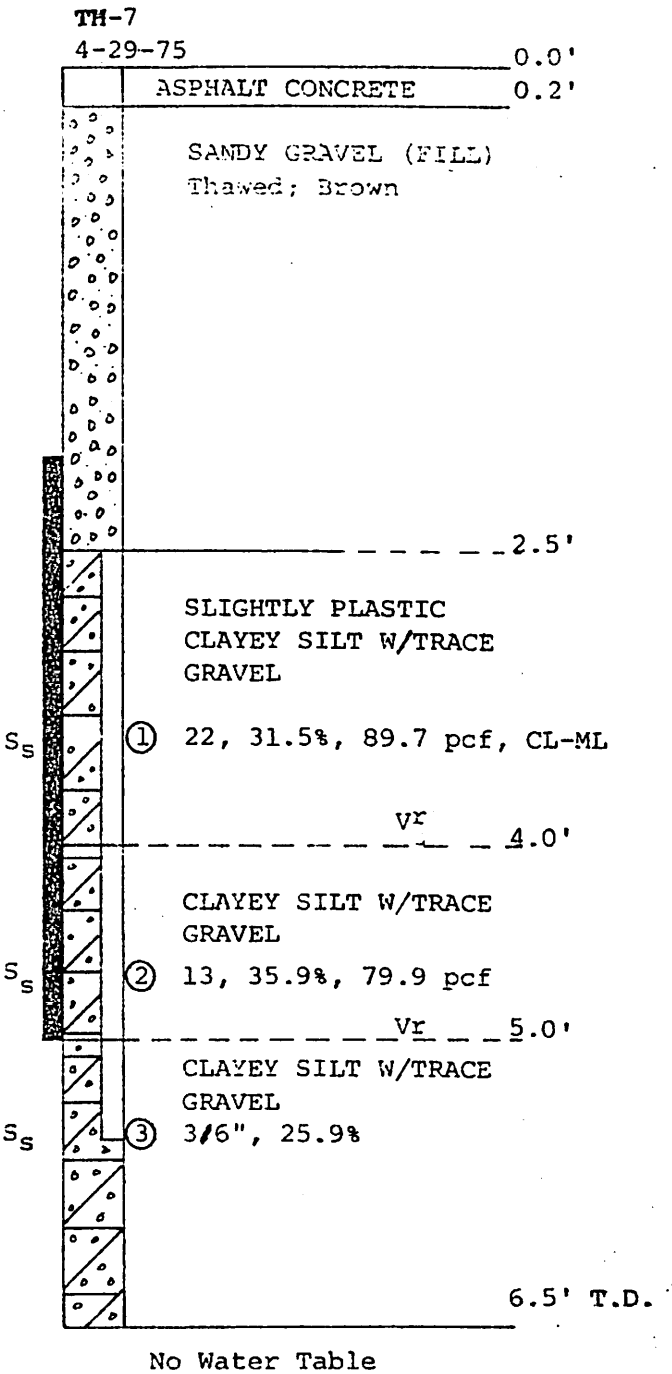
COBBLES	GRAVEL		SAND		
	COARSE	FINE	COARSE	MEDIUM	FINE

INSPECTOR'S COMMENTS

82-009 (2/77)

1831C001





Greater Anchorage Area Borough
Heather Meadows
Log of Test Holes
Anchorage, Alaska

R&M Consultants Inc.
ANCHORAGE FAIRBANKS ALASKA JUNEAU

DATE	SCALE	DWN BY	CHKD BY	PROJ. NO.	DWG NO.
6/25/75	1:1	VRZ		551030	B-07

1831C001

1

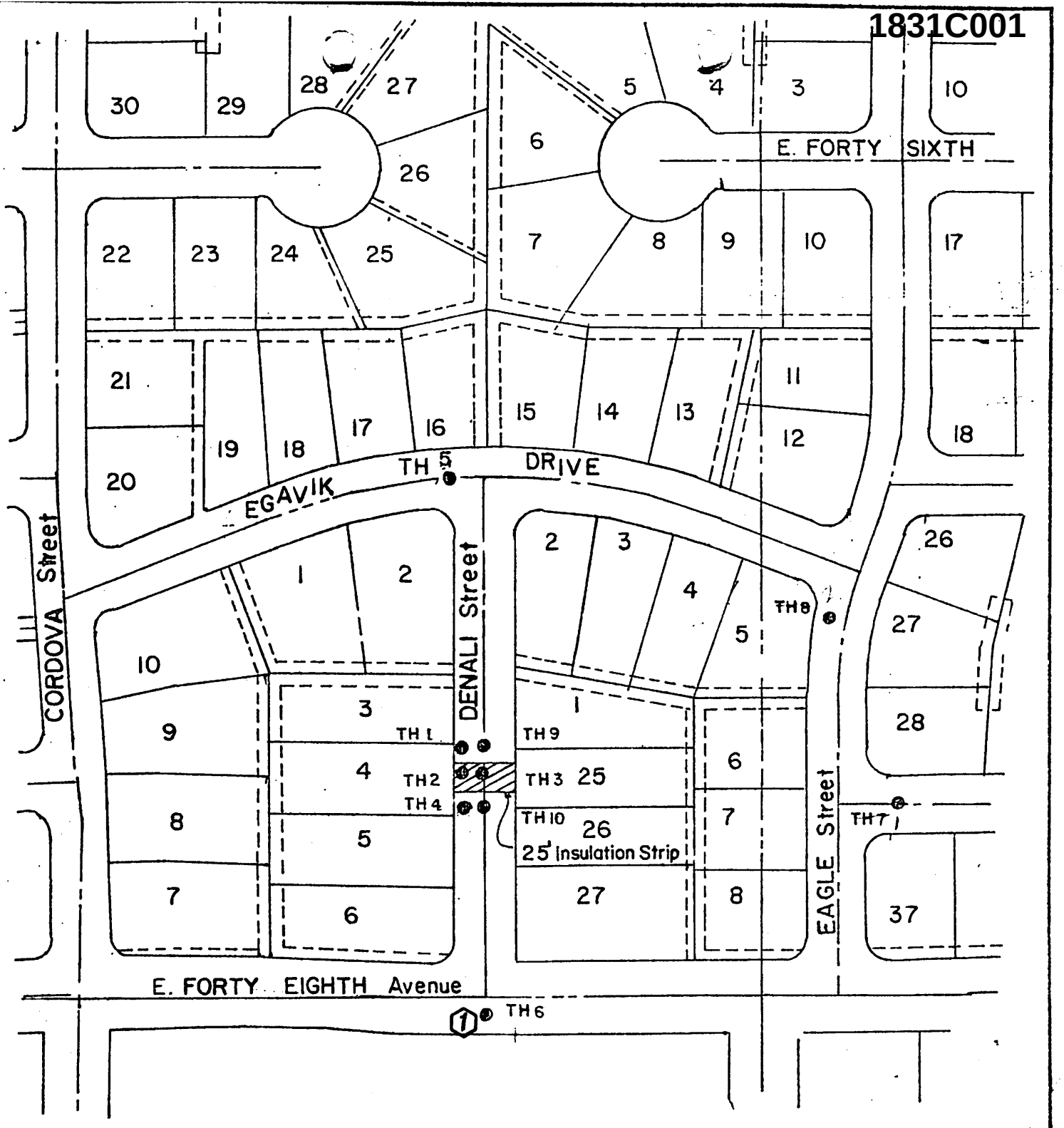
1831

HEATHER MEADOWS SUBDIVISION
SUBSURFACE SOIL INVESTIGATION

August 8, 1975

R&M CONSULTANTS, INC.

1831C001



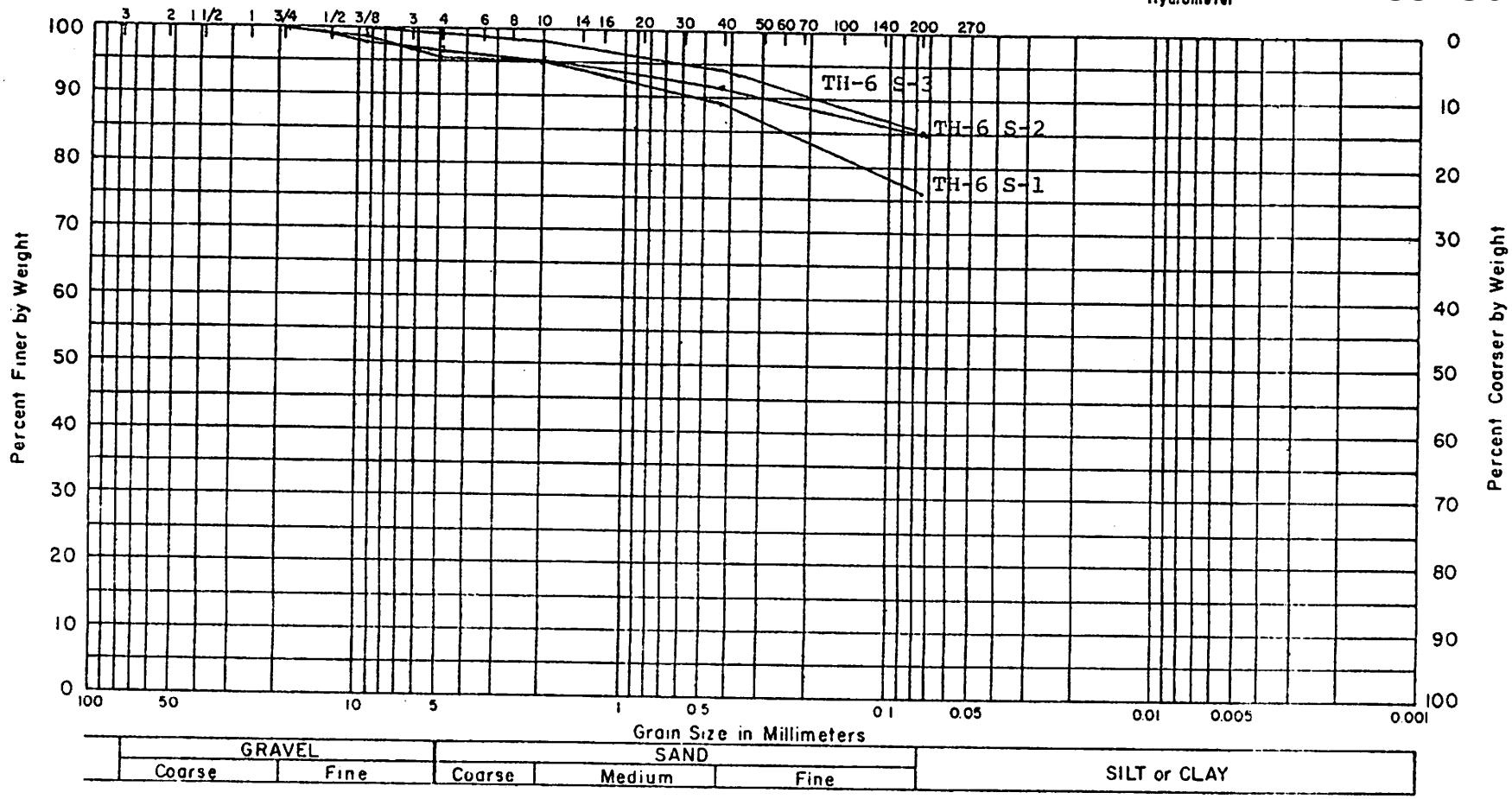
Greater Anchorage Area Borough
Heather Meadows
LOCATION DIAGRAM
Anchorage, Alaska

R&M Consultants Inc.
ANCHORAGE FAIRBANKS ALASKA JUNEAU

DATE	SCALE	DWN BY	CHKD BY	PROJ. NO.	DWG NO.
6/28/75		VRZ	NB	551030	A-1

42273

1831C001



SAMPLE NO.	MOISTURE CONTENT	DRY DENSITY	LL	PI		CLASSIFICATION & DESCRIPTION
TH-6 S-1	14.9%	115.2	23	5		CL-ML
TH-6 S-2	17.7%	112.9	25	7		CL-ML
TH-6 S-3	30.1%	80.7	28	7		CL-ML

R & M CONSULTANTS, INC.

GRAIN SIZE DISTRIBUTION CURVE
GREATER ANCHORAGE AREA BOROUGH
HEATHER MEADOWS

DRAWN BY MAM
APPROVED BY CLV
DATE 6-26-75
PROJECT NO 551030

C-06

1831C001

Lab No. 561025
PROJECT NO. 551030
PROJECT NAME GAAB-Heather Meadows

R & M CONSULTANTS, INC.

SUMMARY OF LABORATORY TEST DATA

DATE 6-27-75
PARTY NO. _____ PAGE NO. 1

LAB NO.	BORING NO.	SAMPLE NO.	DEPTH	1 1/2"	1"	3/4"	1/2"	3/8"	4	10	40	200	.02	.005	.002	FINE SPG	L.L.	P.I.	WET DENSITY	DRY DENSITY	MOISTURE CONTENT	CLASS
701	1	1	0.2 - 0.5			100	90	81	61	44	17	7										GW-GM
702	1	2	0.5 - 2.0																			
703	1	2B	2.0 - 2.5				100	96	94	89	75	51									28.1	GM
704	1	3	2.5 - 4.5				100	98	96	95	92	82				2.69	26	5	122.7	100.1	22.7	CL-ML
705	1	4	4.5 - 5.5					100	99	98	94	80									27.6	
706	1	5	7.0 - 9.0					100	99	97	92	79	59.0	29.6	13.4		26	8	137.9	120.1	14.8	CL
707	2	1	0.2 - 0.5	100	96	89	89	79	68	58	32	8									7.0	GW-GM
708	2	2	2.0 - 4.0					100	99	97	88	77					26	7			20.0	CL-ML
709	2	3	4.0 - 5.5			100	98	97	96	95	91	77	55.0	29.3	14.0		26	7	132.9	114.6	16.0	CL-ML
710	3	1	0.2 - 0.5	82	82	75	66	58	44	32	15	4										GW
711	3	2	2.0 - 4.0		100	96	96	96	96	96	94	85	67.0	38.1	12.2		27	7	131.7	115.5	14.0	CL-ML
712	3	3	4.0 - 6.0						100	99	98	89	56.0	26.7	11.1	2.68	27	7	131.0	108.4	20.9	CL-ML
713	4	1	2.5 - 4.0					100	99	99	97	90		12.6	2.8	2.68	28	5	120.8	98.0	23.3	CL
714	4	2	4.5 - 6.0				100	99	99	98	95	87	73.3	19.9	8.3		28	3	110.7	80.2	38.2	ML
715	5	1	0.2 - 0.5	83	76	70	62	59	50	40	17	3									4.3	GW
716	5	2	3.5 - 5.0				100	98	97	95	88	66	48.0	15.8	7.8	2.64	24	6	122.3	97.5	25.5	CL-ML
717	5	3	5.0 - 6.5			100	98	97	92	91	67	57	42,0	15.1	4.9		22	5	127.3	107.6	18.3	CL-ML
718	5	4	6.5 - 8.0							100	99	74	47.6	22.0	9.3		21	4			23.9	CL-ML
719	6	1	1.5 - 3.0			100	99	98	97	95	89	76	49.1	24.7	13.0	2.67	23	5	132.2	115.2	14.9	CL-ML
720	6	2	3.0 - 4.5			100	99	99	96	95	92	85	57.0	27.3	13.0		25	7	132.9	112.9	17.7	CL-ML

MARKS: 75A-715 - 2" = 100% passing

NOTE: SIEVE ANALYSIS = PERCENT PASSING

James W. Feeney
APPROVED

1831C001

Lab No. 561025
PROJECT NO. 551030
PROJECT NAME GAAB-Heather Meadows

R & M CONSULTANTS, INC.

SUMMARY OF LABORATORY TEST DATA

DATE 6-27-75
PARTY NO. _____ PAGE NO. 2

LAB NO.	BORING NO.	SAMPLE NO.	DEPTH	1 1/2"	1"	3/4"	1/2"	3/8"	4	10	40	200	.02	.005	.002	FINE SPG	L.L.	P.I.	WET DENSITY	DRY DENSITY	MOISTURE CONTENT	CLA
721	6	3	4.5 - 6.0					100	99	98	94	85					28	7	104.9	80.7	30.1	CL-M
722	7	1	2.5 - 4.0					100	99	98	96	93	67.0	18.0	3.6	2.68	28	4	117.9	89.7	31.5	CI
723	7	2	4.0 - 5.0								100	96	75.0	26.8	7.2				108.6	79.9	35.9	
724	7	3	5.0 - 5.5				100	99	97	96	93	85	65.0	30.8	12.9						25.9	
725	8	1	2.5 - 4.0					100	98	98	95	84	60.0	28.3	9.9		27	5	122.9	97.2	26.4	CL-M
726	8	2	4.0 - 5.5																121.9	98.0	24.7	
727	8	3	5.5 - 6.0							100	99	95	70.0	33.2	11.7				117.9	91.3	29.2	
728	9	1	3.0 - 4.5				100	99	98	96	92	81	50.0	25.6	10.4		27	7	127.3	108.8	17.0	CL-M
729	9	2	4.5 - 6.0	100	86	86	84	84	83	82	80	66	42.0	20.0	9.3		23	6	128.9	108.2	19.2	CL-M
730	9	3	6.0 - 7.5					100	99	97	91	75	60.0	31.0	11.6				141.7	127.9	10.8	
731	10	1	2.5 - 4.0						100	99	98	91	50.0	15.4	8.8	2.71	28	5			29.9	CL-M
732	10	2	4.0 - 5.0							100	98	90							110.5	80.5	38.0	
733	10	3	5.0 - 5.5						100	99	98	90	55.0	26.0	10.5						25.8	

REMARKS: _____

NOTE: SIEVE ANALYSIS = PERCENT PASS

James W. Toomey

MUNICIPALITY OF ANCHORAGE

1831C009

DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION DIVISION

SOILS LOG

HOLE NO. 6 (9)

LOCATION 48TH AVE RID / 5' W. ℄ OF DENALI ST ℄ OF 48TH AVE.

DATE 1/14/81

BY M.E. KRUEGER

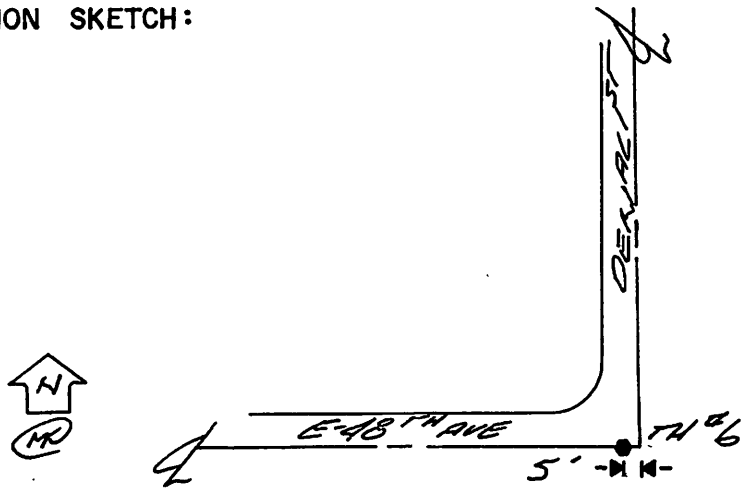
COMMENTS

DEPTH 10'

WATER TABLE NONE

	DEPTH	UNIFIED CLASS	FROST GROUP	DESCRIPTION
	0			EXIST. GROUND / ROAD SURFACE
EX-23 6-A	1	SM	F-2	GR. SLTY-GVLY-SAND (16%) (33%) (51%) / MOIST. = 5% / NP DENSE
	2			
	3			
EX-24 6-B	4	ML	F-4	TAN. SDY-SILT (23%) (76%) / MOIST. = 14% / NP / GRAVEL = 1% / DENSE
	5			
	6			
	7			
EX-25 6-C	8	ML	F-4	GR. SILT W/ SILT (89%) (10%) / MOIST. = 26% / GRAVEL = 1% NP / LOW DENSITY / SEMI-ELASTIC
	9			
	10			
	11			
	12			
	13			
	14			

LOCATION SKETCH:



LEGEND

SYMBOL

TEST HOLE

WATER TABLE

FROZEN MATERIAL

ALL FROST CLASSIFICATION BASED ON THE .02mm = 50% OF THE -#200 UNLESS OTHERWISE NOTED

GRID NO. 1831

82-032 (2/81)

1831C009

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-23

PROJECT E-48th Ave. BID Test Holes DATE Jan 14, 1981

CONTRACTOR

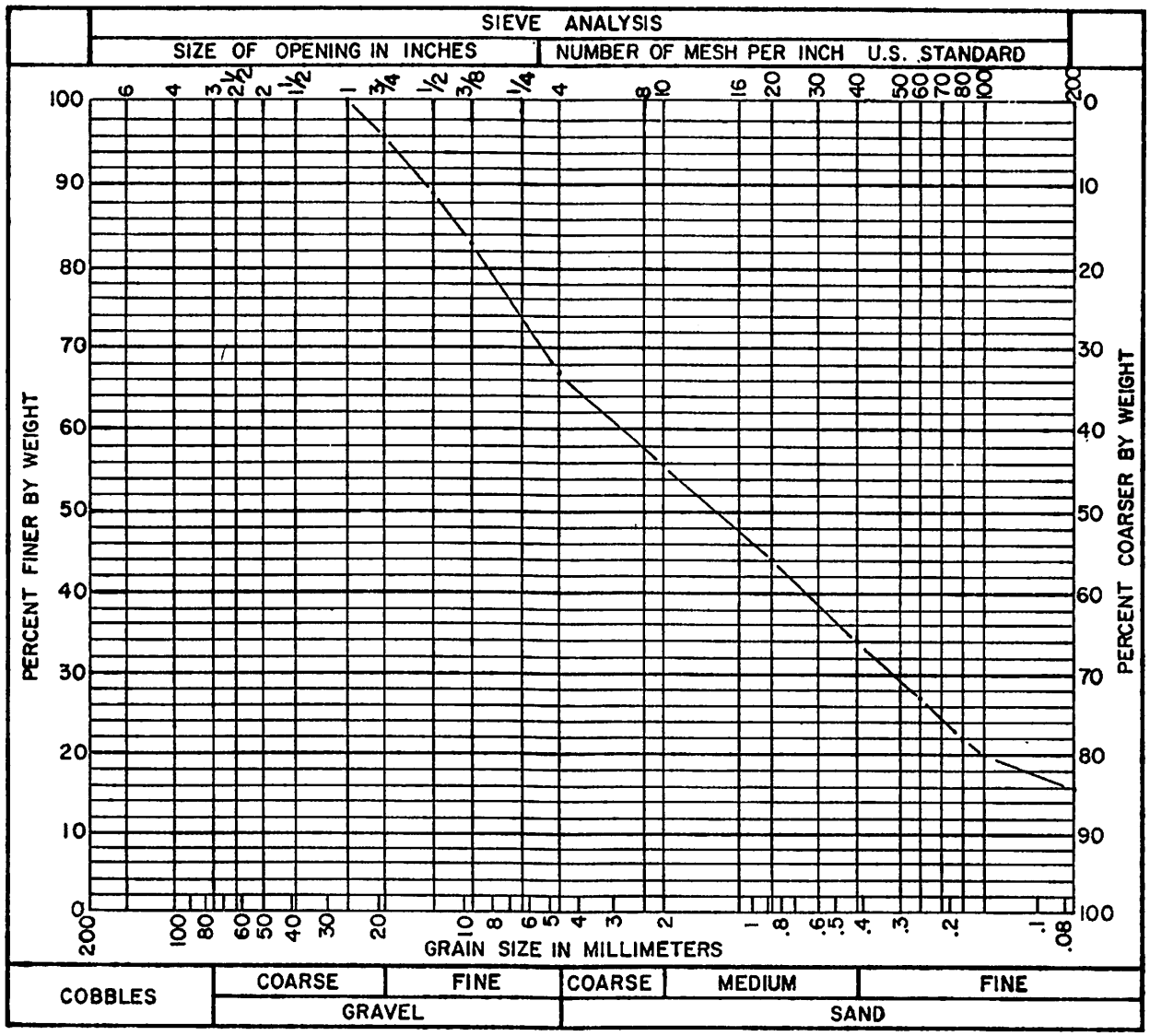
MATERIAL SOURCE 6-A/0 to 20' below O.G.

LOCATION SAMPLED 5'W/E Denali St/E 48th Ave. BY M. Krueger

COMMENTS SM/E-2/Silty (16%) Gravely (33%) Sand (51%)/5% Moisture

REPORTED TO

PLOTTED BY BD CHECKED BY MATERIALS SUPERVISOR [signature]



INSPECTOR'S COMMENTS

82-009 (2/77)

1831C009

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-24

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

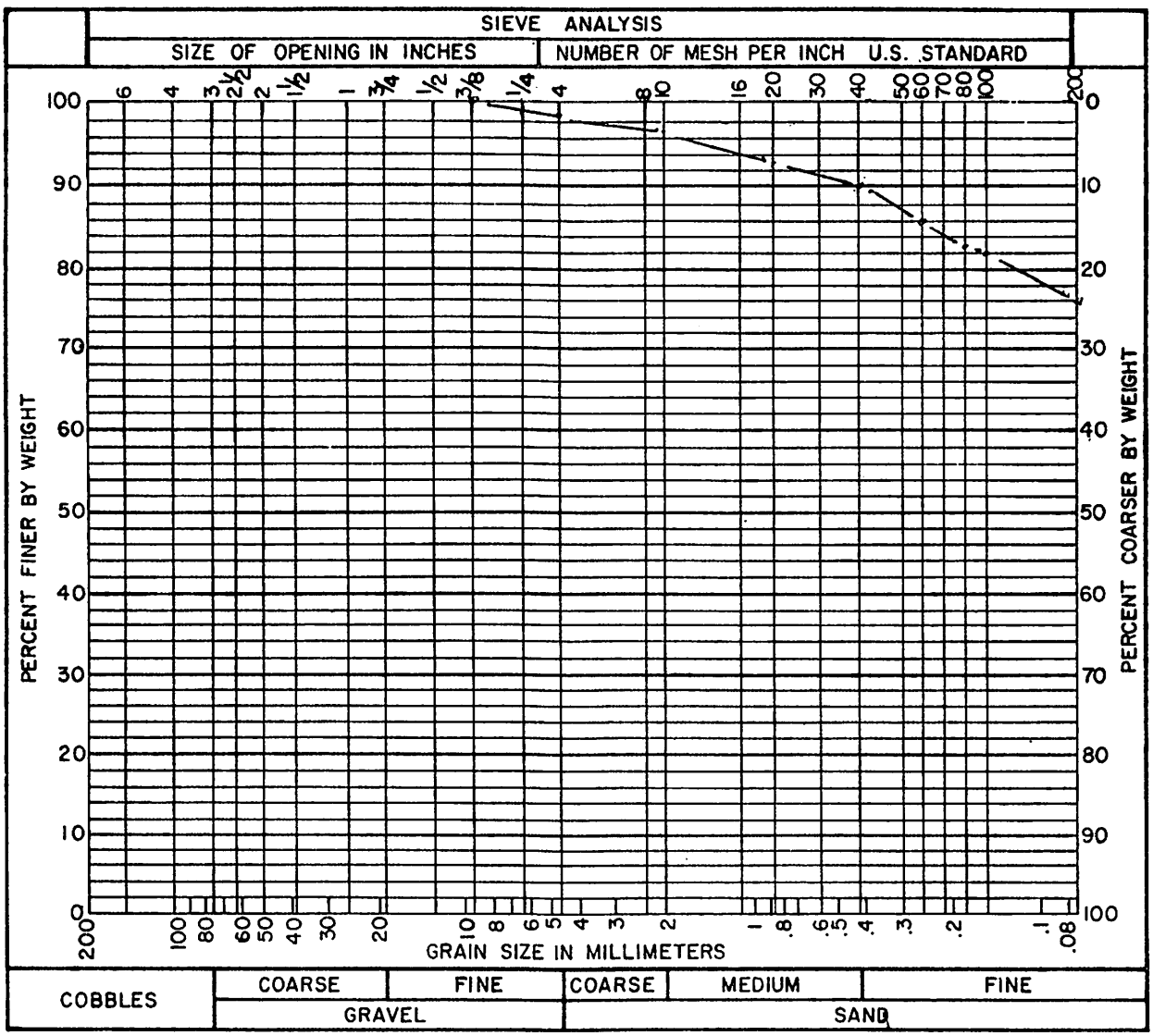
MATERIAL SOURCE 6-B/20' to 65' below O.G

LOCATION SAMPLED 5mi E Denali St./E 48th Ave. BY M. Krueger

COMMENTS ML/E-4/Sandy Silt (23%) (76%)/14% Moisture/1% Gravel

REPORTED TO

PLOTTED BY CHECKED BY BD MATERIALS SUPERVISOR



INSPECTOR'S COMMENTS

82-009 (2/77)

1831C009

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

FILE COPY

TEST NO. EX-25

PROJECT E-48th Ave RID Test Holes DATE Jan. 14, 1981

CONTRACTOR

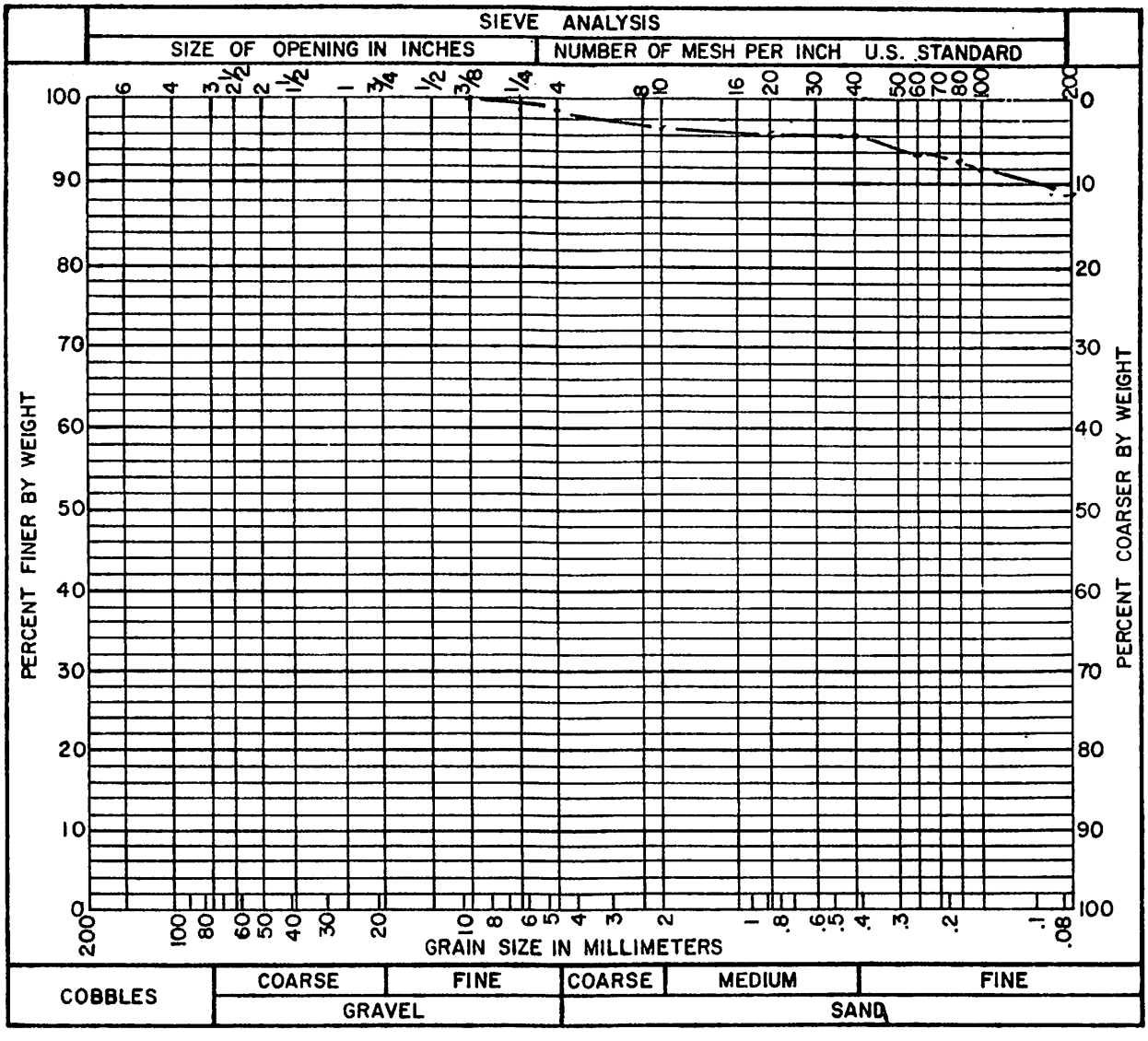
MATERIAL SOURCE 6-C/6.5' to 10.0' below O.G.

LOCATION SAMPLED S/W/C Denali St. & 48th Ave BY M. Krueger

COMMENTS ML/E-4/Silt/89%/Sand/10%/26% Moisture/1% Gravel

REPORTED TO

PLOTTED BY CHECKED BY BD MATERIALS SUPERVISOR P.O. Peyton Jr.



INSPECTOR'S COMMENTS

82-009 (2/77)

1831C010

MUNICIPALITY OF ANCHORAGE

DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION DIVISION

SOILS LOG

HOLE NO. 7 (10)

LOCATION 48TH AVE RID / 10' SO. ℄ OF 48TH AVE. ℄ OF CORDOVA ST

DATE 1/14/81

BY M.E. KRUEGER

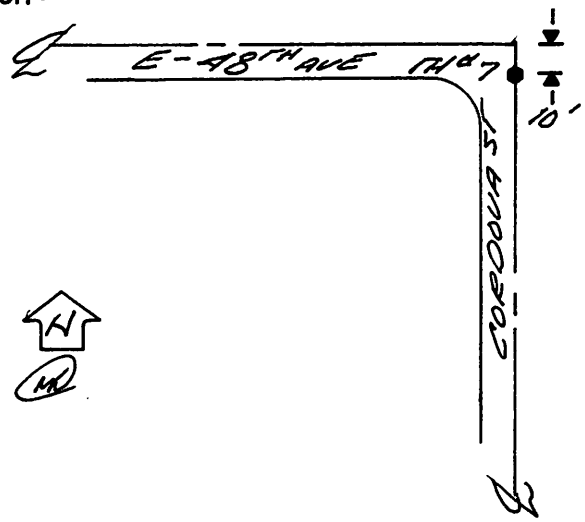
COMMENTS

DEPTH 10.0'

WATER TABLE NONE

	DEPTH	UNIFIED CLASS	FROST GROUP	DESCRIPTION
	0			EXIST GROUND / ROAD SURFACE
EX-26 7-A	1–3	GM	F-1	GR. SILTY-SANDY-GRAVEL (13%) (27%) (60%) + ISOLATED COBBLES MOIST. = 6% / NP / DENSE EST. +3" MAT'L = 10%
EX-27 7-B	4–6	ML	F-4	TAN SDY-SILT (40%) (58%) / MOIST. = 17% / GRAVEL = 2% DENSE
EX-28 7-C	7–8	ML	F-4	GR. SDY-SILT (39%) (60%) / MOIST. = 22% / NP / GRAVEL = 1% / (SEMI-ELASTIC) DENSE
EX-29 7-D	9–14	SM	F-3	GR SILTY-SAND (32%) (68%) / MOIST. = 20% / NP DENSE

LOCATION SKETCH:



LEGEND

SYMBOL

- TEST HOLE
- WATER TABLE
- FROZEN MATERIAL (2, 3, 4, 5)

ALL FROST CLASSIFICATION BASED ON THE .02mm = 50% OF THE -#200 UNLESS OTHERWISE NOTED

GRID NO. 1831

82-032 (2/81)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

VI

TEMPORARY CONSTRUCTION PERMITS AND EASEMENTS

Some of the easements or permits obtained for the construction of the project contain restrictions or special considerations. The Contractor shall be responsible for complying with all restrictions or special considerations. The Contractor shall not begin work until all easements or permits necessary for construction of the project have been acquired. The Contractor shall ensure that all easements and permits are available on the job site at all times. Beyond those provided in this Section, the easement and permit notebook containing all final easement parcel maps and permits and restrictions and/or special considerations shall be provided to Contractor prior to construction.

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2026)

TEMPORARY CONSTRUCTION PERMITS AND EASEMENTS

TO BE PROVIDED FOR 95% DESIGN

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

VII

EQUAL EMPLOYMENT OPPORTUNITY SPECIAL PROVISIONS

EQUAL EMPLOYMENT OPPORTUNITY SPECIAL PROVISIONS

CONTRACT COMPLIANCE SPECIFICATIONS

Every municipal contract shall include language substantially the same as the following: The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, ancestry, age, sex, sexual orientation, gender identity, marital status, or physical or mental disability. The contract will comply with all laws concerning the prohibition of discrimination including, but not limited to, Title 5 and Title 7 of the Anchorage Municipal Code.

Every municipal contract shall state, in all solicitations or advertisements for employees to work under the contract, that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, ancestry, age, sex, sexual orientation, gender identity, marital status, or physical or mental disability.

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

VIII

MINIMUM RATES OF PAY

Laborers' & Mechanics' Minimum Rates of Pay

Title 36. Public Contracts AS 36.05 & AS 36.10 Wage & Hour Administration Pamphlet No. 600 (Pamphlet 600) is hereby incorporated in its entirety. Pamphlet 600 is available for free download at http://labor.state.ak.us/lss/pamp600.htm.

The Municipality of Anchorage will include a paper copy of the wage rates in the signed Contract.

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

IX

CONTRACT

C O N T R A C T

Invitation to Bid No. **2019C**_____

Contract No. **C-2019**_____

NAME AND ADDRESS OF CONTRACTOR:

_____

_____

_____

Check appropriate box:

☒ **Incorporated in the State of**

MUNICIPALITY OF ANCHORAGE, acting through _____ (hereinafter the Owner).

Contract for _____

BID SCHEDULES	**ITEMS**	**PLAN SHEET FILE NUMBERS**	**AMOUNT**
			$ _____

Total Amount : $ _____

THIS CONTRACT, entered into by the MUNICIPALITY OF ANCHORAGE, ALASKA, acting through the Owner named above, and the individual, partnership, or corporation named above, hereinafter called the Contractor, WITNESSETH that the parties hereto do mutually agree as follows:

Statement of Work: The Contractor shall furnish all labor, equipment and materials and perform the Work above described, for the amount stated, in strict accordance with the Contract Documents.

SAMPLE

CONTRACT DOCUMENTS

I. This CONTRACT consisting of 4 pages.

II. The Bid Proposal Section ___ consisting of ____ pages numbered as ____, **as contained in ITB 2019C_____.**

III. The Contract Performance and Payment Bond _____.

IV. The Contractor's Certificate of Insurance Dated _____.

V. Municipality of Anchorage Standard Specifications dated 2015 (MASS) Incorporated by Reference, **as contained in ITB 2019C_____.**

VI. Specifications consisting of the following:

Supplemental Provisions Section _____ consisting of _____ pages, with attachments Exhibit A through F, **as contained in ITB 2019C_____.**

VII. Equal Opportunity Special Provisions and Forms Section _____ consisting of _____ pages, **as contained in ITB 2019C_____.**

VIII. Disadvantaged/Women-Owned Business Enterprise (DBE/WBE) Specification Section _____ consisting of _____ pages, **as contained in ITB 2019C_____.**

IX. The Laborers' and Mechanics' Minimum Rates of Pay dated September 1, 2015 Section _____ consisting of _____ pages, **as contained in ITB 2019C_____.**

X. Submittal List Section _____ consisting of _____ page, **as contained in ITB 2019C_____.**

XI. The Drawings consisting of _____ sheets numbered _____, **as contained in ITB 2019C_____.**

SAMPLE

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the Contract Date entered below.

MUNICIPALITY OF ANCHORAGE, ALASKA

BY _____
Signature

Purchasing Officer or designee
Title

Date of Signature and Contract Date:

_____

VENDOR _____

BY _____
Signature

_____
Printed Name

_____
Title

_____
Date of Signature

SAMPLE

CONTRACT AND PERFORMANCE AND PAYMENT BOND SIGNATURE INSTRUCTIONS

1. The full name and business of the Contractor shall be inserted on Page 1 of the Contract and on the Performance and Payment Bond, hereinafter the Bond.
2. Two copies of the Contract and the Bond shall be manually signed by the Contractor. If the Contractor is a partnership or joint venture, all partners or joint ventures shall sign the Contract and the Bond except that one partner or one joint venturer may sign for the partnership or joint venture when all other partners or joint venturers have executed a Power-of-Attorney authorizing one partner or joint venturer to sign. The Power-of-Attorney shall accompany the executed contract and the Bond.
3. If the Contractor is a corporation, the President of the corporation shall execute the Contract and the Bond unless a Power-of-Attorney or corporate resolution shall accompany the executed Contract and Bond.
4. The Bond shall be returned to the Purchasing Division undated. The Contract Date shall be inserted on the Contract when the Municipality signs the Contract and the Bond shall be dated the same as the Contract Date.

SAMPLE

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

X

CONTRACT PERFORMANCE AND PAYMENT BOND

CONTRACT PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, That we _____
_____ of _____
as Principal, and _____
a corporation organized under the laws of the _____
_____ and authorized to transact surety business in
the State of Alaska, of _____
as Surety, are held and firmly bound unto the MUNICIPALITY OF ANCHORAGE, as Obligee, in the full and just sum of _____
($_____) Dollars, lawful money of the UNITED STATES, for the payment which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION IS SUCH, that whereas the principal has entered into a certain contract dated the _____ date of _____ 20_____, with the Obligee for the construction of _____

_____

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW THEREFORE, if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract, and shall promptly make payments to all persons supplying labor and material in the prosecution of the work provided for in said contract, during the original term of said contract and any extensions or modifications thereof that may be granted by the Municipality, with or without notice to the Surety, then this obligation to be void; otherwise to remain in full force and effect.

This obligation is made for the use of said Obligee and also for use and benefit of all persons who may perform any work or labor or furnish any material in the execution of said Contract and may be sued on thereby in the name of said Obligee.

The said Surety, for the value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same, shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

Whenever Principal shall be, and declared by Obligee to be in default under the Contract the Obligee having performed Obligee's obligations thereunder, the Surety may promptly remedy the default or shall promptly:

1. Complete the Contract in accordance with its terms and conditions, or
2. Obtain a bid or bids for submission to Obligee for completing the Contract in accordance with its terms and conditions and upon determination by Surety of the lowest responsible bidder, or, if the Obligee elects, upon determination by Obligee and the Surety jointly of the lowest responsible bidder, arrange for a contract between such bidder and Obligee and make available as Work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price but not exceeding, including other costs and damages for which the Surety may be liable hereunder the amount set forth in the first paragraph hereof. The term "balance of the contract price" as used in this paragraph, shall mean the total amount payable by Obligee to Principal under the Contract and any amendments thereto, less the amount properly paid by Obligee to Principal.

IN TESTIMONY WHEREOF, the parties hereunto have caused the execution hereof in _____ _____ original counterparts as of the _____ day of _____, 20_____.

WITNESS AS TO PRINCIPAL:

_____ _____
Principal Name

_____
Principal Signature

_____
Corporate Surety

(AFFIX CORPORATE SEAL)

_____

_____
Surety Business Address

BY: _____
(Attorney-In-Fact)

(AFFIX SURETY SEAL)

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

XI

CERTIFICATE OF INSURANCE

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
	PHONE (A/C, No, Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
INSURED	INSURER A :	
	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
	☐ CLAIMS-MADE ☐ OCCUR						MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
							GENERAL AGGREGATE	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG	$
	☐ POLICY ☐ PRO-JECT ☐ LOC							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ☐ NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
	☐ UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	$
	☐ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						☐ WC STATU-TORY LIMITS ☐ OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ (Mandatory in NH)	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

ADDITIONAL INSURED:

1. ADDITIONAL INSURANCE: The Municipality of Anchorage is an additional insured on all policies, and shall contain a WAIVER OF SUBROGATION against the Municipality except Professional Liability and Worker's Compensation.
2. CANCELLATION: "Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the Policy Provisions."

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

XII

BID BOND

BID BOND

KNOW ALL MEN BY THESE PRESENTS, That we, _____

as Principal, and _____ a corporation organized under the laws of the _____ and authorized to transact surety business in the State of Alaska, of _____ _____ as Surety, are held and firmly bound unto the MUNICIPALITY OF ANCHORAGE, as Obligee, in the full and just sum of _____ _____ ($_____) Dollars, lawful money of the UNITED STATES, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by the presents.

WHEREAS, the said Principle is herewith submitting its proposal for _____ _____.

The condition of this obligation is such that if the aforesaid Principal will, within the time required enter into a formal contract and give a good and sufficient bond to secure the performance of the terms and conditions of the contract, then this Obligation to be void; otherwise the Principal and Surety will pay unto to the Obligee the amount stated above.

Signed, sealed, and delivered _____, 20_____.

WITNESS AS TO PRINCIPAL:

_____ _____
Contractor Name

_____
Contractor Signature

(AFFIX CORPORATE SEAL) _____
Corporate Surety

_____

_____
Surety Business Address

BY: _____
(Attorney-In-Fact)

(AFFIX SURETY SEAL)

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

XIII

BIDDER'S CHECKLIST & RESPONSIBLE BIDDER QUESTIONNAIRE

BIDDER'S CHECKLIST

INSTRUCTIONS TO BIDDER

I. GENERAL

Bidders are advised that, notwithstanding any instructions or implications elsewhere in this Invitation to Bid, only the documents shown and detailed on this sheet need be submitted with and made part of their bid. Other documents may be required to be submitted after bid time, but prior to award. Bidders are hereby advised that failure to submit the documents shown and detailed on this sheet shall be justification for rendering the bid nonresponsive. Evaluation of bids for responsiveness shall be accomplished in accordance with Anchorage Municipal Code, Title 7.

II. REQUIRED DOCUMENTS FOR BID:

NOTE: Only the following listed items as marked with an "X" are required to be completely filled out and submitted with the bid.

__X__ Bid proposal consisting of fifteen (15) pages numbered BP-1 through BP-15. BP-2 of 15 must be manually signed.

__X__ Erasures or other changes made to the Bid Proposal Sheet must be initialed by the person signing the bid.

____ Two identical sets of descriptive literature, brochures, and/or data must accompany the bid where specifically requested or when in support of an "or equal" offer.

__X__ Bid bond, certified check, cashiers check, money order or cash shall be submitted with the bid in the amount indicated.

__X__ All Addenda issued shall be acknowledged in the space provided on the Bid Proposal sheet or by manually signing the Addenda sheet and submitting it prior to the bid opening in accordance with Anchorage Municipal Code 7.20.020C.

____ Disadvantaged and Women-Owned Business Enterprises, Form 10 029.

____ Others

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (REV 2020)

III. REQUIRED DOCUMENTS AFTER BID OPENING:

The following documents are required within five (5) working days of notification by the Purchasing Office. Failure, in whole or in part, to submit the documents required below shall be grounds to determine the Bidder as non-responsible.

X In accordance with AO No. 2019-013 (S), Anchorage Municipal Code 7.20.030 and 7.20.070, Contractor Questionnaire consisting of three (3) Pages, Prime Contractor Form Filled out by Prime Contractor **and** all known subcontractors.

NOTICE: As of December 3, 2019 there are new requirements for determining contractor responsibility. Please review AO No. 2019-130 (S), AMC 7.20.030 and 7.20.070, and the attached Contractor Questionnaire before submitting a bid.

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION DEC 2020

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

XIV

BID PROPOSAL

BID PROPOSAL
(CERTIFICATION)

TO: MUNICIPALITY OF ANCHORAGE _____, 2023
PURCHASING DEPARTMENT
632 W. 6TH AVENUE, SUITE 520
ANCHORAGE, ALASKA 99501

SUBJECT: Invitation to Bid No. **2023C0**

PROJECT TITLE: **48TH AVENUE UPGRADES – CORDOVA STREET TO OLD SEWARD HIGHWAY**

Pursuant to and in compliance with subject Invitation to Bid, and other bid documents relating thereto, the bidder hereby proposes to furnish all labor and materials and to perform all work for the construction of the above referenced project in strict accordance with the bid documents at the prices established in the Bid Proposal, pages **BP-1 of 11 through BP-11 of 11** submitted herewith.

The bidder agrees, if awarded the contract, to commence and complete the work within the time specified in the bid documents.

The bidder acknowledges receipt of the following addenda:

Addenda No._____ Date of Addenda_____

Addenda No._____ Date of Addenda_____

Addenda No._____ Date of Addenda_____

Enclosed is a Bid Bond in the amount of _____.
(Dollar Amount or Percentage of Bid)

Type of Business Organization
The bidder, by checking the applicable box, represents that it operates as ( ) a corporation incorporated under the laws of the State of ____, ( ) an individual, ( ) an LLC, ( ) a partnership, ( ) a nonprofit organization, or ( ) a joint venture. If a partnership or joint venture, identify all parties on a separate page.

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

_____
Company Name

(CERTIFICATION)
Continued

SUBJECT: Invitation to Bid No. **2023C0**

PROJECT TITLE: **48TH AVENUE UPGRADES – CORDOVA STREET TO OLD SEWARD HIGHWAY**

Date

Alaska Contractor's License Number

Company Name (Printed)

Employer's Tax Identification Number

Authorized Representative Signature

Printed Name & Title

Company **Mailing** Address

Company Phone Number

City, State, Zip Code

Company Fax Number

Company Email Address

Company **Physical** Address
(if different from mailing address)

City, State, Zip Code

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48th Avenue Upgrades - Cordova Street to Old Seward Highway

MOA Project No. 06-26

Bid Proposal

BASE BID

Schedule	Description	Bid Amount
A	Roadway Improvements	
B	Drainage Improvements	
C	Illumination Improvements	
D	Landscaping Improvements	

Total Project: _____

Contractor's Name: _____

Date: _____

48th Avenue Upgrades - Cordova Street to Old Seward Highway

MOA Project No. 06-26

Bid Proposal

Schedule: A Roadway Improvements

ITEM NO.	SPEC. NO.	WORK DESCRIPTION		EST. QUANT	UNIT BID PRICE	TOTAL BID PRICE
A-1	20.02 95.04	Storm Water Pollution Prevention Plan (Type 3)	Per LS	1		
A-2	20.03	Exploratory Excavation	Per Hour	10		
A-3	20.04 95.04	Clearing and Grubbing	Per LS	1		
A-4	20.07 95.04	Remove Sidewalk or Concrete Apron	Per SY	137		
A-5	20.08	Remove Curb and Gutter	Per LF	3,439		
A-6	20.09 95.04	Remove Pavement	Per SY	12,834		
A-7	20.10	Unusable Contaminated Excavation	Per CY	3,600		
A-8	20.10	Unusable Excavation	Per CY	15,500		
A-9	20.12	Dewatering	Per LS	1		
A-10	20.21 95.04	Classified Fill and Backfill (Type II)	Per Ton	9,300		
A-11	20.21 95.04	Classified Fill and Backfill (Type II-A)	Per Ton	15,800		
A-12	20.22 95.04	Leveling Course	Per Ton	1,430		
A-13	20.25	Geotextile (Type A)	Per SY	13,300		
A-14	20.26 95.04	Insulation Board (R-4.5)	Per SF	8,910		
A-15	20.26 95.04	Insulation Board (R-9)	Per SF	90,640		
A-16	30.02	P.C.C. Curb and Gutter (All Types)	Per LF	3,768		
A-17	30.02	P.C.C. Curb and Gutter (Type 1, Steel Curb Facing)	Per LF	111		
A-18	30.02	Curb Nose	Per EA	2		
A-19	30.03 95.04	P.C.C. Sidewalk (4" Thick, Standard Finish)	Per SY	368		

Contractor's Name: _____

Date: _____

48th Avenue Upgrades - Cordova Street to Old Seward Highway

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Bid Proposal

Schedule: A Roadway Improvements

ITEM NO.	SPEC. NO.	WORK DESCRIPTION		EST. QUANT	UNIT BID PRICE	TOTAL BID PRICE
A-20	30.04 95.04	P.C.C. Curb Ramp (All Types)	Per EA	16		
A-21	30.04	Detectable Warnings	Per SF	143		
A-22	30.05 95.04	P.C.C. Structure/Retaining Wall Class (AA-3)	Per CY	86		
A-23	30.10 95.04	Colored Concrete (Red, 4" Thick, Imprinted)	Per SY	118		
A-24	40.04	Tack Coat	Per Ton	3		
A-25	40.06	A.C. Pavement (Class A)	Per Ton	32		
A-26	40.06	A.C. Pavement (Class D)	Per Ton	1,480		
A-27	40.06	A.C. Pavement (Class E)	Per Ton	840		
A-28	50.06	Remove and Replace Manhole Cover and Frame (SSMH-1831-065)	Per EA	1		
A-29	55.08	Adjust Storm Drain Manhole Ring	Per EA	2		
A-30	55.12	Adjust Catch Basin to Finish Grade	Per EA	1		
A-31	60.03	Remove and Replace Valve Box Top Section	Per EA	11		
A-32	60.05	Adjust Key Box	Per EA	5		
A-33	65.02	Construction Survey Measurement	Per LS	1		
A-34	65.02	Two-Person Survey Crew	Per Hour	40		
A-35	70.08 95.04	Remove and Reset Fence	Per LF	258		
A-36	70.08 95.04	Remove and Reset Gate	Per LF	43		
A-37	70.10	Traffic Markings (4" Solid Yellow)	Per LF	375		

Contractor's Name: _____

Date: _____

48th Avenue Upgrades - Cordova Street to Old Seward Highway

MOA Project No. 06-26

Bid Proposal

Schedule: A Roadway Improvements

ITEM NO.	SPEC. NO.	WORK DESCRIPTION		EST. QUANT	UNIT BID PRICE	TOTAL BID PRICE
A-38	70.10 95.04	Inlaid Traffic Markings (Methyl Methacrylate) (4" Yellow) (125 Mil)	Per LF	2,858		
A-39	70.10 95.04	Inlaid Traffic Markings (Methyl Methacrylate) (4" White) (125 Mil)	Per LF	1,081		
A-40	70.10 95.04	Inlaid Traffic Markings (Methyl Methacrylate) (18" White) (125 Mil)	Per LF	59		
A-41	70.10 95.04	Inlaid Traffic Markings (Methyl Methacrylate) (24" White) (125 Mil)	Per LF	133		
A-42	70.10 95.04	Inlaid Traffic Markings (Methyl Methacrylate) (Turn Arrows) (125 Mil)	Per EA	1		
A-43	70.10 95.04	Curb Nose Traffic Marking (Methyl Methacrylae)	Per EA	2		
A-44	70.11 95.04	Standard Sign	Per SF	174		
A-45	70.12 95.04	Traffic Maintenance	Per LS	1		
A-46	70.13	Remove Bollard	Per EA	4		
A-47	70.13	Bollard (Steel)	Per EA	2		
A-48	70.17	Relocate Mailbox	Per EA	1		
A-49	70.18 95.04	Wood Clad Chain Link Fence	Per LF	170		
A-50	70.21	Furnish and Install Flexible Delineator	Per EA	3		
A-51	70.22 95.04	Temporary Fencing	Per LF	258		
A-52	70.23 95.04	Adjust Monitoring Well	Per EA	5		
A-53	75.11 95.04	Salvage and Relocate or Dispose Existing Boulder	Per EA	4		
A-54	75.12 95.04	Temporary Tree Protection Fence	Per LF	202		

Total Schedule A _____

Contractor's Name: _____

Date: _____

48th Avenue Upgrades - Cordova Street to Old Seward Highway

MOA Project No. 06-26

Bid Proposal

Schedule: B Drainage Improvements

ITEM NO.	SPEC. NO.	WORK DESCRIPTION		EST. QUANT	UNIT BID PRICE	TOTAL BID PRICE
B-1	20.13	Trench Dewatering	Per LS	1		
B-2	20.13	Trench Excavation and Backfill (Various Depths)	Per LF	2,379		
B-3	20.15	Furnish Trench Backfill (Type II)	Per Ton	204		
B-4	20.16	Bedding Material (Class D)	Per LF	995		
B-5	20.26	Insulation Board (R-20)	Per SF	384		
B-6	20.27	Disposal of Unusable or Surplus Material	Per CY	960		
B-7	55.02 95.04	Furnish, Install, and Televise Pipe (12-Inch, Type S, CPEP)	Per LF	228		
B-8	55.02 95.04	Furnish, Install, and Televise Pipe (12-Inch, Type S, CPEP, Watertight)	Per LF	207		
B-9	55.02 95.04	Furnish, Install, and Televise Pipe (18-Inch, Type S, CPEP)	Per LF	33		
B-10	55.02 95.04	Furnish, Install, and Televise Pipe (18-Inch, Type S, CPEP, Watertight)	Per LF	42		
B-11	55.02 95.04	Furnish, Install, and Televise Pipe (24-Inch, Type S, CPEP, Watertight)	Per LF	485		
B-12	55.03	Furnish, Install, and Televise Subdrain with Geotextile (12-Inch, Type SP, CPEP, Type C Filter Material, Type C non-woven Geotextile)	Per LF	527		
B-13	55.03	Furnish, Install, and Televise Subdrain with Geotextile (18-Inch, Type SP, CPEP, Type C Filter Material, Type C non-woven Geotextile)	Per LF	856		
B-14	55.04 95.04	Connect to Existing Storm Drain System	Per EA	6		
B-15	55.05 95.04	Construct (Type I) Manhole	Per EA	9		
B-16	55.05 95.04	Construct (Type I) Manhole (Watertight Connection)	Per EA	4		
B-17	55.05 95.04	Construct (Type II) Manhole	Per EA	1		
B-18	55.05 95.04	Construct (Type II) Manhole (Watertight Connection)	Per EA	2		
B-19	55.05 95.04	Construct (Type I) Catch Basin Manhole (Watertight Connection)	Per EA	1		

Contractor's Name: _____

Date: _____

48th Avenue Upgrades - Cordova Street to Old Seward Highway

MOA Project No. 06-26

Bid Proposal

Schedule: B Drainage Improvements

ITEM NO.	SPEC. NO.	WORK DESCRIPTION		EST. QUANT	UNIT BID PRICE	TOTAL BID PRICE
B-20	55.05 95.04	Construct (Type II) Catch Basin Manhole	Per EA	1		
B-21	55.05 95.04	Construct (Type II) Bypass Manhole	Per EA	1		
B-22	55.05 95.04	Construct (Type II) Bypass Manhole (Watertight Connection)	Per EA	1		
B-23	55.09	Construct Catch Basin	Per EA	9		
B-24	55.09	Construct Catch Basin (Watertight Connection)	Per EA	8		
B-25	55.11	Remove Manhole	Per EA	5		
B-26	55.11	Remove Catch Basin	Per EA	5		
B-27	55.22 95.04	Oil and Grit Separator (Stormceptor STC 450i)	Per EA	2		
B-28	55.27 95.04	Storm Drain Bypass System	Per LS	1		
B-29	60.02	Raise or Lower Water Main (10-Inch Ductile Iron)	Per EA	1		
B-30	70.07 95.04	Remove Pipe	Per LF	778		

Total Schedule B _____

Contractor's Name: _____

Date: _____

48th Avenue Upgrades - Cordova Street to Old Seward Highway
MOA Project No. 06-26

Bid Proposal

Schedule: C Illumination Improvements

ITEM NO.	SPEC. NO.	WORK DESCRIPTION		EST. QUANT	UNIT BID PRICE	TOTAL BID PRICE
C-1	80.01 95.04	Temporary Illumination	Per LS	1		
C-2	80.02	Trench and Backfill (2'W x 3.5'D)	Per LF	2,090		
C-3	80.04	Driven Pile Luminaire Pole Foundations	Per EA	12		
C-4	80.04	Load Center Foundation (Type 1A)	Per EA	1		
C-5	80.05 95.04	Fixed Base Luminaire Pole (26-29 Ft. Length)	Per EA	12		
C-6	80.05 95.04	Spare Fixed Base Luminaire Pole (26-28 Ft. Length)	Per EA	3		
C-7	80.05 95.04	Luminaire Arm (6-21 Ft. Length)	Per EA	15		
C-8	80.07 95.04	GRC Steel Conduit (2 inch)	Per FT	2,360		
C-9	80.08 95.04	Junction Box (Type IA)	Per EA	15		
C-10	80.08 95.04	Junction Box (Type II)	Per EA	1		
C-11	80.10	3 Conductor 8 AWG Type XHHW-2 Cable	Per FT	3,190		
C-12	80.14 95.04	Single-Meter Pad-Mount Load Center, Type 1A, with Lighting Control	Per EA	1		
C-13	80.23 95.04	Luminaire (6000 Lm, Medium, Type 2)	Per EA	3		
C-14	80.23 95.04	Luminaire (10000 Lm, Medium, Type 2)	Per EA	7		
C-15	80.23 95.04	Luminaire (14000 Lm, Medium, Type 2)	Per EA	2		
C-16	80.23 95.04	Luminaire (14000 Lm, Medium, Type 3)	Per EA	1		
C-17	80.23 95.04	Luminaire (16000 Lm, Medium Type 3)	Per EA	1		
C-18	80.23 95.04	Luminaire (18000 Lm, Medium, Type 3)	Per EA	1		
C-19	80.23 95.04	Spare Luminaire (6000 Lm, Medium, Type 2)	Per EA	1		

Contractor's Name: _____

Date: _____

48th Avenue Upgrades - Cordova Street to Old Seward Highway
MOA Project No. 06-26

Bid Proposal

Schedule: C Illumination Improvements

ITEM NO.	SPEC. NO.	WORK DESCRIPTION	EST. QUANT	UNIT BID PRICE	TOTAL BID PRICE
C-20	80.23 95.04	Spare Luminaire (10000 Lm, Medium, Type 2) Per EA	1		
C-21	80.23 95.04	Spare Luminaire (14000 Lm, Medium, Type 2) Per EA	1		
C-22	80.23 95.04	Spare Luminaire (14000 Lm, Medium, Type 3) Per EA	1		
C-23	80.23 95.04	Spare Luminaire (16000 Lm, Medium Type 3) Per EA	1		
C-24	80.23 95.04	Spare Luminaire (18000 Lm, Medium, Type 3) Per EA	1		

Total Schedule C _____

Contractor's Name: _____

Date: _____

48th Avenue Upgrades - Cordova Street to Old Seward Highway
MOA Project No. 06-26

Bid Proposal

Schedule: D Landscaping Improvements

ITEM NO.	SPEC. NO.	WORK DESCRIPTION		EST. QUANT	UNIT BID PRICE	TOTAL BID PRICE
D-1	20.18	Filter Rock, 4" depth	Per Ton	26		
D-2	75.02	Tree, Betula papyrifera, 2" caliper	Per EA	3		
D-3	75.02	Shrub, Cotoneaster lucidus, 24" height	Per EA	74		
D-4	75.02	Shrub, Pinus mugo 'Pumilo', 18" height	Per EA	47		
D-5	75.02	Shrub, Potentilla fruticosa, 24" height	Per EA	12		
D-6	75.03	Topsoil (4-inch depth)	Per MSF	13		
D-7	75.06	Edging	Per LF	78		
D-8	75.04	Seeding, Schedule A Mowable Seed Mix	Per MSF	13		
D-9	75.14 95.04	Moose Protection Fence	Per LF	81		

Total Schedule D _____

Contractor's Name: _____

Date: _____

MUNICIPALITY OF ANCHORAGE
PROJECT MANAGEMENT AND ENGINEERING DEPARTMENT

PRELIMINARY SUBMITTAL - NOT FOR CONSTRUCTION (FEB 2022)

48TH AVENUE UPGRADES
CORDOVA STREET TO OLD SEWARD HIGHWAY

06-26

XV

PLANS (64 Sheets)
Under Separate Cover