

MATANUSKA-SUSITNA BOROUGH

350 East Dahlia Avenue, Palmer, Alaska 99645 – 907-861-7874

PLATTING OFFICER
Fred Wagner

PLATTING CLERK
Kayla Kinneen

PLATTING TECHNICIANS
Matthew Goddard
Chris Curlin
Natasha Heindel



PLATTING BOARD
Chair Ron Johnson, District 1
Brian Goodman, District 2
Vice Chair Eric Koan, District 3
Dan Bush, District 4
Michelle Traxler, District 5
Sandra Kreger, District 6
Sidney Bertz, District 7
Karla McBride, Alternate A
Robert Hallford, Alternate B

PLATTING BOARD AGENDA **ASSEMBLY CHAMBERS** **350 E DAHLIA AVENUE PALMER**

PLATTING BOARD MEETING **1:00 P.M.** **July 3, 2024**

Ways you can participate in Platting Board meetings:

IN PERSON

IN WRITING: You can submit written comments by email to platting@matsugov.us or by mail to Matanuska-Susitna Borough, Platting Division, 350 E. Dahlia Avenue, Palmer, AK 99645

TELEPHONIC TESTIMONY: (Audio only)

(We are having intermittent technical difficulties with our software; if you would like to submit comments, please submit comments to the email address above by the Wednesday before the meeting.)

- Dial 1-855-290-3803; you will hear “Joining conference” when you are admitted to the meeting.
- You will be automatically muted and able to listen to the meeting.
- When the Chair announces audience participation or a public hearing you would like to speak to, press *3; you will hear “Your hand has been raised.”
- When it is your turn to testify you will hear “Your line has been unmuted.”
- State your name for the record, spell your last name, and provide your testimony.

OBSERVE: You can observe the meeting via the live stream video at:

- <https://www.facebook.com/MatSuBorough>
- Matanuska-Susitna Borough – YouTube

1. CALL TO ORDER

- A. Roll Call and Determination of Quorum (by Secretary)
- B. Pledge of Allegiance
- C. Approval of Agenda

2. APPROVAL OF MINUTES

A. June 6, 2024

3. AUDIENCE PARTICIPATION & PRESENTATIONS

A. **PERSONS TO BE HEARD** (Three minutes per person for Items not scheduled for public hearing)

B. **UNFINISHED BUSINESS**

(None)

4. RECONSIDERATIONS/APPEALS

(None)

5. PUBLIC HEARINGS

A. **WILLIWAW #2 B7 L5-6 UE**: The request is to vacate the 10' Public Use Easements on **Lots 5 & 6, Williwaw #2** Plat #W-76. The property is located directly south of N. Tanana Drive and west of N. Copper Creek Road; (Tax ID's 1069B07L005 & 1069B07L006); located within the NE ¼ Section 2, Township 17 North, Range 01 West, Seward Meridian, Alaska. In the North Lakes Community Council and in Assembly District #4. (Petitioner/Owner: Precision Frontiers LLC, Staff: Chris Curlin, Case # 2024-063)

B. **CELESTIAL HEIGHTS**: The request is to create 56 lots and 1 tract from Tax Parcel B2 in a five-phase master plan, to be known as **CELESTIAL HEIGHTS**, containing 80.00 acres +/- . The parcel is located east of N. Palmer-Fishhook Road and directly south of E. Boyd Road, in Section 12 (Tax ID# 118N01E12B002); within Section 12, Township 18 North, Range 01 East, Seward Meridian, Alaska. The property is within the Fishhook Community Council and Assembly District #1. (Petitioner/Owner: SOA Mental Health Trust Land Office, Staff: Natasha Heindel, Case # 2024-068)

ITEMS OF BUSINESS & MISCELLANEOUS

(None)

6. PLATTING STAFF & OFFICER COMMENTS

A. Adjudicatory (if needed)

- *Definition: Law. To hear and settle an issue or a question regarding code.*

B. Upcoming Platting Board Agenda Items (Staff: Fred Wagner & Clerk: Kayla Kinneen)

- July 18, 2024, Platting Board Meeting; we have six cases to be heard
 - Meadow Creek Homestead
 - Lazy Moose Run
 - Little Susitna Flats
 - Springs West
 - Correira Estates
 - Hatcher Pass Village Ph 1 SLEV PUE

7. BOARD COMMENTS

8. ADJOURNMENT

MINUTES

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES**

**REGULAR MEETING
June 6, 2024**

The regular meeting of the Matanuska-Susitna Borough Platting Board was held on June 6, 2024, at the Matanuska-Susitna Borough 350 E Dahlia Ave, Palmer, Alaska. Alaska. Chair Johnson called the Meeting to order at 1:00 p.m.

1. CALL TO ORDER

A. ROLL CALL AND DETERMINATION OF QUORUM (by Administrative Specialist)

Platting Board members present and establishing a quorum:

Mr. Ron Johnson, District Seat #1, Chair
Mr. Brian Goodman, District Seat #2
Mr. Eric Koan, District Seat #3, Vice Chair
Ms. Michelle Traxler, District Seat #5
Ms. Karla McBride, Alternate A
Mr. Robert Hallford, Alternate B

Platting Board members absent and excused were:

Mr. Dan Bush, District Seat #4
Mr. Sidney Bertz, District Seat #7

Platting Board members absent were:

Ms. Sandra Kreger, District Seat #6

Staff in attendance:

Mr. Fred Wagner, Platting Officer
Ms. Kayla Kinneen, Platting Board Clerk
Mr. Matthew Goddard, Platting Technician
Mr. Chris Curlin, Platting Technician
Ms. Natasha Heindel, Platting Technician

B. THE PLEDGE OF ALLEGIANCE

Platting Member Hallford led the pledge of allegiance.

C. APPROVAL OF THE AGENDA

Chair Johnson inquired if there were any changes to the agenda.

- Platting Officer, Mr Wagner suggested amending the agenda to include the reconsideration of Lazy Moose Run to Item number 4 Reconsiderations/Appeals.

GENERAL CONSENT: The agenda was approved unanimously.

2. APPROVAL OF MINUTES

- May 2, 2024
- May 16, 2024

Minutes were approved unanimously.

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES**

**REGULAR MEETING
June 6, 2024**

3. AUDIENCE PARTICIPATION & PRESENTATIONS

The following persons spoke:

- Gary LoRusso
- Jay Van Diest

4. UNFINISHED BUSINESS

(None)

5. RECONSIDERATIONS/APPEALS

Lazy Moose Run Case #2024-048

The petitioner's representative, Gary LoRusso gave an overview.

MOTION: Platting Member Traxler moved to approve the reconsideration of Lazy Moose Run. Platting Member Koan seconded the motion.

VOTE: The reconsideration was approved unanimously.

6. PUBLIC HEARINGS

A. PANORAMIC PRESERVE: The request is to create 20 lots from Tract 1A, The Ranch Phase 7B, Plat No. 2021-14, to be known as **PANORAMIC PRESERVE**, containing 80.39 acres +/- . Lots to be served by a community water system. Parcels are located north of E. Nelson Road and south of E. Fetlock Drive. Access will be from dedicated interior streets; lying within Sections 20 & 21, Township 17 North, Range 01 East, Seward Meridian, Alaska. **This case was continued from November 2, 2023.** In the Gateway Community Council and in Assembly District #3. *(Petitioner/Owner: Arctic Devco Inc Staff: Chris Curlin, Case #2023-107)*

Chair Johnson read the statement regarding Ex-Parte & Interest on quasi-judicial action into the record.

Kayla Kinneen provided the mailing report:

- Stating that 291 public hearing notices were mailed out on May 14, 2024.

Staff gave an overview of the case:

- Staff recommends approval with 8 conditions and 8 findings of facts.

Chair Johnson invited the petitioner/petitioner's representative to give an overview.

The petitioner's representatives, Richard Besse and Steve Eng spoke.

Chair Johnson opened the public hearing for public testimony.

The following persons spoke:

- Sandy Traini

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES**

**REGULAR MEETING
June 6, 2024**

There being no one else to be heard Chair Johnson closed the public hearing and invited the petitioner and/or the petitioner's representative to further discuss and answer any questions from the Board.

The petitioner's representative spoke.

Discussion ensued.

MOTION: Platting Member Traxler made a motion to approve the variance from SCM 2022 A09.1 & A09.2 and the preliminary plat of Panoramic Preserve. Platting Member Koan seconded the motion.

Discussion ensued.

VOTE: The motion passed without objection.

- B. **SECON PUE**: The request is to create a 60' X 3138'+/- Public Use Easement on Tax Parcel D1, containing 188,280 sf (4.32 acres +/-). The proposed Public Use Easement is located south of S. Glenn Highway and directly south of E. Grandview Road; (Tax ID 17N01E24D001); located within the S ½ Section 24, Township 17 North, Range 01 East, Seward Meridian, Alaska. In the Gateway Community Council and in Assembly District #2. (*Petitioner/Owner: Secon Inc Staff: Chris Curlin, Case #2024-055*)

Chair Johnson read the statement regarding Ex-Parte & Interest on quasi-judicial action into the record.

Kayla Kinneen provided the mailing report:

- Stating that 34 public hearing notices were mailed out on May 14, 2024.

Staff gave an overview of the case:

- Staff recommends continuation to a date uncertain.

Chair Johnson opened the public hearing for public testimony.

The following persons spoke:

- John Stuart
- Wendy Craig
- Cheyenne Guard

There being no one else to be heard Chair Johnson left the public hearing open and invited the petitioner and/or the petitioner's representative to further discuss and answer any questions from the Board.

**MATANUSKA-SUSITNA BOROUGH
PLATTING BOARD MINUTES**

**REGULAR MEETING
June 6, 2024**

MOTION: Platting Member Hallford made a motion to postpone the preliminary plat, Secon PUE. Platting Member Koan seconded the motion.

Discussion ensued.

VOTE: The case was postponed without objection.

7. PLATTING STAFF & OFFICER COMMENTS

A. Adjudicatory (*if needed*)

B. Upcoming Platting Board Agenda Items

Platting Officer, Fred Wagner informed the board of upcoming items:

- No Platting Board Meeting June 20th, 2024. The next Meeting will be July 3rd which is a Wednesday due to the holiday.

BOARD COMMENTS.

- Chair Johnson – Welcomed Ms. McBride

8. ADJOURNMENT

With no further business to come before the Platting Board, Chair Johnson adjourned the meeting at **1:50 PM**.

RON JOHNSON
Platting Board Chair

ATTEST:

KAYLA KINNEEN
Platting Board Clerk

5A

STAFF REVIEW AND RECOMMENDATIONS
PUBLIC HEARING
JULY 3, 2024

PRELIMINARY PLAT: WILLIWAW #2 B7, L5-6 U.E.
LEGAL DESCRIPTION: SEC 2, T17N, R01W, SEWARD MERIDIAN AK
PETITIONERS: WADE STAHLER
SURVEYOR: SOUTHWEST ALASKA SURVEYING
ACRES: .05 +/- PARCELS: NA
REVIEWED BY: CHRIS CURLIN CASE #: 2024-063

REQUEST: The request is to vacate the 10' Utility Easement on each side of the boundary between Lots 5 and 6, Block 7, Williwaw #2, containing 2,000 sf (.05 acres +/-). The property is located directly south and east of N. Tanana Drive and directly west of N. Copper Creek Road; located within the NE ¼ Section 2, Township 17 North, Range 01 West, Seward Meridian, Alaska.

EXHIBITS

Vicinity Map and Aerial Photos **EXHIBIT A – 4 pgs**
Petition for Elimination or Modification & As-Built **EXHIBIT B – 3 pgs**
Letters of Non-Objection **EXHIBIT C – 5 pgs**

AGENCY COMMENTS

USACE **EXHIBIT D – 1 pg**
Department of Public Works Pre-Design & Engineering **EXHIBIT E – 1 pg**
Permit Center **EXHIBIT F – 1 pg**
North Lakes CC **EXHIBIT G – 1 pg**
Utilities **EXHIBIT H – 3 pgs**

DISCUSSION: The proposed Utility Easement (UE) Vacation is on each side of the boundary between Lot 5 and Lot 6. Pursuant to MSB 43.15.032 (A)(1) The platting board shall review and act upon all petitions requesting elimination or modification of platted utility, drainage, sanitation, slope, snow storage, buffer, and screening easements; provided, that: (1) the authority having jurisdiction over the easement consents; Letters of Non-Objection from all four utilities are at **(Exhibit C)**.

Comments:

USACE **(Exhibit D)** The Corps of Engineers (Corps) does not have any specific comments regarding the Utility Easement Vacations Block 7, Lots 5 and 6, Williwaw Subdivision No. 2.
MSB DPW Pre-Design & Engineering **(Exhibit E)** Has no comment
MSB Permit Center **(Exhibit G)** has no comment.
North Lakes Community Council **(Exhibit H)** Asked if the RFC was sent to adjacent property owners.

Staff notes the public notice process was explained in the reply email.

Utilities: (Exhibit I) ENSTAR has no comments. GCI Has no comments or objections. MTA and MEA did not respond.

At the time of staff report write-up, there were no responses to the Request for Comments from ADF&G; Road Service Area #25 Bogard; MSB Community Development, or Assessments; MEA, or MTA.

CONCLUSION: The Public Use Easement is consistent with AS 29.40.070 Platting Regulations and MSB 43.15.032 Elimination or Modification of Utility, Drainage, Sanitation, Slope, Snow Storage, Buffer, and Screening Easements. There were no objections from any federal or state agencies, or utilities. There were no objections from the public in response to the Notice of Public Hearing.

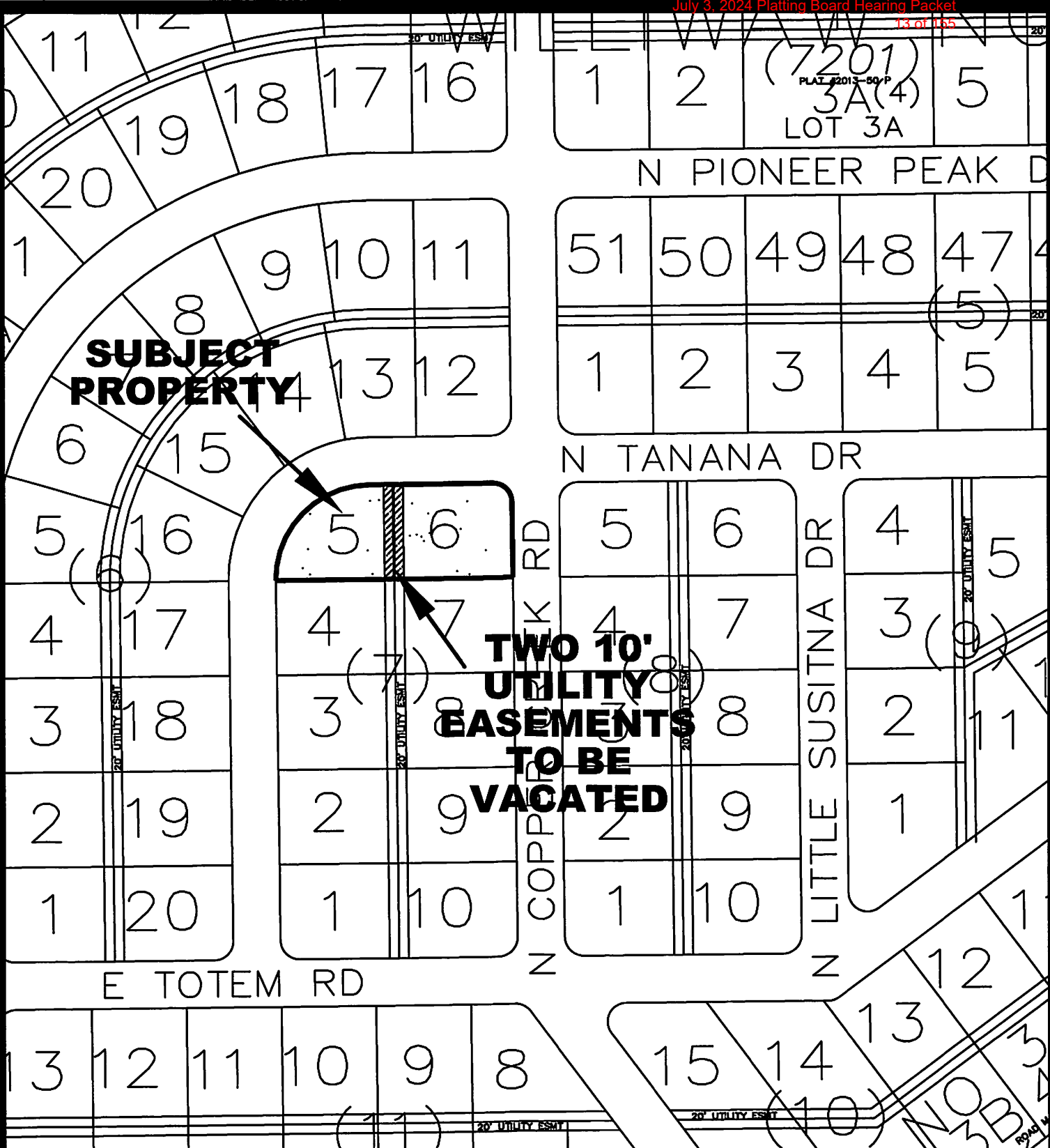
FINDINGS OF FACT

1. The Vacation Utility Easement is consistent with AS 29.40.070 Platting Regulations and MSB 43.15.032 Elimination or Modification of Utility, Drainage, Sanitation, Slope, Snow Storage, Buffer, and Screening Easements.
2. Petitioner has submitted Letters of Non-objection from all four utilities.
3. At the time of staff report write-up, there were no responses to the Request for Comments from ADF&G; Road Service Area #25 Bogard; MSB Community Development, or Assessments; MEA or MTA
4. There were no objections from any federal or state agencies, or utilities.
5. There were no objections from the public in response to the Notice of Public Hearing.

RECOMMENDATIONS OF CONDITIONS OF APPROVAL

Suggested motion: I move to approve the Vacation of Utility Easements on Lots 5 & 6, Block 7, Williwaw #2, Section 2, Township 17 North, Range 01 West, Seward Meridian, Alaska, contingent on staff recommendations:

1. Taxes and special assessments must be paid in full for the year of recording, pursuant to MSB 43.15.053(F) and AS 40.15.020. Pay taxes and special assessments (LIDs), by CERTIFIED FUNDS OR CASH.
2. Provide updated Certificate to Plat executed within seven (7) days of recording and submit Beneficiary Affidavit for any holders of a beneficial interest for each phase plat.
3. Pay postage and advertising fees.
4. Submit recording fees, payable to Department of Natural Resources (DNR).
5. Submit a vacation resolution and a graphical representation showing the specific area eliminated.



VICINITY MAP
 FOR PROPOSED 10 FOOT UTILITY EASEMENT
 VACATION
 LOCATED WITHIN
 SECTION 02, T17N, R01W, SEWARD MERIDIAN
 ALASKA
 WA11 MAP

15 14 13
 (10)
 1 2 3
 NO 3B
 ROAD
 E
 10
 11
EXHIBIT A-1



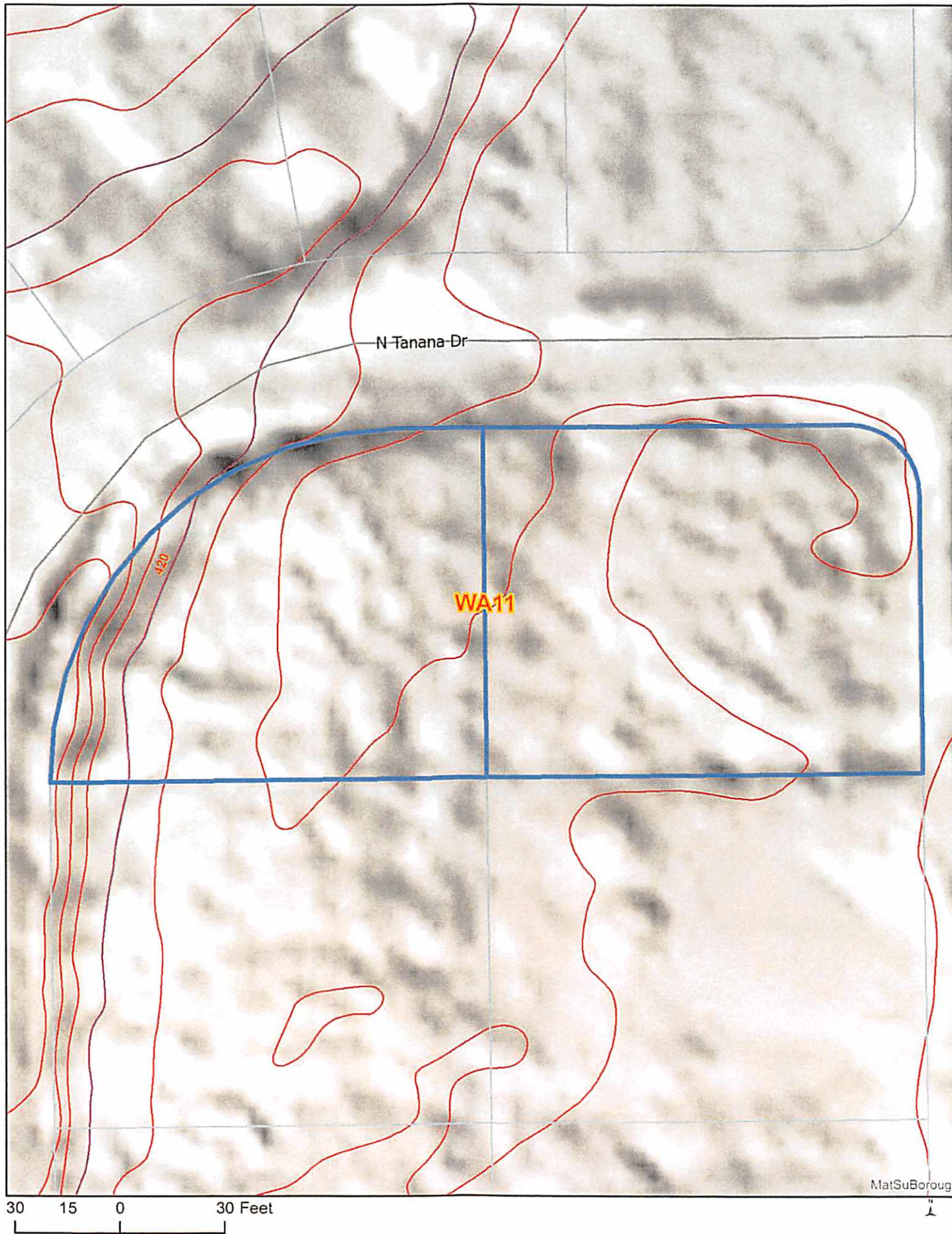
N Tanana Dr

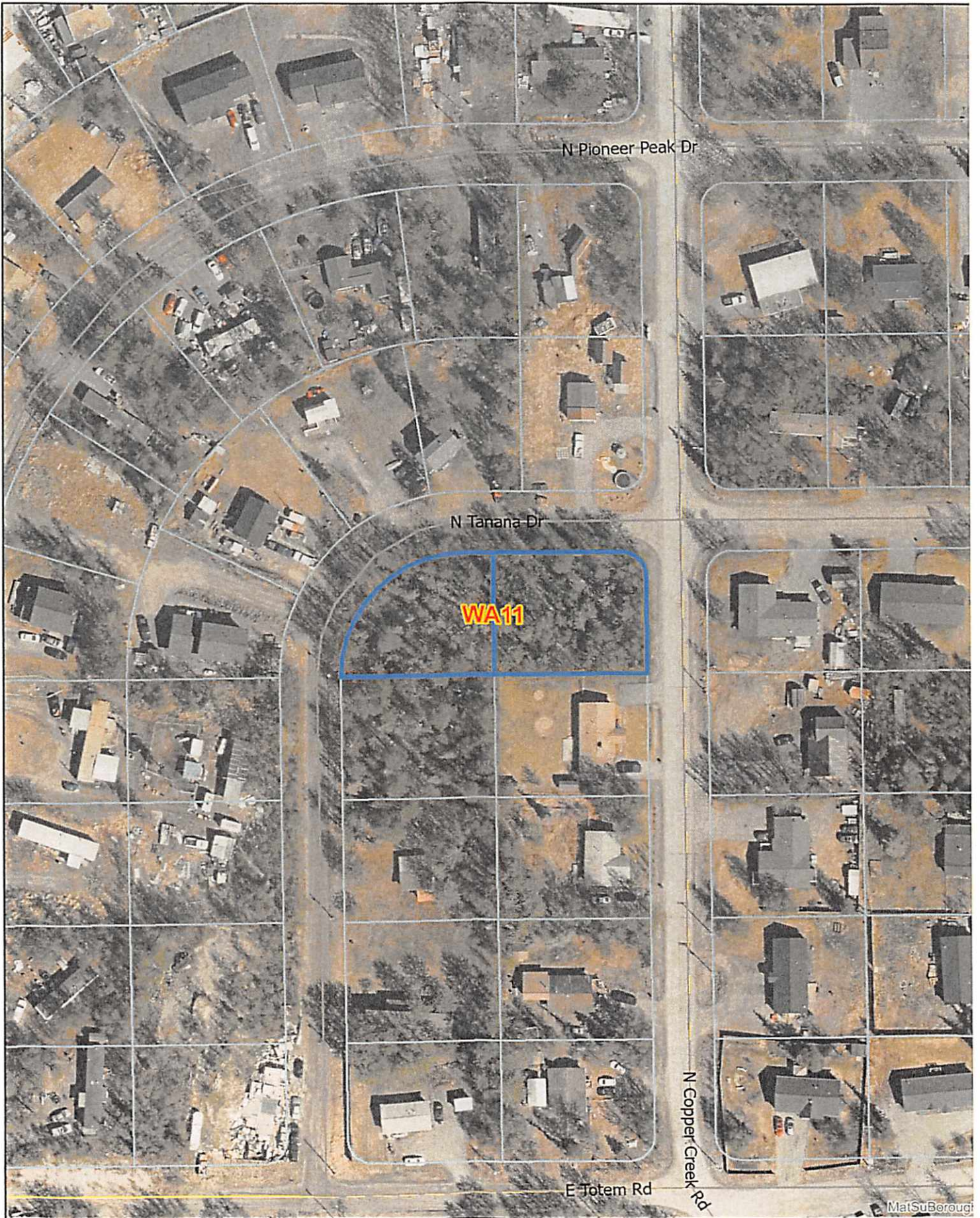
WA11

30 15 0 30 Feet

MatSuBorough

EXHIBIT A-2





100 50 0 100 Feet

Matanuska-Susitna Borough
Telephone (907) 861-7874

350 East Dahlia Avenue
Palmer, Alaska 99645-6488

PETITION FOR ELIMINATION OR MODIFICATION OF UTILITY, SLOPE, SNOW STORAGE, DRAINAGE, SANITATION, BUFFERS AND SCREENING EASEMENTS

Comes now the undersigned, Wade Stahle, and petitions the Matanuska-Susitna Borough to eliminate or modify the *utility, slope, snow storage, drainage, sanitation, buffers, or screening easement(s)* lying within the following described property, to-wit:

WILLIWAU #2 Lots 5 & 6

Said easement(s) being more fully described as:
Utility easements

NOTE: Utility easement eliminations require non-objection letters from the service area utility companies at the time of submittal, see MSB 43.15.032.

Submitted herewith are the following:

1. A copy of the as-built showing the *easement(s)* to be vacated/modified (if due to encroachment)
2. \$500.00 Public Hearing Fee (no fee if submitted with Regular Plat)

The action sought by this petition is for the following reasons: **(ATTACH PAGES, IF NEEDED)**

To allow adequate room for a DEC approved septic design

APPLICANT Name: Wade Stahle Email: wadestahle@yahoo.com

OR Mailing Address: 8660 E. Empire Cir. Palmer, AK 99645 Zip: 99645

OWNER Contact Person: Wade Stahle Phone: 907-354-7992

SURVEYOR Name (FIRM): Southwest Alaska Surveying Email: johnnoconnorkx420@gmail.com

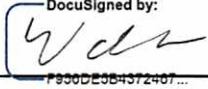
Mailing Address: 2800 N Park Dr. Wasilla, AK Zip: 99654

Contact Person: John O'Connor Phone: 907-631-2503

Matanuska-Susitna Borough
Telephone (907) 861-7874

350 East Dahlia Avenue
Palmer, Alaska 99645-6488

SIGNATURES OF PETITIONER(S):

DocuSigned by:

F830DE3B4372407...



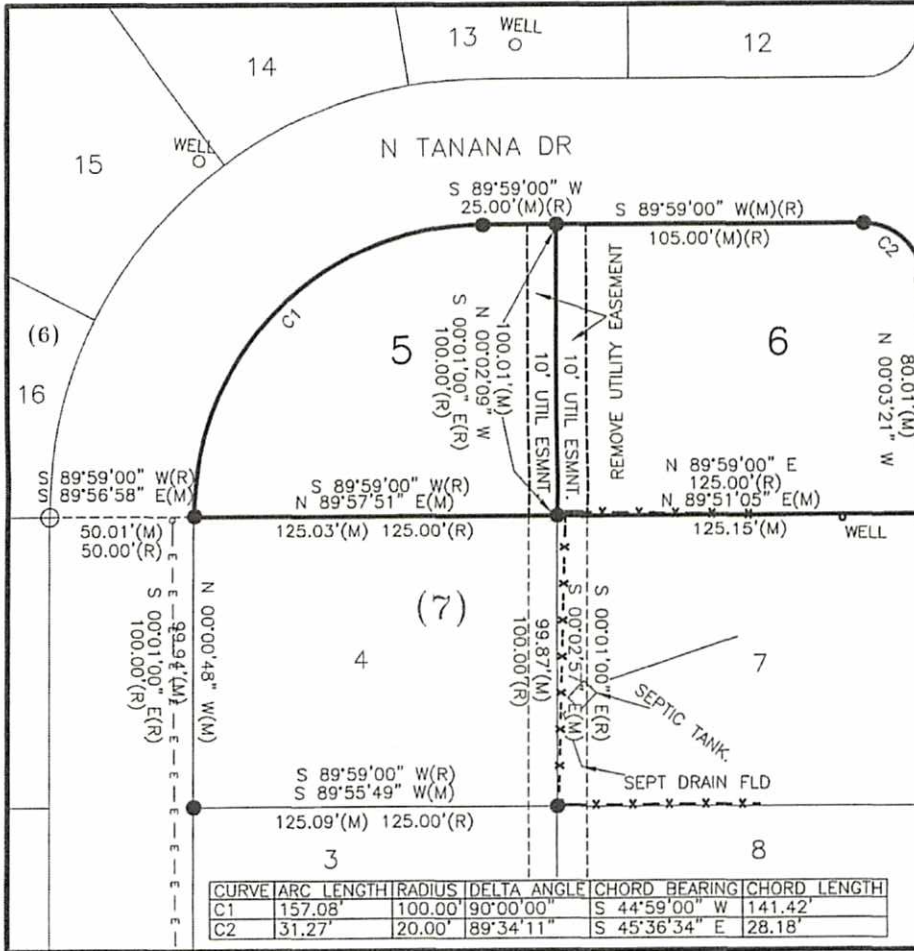
THIS AREA TO BE COMPLETED BY THE MATANUSKA-SUSITNA BOROUGH

THE APPLICATION HAS BEEN REVIEWED AND FOUND TO MEET SUBMITTAL STANDARDS AS NOTED ABOVE.

May 9, 2024
DATE

Chris Curlier
PLATTING DIVISION REPRESENTATIVE

SCHEDULED FOR PUBLIC HEARING ON: July 3, 2024



AS-BUILT CERTIFICATE:

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA, THAT THIS DRAWING REPRESENTS A SURVEY MADE BY ME, THAT THE MONUMENTS SHOWN HEREON ACTUALLY EXIST AS DESCRIBED, AND THAT NO ENCROACHMENTS EXIST EXCEPT AS INDICATED.

DATE 4/26/2024

10406

John O'Connor
REGISTERED LAND SURVEYOR

REGISTRATION NO.

LEGEND

- ⊕ YELLOW PLASTIC CAP MARKED "2071-S" RECOVERED
- 1/2" OR 5/8" REBAR RECOVERED
- (M) MEASURED DATA
- (R) RECORD DATA (WILLIAW SUBD. No. 2)
- - - EXISTING OVERHEAD POWER TRANSMISSION LINES
- x - EXISTING CHAIN LINK FENCE



EXCLUSION NOTE:

IT IS THE RESPONSIBILITY OF THE OWNER TO DETERMINE THE EXISTENCE OF ANY EASEMENTS, COVENANTS, OR RESTRICTIONS WHICH DO NOT APPEAR ON THE RECORDED SUBDIVISION MAPS. UNDER NO CIRCUMSTANCES SHOULD ANY DATA HEREON BE USED FOR CONSTRUCTION OR BOUNDARY LOCATION.

**AS-BUILT TO REMOVE UTILITY EASEMENT
LOTS 5 AND 6 BLOCK 7 WILLIAW
SUBDIVISION No 2 PALMER RECORDING DISTRICT
PLAT No. 1960-W-76**

LAND OWNER:
PRECISION FRONTIERS LLC.
8660 E. EMPIRE CIR
PALMER, AK 99645

SOUTHWEST ALASKA SURVEYING
2800 N PARK DRIVE
WASILLA, AK 99654
PHONE 907-373-1607 907-631-2503

SCALE: 1"=50'



ENSTAR Natural Gas Company, LLC
Engineering Department, Right of Way Section
401 E. International Airport Road
P. O. Box 190288
Anchorage, Alaska 99519-0288
(907) 277-5551
FAX (907) 334-7798

March 18, 2024

Precision Frontiers, LLC
8660 E. Empire Circle
Palmer, AK 99645

Re: Letter of Non-Objection – Two Utility Easement Vacations
Block 7, Lots 5 and 6, Williwaw Subdivision No. 2

RECEIVED
APR 29 2024
PLATTING

To whom it may concern:

ENSTAR Natural Gas Company, LLC (ENSTAR) has no objection to the vacation of the ten foot (10 FT) wide utility easements within Lots 5 and 6, Block 7, WILLIWAW SUBDIVISION NO. 2, Plat No. W-76, filed in the records of the Palmer Recording District, Third Judicial District, State of Alaska.

Acceptance and use of this letter of non-objection by yourself, your heirs, your assigns, or your successors, will constitute agreement to the following stipulations:

- Landowner/Contractor working near ENSTAR gas facilities shall contact the Alaska Digline, Inc., (907) 278-3121 or 811 for line locating two (2) business days prior to any related excavation. This service is free of charge.
- ENSTAR will be held harmless, now, and forever for any damages or injury to any person or property as a result of this encroachment.
- Any ENSTAR facility damaged or destroyed, as a result of this encroachment will be repaired at no cost to ENSTAR.
- Any costs incurred by ENSTAR for special construction necessitated by this encroachment will be borne by the land owner.
- This letter of non-objection will in no way preclude ENSTAR from full use and enjoyment of its rights within any portion of its right-of-way.

If you have any questions, please feel free to contact me at (907) 714-7521 or by email at Skylar.Furlong@enstarnaturalgas.com.

Sincerely,

A handwritten signature in cursive script that reads "Skylar Furlong".

Skylar Furlong
Environmental Permitting & Compliance Specialist
ENSTAR Natural Gas Company, LLC



RECEIVED

APR 29 2024

PLATTING

MATANUSKA ELECTRIC ASSOCIATION, INC.
LETTER OF NON-OBJECTION

Date: April 9, 2024

Precision Frontiers LLC
c/o Wade Stahle
8660 E. Empire Cir.
Palmer, AK 99645

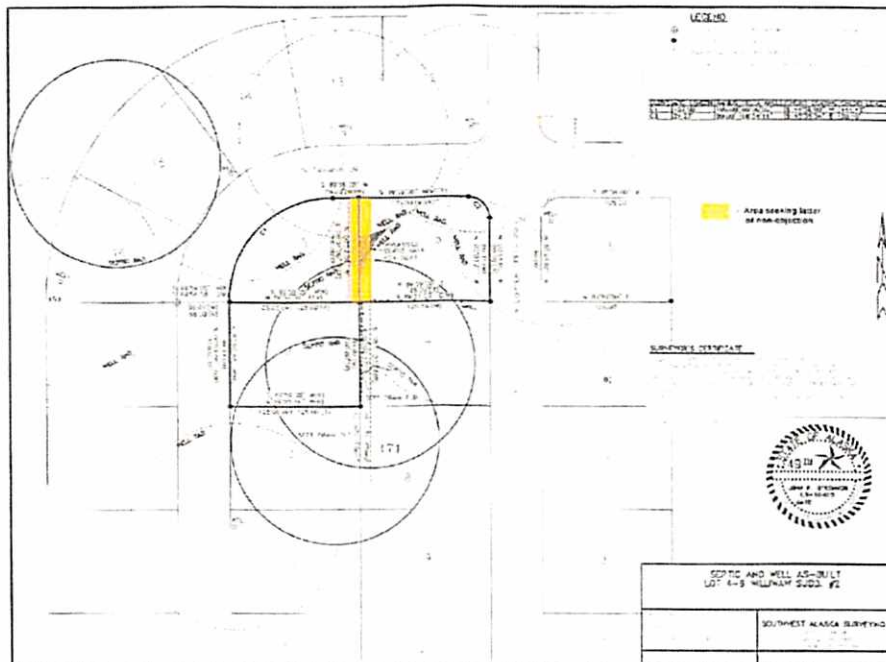
Re: Letter of Non-objection for the vacation of a platted Utility Easement on Lots 5 and 6, Block 7, Williwaw Subdivision No. 2, Plat No. W-76, Section 2, Township 17 N, Range 1 W, S.M., Palmer Recording District

Dear Mr. Stahle,

MEA has no objection to vacating the platted Utility Easement on Lots 5 and 6, Block 7, Williwaw Subdivision No. 2, Plat No. W-76, Section 2, Township 17 N, Range 1 W, S.M., as it pertains to MEA's use of the easement and is subject to the underlying landowner's approval, as shown on the attached drawing.

Sincerely,

Sarah Brandt,
Land Services Manager



CT ID# 1927588
MEA EASE# 20240154

DocuSign Envelope ID: 1190DB35-A23C-47DE-8856-B253E0431D8F



RECEIVED

APR 29 2024

PLATTING

March 28, 2024

Wade Stahle
8660 E. Empire Cir.
Palmer, AK 99645

To whom it may concern,

GCI Communication Corp has no objection vacating the platted 10' Utility easement on the East side of Lot 5 and the West side of Lot 6 located within Section 2, T17N, R1W in Seward Meridian WILLIWAW #2 BLOCK 7 LOTS 5 & 6, also known as 1345 N TANANA DR, city grid NW3963, GCI WO# 23-0002-07, filed in the PALMER Recording District, State of Alaska.

Sincerely,

DocuSigned by:
Alex Slavens

0190EE3BDD07489
ALEX SLAVENS

GCI | OSP Design Data Management Delivery Engineering
907-868-1049

3/29/24, 8:30 AM

Yahoo Mail - RE: Non objection Letter for easement vacation

RE: Non objection Letter for easement vacation

From: Jessica Burnett (jburnett@mtasolutions.com)
To: wadestahle@yahoo.com
Cc: jforster@mtasolutions.com; kfish@mtasolutions.com
Date: Saturday, March 16, 2024 at 08:38 PM AKDT

RECEIVED
APR 29 2024
PLATTING

Hi Wade,

Please accept this email as a Letter of Non-Objection from Matanuska Telecom Association, Inc. (MTA) for the vacation of both utility lines between Lots 5 and 6, Block 7 of Williwaw Subdivision #2, filed as Plat Number W-76 in the Palmer Recording District. MTA confirms we have no existing facilities located here and no objection to the easements being vacated.

Thank you,

Jessica Burnett, Right of Way Manager
1740 S. Chugach St., Palmer, Alaska 99645
Office: (907) 761-2515 | www.mtasolutions.com



Life. Technology. Together.

From: Wade Stahle <wadestahle@yahoo.com>
Sent: Friday, March 15, 2024 9:23 AM
To: Jenny M Forster <jforster@mtasolutions.com>
Subject: Fw: Non objection Letter for easement vacation

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Be wary of unsolicited attachments, even from people you know - If something seems suspicious you may want to check with the person who supposedly sent the message to make sure it's legitimate before opening any attachments.

All,

See attached. I am a builder in the area with several lots we are trying to build on in the spring. However, we've run into an issue where the only place our septic can go is in the very old utility easement. This is the williwaw subdivision. There are zero utilities in this whole whole block. Everything is in the streets.

3/29/24, 8:30 AM

Yahoo Mail - RE: Non objection Letter for easement vacation

What I am seeking: A non objection letter to vacate BOTH utility easement lines between lots 5 and 6. I am the owner of all three highlighted in this septic drawing

I will give these letters to the borough. I am trying to do this the official way and seeking your help.
Thank you!

- Wade
Precision Frontiers
907 354 7992



WADE LOT 4-6 WILLAWA # 2 PROPOSED SEPTIC AREA.pdf
139.7kB

Jesse Curlin

From: Germann, Quinn H CIV USARMY CEPOA (USA) <Quinn.H.Germann@usace.army.mil>
Sent: Tuesday, May 14, 2024 10:57 AM
To: Jesse Curlin
Subject: Corps Response to RFC Williwaw#2 B7, L5-6

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Good morning Jesse,

The Corps of Engineers (Corps) does not have any specific comments regarding the Utility Easement Vacations Block 7, Lots 5 and 6, Williwaw Subdivision No. 2.

Department of the Army authorization is required if anyone proposes to place dredged and/or fill material into waters of the U.S., including wetlands and/or perform work in navigable waters of the U.S.

A copy of the DA permit application can be found online at www.poa.usace.army.mil/Missions/Regulatory.
Sample drawings can also be found on our website at www.poa.usace.army.mil/Portals/34/docs/regulatory/guidetodrawings2012.pdf.

Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide shoreward to the mean high-water mark, and/or other waters identified by the Alaska District. Aquaculture structures and work would require Section 10 Authorization.

You are welcome to submit a preapplication meeting request, a jurisdictional determination request, or a permit application directly to our general mailbox (regpagemaster@usace.army.mil) and you will be assigned a project manager to assist you. Please feel free to contact our main line if you have any questions or concerns at 907-753-2712.

Very respectfully,



**US Army Corps
of Engineers®**

Quinn H.A. Germann
Regulatory Specialist – North Section
U.S. Army Corps of Engineers | Alaska District
Phone 907-371-5132
Email quinn.h.germann@usace.army.mil

Jesse Curlin

From: Tammy Simmons
Sent: Monday, May 20, 2024 4:09 PM
To: Jesse Curlin
Cc: Brad Sworts; Jamie Taylor; Daniel Dahms; Tammy Simmons
Subject: Re: RFC Williwaw#2 B7, L5-6 (CC)

Follow Up Flag: Follow up
Flag Status: Flagged

Hello,

PD&E has no comment.

Thank you,

PD&E Review Team

From: Jesse Curlin <Jesse.Curlin@matsugov.us>
Sent: Monday, May 13, 2024 12:31 PM
To: Alex Strawn <Alex.Strawn@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; Brian Davis <Brian.Davis@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Daniel Dahms <Daniel.Dahms@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; Katrina Kline <katrina.kline@matsugov.us>; Land Management <Land.Management@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Tammy Simmons <Tammy.Simmons@matsugov.us>; Tom Adams <Tom.Adams@matsugov.us>; USACE <regpagemaster@usace.army.mil>; dnr.scro@alaska.gov <dnr.scro@alaska.gov>; Myers, Sarah E E (DFG) <sarah.myers@alaska.gov>; Percy, Colton T (DFG) <colton.percy@alaska.gov>; Postmaster three <jordan.t.matthews@usps.gov>; Postmaster too <matthew.a.carey@usps.gov>; Postmaster <pamela.j.melchert@usps.gov>; North Lakes Community Council (board@nlakes.cc) <board@nlakes.cc>; Michael Keenan <Michael.Keenan@matsugov.us>; Jeffrey Anderson <Jeffrey.Anderson@matsugov.us>; Fire Code <Fire.Code@matsugov.us>; hessmer@mtaonline.net <hessmer@mtaonline.net>; robyundtmsb@gmail.com <robyundtmsb@gmail.com>; Andrew Fraiser <andrew.fraiser@enstarnaturalgas.com>; mearow@mea.coop <mearow@mea.coop>; OSP Design Group <ospdesign@gci.com>; Right of Way Dept. <row@mtasolutions.com>; ROW <row@enstarnaturalgas.com>
Subject: RFC Williwaw#2 B7, L5-6 (CC)

Hello,

The following link is a request for comments for the proposed Utility Easement Vacation, Williwaw #2, B7, L5-6. Please ensure all comments have been submitted by May 28, 2024 so they can be incorporated in the staff report that will be presented to the Platting Board.

[Williwaw #2 B7 L5-6 UE](#)

Sincerely,

Jesse Curlin

From: Permit Center
Sent: Monday, May 13, 2024 12:58 PM
To: Jesse Curlin
Subject: RE: RFC Williwaw#2 B7, L5-6 (CC)

No comments from the Permit Center. Thanks.

Brandon Tucker

Permit Technician

[Matanuska-Susitna Borough Permit Center](#)

350 E Dahlia Ave

Palmer AK 99645

P (907) 861-7871

F (907) 861-8158

From: Jesse Curlin <Jesse.Curlin@matsugov.us>

Sent: Monday, May 13, 2024 12:32 PM

To: Alex Strawn <Alex.Strawn@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; Brian Davis <Brian.Davis@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Daniel Dahms <Daniel.Dahms@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; Katrina Kline <katrina.kline@matsugov.us>; Land Management <Land.Management@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Tammy Simmons <Tammy.Simmons@matsugov.us>; Tom Adams <Tom.Adams@matsugov.us>; USACE <regpagemaster@usace.army.mil>; dnr.scro@alaska.gov; Myers, Sarah E E (DFG) <sarah.myers@alaska.gov>; Percy, Colton T (DFG) <colton.percy@alaska.gov>; Postmaster three <jordan.t.matthews@usps.gov>; Postmaster too <matthew.a.carey@usps.gov>; Postmaster <pamela.j.melchert@usps.gov>; North Lakes Community Council (board@nlakes.cc) <board@nlakes.cc>; Michael Keenan <Michael.Keenan@matsugov.us>; Jeffrey Anderson <Jeffrey.Anderson@matsugov.us>; Fire Code <Fire.Code@matsugov.us>; hessmer@mtaonline.net; robyundtmsb@gmail.com; Andrew Fraiser <andrew.fraiser@enstarnaturalgas.com>; mearow@mea.coop; OSP Design Group <ospdesign@gci.com>; Right of Way Dept. <row@mtasolutions.com>; ROW <row@enstarnaturalgas.com>

Subject: RFC Williwaw#2 B7, L5-6 (CC)

Hello,

The following link is a request for comments for the proposed Utility Easement Vacation, Williwaw #2, B7, L5-6. Please ensure all comments have been submitted by May 28, 2024 so they can be incorporated in the staff report that will be presented to the Platting Board.

[Williwaw #2 B7 L5-6 UE](#)

Sincerely,

Jesse C. "Chris" Curlin
Platting Technician
Matanuska-Susitna Borough
(907) 861-7873

Jesse Curlin

From: Jesse Curlin
Sent: Monday, May 13, 2024 2:33 PM
To: Rod Hanson
Subject: RE: RFC Williwaw#2 B7, L5-6 (CC)

Hi Rod,

Code requires public notice at least 21 days prior to the hearing.
They will mail the public notice to the surrounding property owners before June 12th but it has not gone out yet.

Sincerely,

Jesse C. "Chris" Curlin
Platting Technician
Matanuska-Susitna Borough
(907) 861-7873

From: Rod Hanson <rod@nlakes.cc>
Sent: Monday, May 13, 2024 2:23 PM
To: Jesse Curlin <Jesse.Curlin@matsugov.us>
Subject: Re: RFC Williwaw#2 B7, L5-6 (CC)

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Jesse,

Please confirm that this notice was sent out to all adjacent property owners surrounding the subject property. Knowing this will help us determine any further action for the North Lakes Community Council.

Thank you,

Rod Hanson
907-841-8735

On Mon, May 13, 2024 at 12:32 PM Jesse Curlin <Jesse.Curlin@matsugov.us> wrote:

Hello,

The following link is a request for comments for the proposed Utility Easement Vacation, Williwaw #2, B7, L5-6.

Please ensure all comments have been submitted by May 28, 2024 so they can be incorporated in the staff report that will be presented to the Platting Board.



ENSTAR Natural Gas Company, LLC
Engineering Department, Right of Way Section
401 E. International Airport Road
P. O. Box 190288
Anchorage, Alaska 99519-0288
(907) 277-5551
FAX (907) 334-7798

May 14, 2024

Matanuska-Susitna Borough, Platting Division
350 East Dahlia Avenue
Palmer, AK 99645-6488

To whom it may concern:

ENSTAR Natural Gas Company, LLC has reviewed the following preliminary plat and has no comments or recommendations.

- **VACATE UTILITY EASEMENT LOTS 5 & 6 BLOCK 7 WILLIWAW
SUBDIVISION
(MSB Case # 2024-063)**

If you have any questions, please feel free to contact me at 334-7944 or by email at james.christopher@enstarnaturalgas.com.

Sincerely,

A handwritten signature in cursive script that reads "James Christopher".

James Christopher
Right of Way Agent
ENSTAR Natural Gas Company, LLC

Jesse Curlin

From: OSP Design Group <ospdesign@gci.com>
Sent: Wednesday, May 15, 2024 6:25 PM
To: Jesse Curlin
Cc: OSP Design Group
Subject: RE: RFC Williwaw#2 B7, L5-6 (CC)
Attachments: Vacation Detail.pdf

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Jesse,

In review GCI has no comments or objections to the easement vacation.

Thanks,

GCI | OSP Design

e: OSPDesign@gci.com | w: www.gci.com

From: Jesse Curlin <Jesse.Curlin@matsugov.us>
Sent: Monday, May 13, 2024 12:32 PM
To: Alex Strawn <Alex.Strawn@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; Brian Davis <Brian.Davis@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Daniel Dahms <Daniel.Dahms@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; Katrina Kline <katrina.kline@matsugov.us>; Land Management <Land.Management@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Tammy Simmons <Tammy.Simmons@matsugov.us>; Tom Adams <Tom.Adams@matsugov.us>; USACE <regpagemaster@usace.army.mil>; dnr.scro@alaska.gov; Myers, Sarah E E (DFG) <sarah.myers@alaska.gov>; Percy, Colton T (DFG) <colton.percy@alaska.gov>; Postmaster three <jordan.t.matthews@usps.gov>; Postmaster too <matthew.a.carey@usps.gov>; Postmaster <pamela.j.melchert@usps.gov>; North Lakes Community Council (board@nlakes.cc) <board@nlakes.cc>; Michael Keenan <Michael.Keenan@matsugov.us>; Jeffrey Anderson <Jeffrey.Anderson@matsugov.us>; Fire Code <Fire.Code@matsugov.us>; hessmer@mtaonline.net; robyundtmsb@gmail.com; Andrew Fraiser <andrew.fraiser@enstarnaturalgas.com>; mearow@mea.coop; OSP Design Group <ospdesign@gci.com>; Right of Way Dept. <row@mtasolutions.com>; ROW <row@enstarnaturalgas.com>
Subject: RFC Williwaw#2 B7, L5-6 (CC)

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

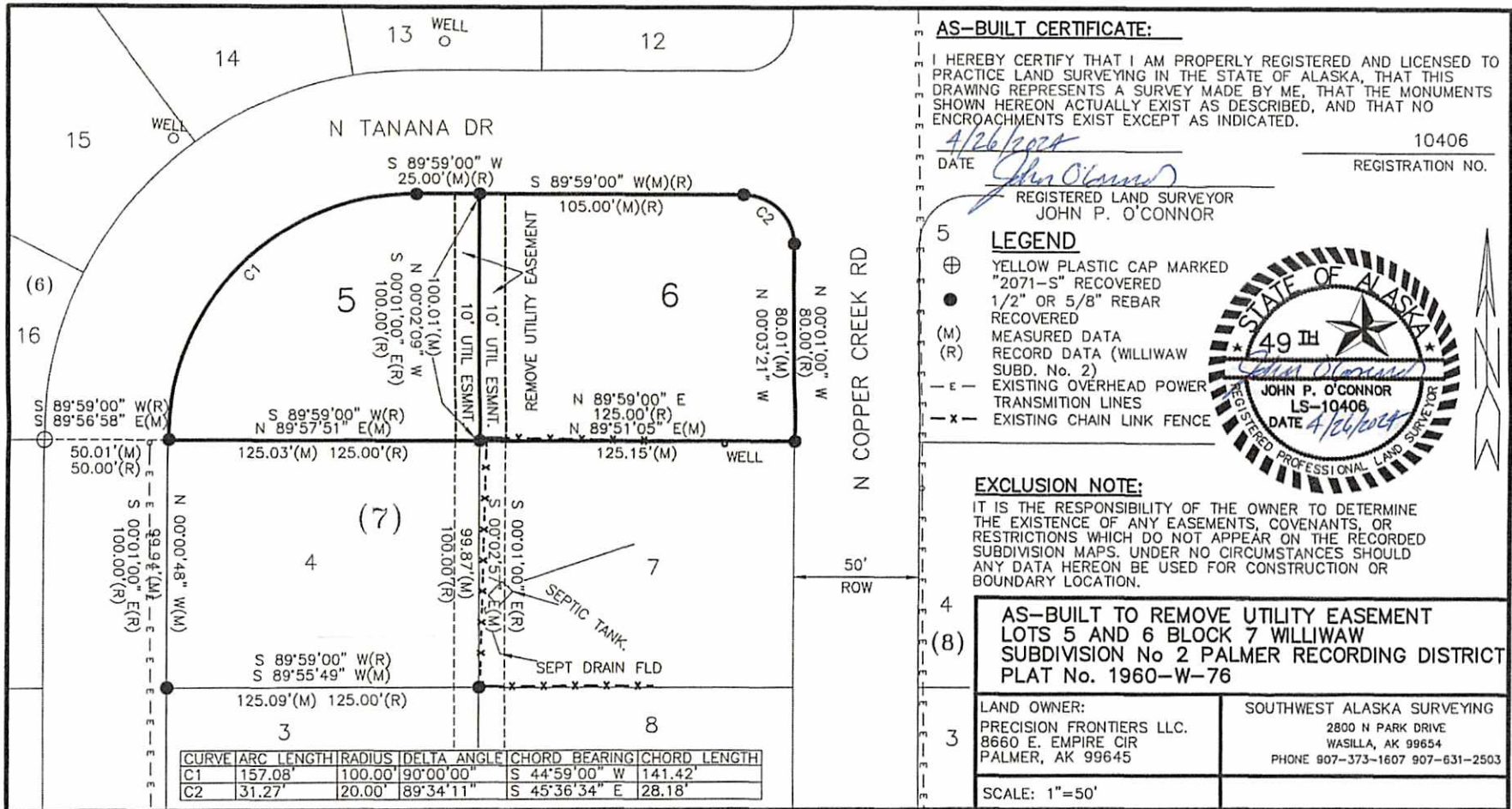
Hello,

The following link is a request for comments for the proposed Utility Easement Vacation, Williwaw #2, B7, L5-6. Please ensure all comments have been submitted by May 28, 2024 so they can be incorporated in the staff report that will be presented to the Platting Board.

 [Williwaw #2 B7 L5-6 UE](#)

Sincerely,

Jesse C. "Chris" Curlin



AS-BUILT CERTIFICATE:

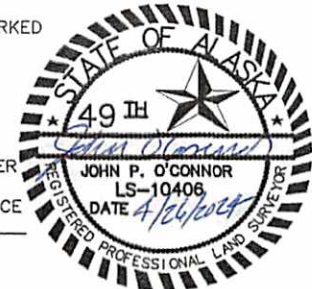
I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA, THAT THIS DRAWING REPRESENTS A SURVEY MADE BY ME, THAT THE MONUMENTS SHOWN HEREON ACTUALLY EXIST AS DESCRIBED, AND THAT NO ENCROACHMENTS EXIST EXCEPT AS INDICATED.

DATE 4/26/2024 10406
REGISTRATION NO.

REGISTERED LAND SURVEYOR
JOHN P. O'CONNOR

LEGEND

- ⊕ YELLOW PLASTIC CAP MARKED "2071-S" RECOVERED
- 1/2" OR 5/8" REBAR RECOVERED
- (M) MEASURED DATA
- (R) RECORD DATA (WILLIWAW SUBD. No. 2)
- E- EXISTING OVERHEAD POWER TRANSMISSION LINES
- X- EXISTING CHAIN LINK FENCE



EXCLUSION NOTE:

IT IS THE RESPONSIBILITY OF THE OWNER TO DETERMINE THE EXISTENCE OF ANY EASEMENTS, COVENANTS, OR RESTRICTIONS WHICH DO NOT APPEAR ON THE RECORDED SUBDIVISION MAPS. UNDER NO CIRCUMSTANCES SHOULD ANY DATA HEREON BE USED FOR CONSTRUCTION OR BOUNDARY LOCATION.

**AS-BUILT TO REMOVE UTILITY EASEMENT
LOTS 5 AND 6 BLOCK 7 WILLIWAW
SUBDIVISION No 2 PALMER RECORDING DISTRICT
PLAT No. 1960-W-76**

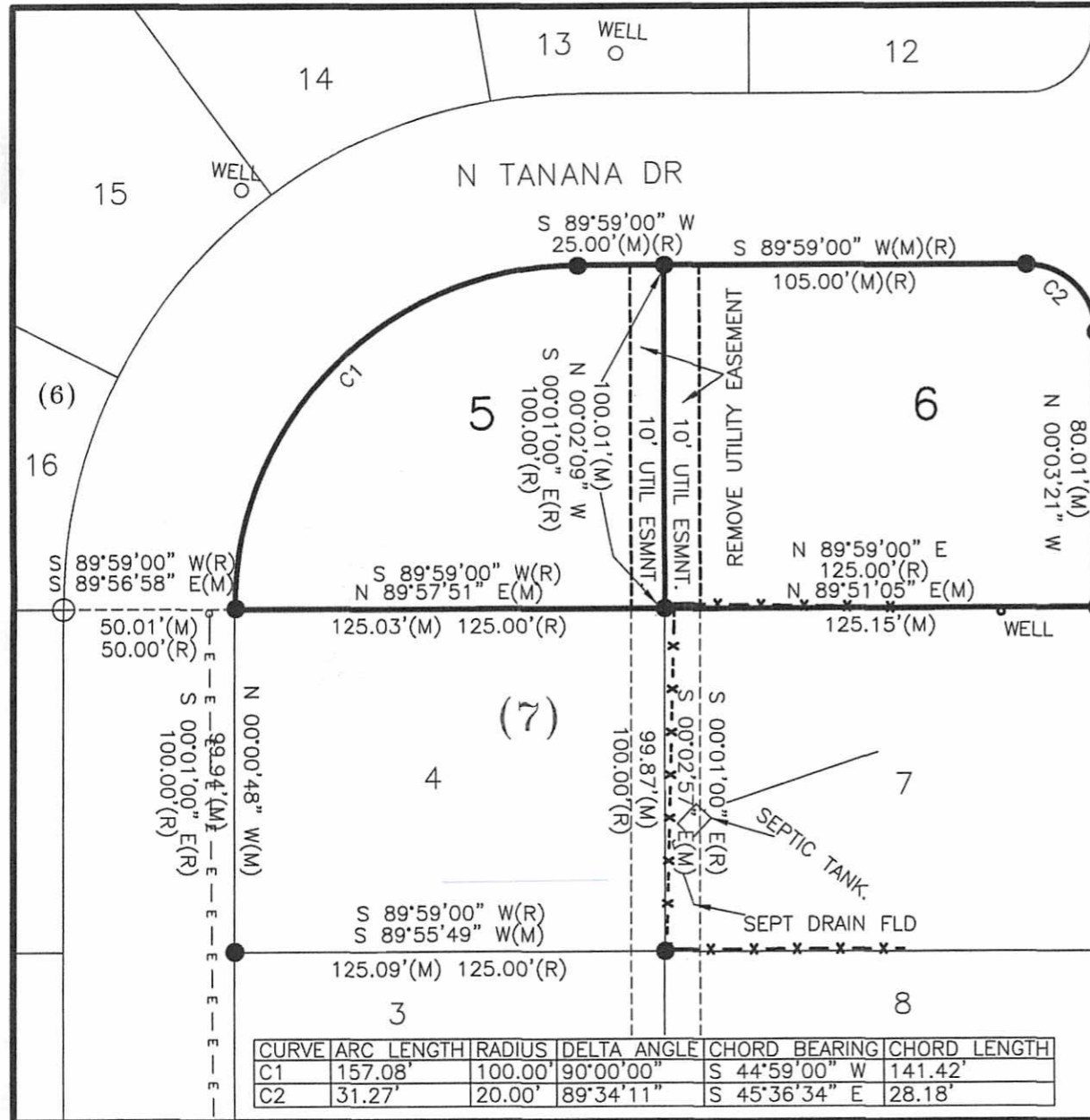
LAND OWNER:
PRECISION FRONTIERS LLC.
8660 E. EMPIRE CIR
PALMER, AK 99645

SOUTHWEST ALASKA SURVEYING
2800 N PARK DRIVE
WASILLA, AK 99654
PHONE 907-373-1607 907-631-2503

SCALE: 1"=50'

APPROVED AS: SHOWN
CORRECTED
SIGN Mireya Armeslo DATE 5/15/2024
CCI ENGINEERING & DESIGN

EXHIBIT H-3



CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	157.08'	100.00'	90°00'00"	S 44°59'00" W	141.42'
C2	31.27'	20.00'	89°34'11"	S 45°36'34" E	28.18'

AS-BUILT CERTIFICATE:

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA, THAT THIS DRAWING REPRESENTS A SURVEY MADE BY ME, THAT THE MONUMENTS SHOWN HEREON ACTUALLY EXIST AS DESCRIBED, AND THAT NO ENCROACHMENTS EXIST EXCEPT AS INDICATED.

DATE 4/26/2024 REGISTRATION NO. 10406
 REGISTERED LAND SURVEYOR
 JOHN P. O'CONNOR

- LEGEND**
- ⊕ YELLOW PLASTIC CAP MARKED "2071-S" RECOVERED
 - 1/2" OR 5/8" REBAR RECOVERED
 - (M) MEASURED DATA
 - (R) RECORD DATA (WILLIAW SUBD. No. 2)
 - - - EXISTING OVERHEAD POWER TRANSMISSION LINES
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**AS-BUILT TO REMOVE UTILITY EASEMENT
 LOTS 5 AND 6 BLOCK 7 WILLIAW
 SUBDIVISION No 2 PALMER RECORDING DISTRICT
 PLAT No. 1960-W-76**

LAND OWNER:
 PRECISION FRONTIERS LLC.
 8660 E. EMPIRE CIR
 PALMER, AK 99645

SOUTHWEST ALASKA SURVEYING
 2800 N PARK DRIVE
 WASILLA, AK 99654
 PHONE 907-373-1607 907-631-2503

SCALE: 1"=50'

B

**STAFF REVIEW AND RECOMMENDATIONS
PUBLIC HEARING
JULY 3, 2024**

PRELIMINARY PLAT: CELESTIAL HEIGHTS
LEGAL DESCRIPTION: SEC 12, T18N, R01E, SEWARD MERIDIAN AK
PETITIONERS: STATE OF ALASKA MENTAL HEALTH TRUST LAND OFFICE
SURVEYOR/ENGINEER: R&M CONSULTANTS, INC.
ACRES: 80.00 ± PARCELS: 57
REVIEWED BY: NATASHA HEINDEL CASE #: 2024-068

REQUEST: The request is to create 56 lots and 1 tract from Tax Parcel B2 in a five phase master plan, to be known as **CELESTIAL HEIGHTS**, containing 80.00 acres +/- . The parcel is located east of N. Palmer-Fishhook Road and directly south of E. Boyd Road; within Section 12, Township 18 North, Range 01 East, Seward Meridian, Alaska.

EXHIBITS

Vicinity Map & Aerial Imaging	EXHIBIT A – 4 pp
Geotechnical Report	EXHIBIT B – 40 pp
Wetland Delineation Report	EXHIBIT C – 47 pp
Design & Drainage Plan	EXHIBIT D – 14 pp
Average Daily Traffic (ADT)	EXHIBIT E – 1 p
Section Line Easement (SLE) Documentation	EXHIBIT F – 3 pp

AGENCY COMMENTS

Department of Public Works, Pre-Design & Engineering Division	EXHIBIT G – 1 p
Department of Community Development	EXHIBIT H – 1 p
Division of Development Services	EXHIBIT I – 1 p
Utilities: MTA, Enstar, & GCI	EXHIBIT J – 4 pp
Public	EXHIBIT K – 1 p

DISCUSSION: The proposed subdivision is east of N. Palmer-Fishhook Road and directly south of E. Boyd Road. Petitioner will be creating 56 lots, ranging in size from 0.918 acres to 1.893 acres, and one tract of 12.395 acres.

Access: Legal and physical access will exist to the proposed lots pursuant to MSB 43.20.100 Access Required, MSB 43.20.120 Legal Access, and MSB 43.20.140 Physical Access.

Soils Report: A geotechnical report was submitted (**Exhibit B**), pursuant to MSB 43.20.281(A). Brian Mullen, PE, notes that the investigation included a total of nine test holes; six test borings were

completed May 2023 to depths of 27 feet below the existing ground surface (bgs), and three test pits were completed July 2023 to depths of 12 and 13 feet bgs. Test hole location map and soils logs are attached; Drawing 3 found at exhibit B-14 and Drawings 6-14 found at exhibit B-17 respectively. Surficial soils across the project site vicinity have been mapped as outwash stream deposits; chiefly sand, gravel, and some silt. No groundwater was encountered. All proposed lots are interpreted to have greater than 10,000 sf of useable building area, and greater than 10,000 sf of contiguous useable septic area. Topographic map and as-built are shown in the agenda plat. *Staff notes that it has been requested of the engineer to provide clarification on some verbiage within the report provided. Once received, this clarification will be provided as a handout for the hearing.*

Wetlands Report: A wetlands report was submitted (**Exhibit C**). ABR, Inc. Environmental Research & Services states that most of the Boyd Road study area is non-jurisdictional upland terrain. One small wetland along the southern border of the study area is connected to navigable waters through a continuous surface water connection and is thus considered jurisdictional. The remaining emergent and scrub shrub wetlands could not be connected via a relatively permanent surface water feature and are surrounded by upland terrain. These wetlands do not meet the criteria of a water of the U.S. (WOTUS) under the current definition and may not be subject to federal section 404 wetland permitting if fill were proposed. The limited extent of jurisdictional wetlands within the Boyd Road study area indicates that the area could be developed easily by completely avoiding impacts to WOTUS.

Design & Drainage: A preliminary road design and drainage report was submitted (**Exhibit D**) for nine sections of road. General drainage patterns are shown on the attached preliminary drainage maps; a full drainage report will be prepared prior to the road preconstruction meeting.

Comments: MSB Public Works Department, Division of Pre-Design & Engineering (PD&E) (**Exhibit G**) commented that the applicant will need to submit an ADT estimate including figures or tables showing breaking down ADT at each intersection within the Subdivision and en route to a residential minor collector street or higher; in this case Palmer-Fishhook Road as Boyd Road is currently classified as a residential sub collector. *Staff notes that R&M Consultants has provided an estimated ADT count (**Exhibit E**).* Based on the Archangel Ridge Subdivision Master Plan, it appears that Lot 1, Blockfontein will not have access from Archangel Ridge Subdivision. Based on a review of the topography and wetlands, PD&E is okay without a stub road going from the subject parcel to Lot 1, Blockfontein. Verify the section line easement to the west and have surveyor provide documentation of SLE verification. *Staff notes that R&M Consultants has provided SLE documentation (**Exhibit F**).* As a large portion of the site drains to Nova Circle, PD&E notes that there should be a cross culvert provided across Nova Circle at the intersection with Sunrise Drive (*see recommendation #3*). To satisfy the requirements of SCM D03, drainage easements will need to be dedicated for all proposed drainage paths/structures (*see recommendation #4*). Design the drainage so that water is not planned to be detained/infiltrated in the road ROWs (*see recommendation #5*). Recommend adding 15' utility easements along all ROWs (*see recommendation #6*). *Staff notes that surveyor is aware of said recommendations and plans to refine the design after receiving comments from the platting review and plan for drainage easements based on actual drainage routes.*

MSB Department of Community Development (**Exhibit H**) commented that the plat is unclear if the 30' recreational corridor and Tract A are proposed to be dedicated to public or private use. Land Management has no objection if the 30' recreational corridor and Tract A are dedicated to private use (*see recommendation #7*). Land Management does object to the 30' recreational corridor and Tract A if

they are dedicated to public use. The Borough does not have funds to manage, maintain or improve the tract.

MSB Planning Department, Division of Development Services (**Exhibit I**) has no comments.

Utility companies (**Exhibit J**), Enstar and GCI, stated that they have no comments to the proposed plat. MTA requests 15' utility easement to serve these lots (*see recommendation #6*).

One public comment was received at the time of this staff report (**Exhibit K**). Samuel Sullivan, owner of Lot 23 Block 4, Morning Glory Heights Phase 1, objects to the proposed subdivision with three main objections founded on land use, increased traffic, and quiet community values.

At the time of this staff report, there were no responses to the request for comments from the following: Alaska Department of Natural Resources, Division of Mining, Land, & Water; Alaska Department of Fish & Game; US Army Corps of Engineers; Community Council #10 Fishhook; Road Service Area #16 South Colony, MSB Assessments, MSB Planning, MSB Attorney, US Post Master, and MEA.

CONCLUSION: The master plan of **Celestial Heights** is consistent with AS 29.40.070 *Platting Regulations* and MSB 43.15.016 *Preliminary Plats*. No objections were received from any federal or state agencies, Borough departments, or utilities. One objection was received in response to the Notice of Public Hearing. Legal and physical access will exist to the proposed lots, consistent with MSB 43.20.100 *Access Required*, MSB 43.20.120 *Legal Access*, and MSB 43.20.140 *Physical Access*. Frontage for the subdivision will exist, pursuant to MSB 43.20.320 *Frontage*. A soils report was submitted pursuant to MSB 43.20.218(A)(1).

FINDINGS OF FACT

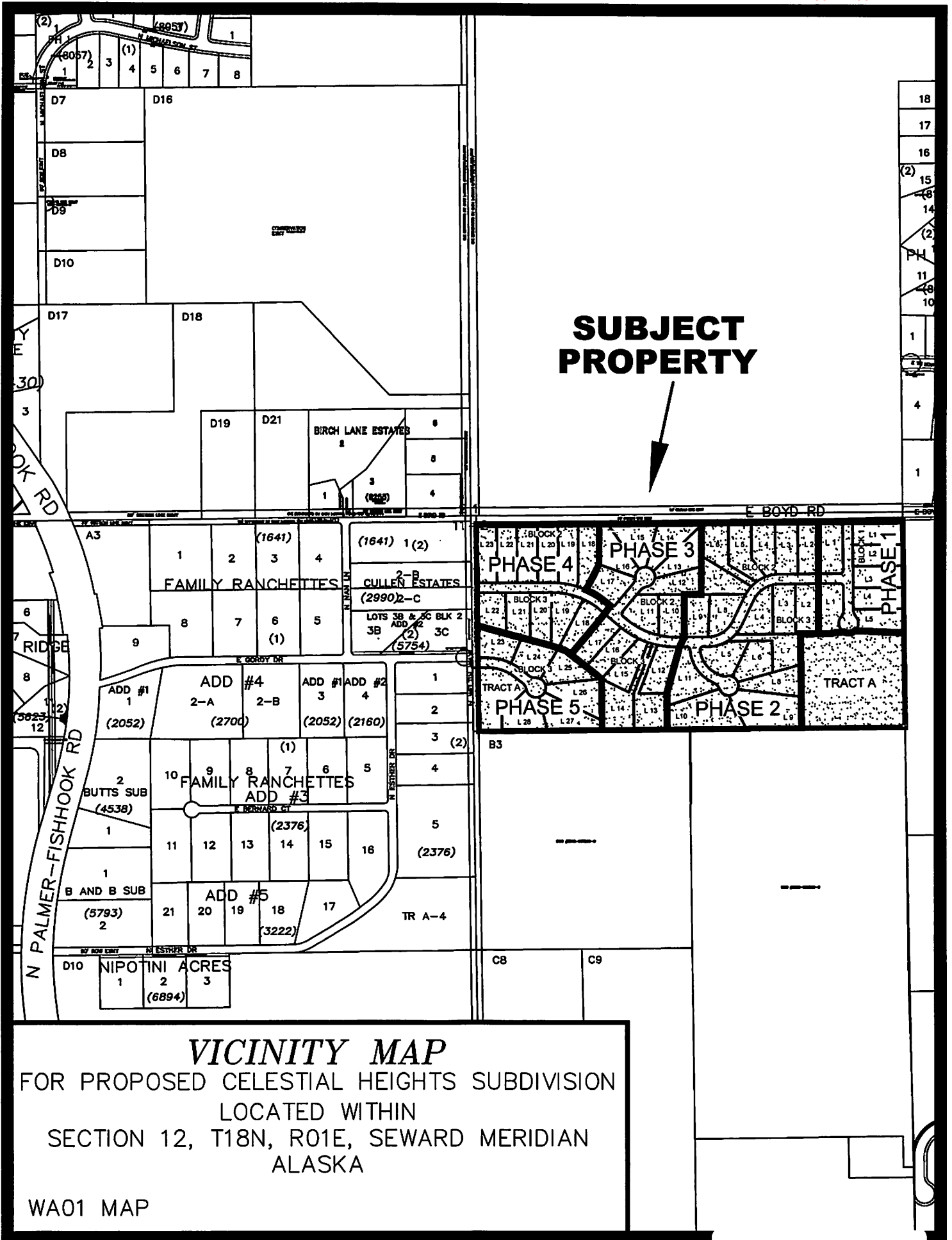
1. The master plan of **Celestial Heights** is consistent with AS 29.40.070 *Platting Regulations* and MSB 43.15.016 *Preliminary Plats*.
2. A soils report was submitted, pursuant to MSB 43.20.281(A)(1) *Area*. All lots will have the required usable septic area and usable building area.
3. All proposed lots will have legal and physical access pursuant to MSB 43.20.100 *Access Required*, MSB 43.20.120 *Legal Access*, and MSB 43.20.140 *Physical Access*.
4. The proposed lots will have the required frontage pursuant to MSB 43.20.320 *Frontage*.
5. No objections were received from any federal or state agencies, Borough departments, or utilities.
6. One objection was received from the public in response to the Notice of Public Hearing.
7. At the time of this staff report, no responses were received from Alaska Department of Natural Resources, Division of Mining, Land, & Water; Alaska Department of Fish & Game; US Army Corps of Engineers; Community Council #10 Fishhook; Road Service Area #16 South Colony, MSB Assessments, MSB Planning, MSB Attorney, US Post Master, or MEA.

RECOMMENDED CONDITIONS OF APPROVAL

Suggested motion: I move to approve the master plan of Celestial Heights, Section 12, Township 18 North, Range 01 East, Seward Meridian, Alaska, contingent on staff recommendations:

1. Taxes and special assessments must be paid in full for the year of recording, per MSB 43.15.053(F) and AS 40.15.020. Pay taxes and special assessments (LIDs) by certified funds or cash.

2. Provide updated Certificate to Plat executed within seven (7) days prior to recording and submit Beneficiary Affidavit for any holders of a beneficial interest, if any.
3. Provide a cross culvert across Nova Circle at the intersection with Sunrise Drive.
4. Dedicate drainage easements for all proposed drainage paths and structures.
5. Design the drainage so that water is not planned to be detained/infiltrated in the road rights of way.
6. Grant 15' utility easements along all road rights of way.
7. Clarify ownership of the recreational corridor and Tract A; not to be dedicated for public use.
8. Construct all interior streets to Borough residential street standard, according to the 2022 Subdivision Construction Manual (SCM):
 - a. Submit drainage report and other construction plans to Department of Public Works (DPW) per SCM F01.2;
 - b. Arrange a preconstruction conference with DPW per SCM F01.3, sign Subdivision Construction Plan, pay inspection fee, and obtain Notice to Proceed from Platting staff.
 - c. Arrange Pre-Final and Final Inspections with DPW per SCM F01.6 and F01.7 and submit Final Report to Platting per F01.8.
 - d. Obtain Certificate of Construction Acceptance from DPW per F01.9.
 - e. Submit as-built of streets and drainage improvements to Platting staff once construction is complete.
 - f. Obtain approval of street names from Platting Assistant.
9. Pay postage and advertising fees.
10. Show all easements of record on final plat.
11. Submit recording fees, payable to Department of Natural Resources (DNR).
12. Submit final plat in full compliance with Title 43.



VICINITY MAP

FOR PROPOSED CELESTIAL HEIGHTS SUBDIVISION
LOCATED WITHIN
SECTION 12, T18N, R01E, SEWARD MERIDIAN
ALASKA

WA01 MAP

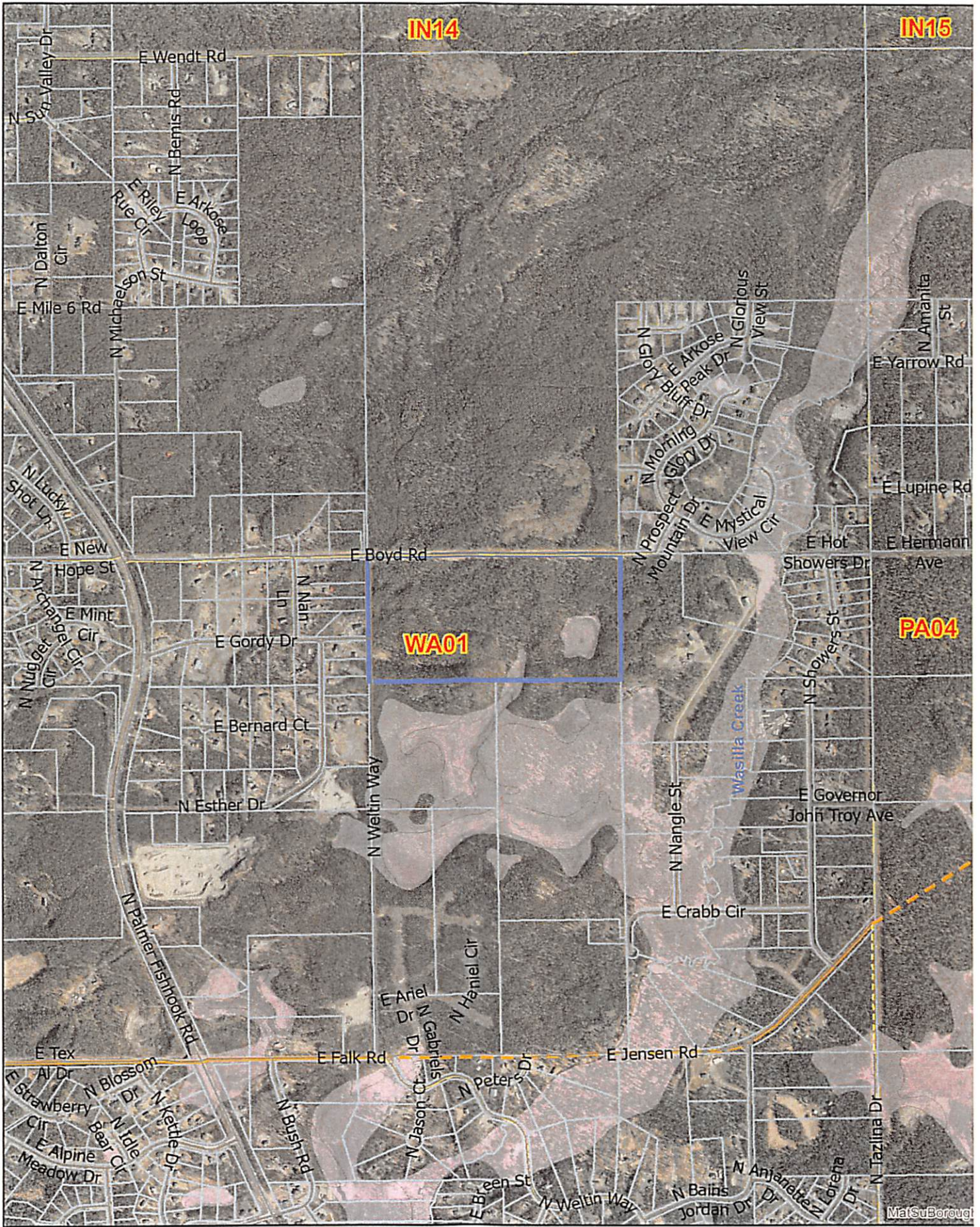
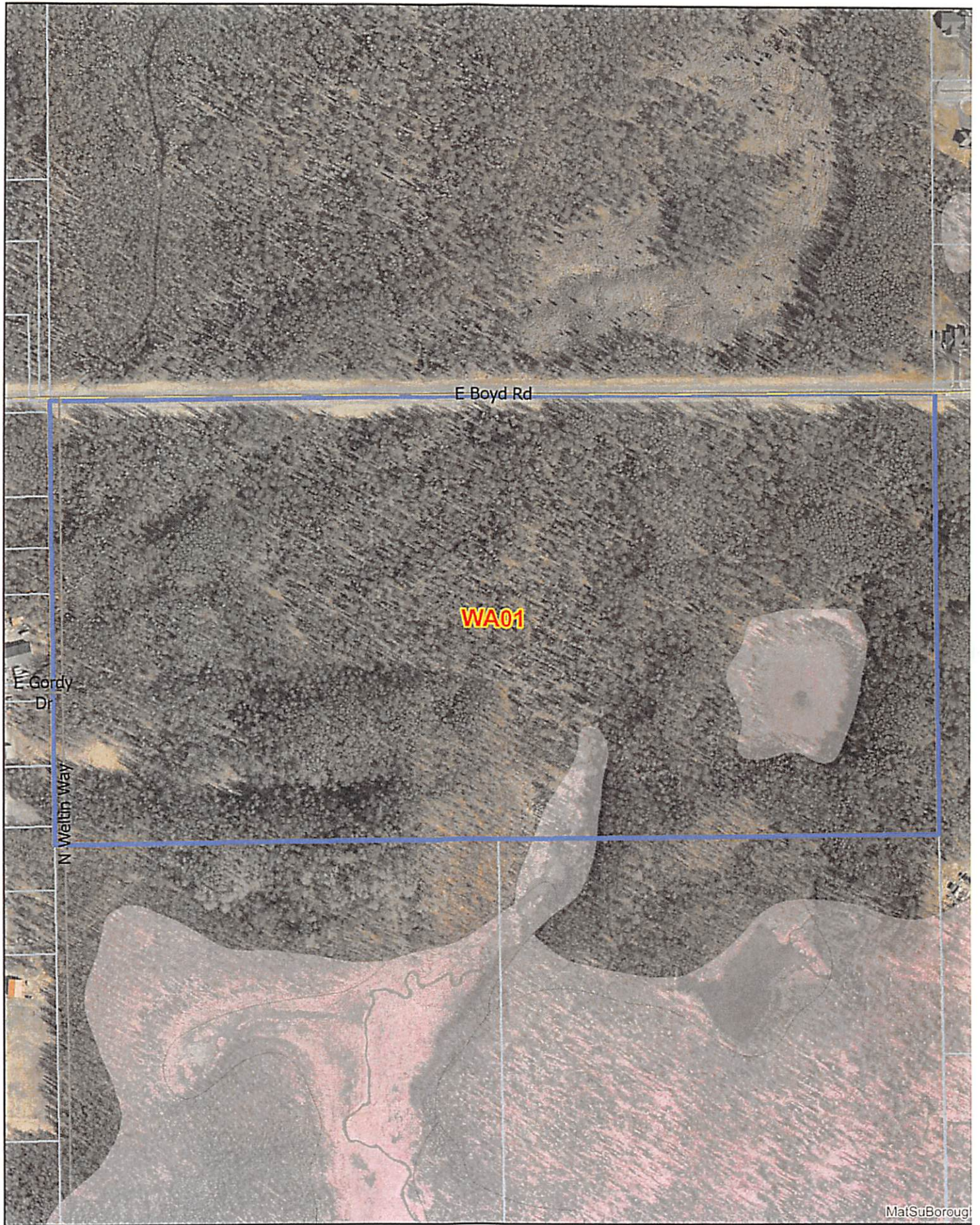


EXHIBIT A -2



360 180 0 360 Feet

MatSuBorough

EXHIBIT A -3



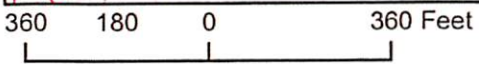
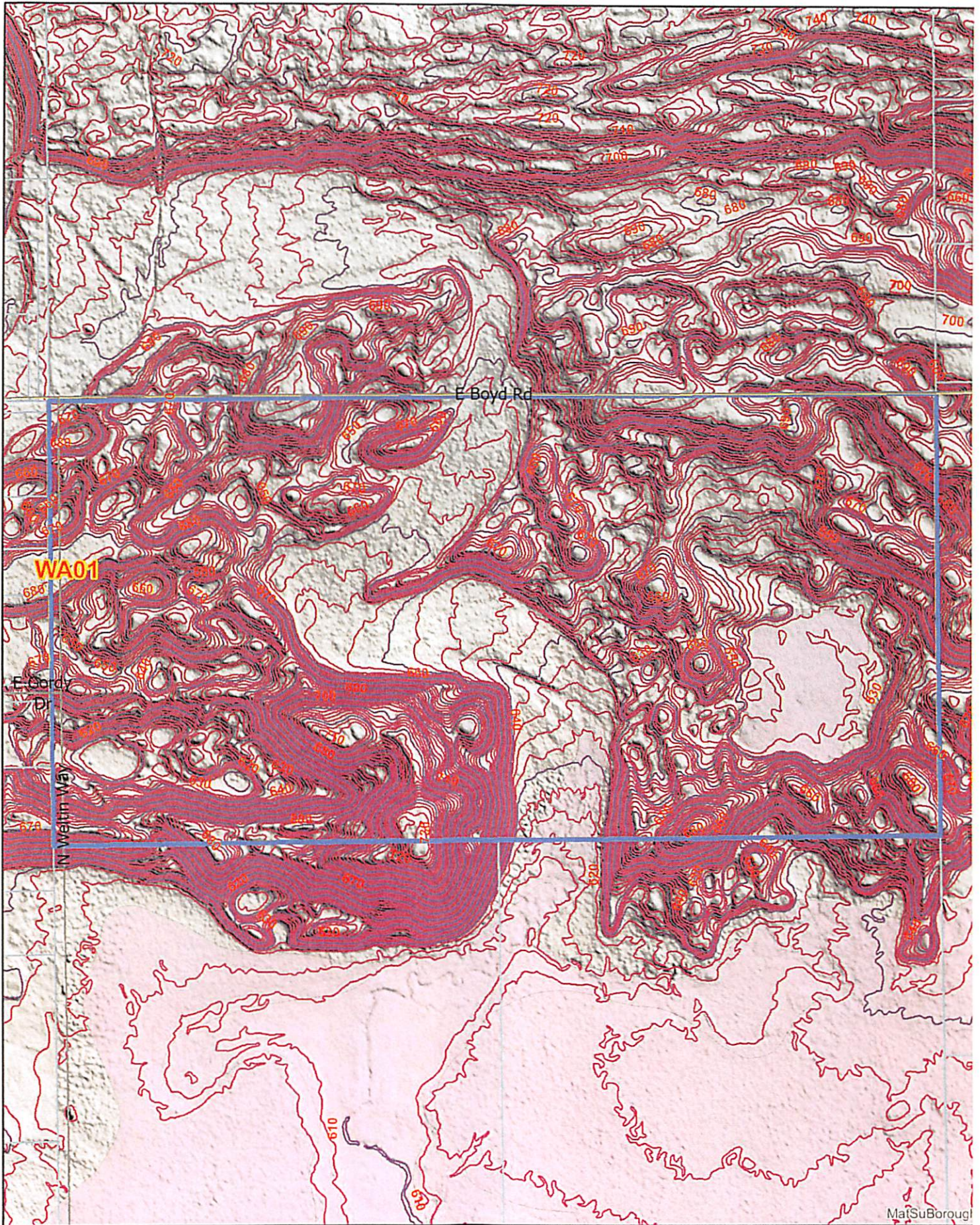


EXHIBIT A - 4



18 April 2024

Katie Vachris, DBA
Project Manager
Trust Land Office
2600 Cordova Street, Suite 201
Anchorage, Alaska 99503

RECEIVED
MAY 14 2024
PLATTING

R&M No. 2846.01

RE: Boyd Road Subdivision - Geotechnical Investigation Report, Revision 2¹

Dear Ms. Vachris,

The Alaska Department of Natural Resources Trust Land Office (TLO) contracted² R&M Consultants, Inc. (R&M) to provide professional services in support of preliminary design for development of a residential subdivision adjacent to Boyd Road near Palmer, Alaska (**Drawing 1**, attached). This letter report summarizes the results of our geotechnical investigation for the project, which included: six test borings and three test pits advanced within the project site; laboratory soils testing on collected samples; and preparation of this geotechnical report including general conclusions regarding site suitability for the proposed development and recommendations for design and construction of roads and utilities.

BACKGROUND AND PROPOSED DEVELOPMENT

TLO is planning to subdivide Parcel B2, Section 12, T18N, R1E, Seward Meridian, Alaska, which is located west of Palmer Fishhook Road and directly south of Boyd Road (**Drawing 2**) near Palmer, Alaska. R&M performed a geotechnical investigation at the project site to evaluate site suitability for the proposed development and provide geotechnical recommendations for preliminary design. Proposed site improvements include construction of asphalt paved roads with two 10-foot-wide asphalt lanes and gravel shoulders, with swales and cross culverts for drainage control. The proposed road system will provide access to the individual subdivision lots. Communication, electrical and natural gas utilities will be extended along the road right-of-way (ROW). On-site water and wastewater systems will be required for each lot.

FIELD INVESTIGATION

The geotechnical subsurface investigation program consisted of advancing, sampling, and logging a total of nine test holes (i.e., test borings and test pits). Six test borings (RM23-01, RM23-05 thru RM23-09) were completed on 24 to 26 May 2023 to depths of 27 feet below the existing ground surface (bgs), and three test pits³ (RM23-02, RM23-03, RM23-04) were completed on 13 July 2023 to depths of 12 to 13 feet bgs. Field activities were guided by an R&M engineering geologist who maintained logs of the test holes and samples. Test holes were logged and sampled in general accordance with practices outlined in the Alaska Department of Transportation and Public Facilities (DOT&PF) Geotechnical Procedures Manual⁴.

¹ Revised to address report to Ms. Vachris, add recommendations for trenching, and add statement on usable building and septic areas.

² Professional Services Term Agreement No. MA 10 200000112, NTP No. 17.

³ Steep terrain at the project site precluded drilling rig access to these locations. Test pits were advanced as an alternative to test borings.

⁴ DOT&PF, 2007. Alaska Geotechnical Procedures Manual. Dated May 2007.

Test holes were located and recorded using a recreational grade GPS unit⁵. **Drawing 3** presents approximate test hole locations relative to recent site imagery and the conceptual subdivision layout. A summary of the general notes and an explanation (key) for the test hole logs are presented as **Drawings 4 and 5**, respectively. Logs of the test holes are presented as **Drawings 6 through 14**. GPS coordinates for the test holes are presented on the attached logs and summarized below on **Table 1**.

Test boring and sampling operations were performed by Winger Drilling, Inc. of Wasilla, using a track-mounted CME-55 drill rig (**Figure 1**). Test borings were advanced using continuous flight, 8-inch nominal outside diameter (OD), 3.25-inch inside diameter (ID), hollow-stem augers. A modification of the Standard Penetration Test (SPT; ASTM D1586) was employed to collect disturbed soil samples below the ground surface at regular intervals using 2.5-inch ID (3.0-inch OD) split-spoon samplers advanced by a 340-pound automatic drop-hammer with a fall of 30 inches. Hammer blows (uncorrected) required to drive the samplers each six inches of an 18 to 24-inch interval were recorded as shown on the test boring logs.

Figure 1. CME-55 Drilling Rig on Tracked Carrier



Note: Drill rig positioned at Test Boring RM23-05, 26 May 2023.

Test pits were performed by Clear Excavating, LLC of Wasilla, using a CAT 308E2 CR Mini Excavator (**Figure 2**) with a maximum reach of approximately 12 to 13 feet bgs and a heavy tooth bucket 2 feet in width. While excavating test pits, grab samples representative of the encountered soil units were collected from the test pits walls or excavator bucket.

Test holes were backfilled with soil cuttings generated during advancement. 1-inch diameter slotted PVC casings were installed at each test boring location for the purpose of enabling monitoring of groundwater levels, or confirming lack thereof, after drilling. Groundwater measurements in the PVC casings were performed on 13 July 2023.

⁵ Recreational grade GPS units are limited to a maximum accuracy of about 15 feet.

Figure 2. CAT 308E2 CR Mini Excavator



Note: Excavator positioned at Test Pit RM23-04, 13 July 2023.

After visual and ductile field classification, samples were sealed in double plastic bags and returned to R&M's laboratory in Anchorage for further examination and testing.

LABORATORY TESTING

A laboratory testing program was developed to provide data on important subsurface characteristics and material properties for engineering analysis. Testing consisted of measuring general soil index properties for soil classification and was performed at the R&M Materials Laboratory in Anchorage in accordance with the following ASTM⁶ procedures: Particle Size Analysis - sieve and hydrometer (D 422⁷); Moisture Content (D 2216); Classification of Soils (D 2487 and D 2488); Organic Content by Ash (D 2974); and Atterberg Limits (D 4318). It should be noted that the size of gravel particles obtained using 2.5-inch ID split spoon samplers is limited to the size of the opening of the sampler. Therefore, the samples collected using split spoon samplers were thus not necessarily representative of the coarse gravel fraction.

The ASTM Unified Soil Classification System (USCS) and Frost Design Soil Classification system used for this project are summarized on **Drawings 15 and 16**, respectively. The system used to classify soils containing organic matter is summarized on **Drawing 17**. Laboratory test results are presented on the Test Boring Logs and on the Summary of Laboratory Data, **Drawings 18 through 20**. Gradation curves are presented on **Drawings 21 through 29**.

SITE CONDITIONS

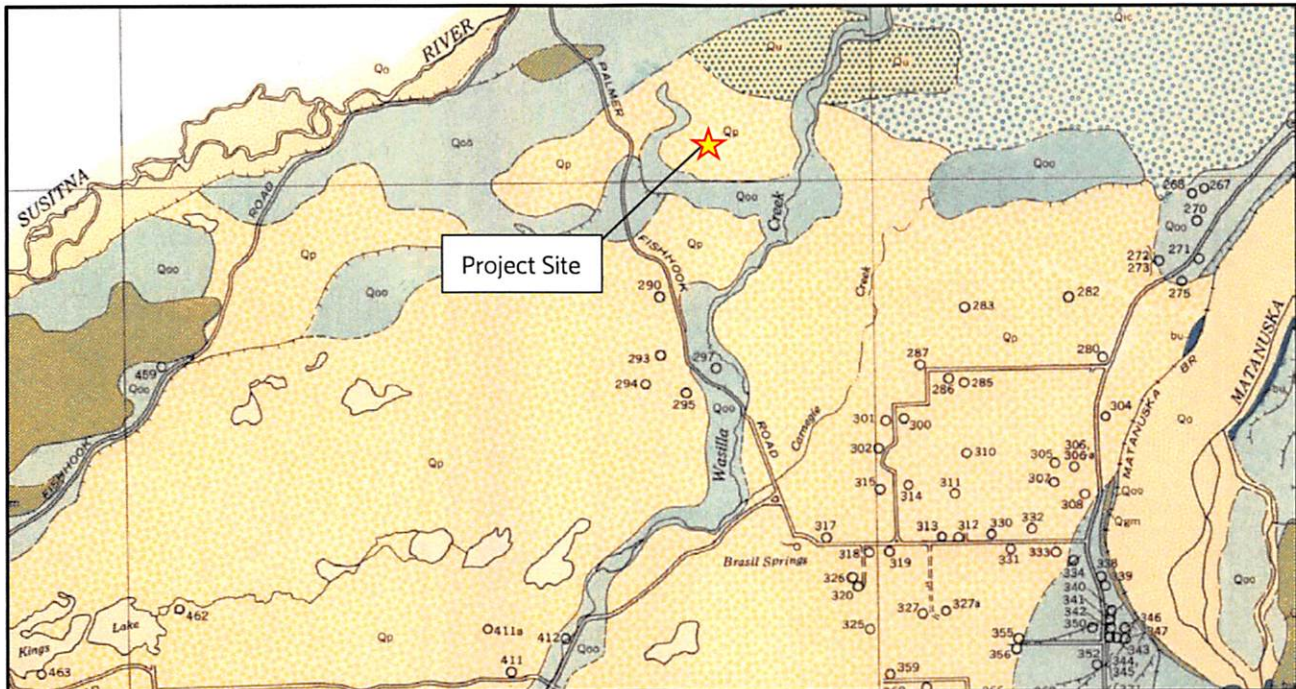
The following summarizes information pertaining to the surface and subsurface conditions encountered or interpreted within the project area based on the findings of the investigation. Vicinity/Location, Area, and Investigation Location maps for the project site are attached as **Drawings 1 through 3**, respectively.

⁶ American Society of Testing and Materials (ASTM), 2023. Annual Book of ASTM Standards, Volumes O4.08 and O4.09, Soil and Rock.

⁷ ASTM Standard D422 was not reapproved following the 2016 calendar year but remains commonly employed in Alaska.

Regional Geology. The project site is located within the Cook Inlet-Susitna Lowland physiographic province of Alaska⁸. This area is characterized as a glaciated lowland containing areas of ground moraine and stagnant ice topography, drumlin fields, eskers, and outwash plains. The topography is primarily the product of five major glacial advances that crossed the area in the middle to late Pleistocene age⁹, as well as the effect of colluvial and alluvial deposits consequent with or subsequent to the advances. Surficial soils across the project site vicinity have been mapped as outwash stream deposits; chiefly sand, gravel, and some silt¹⁰ (**Figure 3**). The in-situ soil profile encountered at the project site appeared generally consistent with this geological mapping.

Figure 3: Surficial Geological Mapping of Project Area



Notes: Map extracted from Trainer, 1960. Map key below:

- **bu (dark blue shading):** Mesozoic and Tertiary bedrock (undifferentiated); conglomerate, sandstone, shale, greenstone, and intrusive igneous rocks.
- **Qgm (olive green shading):** Quaternary ground moraine deposits; till, in part gravelly, and locally with gravel cover.
- **Qic (coarse blue dot shading):** Quaternary ice-channel deposits; eskers and associated pitted deposits, crevasse fillings, gradational.
- **Qo (fine yellow dot shading):** Quaternary outwash deposits; sand, gravel, and some silt along Matanuska River and major tributaries.
- **Qoo (light blue-green shading):** Older Quaternary outwash deposits; chiefly sand, gravel, and some silt.
- **Qp (Coarse yellow dot shading):** Quaternary pitted deposits; chiefly terraced outwash stream deposits; includes undifferentiated eskers and crevasse fillings in an elongate area that extends from Swamp Lake through Pittman to Big Lake.
- **Qu (light blue-green shading):** Undifferentiated Quaternary deposits; chiefly deposits of outwash streams, but include nonglacial lake and stream deposits.

⁸ Wahrhaftig, Clyde. 1965. Physiographic Divisions of Alaska. U.S. Geological Survey Professional Paper 482.

⁹ Coulter, H.W., et al. 1965. Map Showing Extent of Glaciations in Alaska. U.S. Geological Survey Miscellaneous Geologic Investigations Map I-415. 1 sheet. Scale 1:2,500,000.

¹⁰ Trainer, F.W., 1960. Map of the Matanuska Valley Agricultural Area, Alaska, Showing Surficial Geology and Location of Wells. Geological Survey Water-Supply Paper 1494, Plate 1, Scale 1:50,000.

Surface. The project site was undeveloped at the time of the investigation and was generally surfaced with a 3- to 7-inch-thick organic mat at the test hole locations, with grass and brush surface cover. The project site in the vicinity of the test hole locations generally exhibited uplands vegetation with spruce, birch, willow and alder growth. Topography across the project site is dominated by eskers, with an undulating and hilly ground surface with moderate to steep slopes. An exception is the southeastern corner of the site, away from the test hole locations, which exhibits a lowland area with boggy surface conditions. Drainage at the project site generally appeared to be good and primarily conveyed by infiltration with some surface flow to small streams, except for the lowland at the southeastern corner of the site.

Soil Profile. The subsurface soil profile encountered below the organic mat at the test hole locations was consistent, with two generalized soil units interpreted: (I) silty surficial deposits; overlying (II) glacial outwash deposits. The depth interval of these generalized units interpreted at each test hole is summarized on **Table 1**. Descriptions for each unit highlighting soil classification, density, and laboratory testing results are provided below. A graph depicting SPT blowcounts versus depth for each SPT sample performed is provided on **Figure 4**, with SPT values corrected for overburden pressure, sampling characteristics, and oversize sampler.

Unit I – Silty Surficial Soils, typically consisting of sandy silt to silty sand containing organics (USCS = oSM, oML), were encountered below the organic mat at each test hole location. The silty surficial deposits ranged in thickness from approximately 0.6 to 5.1 feet and were generally moist to wet, soft or loose, and non-plastic. This soil unit typically contained visible organic matter consisting of organic silt, roots, and other organic debris. Gravel content and cobbles were encountered intermixed near the bottom of this unit at some test hole locations.

For those samples tested from Unit I: average moisture content was 39 percent (range [r]=21.2 to 61.7, number of tests [n]=15), average percent passing the No. 200 sieve (P200) was 59 percent (r=39 to 76, n=6), and average organic content was 8.4 percent (r=6.5 to 12, n=5). Results of dry preparation Atterberg limits testing in this soil unit (n=2) were nonplastic (NP). These soils are highly frost susceptible (F4).

Unit II – Glacial Outwash, consisting primarily of poorly to well graded gravel and sand with variable silt contents (USCS= GW, GP, GW-GM, GP-GM, SP, SP-SM), was encountered underlying the silty surficial soil deposits (Unit I) at each test hole location. This soil unit is consistent with the 'Qoo' and 'Qp' units mapped at the project site (**Figure 3**). Unit II soils were generally interpreted to be medium dense to very dense in consistency, dry to moist, and nonplastic. The glacial outwash unit contained occasional to frequent cobbles and possible boulders. Frost class of the glacial outwash deposits unit was interpreted/tested ranging from non-frost susceptible (NFS) to slightly frost susceptible (S2).

For those samples tested from Unit II: average moisture content was 3.3 percent (r=1.0 to 7.4, n=46); average P200 content was 5.7 percent (r=1.0 to 8.1, n=20), and average percent passing the 0.02 mm sieve (P.02) was 3.4 percent (r=1.5 to 5.3, n=9).

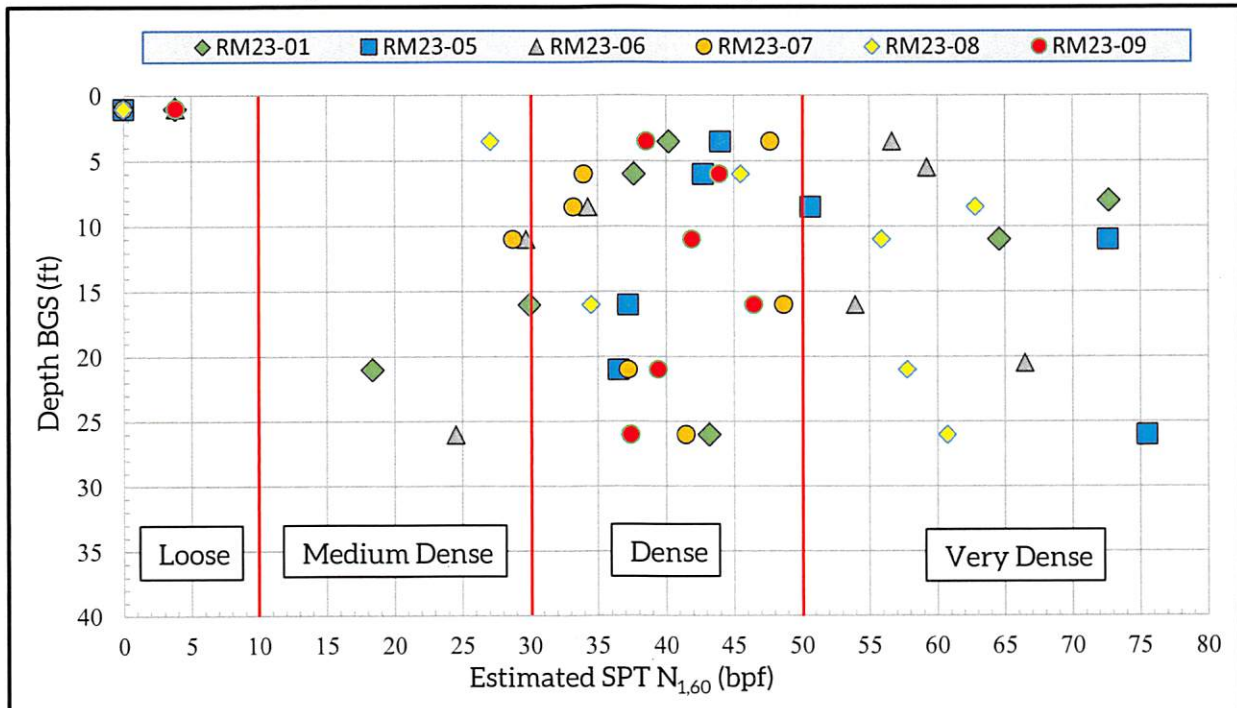
Table 1: Generalized Soil Unit Profile at Test Boring Locations

Test Hole Number	GPS Coordinates (WGS84)		Interpreted Depth of Generalized Soil Unit (In feet below existing ground surface)			Groundwater Depth
	Latitude (N)	Longitude (W)	Organic Mat (Thickness)	UNIT I Silty Surficial Soils	UNIT II Glacial Outwash	
RM23-01	61.67140	149.20721	0.4	0.4 to 3.1	3.1 to 27.0 ^{TD}	NE
RM23-02	61.66980	149.20750	0.5	0.5 to 3.0	3.0 to 12.0 ^{TD}	NE
RM23-03	61.66861	149.20611	0.6	0.6 to 3.0	3.0 to 13.0 ^{TD}	NE
RM23-04	61.67028	149.20306	0.5	0.5 to 1.1	1.1 to 12.0 ^{TD}	NE
RM23-05	61.67052	149.20554	0.3	0.3 to 2.9	2.9 to 27.0 ^{TD}	NE
RM23-06	61.67058	149.20265	0.4	0.4 to 3.3	3.3 to 27.0 ^{TD}	NE
RM23-07	61.67055	149.19659	0.4	0.4 to 3.0	3.0 to 27.0 ^{TD}	NE
RM23-08	61.67130	149.19876	0.4	0.4 to 5.5	5.5 to 27.0 ^{TD}	NE
RM23-09	61.67075	149.19948	0.5	0.5 to 3.2	3.2 to 27.0 ^{TD}	NE

TD = total depth of test hole.

NE = groundwater not encountered while drilling/excavating and during subsequent measurements performed on 13 July 2023.

Figure 4: Corrected SPT Blowcounts vs. Depth for Test Borings



Note: the presence of coarse gravels and cobbles likely inflated SPT values in some test intervals.

Groundwater was not suspected or interpreted at the test hole locations during drilling/excavating and groundwater was not encountered during subsequent water level measurements performed on 13 July 2023 in the slotted PVC casings installed to total depth at each test boring. We generally do not anticipate shallow groundwater conditions affecting this site in the vicinity of the test boring locations. However, some wetness was observed within the silty surficial soils (Unit I) indicating potential for perched water to develop in this soil unit. Additionally, several small intermittent streams appear to run through the site within troughs in the uplands portion of the site, and lowland muskeg terrain with ponding exists in the southeastern corner of the site; shallow groundwater conditions are anticipated in the vicinity of these features.

Permafrost was not suspected or interpreted at the test hole locations during this investigation, and we generally do not anticipate permafrost affecting this site. The project area is regionally mapped as containing isolated masses of permafrost (less than 10 percent area coverage) with heightened potential for perennially frozen soil in areas with high ground insulation such as bogs or swamps¹¹.

Bedrock was not suspected or interpreted at the test hole locations during this investigation. We do not anticipate shallow bedrock conditions affecting this site.

GENERAL CONCLUSIONS AND GEOTECHNICAL RECOMMENDATIONS

The following summarizes general conclusions regarding suitability of the project site for the proposed development and geotechnical recommendations for design and construction of roads and utilities. Earthwork material designations herein reference those specified in the **DOT&PF 2020 Standards Specifications for Highway Construction**.

Geotechnical investigation and recommendations for development of the individual residential lots within the proposed subdivision were not within the scope of this investigation.

Seismic Design Parameters shown on Table 2 address the geotechnical aspects of structural design on these sites relative to ASCE/SEI 7-22.

Table 2: Seismic Design Parameters

Site Parameters	Value
Site Class	D
PGA _M	0.72
S _s	2.25
S ₁	0.91
S _{MS}	1.98
S _{M1}	2.48
S _{DS}	1.32
S _{D1}	1.65

¹¹ Jorgenson et al., 2008. "Permafrost Characteristics of Alaska", Institute of Northern Engineering, University of Alaska.

Usable Area. The investigation results indicate favorable conditions for the installation of water wells, onsite wastewater disposal (i.e., septic) systems, and site development. The proposed lots are interpreted to each contain greater than 10,000 square feet of usable building area and greater than 10,000 square feet of contiguous septic area in accordance with Matanuska-Susitna Borough Code 43.20.281(A). Design and installation of onsite water and wastewater systems should be performed in accordance with the governing Alaska Department of Environmental Conservation requirements for these systems. To improve drainage within the footprint of septic system infiltration galleries, materials consistent with the Silty Surficial Soil unit (Unit I defined above) variably surfacing the site should be removed such that the base of the infiltration gallery bedding is placed on soils consistent with the Glacial Outwash unit (Unit II defined above).

Site Stability: The project site is generally underlain by dense coarse-grained soils free of shallow groundwater; soil liquefaction is unlikely. Additionally, loss of bearing capacity and land spreading are unlikely to occur in the relatively dense soils underlying the site. The project site exhibits variable topography with some moderate to steep slopes. Slope instability is unlikely where appropriate grading and construction practices are applied in development of this site.

Site Grading. We understand that the project site would be graded for development of paved roads and accompanying utility extensions. Considering the results of this investigation, the project site is favorable for grading. Prior to site grading, the surficial silty soils (Unit I) should be stripped from areas to be developed. Anticipate the overexcavation required to remove the Unit I soils will typically be on the order of 3 to 5 feet in depth bgs. The base of excavations should consist of materials consistent with glacial outwash (Unit II) as described herein and be compacted to at least 95 percent of maximum laboratory unit weight (ASTM D 1557). **DOT&PF Selected Material Type A or B** should be used as excavation backfill or where necessary bring the surface to grade within the **influence area**¹² below pavements and utilities. Grading materials should be placed in maximum 10-inch (loose) lifts and compacted to at least 95 percent of maximum laboratory unit weight (ASTM D 1557). Any cut slopes, graded embankment slopes, or slopes on the periphery of graded areas should be laid back to a maximum steepness of 2 horizontal and 1 vertical.

Excavation Reuse. Based on the results of this investigation the silty surficial soils (Unit I) are not suitable for reuse as structural fill or classified fill for embankment construction in the influence area below pavements, utilities, or foundations. The glacial outwash (Unit II) materials underlying this site may be suitable for reuse as **DOT&PF Selected Materials**. Materials excavated onsite may be reused during site grading and construction if they: meet the defined specifications and criteria; are monitored and stockpiled separately; and are kept free of organics, other debris, and excess moisture. The existing organic mat materials surfacing the site may be suitable for reuse in turfing graded surfaces adjacent to the roads. Consider turfing and seeding completed slope surfaces for erosion protection.

Trenches. The following geotechnical recommendations pertain to trench design and construction considerations. Construction practices and material classifications for backfill and bedding of pipe culverts, storm drains, manholes, inlets,

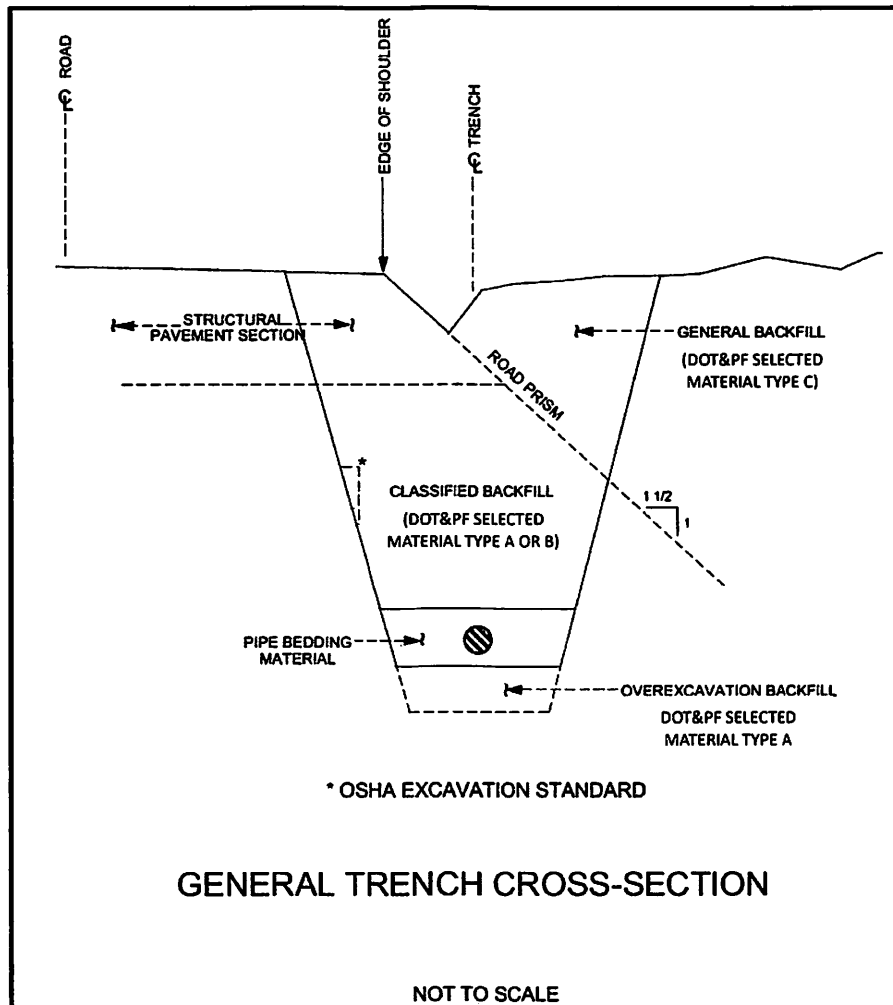
¹² Influence area is defined as that area within a 1h:1v (horizontal:vertical) prism extending outwards and down from the pavement, foundation and/or utility bedding.

conduits, and other structures should follow those provided in the **DOT&PF 2020 Standard Specifications for Highway Construction**.

Trench slopes should conform to prevailing safety requirements in the Occupational Safety and Health Administration Excavation Standard (29 CFR Part 1926), herein referred to as the OSHA Standard. Further interventions (flattening or shoring) to the OSHA Standard maximum slopes may be required if the trench walls are exposed for long periods (>24 hours), trenches are allowed to fill with water, trench walls are exposed to heavy rain, excavated or backfill material is stockpiled at the surface within about "one-trench-depth" of the top of the trench, or if heavy or frequent traffic and equipment is operating near the top of the trench.

A typical trench section is presented on **Figure 5**, which also illustrates the following described backfill categories.

Figure 5: Generalized Trench Typical Section



Where not otherwise specified, bedding material should conform to DOT&PF **Selected Material Type A** passing the **3-inch sieve**. Bedding should extend to 12 inches above, below, and on either side (horizontally) of the pipe or conduit and

ancillary structures. The bedding should be placed in maximum 6-inch loose lifts and compacted to a minimum of 95 percent maximum density, determined in accordance with ASTM D 1557. Excavation areas that are inaccessible to proof-rolling should be inspected by hand probing or shallow test pits. Any evident loose or disturbed soils should be recompacted, or removed and replaced with **Selected Material Type A passing the 3-inch sieve**.

All backfill in overexcavations below the design trench depth should conform to the requirements for classified backfill inside the 'road prism' presented on **Figure 5**. The overexcavation backfill should be placed in maximum 10-inch loose lifts and compacted to a minimum of 95 percent maximum density, determined in accordance with ASTM D 1557. Backfill type and compaction requirements above the bedding are different depending if the trench is inside or outside the road prism.

Outside the 'road prism' backfill above the bedding can be with **DOT&PF Selected Material Type C**. This backfill should be placed in maximum 12-inch lifts and compacted to a minimum of 90 percent maximum density. Inside the 'road prism', all 'classified' and 'structural' backfill (see **Figure 5**) should be placed in maximum 10-inch lifts (loose thickness) and compacted to at least 95 percent maximum density (ASTM D-1557). Trench backfill below the road section and above and below the pipe bedding should conform to the specifications for **DOT&PF Selected Material Type A or B**.

Asphalt Pavement Design. Site conditions are generally favorable for construction of the proposed asphalt paved roads and utility systems. We anticipate that pavement structural sections can perform well if bearing on the glacial outwash (Unit II) materials encountered at relatively shallow depths across this site. Unit II soils were generally dense in consistency and non-plastic, dry to moist, with relatively low silt contents and low frost-susceptibility.

We recommend the following minimum pavement structural section:

- 2 inches of hot mix asphalt pavement, over
- 2 inches of **DOT&PF Base Course Grading D-1**, over
- 12 inches of **DOT&PF Selected Material Type A passing the 3-inch sieve**, over
- additional thickness of **DOT&PF Selected Material Type A or B** as needed to meet grade, over
- prepared surface of in situ soil consistent with glacial outwash (Unit II) materials.

Foundations. Favorable soils (Unit II) for support of conventional foundations were encountered underlying the surficial silty soils (Unit I) at the project site. Unit II soils were generally dense in consistency and non-plastic, dry to moist, with relatively low silt contents and low frost-susceptibility.

CLOSURE

The discussion presented in this report is preliminary in nature and based on our understandings of the proposed project, our investigation, and the other pertinent information listed herein. Because subsurface characteristics can change significantly within a given area, and with the passing of time, the possibility exists that important conditions not disclosed by this investigation may be discovered on the site during construction. Should this situation occur, the influence of the new information on the design aspects should be evaluated without delay.

R&M Consultants, Inc. performed this work in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No warranty, express or implied, beyond exercise of reasonable care and professional diligence, is made. This report is intended for use only in accordance with the purposes of study described within.

We appreciate the opportunity to perform this geotechnical investigation. Should you require further information concerning the investigation or this report, please contact us at your convenience. Sincerely,

R&M CONSULTANTS, INC.

Reviewed By:



A handwritten signature in blue ink, appearing to read "Aaron Banks".

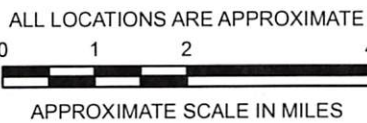
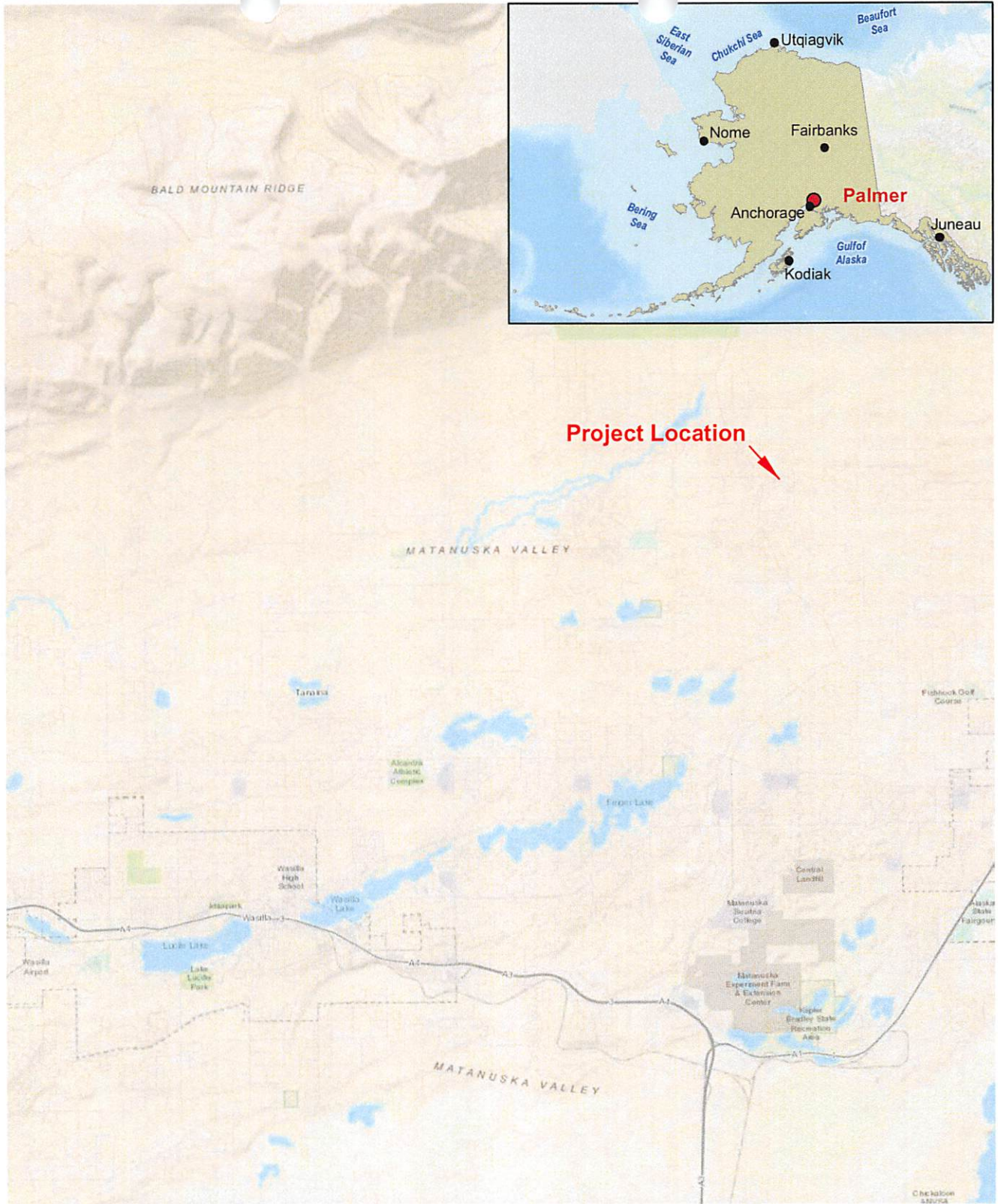
Brian M. Mullen, PE
Senior Geotechnical Engineer

Aaron T. Banks, CPG
Senior Geologist

ATTACHMENTS

- Location/Vicinity and Area Maps (**Drawings 1 and 2**)
- Investigation Location Map (**Drawing 3**)
- General Notes (**Drawing 4**)
- Explanation of Selected Symbols (**Drawing 5**)
- Test Hole Logs (**Drawings 6 through 14**)
- Classification of Soil for Engineering Purposes (**Drawing 15**)
- USACE Frost Design Soil Classification (**Drawing 16**)
- Classification of Soils Containing Organic Matter (**Drawing 17**)
- Summary of Laboratory Soils Data (**Drawing 18-20**)
- Gradation Curves (**Drawings 21-29**)

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NOTES:
 - World Topographic Map from ESRI Online
 - USGS AnchorageC-7, 15-minute quadrangle



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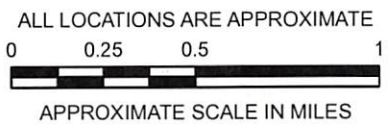
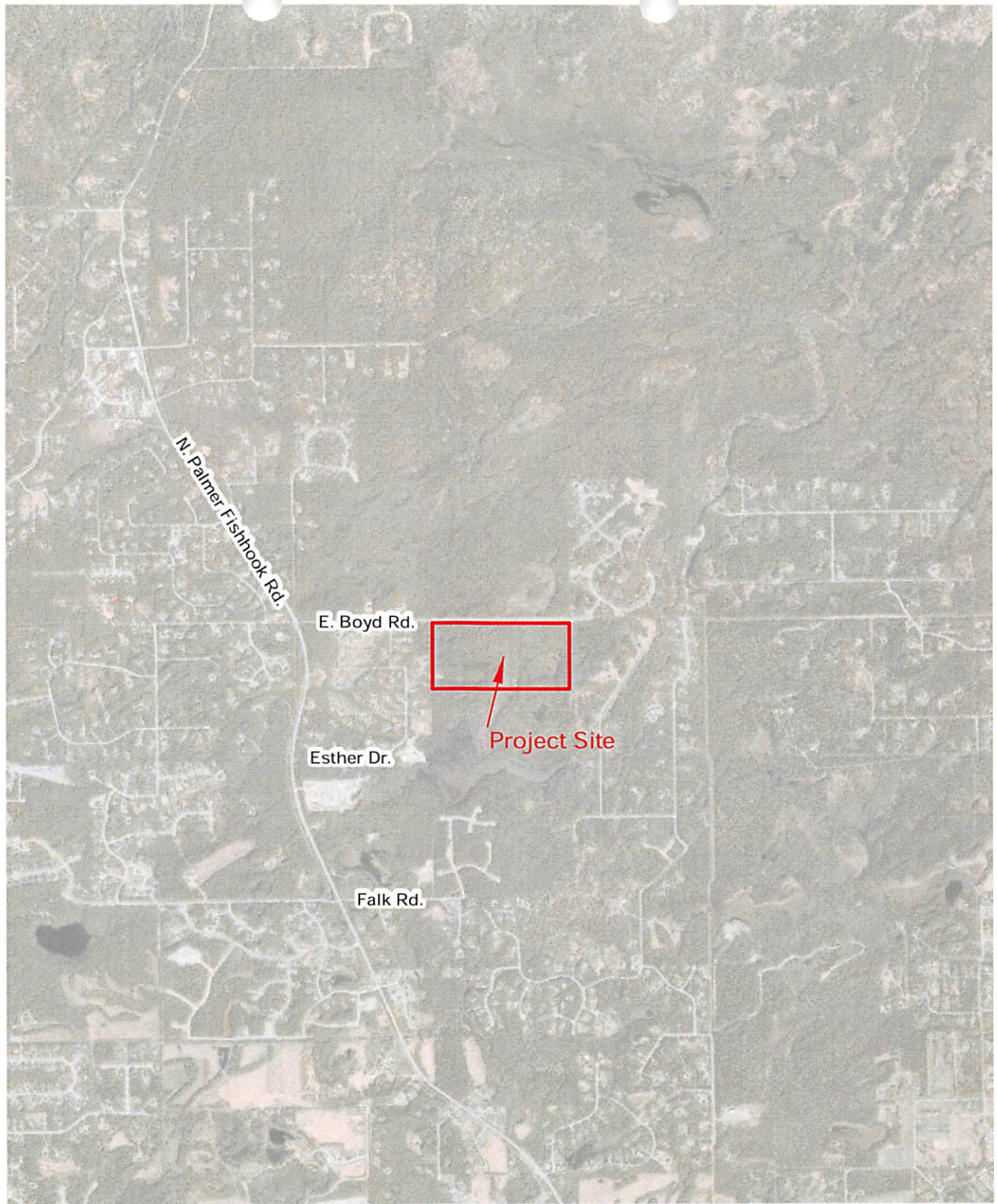
ADNR TLO BOYD ROAD SUBDIVISION
 PALMER, AK

LOCATION AND VICINITY MAP

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EXHIBIT B -12

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NOTES:
- Aerial Photography from World Imagery on ESRI Online



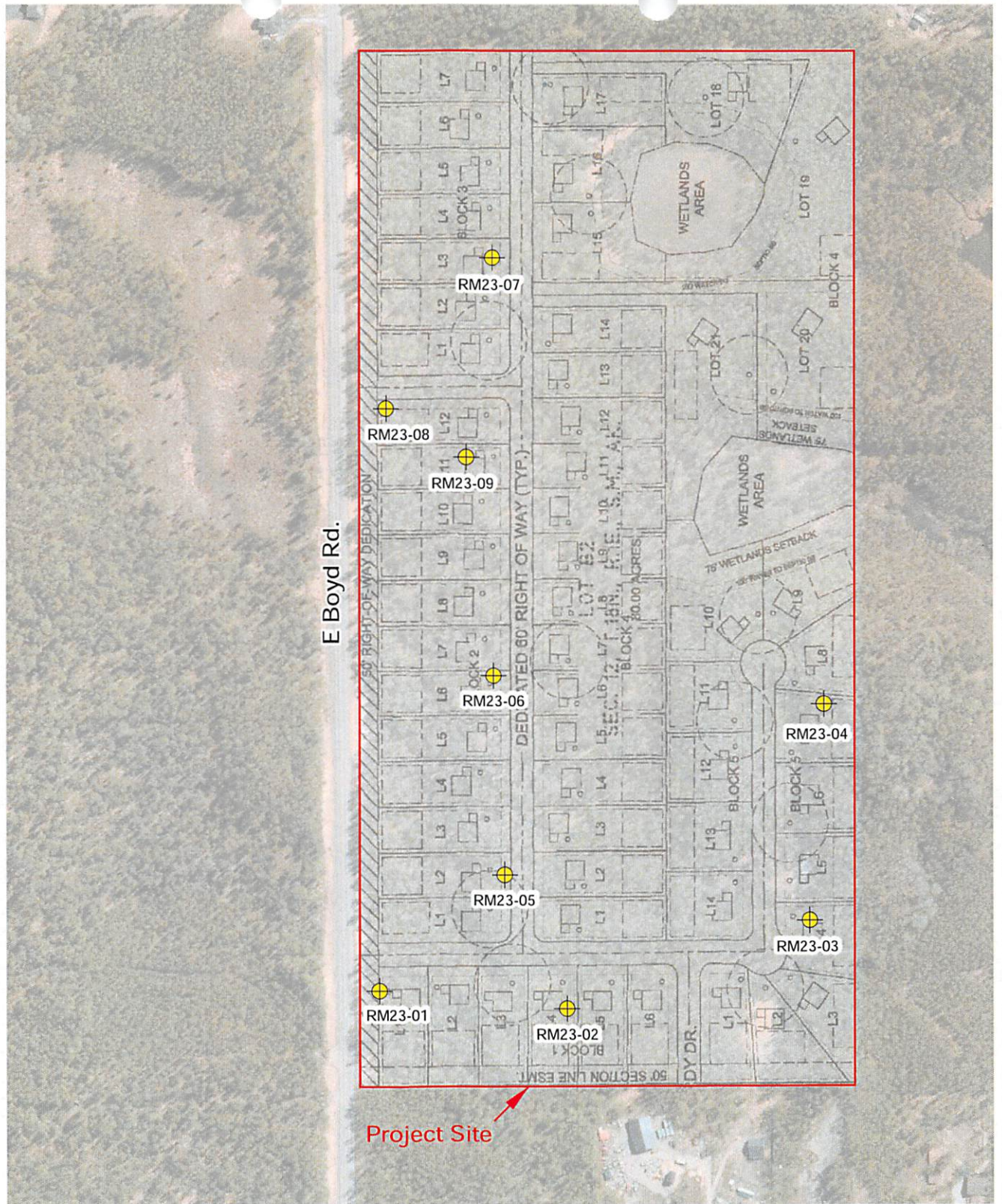
PREPARED BY:
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ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK

AREA MAP

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ALL LOCATIONS ARE APPROXIMATE
 0 175 350 700
 APPROXIMATE SCALE IN FEET

NOTES
 - Aerial Photography from World Imagery on ESRI Online
 - Concept Design Plan (June 2022)



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ADNR TLO BOYD ROAD SUBDIVISION
 PALMER, AK
 INVESTIGATION LOCATION MAP

PROJ.NO: 2846.01
 DATE: JULY 2023
 REF: GEOTECH RPT
 DRAWING NO: 3

SOILS CONSISTENCY AND SYMBOLS

CLASSIFICATION: Identification and classification of the soil is accomplished in accordance with the ASTM version of the Unified Soil Classification System. When laboratory testing data on material passing the 75-mm sieve is available Standard D 2487 (Classification of Soils for Engineering Purposes) is used and when laboratory data is not available D 2488 (Visual-Manual Procedure) is used. This classification system identifies three major soil divisions: coarse-grained soils, fine-grained soils, and highly organic soils. These three divisions are further subdivided into a total of 15 basic soils groups. Based on the results of visual observations and prescribed laboratory tests, a soil is catalogued according to the basic soil groups, assigned a group symbol(s) and name, and thereby classified. Flow charts contained in the two standards can be used to assign the appropriate group symbol(s) and name.

SOIL DENSITY/CONSISTENCY - CRITERIA: Soil density/consistency as defined below and determined by normal field and laboratory methods applies only to non-frozen material. For these materials, the influence of such factors as soil structure, i.e. fissure systems shrinkage cracks, slickensides, etc., must be taken into consideration in making any correlation with the consistency values listed below. In permafrost zones, the consistency and strength of frozen soil may vary significantly and inexplicably with ice content, thermal regime and soil type.

<u>COARSE GRAINED</u> (DOT&PF 2007)		<u>FINE GRAINED</u> (ASTM D 2488)	
<u>Relative Density</u>	<u>N * (blows/FT.)</u>	<u>Consistency</u>	<u>Thumbnail Test</u>
Very loose	0 - 4	Very soft	Thumb > 1 in.
Loose	5 - 10	Soft	Thumb = 1 in.
Medium dense	11 - 30	Firm	Thumb = 1/4 in.
Dense	31 - 50	Hard	Thumbnail indents
Very dense	>50	Very hard	Thumbnail will not indent

* Standard Penetration "N": Blows per 12 inches of a 140-pound manual hammer (lifted with rope & cathead) falling 30 inches on a 2-inch O.D. split-spoon sampler except where noted. Blow counts presented on test boring logs are direct field values (i.e. they have not been corrected to account for hammer efficiency, borehole diameter, sampling method, or rod length)

KEY TO TEST RESULTS

DD - Dry Density	PP - Pocket Penetrometer
LL - Liquid Limit	P200 - % Passing No. 200 Screen
MC - Moisture Content	P.02 - % Passing 0.02 mm
Org - Organic Content	P.005 - % Passing 0.005 mm
PI - Plastic Index	P.002 - % Passing 0.002 mm
PL - Plastic Limit	Gs - Specific Gravity
	Cs - Chemical Sample Identification

PREPARED BY:
R&M CONSULTANTS, INC.

GENERAL NOTES

PROJ.NO:	GENERAL
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DWG.NO:	4

STANDARD SYMBOLS

SYMBOL	NAME	PARTICLE SIZE	SYMBOL	NAME
	CLAY	< 0.002mm, Plastic		ORGANICS
	SILT	0.002mm, - #200		ICE
	SAND (Sa)	#200, - #4		ICE W/SOIL INCLUSIONS
	GRAVEL (Gr)	#4, - 3"		ICE LENSE IN SOIL
	COBBLES & BOULDERS	3" - 12" & > 12"		ICE CRYSTALS IN CLAY

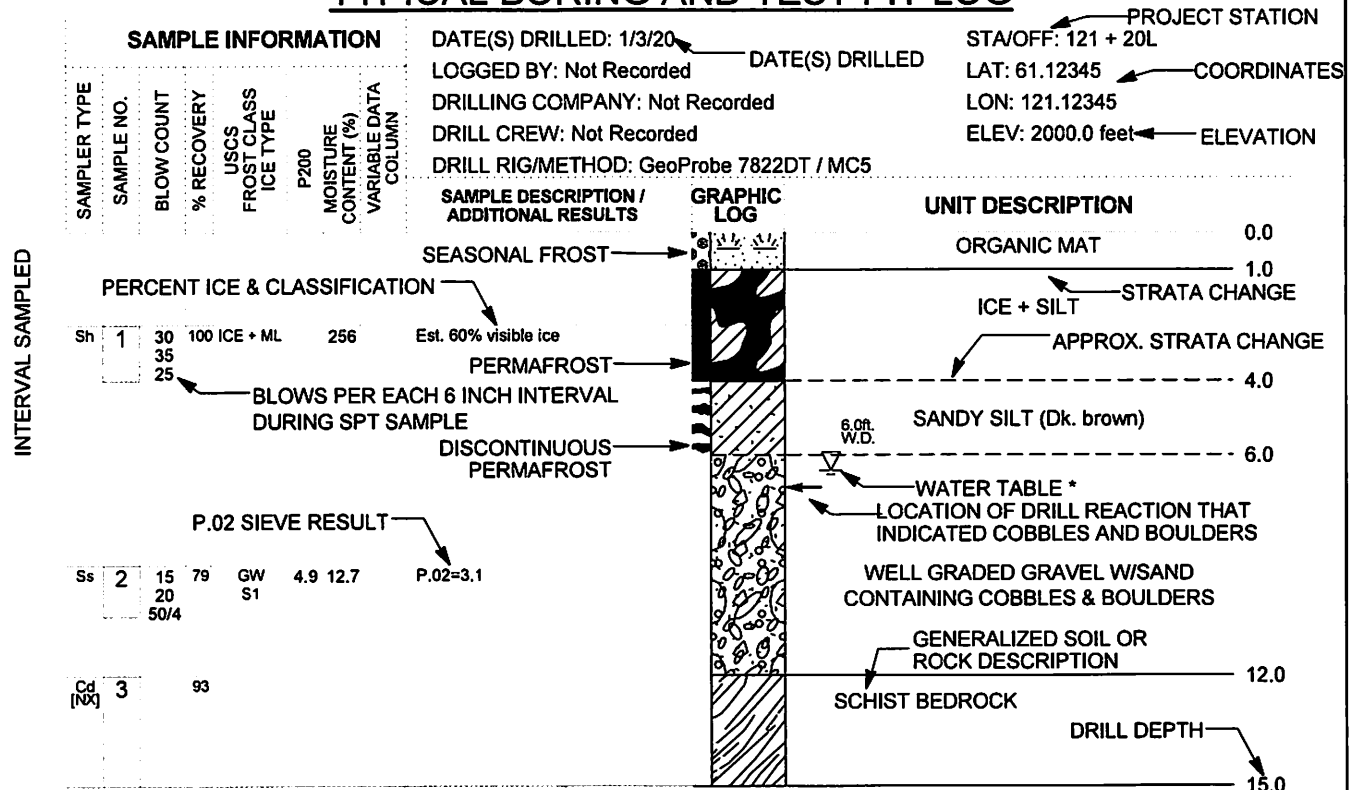
(The symbols shown above are frequently used in combinations, e. g. SILTY GRAVEL W/SAND)

SAMPLER TYPE SYMBOLS

A Auger Sample	MC 1.5 In. I.D. Macro-core	Tm Modified Shelby Tube
C Cuttings Sample	MC7 3.0 In. I.D. Macro-core	Ts 3.0 In. Shelby Tube
Cd Double Tube Core Barrel	Sh 2.5 In. Split Spoon w/340 lb. Manual Hammer	BX Rock Core - 1-5/8 in. core diameter
Cs Single Tube or Auger Core	Sha 2.5 In. Split Spoon w/340 lb. Auto Hammer	NX Rock Core - 2-1/8 in. core diameter
Ct Triple Tube Core Barrel	Sl 2.5 In. Split Spoon w/140 lb. Hammer	NQ Rock Core - 1-7/8 in. core diameter
G Grab Sample	Ss 1.4 In. Split Spoon w/140 lb. Manual Hammer	HQ Rock Core - 2-1/2 in. core diameter
	Ssa 1.4 In. Split Spoon w/140 lb. Auto Hammer	

NOTE: Sampler types are noted above the boring log or adjacent to it at the respective depth. Individual logs may not utilize all listed items.

TYPICAL BORING AND TEST PIT LOG



* W.D. - WHILE DRILLING, A.B. - AFTER BORING

** - REFER TO SAMPLER SYMBOL (Ss, Sh, ETC.) FOR SAMPLER I.D. & HAMMER WEIGHT/TYPE

NOTE: Water levels shown on the boring logs are the levels measured in the boring at the times indicated.

PREPARED BY:
R&M CONSULTANTS, INC.

EXPLANATION OF SELECTED SYMBOLS

PROJ.NO:	GENERAL
DATE:	N/A
REF:	N/A
DWG.NO:	5

RM23-01

Log Page 1 of 1

DEPTH (FT)	SAMPLE INFORMATION							Date(s) Drilled: 5/26/23		Lat: 61.6714	
	SAMPLER TYPE	SAMPLE NO.	BLOW COUNT	PERCENT RECOVERY	USCS FROST CLASS ICE TYPE	MOISTURE CONTENT (PERCENT)	P200 (%)	N-VALUE	Logged By: A. Pasikowski	Lon: -149.20721	
									SAMPLE DESCRIPTION / ADDITIONAL RESULTS	GRAPHIC LOG	UNIT DESCRIPTION
0	Sha	1	0	65		38.5		2	Brown-tan. Containing plant fibers and wholly decomposed disseminated organics. Est. <10% visible organics by volume		ORGANIC MAT (Brown-black, Moist to wet) 0.0
1			1					ORGANIC SILTY SAND (Brown-black, Fine to medium sand, Nonplastic, Moist to wet) 0.4			
2	Sha	2	10	70	SM*	44.3	41	22	Brown-tan. Containing disseminated organics and some plant matter, Org=12.4%, Fines=41 Brown-tan-gray, Gr=62, Sa=31, Fines=7, P.02=4.5, P.005=2.8, P.002=1.8 Brown-tan-gray		3.1
3		3	17		F4*	2.8	6.6				
4			5		GP-GM*						
5	Sha	4	5	70		3.1		24	Driving gravel/cobble. Poor Recovery		
6			11								
7			13								
8	Sha	5	36	100				50	Brown-tan-gray, Gr=79, Sa=18, Fines=3		
9			50/0.3								
10											
11	Sha	6	8	45	GP	1.0	3.4	37	Brown-tan-gray, Gr=79, Sa=18, Fines=3		
12			19		PFS*						
13			18								
14			14						POORLY GRADED GRAVEL W/SILT AND SAND TO GRAVEL W/SAND CONTAINING COBBLES & BOULDERS (Brown-tan-gray, Gravel subrounded to subangular, hard, Fine to coarse sand, Nonplastic, Dry)		
15	Sha	7	23	85		2.5		20			
16			10								
17		8	10			3.3			Brown-tan-gray		
18			10								
19			12								
20	Sha	9	3	80		3.8		14	Brown-tan-gray		
21			6								
22			8								
23			13						Tan-gray		
24	Sha	10	7	55		1.9		37			
25			14								
26			23						Tan-gray		
27			27								
28											

* Estimated classification

- 1) Latitude and Longitude coordinates reference the WGS 84 datum and were recorded using a recreational-grade GPS unit.
- 2) Gr = gravel (%), Sa = Sand (%), Fines = Passing the No. 200 sieve (%), P.xx = % passing size mm.
- 3) No groundwater was encountered during measurements performed on 7/13/23.
- 4) 1-inch slotted PVC casing installed to 27 feet for monitoring of groundwater levels.

PREPARED BY:
R&M CONSULTANTS, INC.

ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK
LOG OF TEST BORING

PROJ.NO: 2846.01
DATE: AUG 2023
REF: GEOTECH RPT
DWG.NO: 6

RM23-02

Log Page 1 of 1

DEPTH (FT)	SAMPLE INFORMATION						Date(s) Drilled: 7/13/23		Lat: 61.6701	
	SAMPLER TYPE	SAMPLE NO.	BLOW COUNT	PERCENT RECOVERY	USCS FROST CLASS ICE TYPE	MOISTURE CONTENT (PERCENT)	P200 (%)	N-VALUE	Logged By: A. Pasikowski	
								Drilling Company: Clear Excavating		
								Drill Crew: Ryan Laulainen		
								Rig/Method: CAT 308E2 CR Mini Excavator		
	SAMPLE DESCRIPTION / ADDITIONAL RESULTS						GRAPHIC LOG	UNIT DESCRIPTION		
0		1		100		32.4			ORGANIC MAT (Brown, Moist to wet)	0.0
		2		100	ML* F4*	24.0	68		SANDY SILT CONTAINING ORGANICS (Brown w/orange (rust colored) staining, Fine to medium sand, Nonplastic, Moist to wet)	0.5
2		3		100	SP NFS	2.5	1.6		POORLY GRADED SAND (Gray, Fine to coarse sand, Nonplastic, Dry to moist)	3.0
4		4		100	GW NFS	2.3	1		WELL GRADED GRAVEL W/SAND CONTAINING COBBLES & BOULDERS (Gray-brown, Gravel subrounded to subangular, hard, Fine to coarse sand, Dry to moist)	5.0
6		5		100		1.7			Brown-gray	12.0

* Estimated classification

- 1) Latitude and Longitude coordinates reference the WGS 84 datum and were recorded using a recreational-grade GPS unit.
- 2) Gr = gravel (%), Sa = Sand (%), Fines = Passing the No. 200 sieve (%), P.xx = % passing size mm.
- 3) No groundwater was encountered during test pit excavation.

PREPARED BY:
R&M CONSULTANTS, INC.

ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK

LOG OF TEST PIT

PROJ.NO:	2846.01
DATE:	AUG 2023
REF:	GEOTECH RPT
DWG.NO:	7

RM23-03

Log Page 1 of 1

DEPTH (FT)	SAMPLE INFORMATION						Date(s) Drilled: 7/13/23		Lat: 61.66841		
	SAMPLER TYPE	SAMPLE NO.	BLOW COUNT	PERCENT RECOVERY	USCS FROST CLASS ICE TYPE MOISTURE CONTENT (PERCENT)	P200 (%)	N-VALUE	Logged By: A. Pasikowski		Lon: -149.20625	
								SAMPLE DESCRIPTION / ADDITIONAL RESULTS	GRAPHIC LOG	UNIT DESCRIPTION	
0										ORGANIC MAT (Dk. brown-black, Moist to wet)	0.0
1		1			ML* F4*	61.7 76		Brown-black. Containing plant fibers and wholly decomposed organics., Est. <10% visible organics by volume, Fines=76		SILT W/SAND CONTAINING ORGANICS (Tan-brown, Fine to medium sand, Nonplastic, Moist to wet)	0.6
2		2			GW-GM* S1	3.2 5.5		Brown-tan, Gr=61, Sa=34, Fines=6, P.02=3.9, P.005=1.7, P.002=1.1			3.0
3		3			GW* S1*	2.5 3.4	Gr=67, Sa=30, Fines=3			WELL GRADED GRAVEL W/SILT AND SAND TO GRAVEL W/SAND CONTAINING COBBLES & BOULDERS (Gray-brown, Gravel subrounded to subangular, hard, Fine to coarse sand, Nonplastic, Dry to moist)	
13.0											

* Estimated classification

- 1) Latitude and Longitude coordinates reference the WGS 84 datum and were recorded using a recreational-grade GPS unit.
- 2) Gr = gravel (%), Sa = Sand (%), Fines = Passing the No. 200 sieve (%), P.xx = % passing size mm.
- 3) No groundwater was encountered during test pit excavation.

PREPARED BY:
R&M CONSULTANTS, INC.

ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK
LOG OF TEST PIT

PROJ.NO:	2846.01
DATE:	AUG 2023
REF:	GEOTECH RPT
DWG.NO:	8

EXHIBIT B -19

RM23-04

Log Page 1 of 1

DEPTH (FT)	SAMPLE INFORMATION					Date(s) Drilled: 7/13/23	Lat: 61.66829
	SAMPLER TYPE	SAMPLE NO.	BLOW COUNT	PERCENT RECOVERY	USCS FROST CLASS ICE TYPE MOISTURE CONTENT (PERCENT) P200 (%) N-VALUE	Logged By: A. Pasikowski	Lon: -149.20312
						Drilling Company: Clear Excavating	
						Drill Crew: Ryan Laulainen	
						Rig/Method: CAT 308E2 CR Mini Excavator	
						SAMPLE DESCRIPTION / ADDITIONAL RESULTS	GRAPHIC LOG
							UNIT DESCRIPTION
0							0.0
1	1					Brown-reddish brown. Containing plant fibers and wholly decomposed organics. Est. <5% visible organics by volume Brown-reddish brown, Gr=71, Sa=23, Fines=7, P.02=3.5, P.005=1.4, P.002=0.9	ORGANIC MAT (Dk. brown-black, Moist to wet)
2	2						GP-GM* F1 27.9 3.1 6.5
8	3					Brown-gray, Gr=57, Sa=38, Fines=5	POORLY GRADED GRAVEL W/SILT AND SAND CONTAINING COBBLES & BOULDERS (Brown-gray, Gravel subrounded to subangular, hard, Fine to coarse sand, Nonplastic, Dry)
12							12.0

* Estimated classification

- 1) Latitude and Longitude coordinates reference the WGS 84 datum and were recorded using a recreational-grade GPS unit.
- 2) Gr = gravel (%), Sa = Sand (%), Fines = Passing the No. 200 sieve (%), P.xx = % passing size mm.
- 3) No groundwater was encountered during test pit excavation.

PREPARED BY:
R&M CONSULTANTS, INC.

ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK



























LOG OF TEST PIT

PROJ.NO:	2846.01
DATE:	AUG 2023
REF:	GEOTECH RPT
DWG.NO:	9

EXHIBIT B -20

RM23-05

Log Page 1 of 1

DEPTH (FT)	SAMPLE INFORMATION						Date(s) Drilled: 5/26/23		Lat: 61.67052	
	SAMPLER TYPE	SAMPLE NO.	BLOW COUNT	PERCENT RECOVERY	USCS FROST CLASS ICE TYPE	MOISTURE CONTENT (PERCENT) P200 (%)	N-VALUE	Logged By: A. Pasikowski		Lon: -149.20554
								SAMPLE DESCRIPTION / ADDITIONAL RESULTS	GRAPHIC LOG	UNIT DESCRIPTION
0	Sha 1	1	0	65	ML F4*	42.0	65	0		ORGANIC MAT (Brown-black, Moist to wet) 0.0 SILT W/SAND CONTAINING ORGANICS (Brown w/orange (rust colored) staining, Fine to medium sand, Nonplastic, Moist to wet) 0.3
2	Sha 2	2	6	65	GW-GM* S1	30.8	5.1	24		Brown w/orange staining, Est. 5% visible organics by volume Brown-gray, Gr=62, Sa=33, Fines=5, P.02=3.5, P.005=1.8, P.002=1.5
4	Sha 3	3	11			2.8				
6	Sha 4	4	8	55		4.1		26		Brown-gray
8	Sha 5	5	11							
10	Sha 6	6	12	65		2.3		34		Brown-gray
12	Sha 7	7	17							
14	Sha 8	8	17							
16	Sha 9	9	16							
18	Sha 10	10	9	85	GP-GM* S1*	3.1	7.1	40		Brown-gray, Gr=47, Sa=46, Fines=7
20	Sha 11	11	19							
22	Sha 12	12	21							
24	Sha 13	13	15							
26	Sha 14	14	13							
27.0	Sha 15	15	5	65		3.4		24		Brown-tan-gray
	Sha 16	16	11							
	Sha 17	17	13							
	Sha 18	18	13							
	Sha 19	19	11	85		4.4		27		Brown-gray
	Sha 20	20	12							
	Sha 21	21	15							
	Sha 22	22	20							
	Sha 23	23	30	90		4.3		63		Brown-tan-gray
	Sha 24	24	31							
	Sha 25	25	32							
	Sha 26	26	27							

* Estimated classification

- 1) Latitude and Longitude coordinates reference the WGS 84 datum and were recorded using a recreational-grade GPS unit.
- 2) Gr = gravel (%), Sa = Sand (%), Fines = Passing the No. 200 sieve (%), P.x = % passing size mm.
- 3) No groundwater was encountered during measurements performed on 7/13/23.
- 4) 1-inch slotted PVC casing installed to 27 feet for monitoring of groundwater levels.

PREPARED BY:
R&M CONSULTANTS, INC.

ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK
LOG OF TEST BORING

PROJ.NO: 2846.01
DATE: AUG 2023
REF: GEOTECH RPT
DWG.NO: 10

EXHIBIT B -21

RM23-06

Log Page 1 of 1

DEPTH (FT)	SAMPLE INFORMATION							Date(s) Drilled: 5/25/23	Lat: 61.67058	
	SAMPLER TYPE	SAMPLE NO.	BLOW COUNT	PERCENT RECOVERY	USCS FROST CLASS ICE TYPE	MOISTURE CONTENT (PERCENT) P200 (%)	N-VALUE	Logged By: A. Pasikowski	Lon: -149.20265	
								SAMPLE DESCRIPTION / ADDITIONAL RESULTS	GRAPHIC LOG	UNIT DESCRIPTION
0	Sha 1	1	1	70		33.2	2	Brown-dk. brown-black. Containing plant fibers and wholly decomposed and disseminated organics., Est. 5% - 10% visible organics by volume		ORGANIC MAT (Brown-dk. brown-black, Moist to wet) 0.0
1		1	1							SILTY SAND CONTAINING ORGANICS AND COBBLES (Brown w/orange (rust colored) staining, Fine to medium sand, Nonplastic, Moist to wet) 0.4
2	Sha 2	11	15			38.7	31	Brown w/orange staining, Est. 5% visible organics by volume Tan-gray, Gr=70, Sa=25, Fines=6, P.02=3.5, P.005=1.7, P.002=1.1		3.3
3	Sha 3	16	16		GP-GM* S1	2.8 5.5				
4	Sha 4	13	17	100		2.7	37	Driving gravel/cobble, Tan-gray		
5		17	20							
6		50/0.0								
8	Sha 5	10	14	60		2.9	24	Tan-gray		
9		10	10							
10	Sha 6	7	9	70	GW-GM* S1*	2.9 6.8	17	Tan-gray, Gr=52, Sa=41, Fines=7		
11		9	8							
12		9								
14										WELL TO POORLY GRADED GRAVEL WSILT AND SAND TO GRAVEL WSAND CONTAINING COBBLES & BOULDERS (Gray-tan, Gravel subrounded to subangular, hard, Fine to coarse sand, Nonplastic, Dry to moist)
16	Sha 7	12	21	50		1.1	36	Tan-gray		
17		15	13							
20	Sha 8	9	9	38			50	Driving gravel/cobble. Rock fragments in sampler.		
21		50/0.3								
22										
24										
26	Sha 9	4	10	75		5.5	21	Tan-gray		
27		11								

* Estimated classification

- Latitude and Longitude coordinates reference the WGS 84 datum and were recorded using a recreational-grade GPS unit.
- Gr = gravel (%), Sa = Sand (%), Fines = Passing the No. 200 sieve (%), P.xx = % passing size mm.
- No groundwater was encountered during measurements performed on 7/13/23.
- 1-inch slotted PVC casing installed at 27 feet for monitoring for groundwater levels.

PREPARED BY:
R&M CONSULTANTS, INC.

ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK

LOG OF TEST BORING

PROJ.NO:	2846.01
DATE:	AUG 2023
REF:	GEOTECH RPT
DWG.NO:	11

EXHIBIT B-22

RM23-07

Log Page 1 of 1

DEPTH (FT)	SAMPLE INFORMATION						Date(s) Drilled: 5/24/23		Lat: 61.67055	
	SAMPLER TYPE	SAMPLE NO.	BLOW COUNT	PERCENT RECOVERY	USCS FROST CLASS ICE TYPE	MOISTURE CONTENT (PERCENT) P200 (%)	N-VALUE	Logged By: A. Pasikowski		
							Drilling Company: Winger Drilling		Lon: -149.19659	
							Drill Crew: Joe, Frank & Cole Winger		Rig/Method: CME-55 Track-Mounted / HSA	
							SAMPLE DESCRIPTION / ADDITIONAL RESULTS	GRAPHIC LOG	UNIT DESCRIPTION	
0	Sha	1	0	70		47.3	0		ORGANIC MAT (Brown-dk. brown, Moist to wet)	0.0
			0						SILTY SAND CONTAINING ORGANICS (Brown-tan, Fine to medium sand, Nonplastic, Moist to wet)	0.4
2			1							
	Sha	2	8	70		39.5	26		POORLY GRADED SAND W/ GRAVEL	3.0
		3	13		SP	3.8	3.9		CONTAINING COBBLES (Brown, Gravel subrounded to subangular, Fine to coarse sand, Nonplastic, Dry to moist)	4.8
4			13		NFS*					
	Sha	4	8	95	SP-SM* S2	3.9	6.6	20		
6			10							
	Sha	5	9	80		3.1	21			
8			11							
	Sha	6	4	95	GW PFS*	3.9	3.4	15		
10			5							
	Sha	7	6	85		4.0	30			
12			14							
	Sha	8	7	90		5.4	27			
14			13							
	Sha	9	13	95		7.4	34			
16			14							
			20							
18			17							
20										
22										
24										
26										
										27.0

* Estimated classification

- 1) Latitude and Longitude coordinates reference the WGS 84 datum and were recorded using a recreational-grade GPS unit.
- 2) Gr = gravel (%), Sa = Sand (%), Fines = Passing the No. 200 sieve (%), P.xx = % passing size mm.
- 3) No groundwater was encountered during measurement performed on 7/13/23.
- 4) 1-inch slotted PVC casing installed to 27 feet for monitoring of groundwater levels.

PREPARED BY:
R&M CONSULTANTS, INC.

ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK

LOG OF TEST BORING

PROJ.NO:	2846.01
DATE:	AUG 2023
REF:	GEOTECH RPT
DWG.NO:	12

EXHIBIT B - 23

RM23-08

Log Page 1 of 1

DEPTH (FT)	SAMPLE INFORMATION							Date(s) Drilled: 5/24/23	Lat: 61.6713	
	SAMPLER TYPE	SAMPLE NO.	BLOW COUNT	PERCENT RECOVERY	USCS FROST CLASS ICE TYPE	MOISTURE CONTENT (PERCENT)	P200 (%)	N-VALUE	Lon: -149.19876	
0	Sha 1	1	0	80		42.9		0	Brown-black. Containing plant fibers and wholly decomposed disseminated organics., Est. 5% - 10% visible organics by volume	ORGANIC MAT (Brown-black, Moist to wet) 0.0
2	Sha 2	2	1	85	GM* F3*	21.2	39	15	Dk. brown, Org=6.6%, Gr=34, Sa=27, Fines=39	SILTY SAND CONTAINING ORGANICS (Brown-lt. brown, Fine to medium sand, Nonplastic, Moist to wet) 0.4
4	Sha 3	3	8	90	GP-GM* S1	4.0	8.1	29	Brown-tan, Gr=66, Sa=26, Fines=8, P.02=5.3, P.005=3.0, P.002=2.0	SILTY GRAVEL W/SAND CONTAINING COBBLES (Dk. brown, Gravel subrounded to subangular, hard, Fine to coarse sand, Nonplastic, Dry to moist) 2.5
6	Sha 4	4	9	60	GP-GM* S1*	2.9	5.3	44	Brown-lt. brown, Gr=71, Sa=24, Fines=5	
8	Sha 5	5	10	80				32	Rock fragments in sampler. Brown-gray	
10			15							
12			17							
14			16							
16	Sha 6	6	6	75		3.3		23	Brown-gray	POORLY GRADED GRAVEL W/SILT AND SAND TO GRAVEL W/SAND CONTAINING COBBLES & BOULDERS (Brown-lt. brown-gray, Gravel subrounded to subangular, hard, Fine to coarse sand, Nonplastic, Dry to moist) 5.0
18			9							
20			14							
22	Sha 7	7	9	95		3.5		44	Brown	
24			19							
26			25							
			30							
	Sha 8	8	9	65		3.2		52	Brown	
			35							
			17							
			15							

* Estimated classification

- 1) Latitude and Longitude coordinates reference the WGS 84 datum and were recorded using a recreational-grade GPS unit.
- 2) Gr = gravel (%), Sa = Sand (%), Fines = Passing the No. 200 sieve (%), P.xx = % passing size mm.
- 3) No groundwater was encountered during measurements performed on 7/13/23.
- 4) 1-inch slotted PVC casing installed to 27 feet for monitoring of groundwater levels.

PREPARED BY:
R&M CONSULTANTS, INC.

ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK
LOG OF TEST BORING

PROJ.NO: 2846.01
DATE: AUG 2023
REF: GEOTECH RPT
DWG.NO: 13

EXHIBIT B - 24

RM23-09

Log Page 1 of 1

DEPTH (FT)	SAMPLE INFORMATION							Date(s) Drilled: 5/25/23	Lat: 61.67075		
	SAMPLER TYPE	SAMPLE NO.	BLOW COUNT	PERCENT RECOVERY	USCS FROST CLASS ICE TYPE	MOISTURE CONTENT (PERCENT)	P200 (%)	N-VALUE	Logged By: A. Pasikowski	Lon: -149.19948	
								Drilling Company: Winger Drilling			
								Drill Crew: Joe, Frank & Cole Winger			
								Rig/Method: CME-55 Track-Mounted / HSA			
								SAMPLE DESCRIPTION / ADDITIONAL RESULTS	GRAPHIC LOG	UNIT DESCRIPTION	
0	Sha	1	0	85	ML F4*	42.2	65	2		ORGANIC MAT (Brown-tan-black, Moist-wet) 0.0	
1			1							0.5	
2			1								
3			1								
4	Sha	2	5	100		50.7		22		Brown-tan, Est. 5% - 10% visible organics by volume	3.2
5		3	11		GP*	3.7	4.5			Tan-gray, Gr=54, Sa=42, Fines=5, P.02=3.1, P.005=2.3, P.002=1.4	
6			11		PFS						
7			12								
8	Sha	4	6	70	GP-GM* S1*	3.9	5.7	28	Tan-gray, Gr=54, Sa=40, Fines=6		
9			9								
10			9								
11			19								
12			12								
13	Sha	5	27	80		2.6		24	Tan-gray		
14			14								
15			10								
16			9								
17											
18	Sha	6	24	80	GW-GM* S1*	3.1	7.5	31	Tan-gray, Gr=50, Sa=43, Fines=8		
19			18								
20			13								
21			15								
22			19								
23											
24											
25											
26	Sha	8	10	80		4.3		32	Rock fragments in sampler, Tan-gray		
27			19								
28			13								
29			18								

* Estimated classification

- 1) Latitude and Longitude coordinates reference the WGS 84 datum and were recorded using a recreational-grade GPS unit.
- 2) Gr = gravel (%), Sa = Sand (%), Fines = Passing the No. 200 sieve (%), P.xx = % passing size mm.
- 3) No groundwater was encountered during measurements performed on 7/13/23.
- 4) 1-inch slotted PVC casing installed to 27 feet for monitoring of groundwater levels.

PREPARED BY:
R&M CONSULTANTS, INC.

ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK
LOG OF TEST BORING

PROJ.NO: 2846.01
DATE: AUG 2023
REF: GEOTECH RPT
DWG.NO: 14

Z:\PROJECT\2846.01 ADNR TLO PS TERM BOYD ROAD SUBDIVISION\EARTH\HIGH\TANDR TLO BOYD ROAD SUBDIVISION.GPJ

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A			Soil Classification			
			Group Symbol	Group Name ^B		
Coarse-grained Soils More than 50% retained on the No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines ^C	$Cu \geq 4$ and $1 < Cc < 3$ ^E	GW	Well-graded gravel ^F	
		Gravels with Fines More than 12% fines ^C	$Cu < 4$ and/or $1 > Cc > 3$ ^E	GP	Poorly-graded gravel ^F	
			Fines classify as ML or MH	GM	Silty gravel ^{F,G,H}	
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5 % fines ^D	$Cu \geq 6$ and $1 < Cc < 3$ ^E	SW	Well-graded sand ^I	
			$Cu < 6$ and/or $1 > Cc > 3$ ^E	SP	Poorly-graded sand ^I	
		Sands with Fines More than 12 % fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G,H,I}	
Fines classify as CL or CH	SC		Clayey sand ^{G,H,I}			
Fine-grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid Limit less than 50	inorganic	$PI > 7$ and plots on or above "A" line ^J	CL	Lean clay ^{K,L,M}	
		organic	$PI < 4$ and plots below "A" line ^J	ML	Silt ^{K,L,M}	
	Silts and Clays Liquid Limit 50 or more	inorganic	Liquid limit - oven dried	< 0.75	OL	Organic Clay ^{K,L,M,N}
			Liquid limit - not dried		OH	Organic Silt ^{K,L,M,O}
		organic	PI plots on or above "A" line	CH	Fat clay ^{K,L,M}	
			PI plots below "A" line	MH	Elastic silt ^{K,L,M}	
Highly organic soils	Primarily organic matter, dark in color, and organic odor	Liquid limit - oven dried	< 0.75	OH	Organic Clay ^{K,L,M,P}	
		Liquid limit - not dried		OT	Organic Silt ^{K,L,M,Q}	

^A Based on the material passing the 3-in. (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravel with 5 to 12 % fines require dual symbols:

- GW-GM well-graded gravel with silt
- GW-GC well-graded gravel with clay
- GP-GM poorly-graded gravel with silt
- GP-GC poorly-graded gravel with clay

^D Sands with 5 to 12 % fines require dual symbols:

- SW-SM well-graded sand with silt
- SW-SC well-graded sand with clay
- SP-SM poorly-graded sand with silt
- SP-SC poorly-graded sand with clay

^E $Cu = D_{60} / D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name.

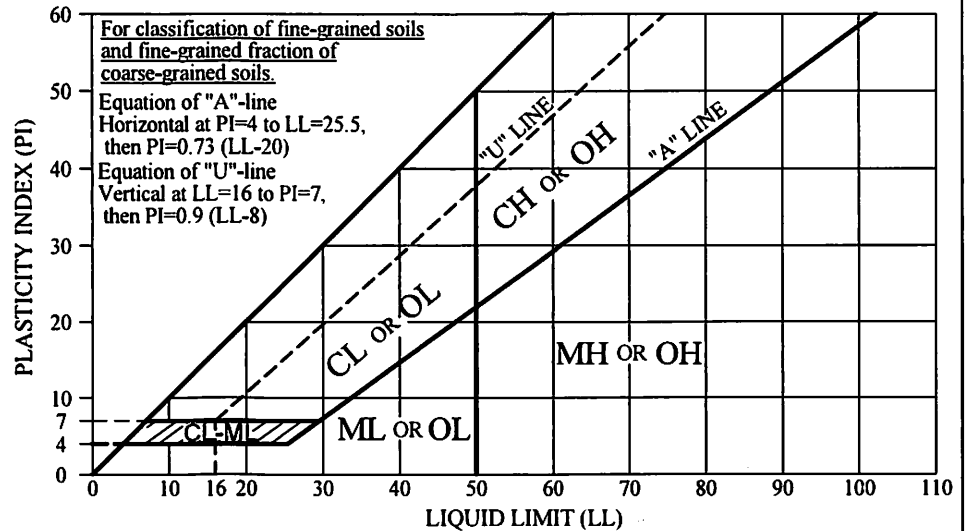
^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ and plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.



PREPARED BY:
R&M CONSULTANTS, INC.

**CLASSIFICATION OF SOILS FOR
ENGINEERING PURPOSES ASTM D 2487**

PROJ.NO:	GENERAL
DATE:	N/A
REF:	N/A
DWG.NO:	15

U.S. ARMY CORPS OF ENGINEERS FROST DESIGN SOIL CLASSIFICATION

FROST GROUP	KIND OF SOIL	PERCENTAGE FINER THAN 0.02 mm BY WEIGHT	TYPICAL SOIL TYPES UNDER UNIFIED SOIL CLASSIFICATION SYSTEM
NFS*	(a) Gravels Crushed Stone Crushed Rock	0 - 1.5	GW, GP
	(b) Sands	0 - 3	SW, SP
PFS+	(a) Gravels Crushed Stone Crushed Rock	1.5 - 3	GW, GP
	(b) Sands	3 - 10	SW, SP
S1	Gravelly Soils	3 - 6	GW, GP, GW-GM, GP-GM
S2	Sandy Soils	3 - 6	SW, SP, SW-SM, SP-SM
F1	Gravelly Soils	6 - 10	GM, GW-GM, GP-GM
F2	(a) Gravelly Soils	10 - 20	GM, GW-GM, GP-GM
	(b) Sands	6 - 15	SM, SW-SM, SP-SM
F3	(a) Gravelly Soils	Over 20	GM, GC
	(b) Sands, Except Very Fine Silty Sands	Over 15	SM, SC
	(c) Clays, PI>12	————	CL, CH
F4	(a) All Silts	————	ML, MH
	(b) Very Fine Silty Sand	Over 15	SM
	(c) Clays PI<12	————	CL, CL-ML
	(d) Varved Clays and Other Fine-grained Banded Sediments	————	CL, CL-ML CL and ML CL, ML, and SM; CL, CH and ML; CL, CH, ML and SM

* Non-frost-susceptible
+ Possibly frost-susceptible, but requires laboratory test to determine frost design soils classification.

From: "Seasonal Frost Conditions", June, 1992, U.S. Army Corps of Engineers TM-5-822-5.

PREPARED BY:
R&M CONSULTANTS, INC.

FROST DESIGN SOIL CLASSIFICATION

PROJ.NO:	GENERAL
DATE:	N/A
REF:	N/A
DWG.NO:	16

CLASSIFICATION¹ OF SOILS WITH ORGANIC MATTER

PEAT (Pt): Soil comprised of predominantly organic carbon fibers (macroscopic) and/or decayed (microscopic) vegetal matter. Peat is generally dark brown to black, with a very spongy feel and strong organic odor; typically, the ash content (ASTM D 2974) is <20%, the moisture content is >500%, the fiber content is >50% (by volume), the specific gravity is <1.7, and the dry unit weight is <17 pounds per cubic-foot (pcf).

PEATY-ORGANIC SOIL (PtO): Transitional soil group comprised of significant proportions, by mass, of both mineral particles and organic carbon fibers and/or decayed vegetal matter. Peaty-Organic Soil is generally light brown to black, with a spongy feel and organic odor; typically, the ash content ranges from 20 to 40%, the moisture content is between 150 and 800%, the fiber content is <50%, the specific gravity ranges from 1.6 to 1.9, and the dry unit weight is between 11 and 19 pcf.

ORGANIC SOIL (O): Soil comprised predominately of mineral particles, with a fraction of organic matter sufficient to notably effect the geotechnical properties (i.e. plasticity, dry strength and compactability). Most of the organic matter formed in-place (sedentary deposit), and is typically comprised of microscopic particles (the fiber content is often insignificant). Organic Soil is generally brown to blackish-brown, and soft to loose; typically, the ash content ranges from 40 to 95%, the moisture content is between 100 and 500%, the specific gravity is >1.7, the liquid limit is >50% and/or the liquid limit measured on an oven-dried sample ("Dry Preparation") is <70% of the liquid limit measured on a fresh sample ("Wet Preparation"), and the dry unit weight is >13 to 15 pcf.

MINERAL SOIL WITH ORGANIC CONTENT (oUSC)²: Transitional soil group consisting predominately of mineral constituents with a small fraction of organic matter which may, under certain conditions, effect the geotechnical properties. Most of the organic matter is macroscopic and likely formed in-place; but may also include roots, or fibrous particles that likely originated elsewhere and were transported to the site by wind or very low energy lacustrine-environment (sedimentary deposit). The soil color and odor is often not effected by the organic matter; typically, the ash content ranges from 90 to 99%, the moisture content is <100%, the specific gravity is >2.4, and the liquid limit is <50%.

MINERAL SOIL (USC): Soil is comprised predominately of mineral particles, but may contain a trace of organic (or apparent organic) matter that has no significant effect on the geotechnical properties. Ash contents are typically >97 to 99%, and the loss of mass may be more from ignition of interstitial water or non-vegetal, carbon-based matter. Most of the organic matter likely originated elsewhere and was transported to the site by wind or very low energy lacustrine-environment, and is typically comprised of fine-woody particles or roots.

¹ Callout (Group Symbol) for a general stratigraphic unit consisting predominately of this type soil.

² Use an annotated group symbol; a small caps "o", proceeded by the mineral constituents based on the Unified Soil Classification (USC) System (following ASTM D 2487, Classification of Soil for Engineering Purposes).

PREPARED BY:
R&M CONSULTANTS, INC.

ORGANIC MATTER SOIL CLASSIFICATION

PROJ.NO:	GENERAL
DATE:	N/A
REF:	N/A
DWG.NO:	17

SAMPLE IDENTIFICATION			PARTICLE SIZE ANALYSIS (% FINER) ¹															ATTERBERG LIMITS			MOIST. CONT. (%)	ASTM CLASS ²	FROST CLASS	ORG. CONT. (%)			
			STANDARD SIEVE SIZE													(mm)											
TEST BORING	NO.	DEPTH (FT)	3"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#10	#20	#40	#60	#140	#200	0.02	0.005	0.002	LL	PL	PI					
RM23-01	1	0.0- 2.0																					38.5				
RM23-01	2	2.5- 3.1														41								44.3	SM*	F4*	12.4
RM23-01	3	3.1- 4.5		100	79	59	54	49	45	38	32	24	15	11	8	6.6	4.5	2.8	1.8					2.8	GP-GM*	S1	
RM23-01	4	5.0- 7.0																						3.1			
RM23-01	6	10.0- 12.0	100	74	62	43	36	29	26	21	15	11	7	6	4	3.4								1.0	GP	PFS*	
RM23-01	7	15.0- 15.9																						2.5			
RM23-01	8	15.9- 17.0																						3.3			
RM23-01	9	20.0- 22.0																						3.8			
RM23-01	10	25.0- 27.0																						1.9			
RM23-02	1	0.0- 1.0																						32.4			
RM23-02	2	1.0- 3.0														68								24.0	ML*	F4*	6.5
RM23-02	3	3.0- 5.0			100	97	97	96	95	94	91	75	28	6	2	1.6	1.5	0.9	0.8					2.5	SP	NFS	
RM23-02	4	5.0- 8.0		100	88	75	59	45	39	28	21	14	6	2	1	1.0								2.3	GW	NFS	
RM23-02	5	9.0- 12.0																						1.7			
RM23-03	1	0.6- 1.4														76								61.7	ML*	F4*	
RM23-03	2	3.0- 6.0		100	94	81	67	58	52	39	29	22	15	10	7	5.5	3.9	1.7	1.1					3.2	GW-GM*	S1	
RM23-03	3	10.0- 13.0		100	80	67	58	47	43	33	25	17	11	7	4	3.4								2.5	GW*	S1*	
RM23-04	1	0.5- 1.1																						27.9			
RM23-04	2	1.1- 3.1		100	74	53	44	38	35	29	24	19	15	11	7	6.5	3.5	1.4	0.9					3.1	GP-GM*	F1	
RM23-04	3	8.0- 12.0		100	83	73	67	60	56	43	32	22	14	9	6	5.2								2.5	GP-GM*	S1*	
RM23-05	1	0.0- 2.0														65											8.3
RM23-05	2	2.5- 2.9																						30.8			
RM23-05	3	2.9- 4.5		100	92	78	71	60	51	38	29	22	14	10	6	5.1	3.5	1.8	1.5					2.8	GW-GM*	S1	
RM23-05	4	5.0- 7.0																						4.1			
RM23-05	5	7.5- 9.5																						2.3			
RM23-05	6	10.0- 12.0		100	95	92	85	73	67	53	40	27	16	11	8	7.1								3.1	GP-GM*	S1*	
RM23-05	7	15.0- 17.0																						3.4			

NOTES:
 1) The maximum particle size of samples is limited by the I.D. of the sampler opening or the width of the auger flights.
 2) Soil plasticity was estimated following ASTM D 2488 when the Atterberg limits were not tested.
 *Estimated classification

EXHIBIT B - 29

PREPARED BY:
R&M CONSULTANTS, INC.

ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK
SUMMARY OF LABORATORY SOILS DATA

PROJ.NO: 2846.01
 DATE: AUG 2023
 REF: GEOTECH RPT
 DWG.NO: 18

EXHIBIT B - 30

SAMPLE IDENTIFICATION			PARTICLE SIZE ANALYSIS (% FINER) ¹															ATTERBERG LIMITS			MOIST. CONT. (%)	ASTM CLASS ²	FROST CLASS	ORG. CONT. (%)			
			STANDARD SIEVE SIZE												(mm)												
TEST BORING	NO.	DEPTH (FT)	3"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#10	#20	#40	#60	#140	#200	0.02	0.005	0.002	LL	PL	PI					
RM23-05	8	20.0- 22.0																					4.4				
RM23-05	9	25.0- 27.0																						4.3			
RM23-06	1	0.0- 2.0																						33.2			
RM23-06	2	2.5- 3.3																						38.7			
RM23-06	3	3.3- 4.5		100	93	78	65	50	43	30	20	15	11	8	6	5.5	3.5	1.7	1.1					2.8	GP-GM*	S1	
RM23-06	4	5.0- 6.5																						2.7			
RM23-06	5	7.5- 9.5																						2.9			
RM23-06	6	10.0- 12.0		100	89	84	75	65	59	48	34	23	14	11	8	6.8								2.9	GW-GM*	S1*	
RM23-06	7	15.0- 17.0																						1.1			
RM23-06	9	25.0- 27.0																						5.5			
RM23-07	1	0.0- 2.0																						47.3			
RM23-07	2	2.5- 3.0																						39.5			
RM23-07	3	3.0- 4.5		100	91	81	78	72	67	58	49	36	16	8	5	3.9								3.8	SP	NFS*	
RM23-07	4	5.0- 7.0		100	96	88	84	78	74	66	56	41	22	13	8	6.6	5.3	3.4	2.2					3.9	SP-SM*	S2	
RM23-07	5	7.5- 9.5																						3.1			
RM23-07	6	10.0- 12.0			100	96	93	76	61	37	25	16	10	6	4	3.4								3.9	GW	PFS*	
RM23-07	7	15.0- 17.0																						4.0			
RM23-07	8	20.0- 22.0																						5.4			
RM23-07	9	25.0- 27.0																						7.4			
RM23-08	1	0.0- 2.0																						42.9			
RM23-08	2	2.5- 4.5		100	84	79	76	72	70	66	61	57	52	48	42	39								21.2	GM*	F3*	6.6
RM23-08	3	5.0- 7.0		100	92	75	61	52	45	34	27	22	17	13	9	8.1	5.3	3.0	2.0					4.0	GP-GM*	S1	
RM23-08	4	7.5- 9.5		100	75	59	50	42	37	29	22	17	13	10	6	5.3								2.9	GP-GM*	S1*	
RM23-08	6	15.0- 17.0																						3.3			
RM23-08	7	20.0- 22.0																						3.5			
RM23-08	8	25.0- 27.0																						3.2			
RM23-09	1	0.0- 2.0														65				NV	NV	NP		42.2	ML	F4*	8.3

NOTES:
 1) The maximum particle size of samples is limited by the I.D. of the sampler opening or the width of the auger flights.
 2) Soil plasticity was estimated following ASTM D 2488 when the Atterberg limits were not tested.
 *Estimated classification

PREPARED BY:
R&M CONSULTANTS, INC.

ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK

SUMMARY OF LABORATORY SOILS DATA

PROJ.NO: 2846.01
 DATE: AUG 2023
 REF: GEOTECH RPT
 DWG.NO: 19

SAMPLE IDENTIFICATION			PARTICLE SIZE ANALYSIS (% FINER) ¹															ATTERBERG LIMITS			MOIST. CONT. (%)	ASTM CLASS ²	FROST CLASS	ORG. CONT. (%)		
			STANDARD SIEVE SIZE												(mm)											
TEST BORING	NO.	DEPTH (FT)	3"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#10	#20	#40	#60	#140	#200	0.02	0.005	0.002	LL	PL	PI				
RM23-09	2	2.5- 3.2																					50.7			
RM23-09	3	3.2- 4.5		100	91	83	74	64	58	46	35	25	14	9	5	4.5	3.1	2.3	1.4				3.7	GP*	PFS	
RM23-09	4	5.0- 7.0	100	87	79	70	68	61	57	46	35	24	14	10	7	5.7							3.9	GP-GM*	S1*	
RM23-09	5	10.0- 12.0																					2.6			
RM23-09	6	15.0- 17.0	100	93	86	82	76	66	62	50	37	27	18	13	9	7.5							3.1	GW-GM*	S1*	
RM23-09	7	20.0- 22.0																					3.8			
RM23-09	8	25.0- 27.0																					4.3			

EXHIBIT B - 31

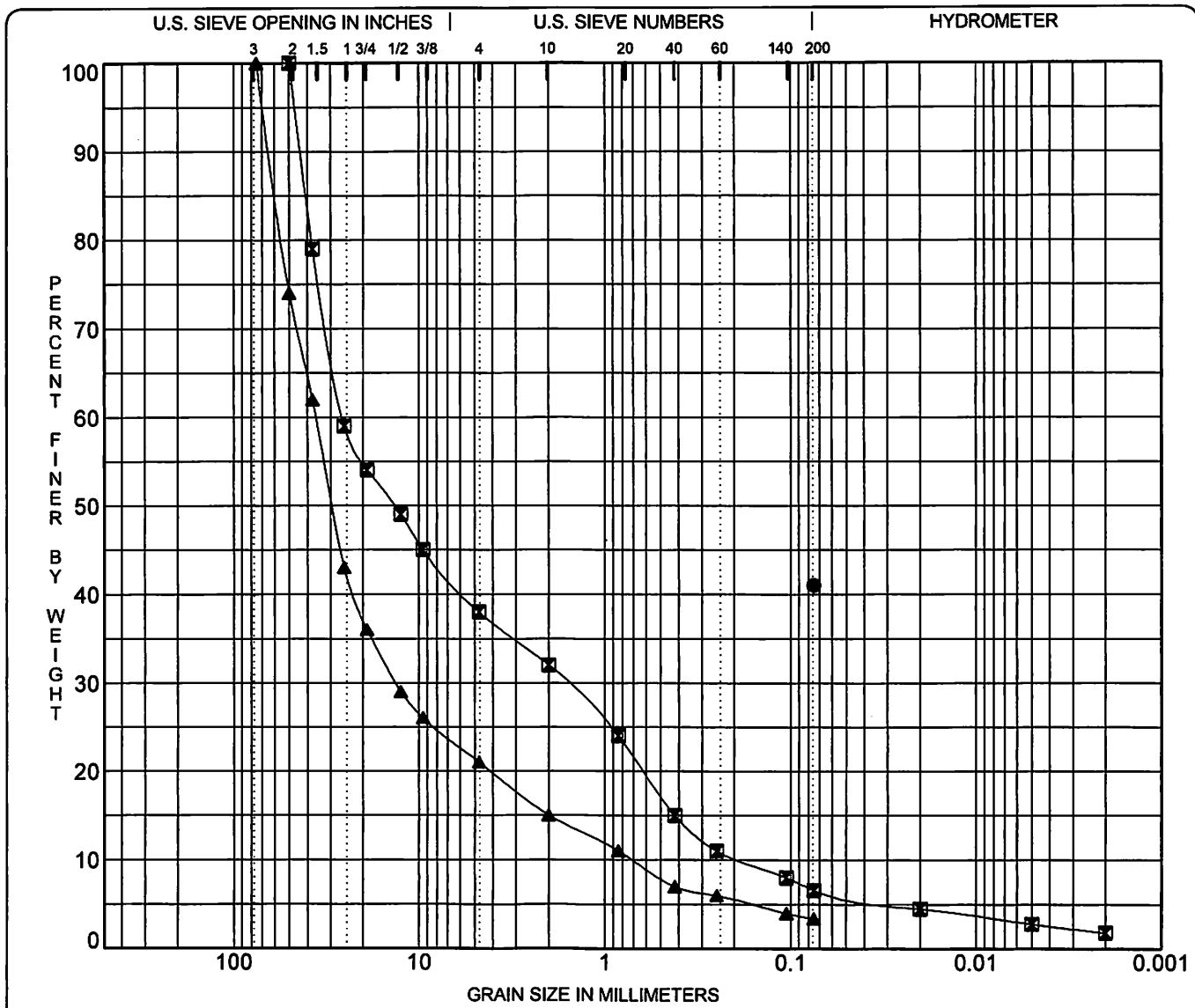
NOTES:
 1) The maximum particle size of samples is limited by the I.D. of the sampler opening or the width of the auger flights.
 2) Soil plasticity was estimated following ASTM D 2488 when the Atterberg limits were not tested.
 *Estimated classification

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PALMER, AK

SUMMARY OF LABORATORY SOILS DATA

PROJ.NO: 2846.01
 DATE: AUG 2023
 REF: GEOTECH RPT
 DWG.NO: 20



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

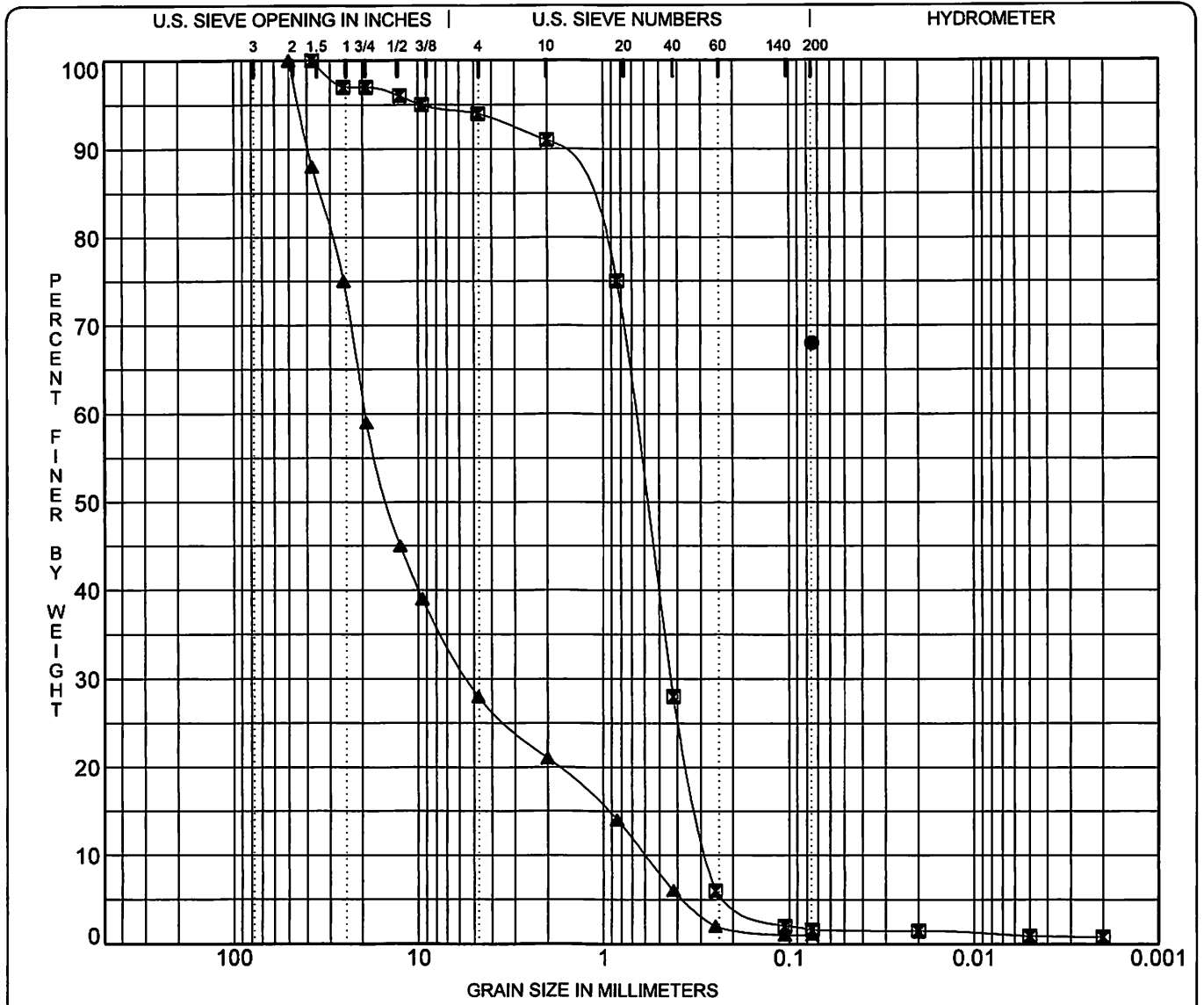
Borehole	Smpl. No	Interval	ASTM Class	FROST Class	MC%	LL	PL	PI	Cc	Cu
● RM23-01	2	2.5- 3.1	SM*	F4*	44.3					
☒ RM23-01	3	3.1- 4.5	GP-GM*	S1	2.8				0.53	140
▲ RM23-01	6	10.0- 12.0	GP	PFS*	1.0				6.9	51
Borehole	Smpl. No	D100	D60	D30	D10	%Gravel	%Sand	%Fines	P.02	
● RM23-01	2							41		
☒ RM23-01	3	50	25.9	1.61	0.19	62	31	7	4.5	
▲ RM23-01	6	75	35.99	13.27	0.71	79	18	3		

*Estimated Classification

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DATE: AUG 2023
REF: GEOTECH RPT
DWG.NO: 21



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Borehole	Smpl. No	Interval	ASTM Class	FROST Class	MC%	LL	PL	PI	Cc	Cu
● RM23-02	2	1.0- 3.0	ML*	F4*	24.0					
☒ RM23-02	3	3.0- 5.0	SP	NFS	2.5				1.0	2.5
▲ RM23-02	4	5.0- 8.0	GW	NFS	2.3				2.5	33
Borehole	Smpl. No	D100	D60	D30	D10	%Gravel	%Sand	%Fines	P.02	
● RM23-02	2							68		
☒ RM23-02	3	37.5	0.67	0.43	0.27	6	92	2	1.5	
▲ RM23-02	4	50	19.35	5.39	0.59	72	27	1		

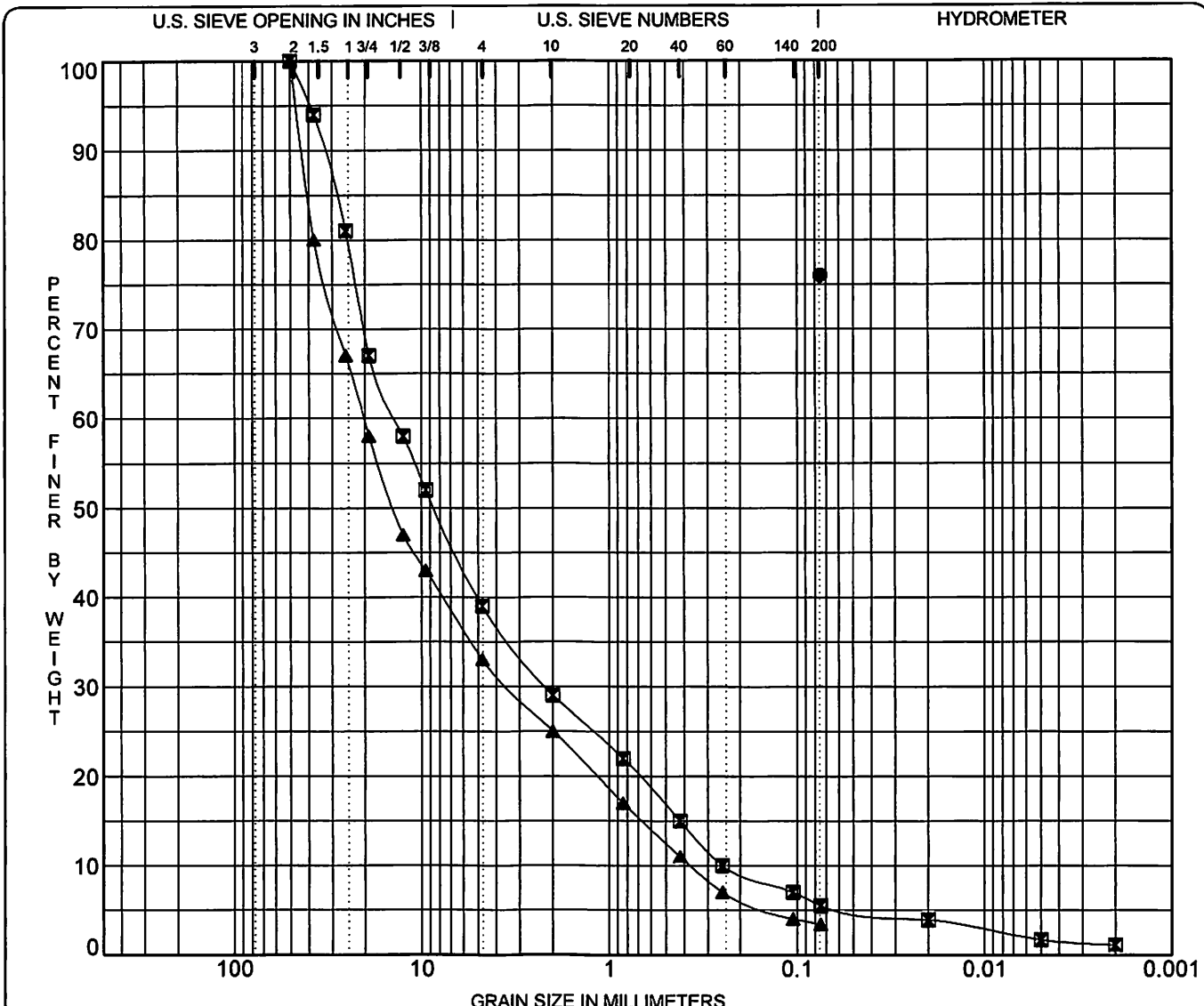
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PALMER, AK
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PROJ.NO: 2846.01
DATE: AUG 2023
REF: GEOTECH RPT
DWG.NO: 22

EXHIBIT B - 33



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Borehole	Smpl. No	Interval	ASTM Class	FROST Class	MC%	LL	PL	PI	Cc	Cu
●	RM23-03	1	0.6- 1.4	ML*	F4*	61.7				
☒	RM23-03	2	3.0- 6.0	GW-GM*	S1	3.2			1.4	55
▲	RM23-03	3	10.0- 13.0	GW*	S1*	2.5			1.6	55

Borehole	Smpl. No	D100	D60	D30	D10	%Gravel	%Sand	%Fines	P.02	
●	RM23-03	1						76		
☒	RM23-03	2	50	13.72	2.18	0.25	61	34	6	3.9
▲	RM23-03	3	50	20.27	3.43	0.37	67	30	3	

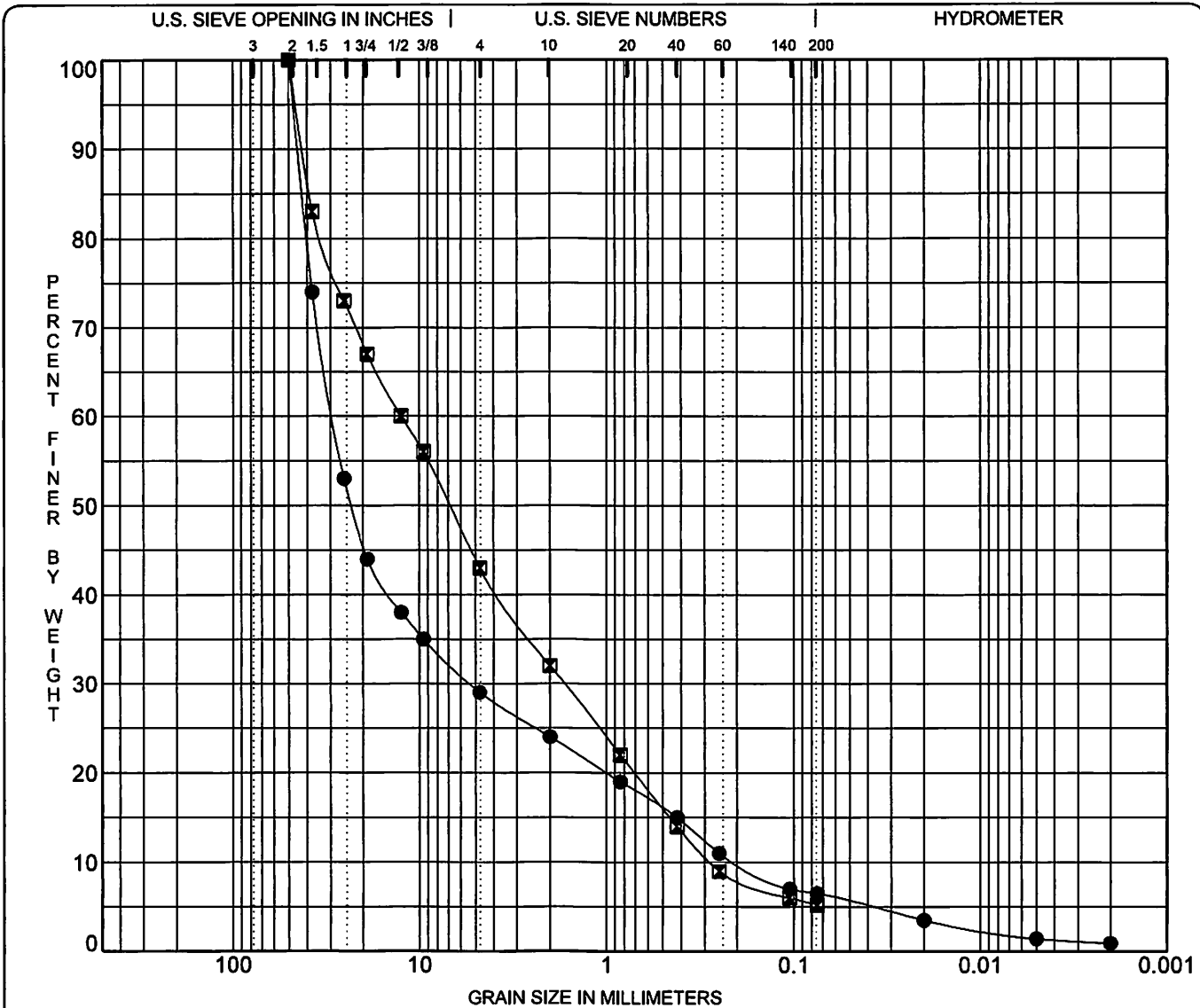
*Estimated Classification

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GRADATION CURVES

PROJ.NO: 2846.01
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DWG.NO: 23

EXHIBIT B -34



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

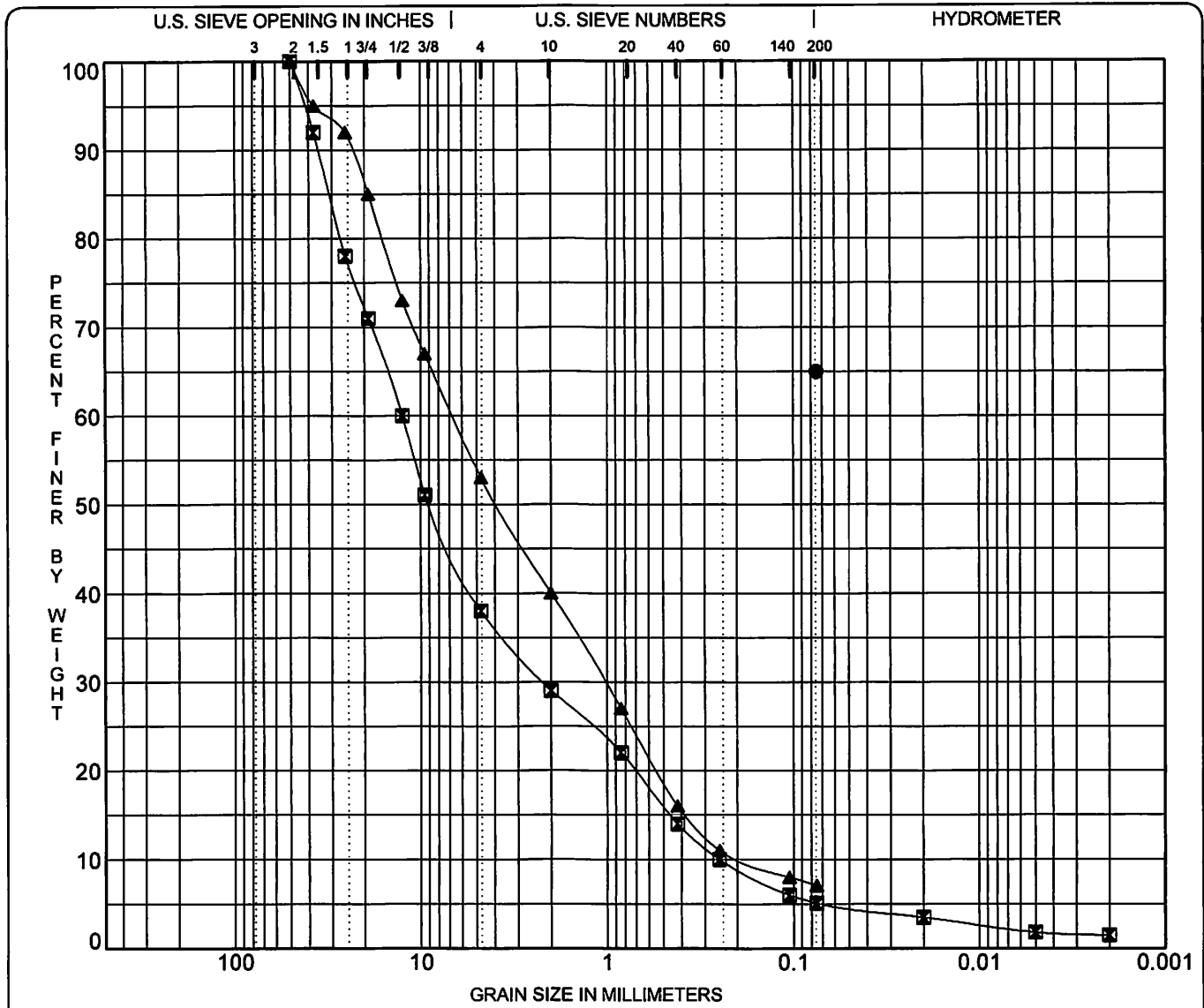
Borehole	Smpl. No	Interval	ASTM Class	FROST Class	MC%	LL	PL	PI	Cc	Cu
● RM23-04	2	1.1- 3.1	GP-GM*	F1	3.1				4.9	140
☒ RM23-04	3	8.0- 12.0	GP-GM*	S1*	2.5				0.82	45
Borehole	Smpl. No	D100	D60	D30	D10	%Gravel	%Sand	%Fines	P.02	
● RM23-04	2	50	28.92	5.33	0.2	71	23	7	3.5	
☒ RM23-04	3	50	12.5	1.68	0.28	57	38	5		

*Estimated Classification

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PALMER, AK
GRADATION CURVES

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DATE: AUG 2023
REF: GEOTECH RPT
DWG.NO: 24



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Borehole	Smpl. No	Interval	ASTM Class	FROST Class	MC%	LL	PL	PI	Cc	Cu
●	RM23-05	1	0.0- 2.0	ML	F4*	42.0	NV	NV	NP	
☒	RM23-05	3	2.9- 4.5	GW-GM*	S1	2.8			1.6	50
▲	RM23-05	6	10.0- 12.0	GP-GM*	S1*	3.1			0.84	36

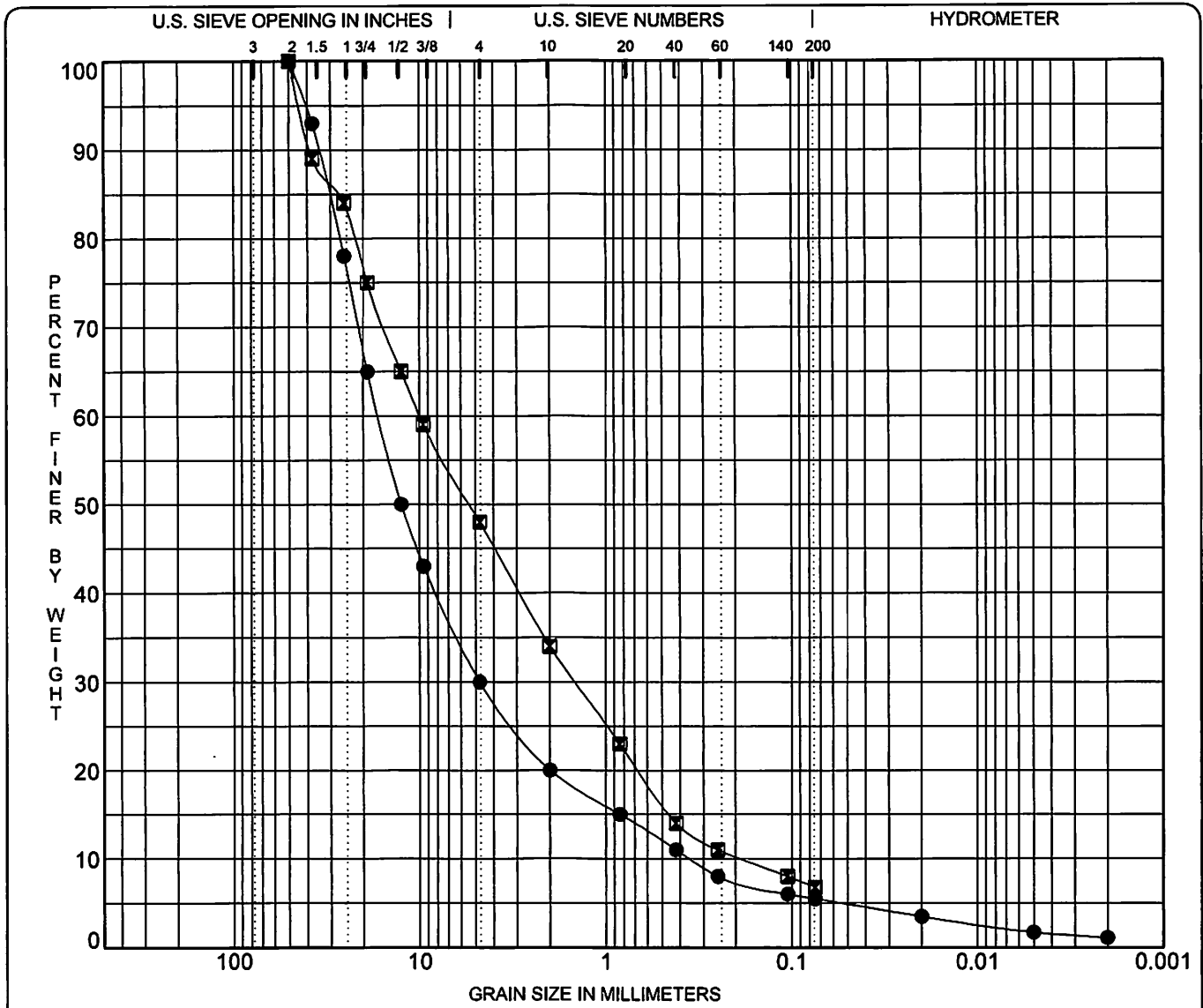
Borehole	Smpl. No	D100	D60	D30	D10	%Gravel	%Sand	%Fines	P.02	
●	RM23-05	1						65		
☒	RM23-05	3	50	12.5	2.2	0.25	62	33	5	3.5
▲	RM23-05	6	50	6.72	1.03	0.19	47	46	7	

*Estimated Classification

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GRADATION CURVES

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DWG.NO: 25



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Borehole	Smpl. No	Interval	ASTM Class	FROST Class	MC%	LL	PL	PI	Cc	Cu
●	RM23-06	3	3.3- 4.5	GP-GM*	S1	2.8			3.9	47
☒	RM23-06	6	10.0- 12.0	GW-GM*	S1*	2.9			1.1	53
Borehole	Smpl. No	D100	D60	D30	D10	%Gravel	%Sand	%Fines	P.02	
●	RM23-06	3	50	16.52	4.75	0.35	70	25	6	3.5
☒	RM23-06	6	50	9.94	1.46	0.19	52	41	7	

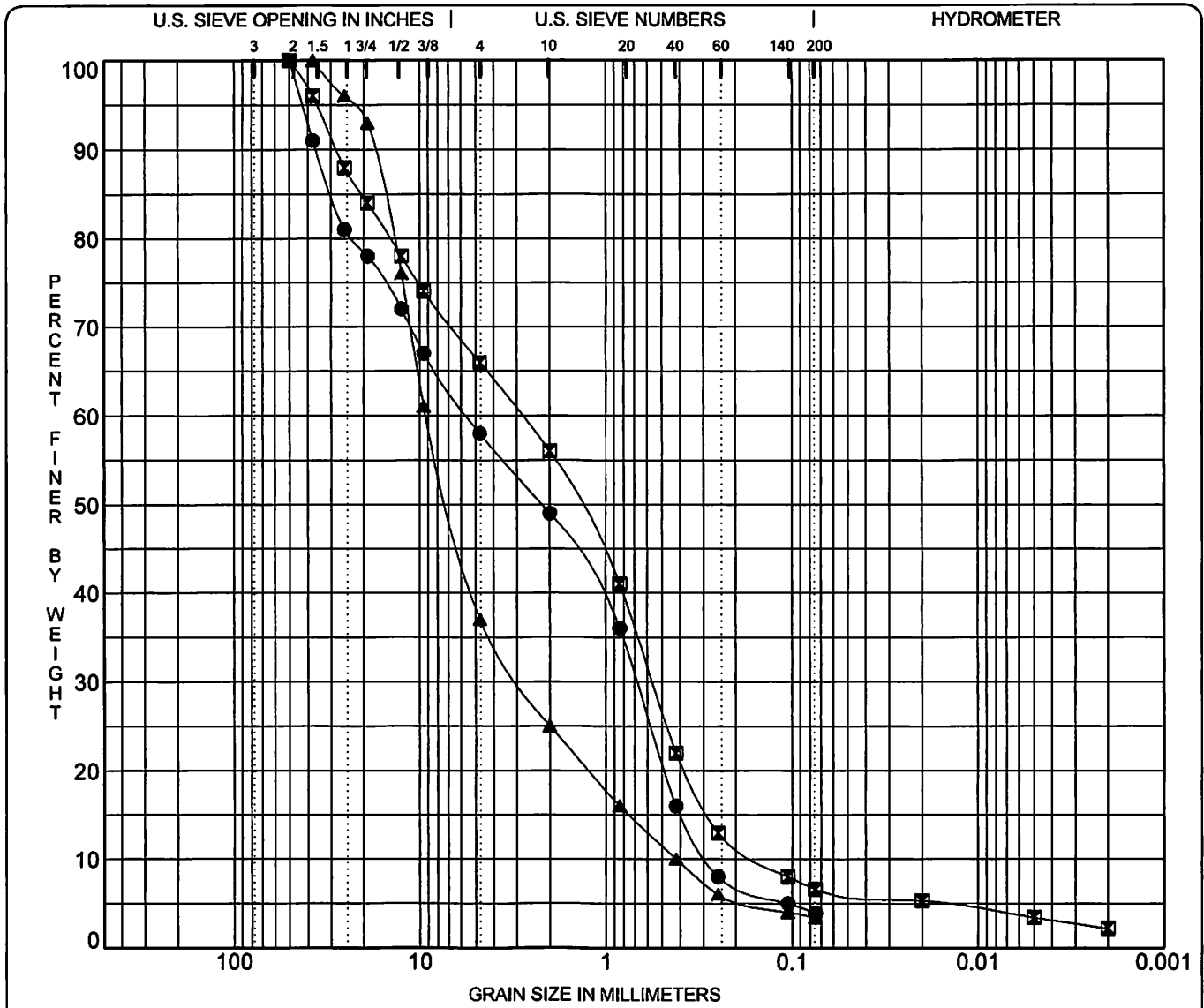
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REF: GEOTECH RPT
DWG.NO: 26

EXHIBIT B -37



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Borehole	Smpl. No	Interval	ASTM Class	FROST Class	MC%	LL	PL	PI	Cc	Cu
●	RM23-07	3	3.0- 4.5	SP	NFS*	3.8			0.30	19
☒	RM23-07	4	5.0- 7.0	SP-SM*	S2	3.9			0.75	19
▲	RM23-07	6	10.0- 12.0	GW	PFS*	3.9			2.1	22
Borehole	Smpl. No	D100	D60	D30	D10	%Gravel	%Sand	%Fines	P.02	
●	RM23-07	3	50	5.54	0.68	0.28	42	54	4	
☒	RM23-07	4	50	2.83	0.56	0.15	34	59	7	5.3
▲	RM23-07	6	37.5	9.23	2.87	0.42	63	34	3	

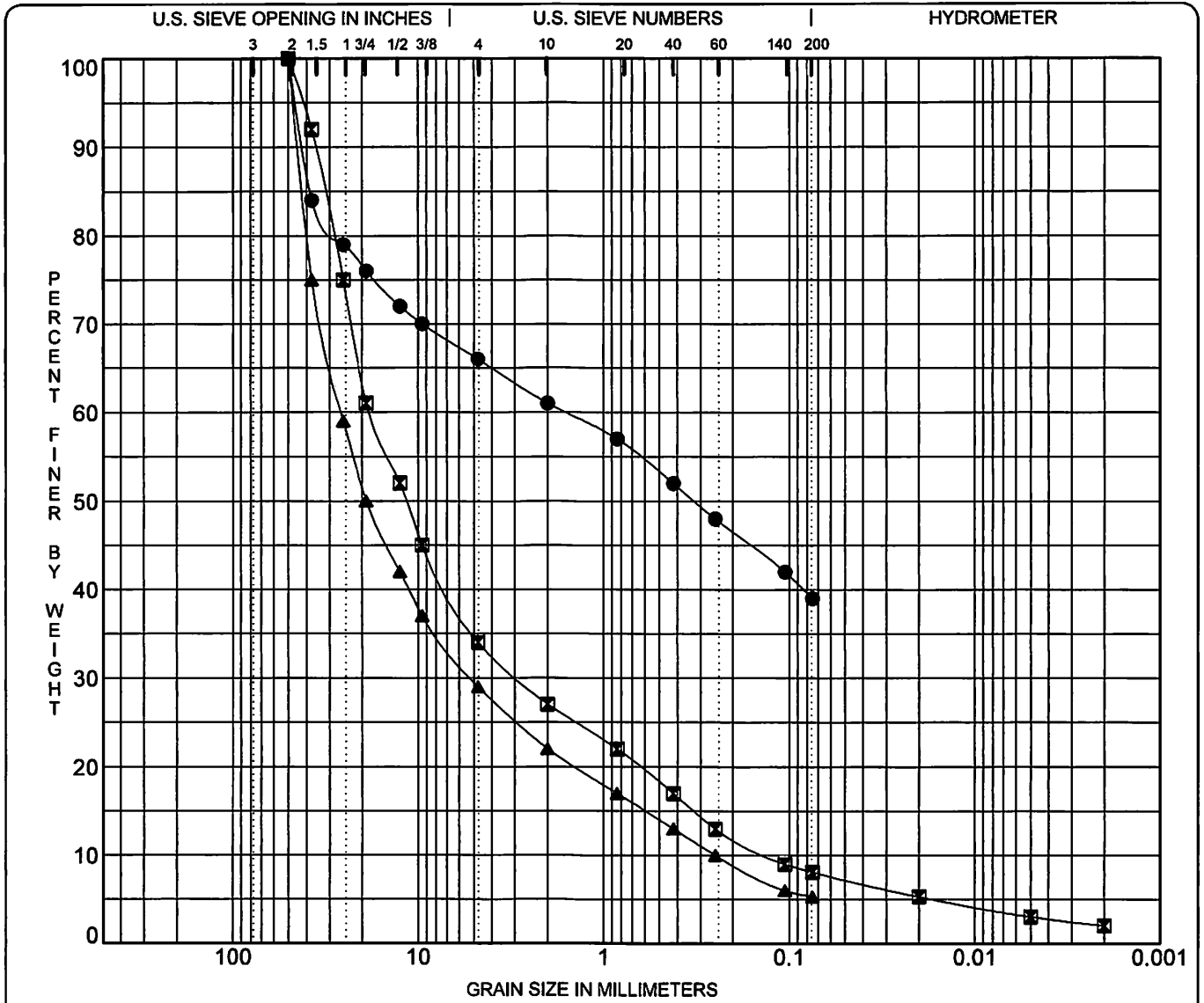
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GRADATION CURVES

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DATE: AUG 2023
REF: GEOTECH RPT
DWG.NO: 27

EXHIBIT B -38



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

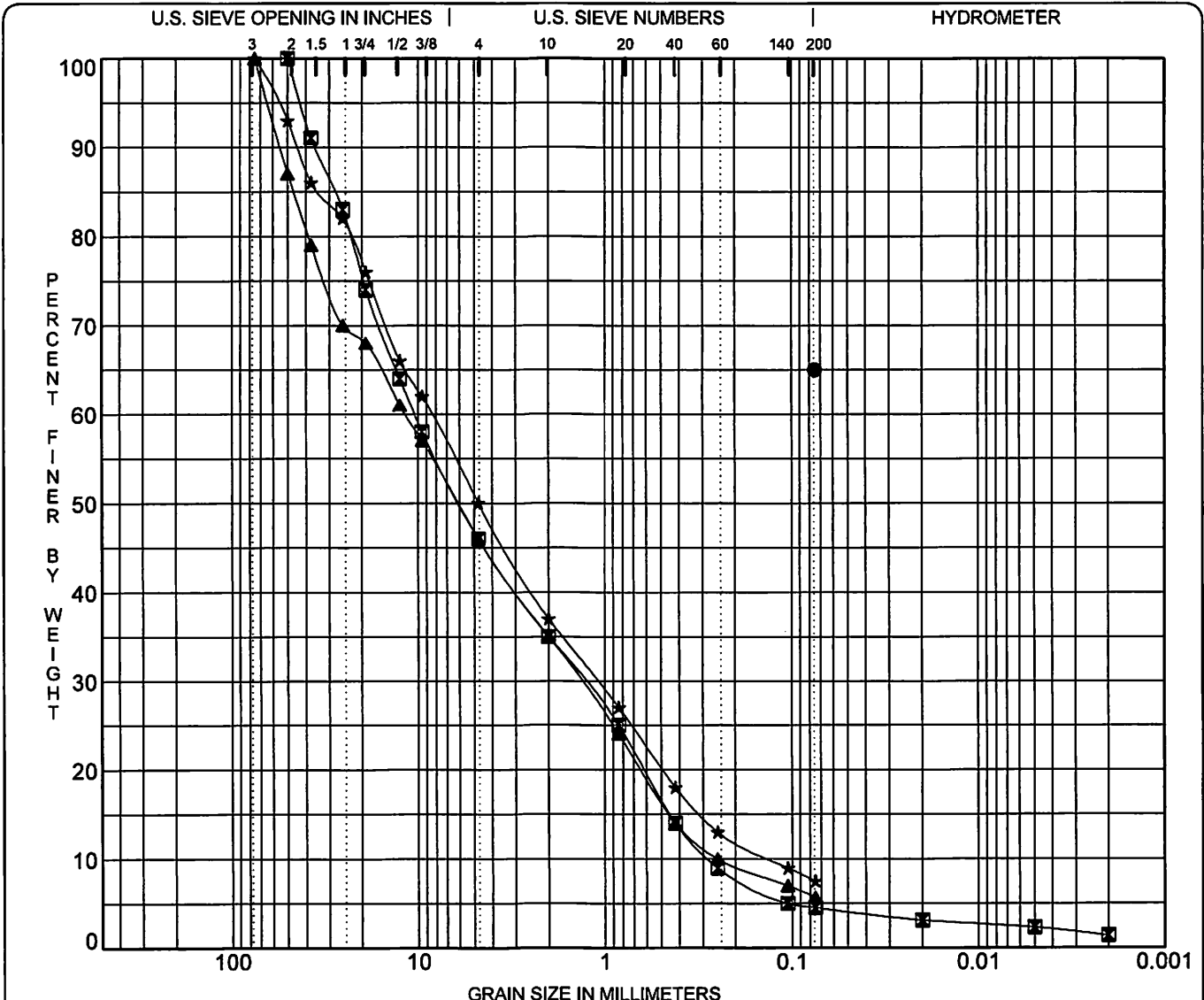
Borehole	Smpl. No	Interval	ASTM Class	FROST Class	MC%	LL	PL	PI	Cc	Cu
● RM23-08	2	2.5- 4.5	GM*	F3*	21.2					
☒ RM23-08	3	5.0- 7.0	GP-GM*	S1	4.0				3.5	140
▲ RM23-08	4	7.5- 9.5	GP-GM*	S1*	2.9				4.1	100
Borehole	Smpl. No	D100	D60	D30	D10	%Gravel	%Sand	%Fines	P.02	
● RM23-08	2	50	1.61			34	27	39		
☒ RM23-08	3	50	18.14	2.9	0.13	66	26	8	5.3	
▲ RM23-08	4	50	26.03	5.18	0.25	71	24	5		

*Estimated Classification

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ADNR TLO BOYD ROAD SUBDIVISION
PALMER, AK
GRADATION CURVES

PROJ.NO: 2846.01
DATE: AUG 2023
REF: GEOTECH RPT
DWG.NO: 28



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Borehole	Smpl. No	Interval	ASTM Class	FROST Class	MC%	LL	PL	PI	Cc	Cu
●	RM23-09	1	0.0- 2.0	ML	F4*	42.2	NV	NV	NP	
☒	RM23-09	3	3.2- 4.5	GP*	PFS	3.7			0.58	38
▲	RM23-09	4	5.0- 7.0	GP-GM*	S1*	3.9			0.62	47
★	RM23-09	6	15.0- 17.0	GW-GM*	S1*	3.1			1.1	65

Borehole	Smpl. No	D100	D60	D30	D10	%Gravel	%Sand	%Fines	P.02
●	RM23-09	1						65	
☒	RM23-09	3	50	10.41	1.3	0.28	54	42	5
▲	RM23-09	4	75	11.67	1.35	0.25	54	40	6
★	RM23-09	6	75	8.46	1.09	0.13	50	43	8

*Estimated Classification

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PALMER, AK
GRADATION CURVES

PROJ.NO: 2846.01
DATE: AUG 2023
REF: GEOTECH RPT
DWG.NO: 29

WETLAND DELINEATION FOR A PROPOSED SUBDIVISION ON BOYD ROAD, PALMER, ALASKA



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INTRODUCTION

R&M Consultants, Inc (R&M), on behalf of the Alaska Mental Health Trust Authority (AMHTA) requested that ABR, Inc.—Environmental Research & Services (ABR) perform a wetland delineation for an approximately 80-acre parcel (S18N01E12) in the Matanuska-Susitna Borough near Palmer, Alaska. The goal of the project is to provide wetland and upland boundaries for use in avoidance and minimization efforts during the design process. The project seeks to completely avoid impacts to wetlands on the property.

Existing, but coarse-scale, wetlands mapping for the parcel (U.S. Fish and Wildlife Service National Wetland Inventory [NWI] mapping (USFWS, 2023); Matanuska-Susitna Borough [MSB] wetlands mapping (MSB 2023a, Gracz,2017) indicate that wetlands are present in the study area. In this study, field efforts were focused on documenting the boundary between wetlands and uplands within the study area by sampling the range of landscape positions and vegetation types occurring on the property This delineation is suitable for supporting wetland permitting under Section 404 of the Clean Water Act (CWA).

STUDY AREA

The study area comprises the northwestern portion of parcel number S18N01E12 located near Palmer, Alaska within the Matanuska-Susitna Borough. The area mapped for wetlands (80 acres) is bounded by East Boyd Road to the north and privately owned parcels to the south, east and west (MSB 2023b). The study area is centered at latitude 61.669833 and longitude - 149.201082 (NAD83 projection), within Sections 11-12 of Range 1E, in Township 18N, Seward Meridian. Matanuska-Susitna Borough (Figure 1).

The parcel is undeveloped and dominated by mature broadleaf and mixed spruce/birch forest. The study area is mapped as non-wetlands interspersed with small patches of saturated wetlands classified in the MSB mapping as Spring Fen (MSB 2023a). Spring fens are characterized as small, isolated peatlands with underlying permeable sediments. Spring fens are connected to other wetland complexes by groundwater movement through underlying permeable sediments rather than surface water connections (Gracz 2017) and occur commonly in the study area at the base of enclosed kettle depressions. The study area also includes a drainage feature at

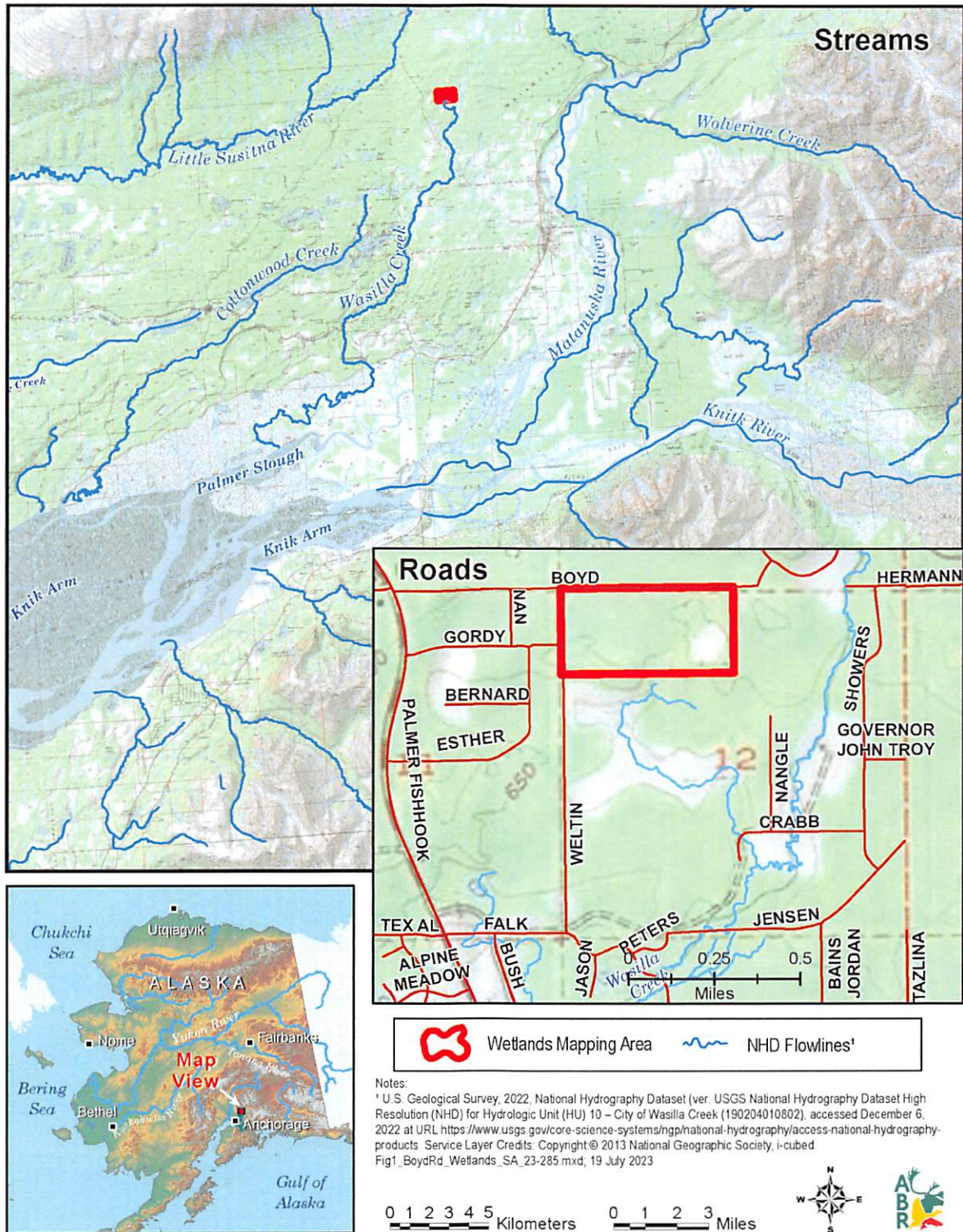


Figure 1. Location of the proposed Boyd Road Subdivision wetland mapping study area, Alaska, 2023.

the headwaters to a tributary of Wasilla Creek. The wetlands within the drainage feature were also classified as Spring Fen in the MatSu Borough wetland mapping.

METHODS

DATA SOURCES

The following data sources were used to facilitate the wetland field survey and mapping efforts:

- High-resolution satellite imagery (MSB Core 2022, 0.15-meter resolution, acquired 7 May 2022)
- Interferometric Synthetic Aperture Radar (IFSAR) digital elevation model (DEM) (USGS 2023a), 5-meter resolution
- Gracz (2017) wetland ecosystems map
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping (USFWS 2023); mapping for the Kenai B-2 quadrangle was conducted at a scale of 1:120,000 using imagery from July 1977.
- National Hydrography Dataset (NHD) lines and polygons (USGS 2023b).
- Web Soil Survey database (USDA NRCS 2023).

FIELD SURVEY

Wetland determination plots were sampled throughout the property in areas representative of the wetland and upland photo-signatures and landscape positions visible on the satellite imagery for the study area. Wetland determination plots were sampled following the U.S. Army Corps of Engineers (USACE) 3-parameter approach for defining wetlands (Environmental Laboratory 1987) and the methodology described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (USACE 2007). At each wetland determination plot, we recorded the USACE-required data to determine the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. The absolute cover of each vascular plant species within a 10-m radius at each plot was visually estimated and the presence of hydrophytic vegetation was determined using the Dominance Test (ratio of wetland versus upland dominant plants) and/or the Prevalence Index (weighted average of all species present) using the wetland indicator status per the 2020 National Wetland Plant List v.3.5: Alaska (USACE 2023). Photographs of the sample plot area, the ground surface and vegetation present, and the soil profile from the soil pit

were taken at each plot, and GPS location coordinates were also recorded. In addition to wetland determination plots, we sampled map verification plots, at which a subset of wetland data were collected to verify the wetland or upland status for photo-signatures that had been previously sampled with full wetland determination plots. All field data were recorded on customized, ABR-prepared apps, running on Android tablet computers. Navigation at the site was done using ArcGIS Collector (accessed through ArcGIS online), which allowed real-time depictions of plot locations in the field over the same satellite imagery used in the wetland mapping. Upon completion of field work, the data were uploaded to a wetland-specific relational database maintained on ABR servers and were subjected to a set of sequential data QA/QC procedures to ensure their accuracy before being used to prepare the wetland map for the project. The ABR wetland database facilitates preparation of the required wetland data forms for each wetland determination plot following USACE guidelines (USACE 2007). Wetland data forms and representative photos are included in Appendix A. Map verification plot data and representative photos are included in Appendix B.

WETLAND CLASSIFICATION AND MAPPING

Wetland boundaries were identified in the field and were then delineated on-screen using ArcGIS software overlaid on the imagery for the parcel study area. As noted in the Data Sources section above, the primary imagery used for mapping was acquired 7 May 2022 from Mat-Su Borough Core 2022, at 0.15-meter spatial resolution available as part of ESRI's World Imagery basemap.

Wetland boundaries were identified using the field ground-reference data collected for this project in combination with the interpretation of satellite photo-signatures and the assessment of ancillary GIS data layers (see Data Sources above). Wetland types were mapped at a scale of 1:1,000 and each mapped polygon was assigned a wetland type using NWI notation (FGDC 2013), which is the approach typically used by the U.S. Fish and Wildlife Service's NWI program (Dahl et al. 2015). Each mapped polygon was also assigned a hydrogeomorphic class (USDA NRCS 2008).

ESTABLISHING JURISDICTIONAL STATUS

Wetlands and waters within the study area were assessed to determine if they met the definition of a water of the U.S. (WOTUS), subject to jurisdiction under Section 404 of the CWA, and/or a navigable water of the U.S., subject to jurisdiction under Section 10 of the Rivers and Harbors Act. The Revised Definition of Waters of the United States (88 FR 3004) (2023 Rule) was published in the Federal Register on 18 January 2023. The 2023 rule interpreted WOTUS based on two standards following the U.S. Supreme Court's ruling in *Rapanos v. United States*, including the relatively permanent water (RPW) standard and the significant nexus test. Following the 2023 Supreme Court decision in *Sackett v. Environmental Protection Agency* the USACE and the U.S. Environmental Protection Agency jointly published a new conforming standard (88 FR 61964, hereafter referred to as the conforming rule) in which the definitions of RPW and adjacency were updated and the significant nexus test was removed.

At the time of this report agencies are implementing the definition of WOTUS under the January 2023 Rule, as amended by the conforming rule, in 23 states. The January 2023 rule is enjoined in the remaining 27 states, including Alaska, and in these states the agencies are interpreting WOTUS consistent with the pre-2015 regulatory regime and the Sackett decision until further notice. The proposed jurisdictional determination in this report is consistent with the pre-2015 regulatory regime and the Sackett decision.

In this study, the USACE navigable waters list (USACE 2023) was used to determine navigability. Field data and aerial imagery were used to determine surface water connections and their characteristics under the RPW standard.

RESULTS AND DISCUSSION

FIELD SURVEYS AND HYDROLOGICAL CONDITIONS

Field surveys were conducted 12 June 2023 by Robert McNown (SWS #3554) and Nora Fried of ABR. Standard USACE 3-parameter wetland determinations were completed at 7 field plots; 4 were classified as uplands and 3 were classified as wetlands (Figure 2, Appendix A). In addition, map verification plots were completed at 4 locations (Figure 2, Appendix B). GPS accuracy ranged from 1 to 4 meters, with a median accuracy of 1 meter.

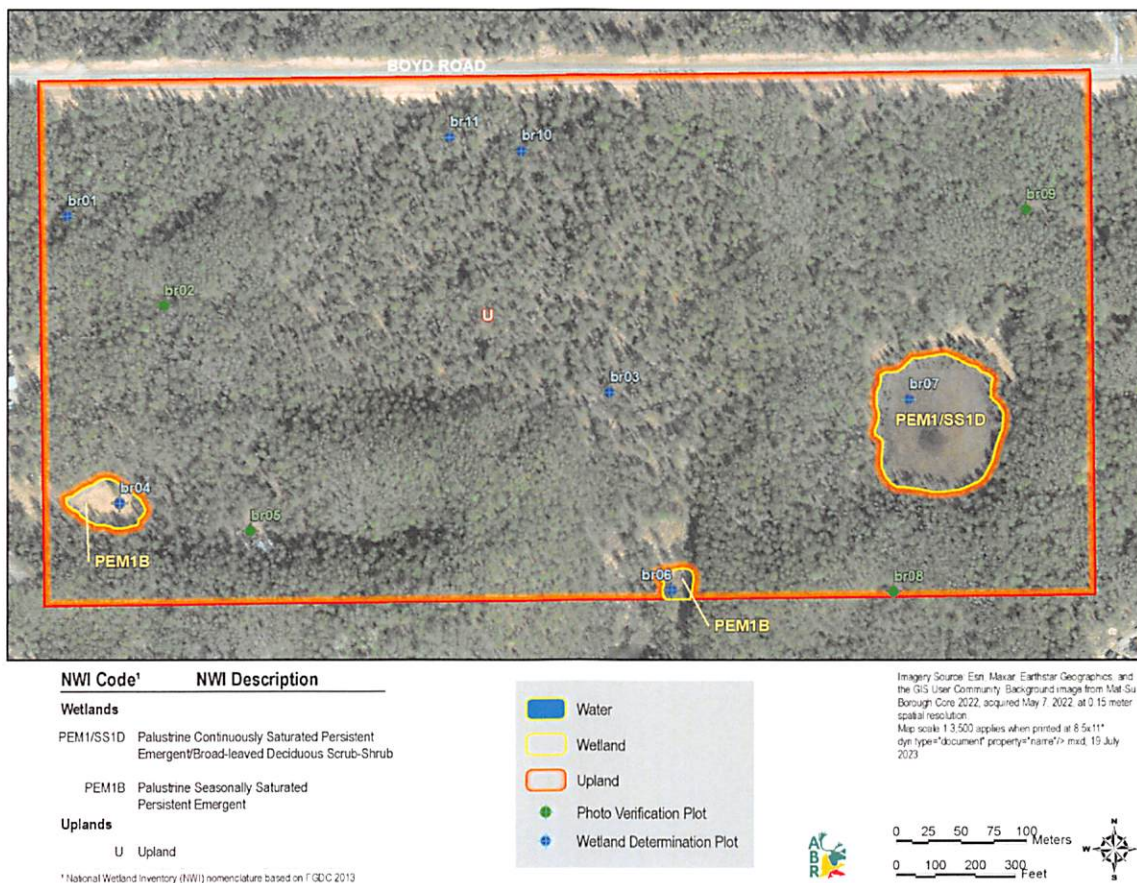


Figure 2. Wetlands and waters of the proposed Boyd Road Subdivision wetlands study area, Alaska, 2023.

The meteorological station nearest to the study area with both long-term averages and daily precipitation values for the current season is the Lazy Mountain station located approximately 6.2 miles from the study area (see Arguez et al. [2012] and Menne et al. [2012]).

To place the hydrological conditions in the study area at the time of sampling in context with local norms, we performed a precipitation analysis similar to the USACE’s Antecedent Precipitation Tool (APT), which involves summarizing precipitation data from the nearest meteorological stations. Current-year 30-day rolling precipitation sums were compared with 30 years of 30-day rolling precipitation sums at the 30th and 70th percentiles (Figure 3).

Compared to long-term averages at the Lazy Mountain station, June 2023 was cooler and drier than normal at the time the field survey was conducted (Figure 3). While the 30-day rolling precipitation data on the day of the site visit was lower than the average there were several days of consistent precipitation in the two weeks prior to the field visit. In the context of the season (April-June), precipitation was within 30-year precipitation norms (Table 1). It is likely that the lower-than-average rolling data is not indicative of seasonally drier site conditions. Because all wetland plots had both hydric soil indicators and primary indicators of wetland hydrology, and all upland plots consistently lacked both hydric soil indicators and wetland hydrology indicators, drier than normal conditions are not believed to have influenced the results of the field survey.

Table 1. Monthly mean (April–June 2023) and long-term normal (1993–2022) values for air temperature (°C) and total monthly precipitation (mm) for the Lazy Mountain weather station, Palmer, Alaska (station id USC00505464).

Month	Temperature (°C)			Precipitation (mm)			
	1993–2022	2023	Difference from Normal	1993–2022	2023	% of Normal	<i>n</i>
April	2.0	-1.5	-3.5	13.2	2.5	18.7	30
May	7.9	7.2	-0.7	21.3	13.8	68.7	31
June	11.9	11.1	-0.8	30	33.5	32.2	30

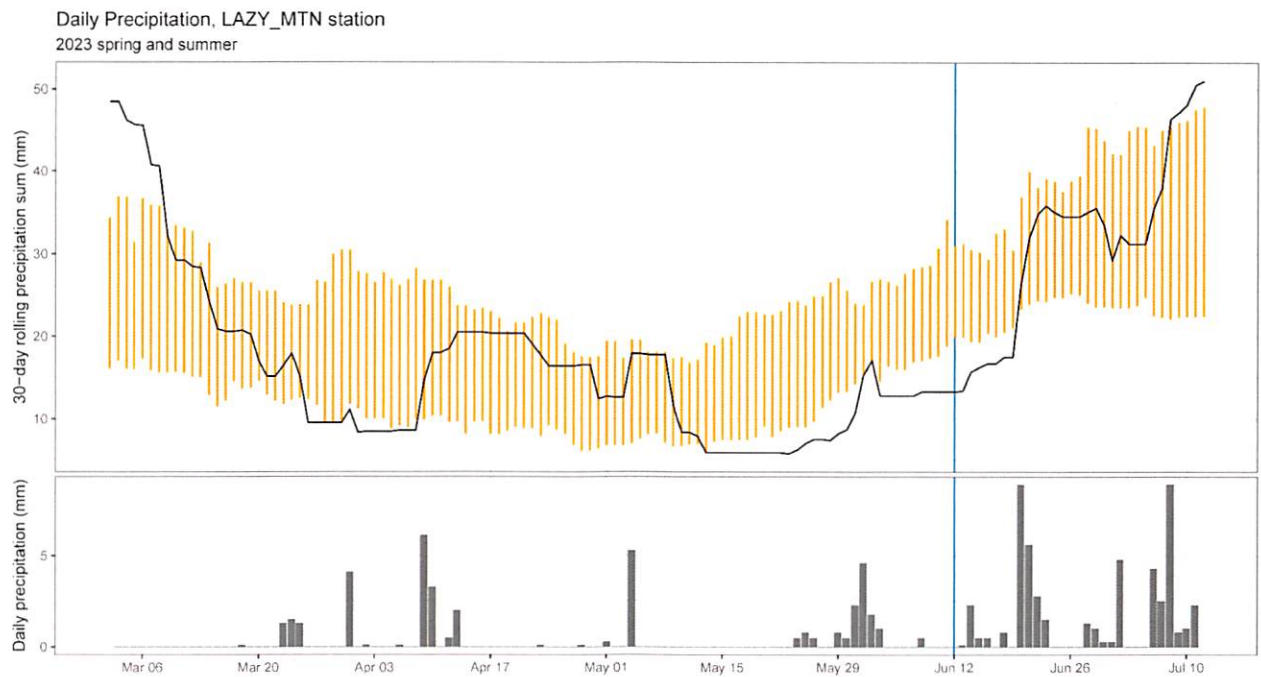


Figure 3. Antecedent precipitation chart for the proposed Boyd Road Subdivision wetlands study area, Alaska, 2023.

WETLAND CLASSIFICATION AND MAPPING

WATERS

No waters were mapped within the Boyd Road study area. The Lidar DSM imagery indicates a large drainage feature that bisects the parcel which was included in the study plots (br_03, and br_10, Figure 2). Field analysis found this feature to be dry throughout most of its length within the parcel boundary.

WETLANDS

Palustrine Seasonally Saturated Persistent Emergent (PEM1B) wetlands and Palustrine Continuously Saturated Persistent Emergent/Scrub-Shrub (PEM1/SS1D) wetlands were documented in two kettle depressions within the study area, encompassing 2.54 acres (3.2% of the study area, (Figure 2, Table 2). Existing mapping resources for the Boyd Road study area agree with the findings of the field survey with wetlands typically occurring within riparian corridors and depressional kettle features common throughout the region (Gracz 2017 and USFWS, 2023).

Table 2. Areal extent (acres and percent of study area) of waters, wetlands, and uplands in the proposed Boyd Road Subdivision wetlands study area, Palmer, Alaska, 2023

NWI_Code	NWI Descriptions	Area (Acres)	% of Study Area
Wetlands			
PEM1/SS1D	Palustrine Continuously Saturated Persistent Emergent/Scrub Shrub	2.04	2.5%
PEM1B	Palustrine Seasonally Saturated Persistent Emergent	0.50	0.7%
	Total Wetlands:	2.54	3.2%
Uplands			
U	Upland	77.59	96.8%
	Total Uplands	77.59	96.8%
Grand Total		80.13	100.0

Palustrine Seasonally Saturated Persistent Emergent (PEM1B) wetlands were identified at wetland determination plots br_04 and br_06 (Appendix A). The PEM1B wetland at site br_04 is dominated by an herbaceous stratum, consisting of *Calamagrostis canadensis* (bluejoint, FAC), *Heracleum maximum* (American cow parsnip, FACU) and *Viola palustris* (alpine-marsh violet, FACW). The sapling/shrub stratum is comprised of *Salix bebbiana* (gray willow, FAC) and *Salix pulchra* (diamond leafed willow, FACW). This site had thick surface organic layers, meeting the hydric soil indicator Histic Epipedon (A2). Soils were highly saturated in the upper organic horizons, with a restrictive layer (thin bark-like material) at approximately 6-7 inches deep. The site had saturation at 2 inches, with secondary indicators of reduced iron, geomorphic position and microtopographic relief. The PEM1B wetland at site br_06 is located immediately adjacent to a beaver pond and wetland complex (outside of the study area). The site likely floods at least briefly each season but lacked standing water at the time of survey. While the herb stratum is predominantly comprised of FAC and FACU species such as *Urtica dioica* (stinging nettle, FACU), *C. canadensis* (bluejoint, FAC), and *H. maximum* (American cow parsnip, FACU), with a lesser presence of *Angelica genuflexa* (kneeling angelica, FACW), *Dryopteris expansa* (spreading wood fern, FACU), and *Gymnocarpium dryopteris* (northern oak fern, FACU). Mature *Betula neoalaskana* (Alaska paper birch, FACU) is also present throughout the site. The topography is such that vegetated hummocks are interspersed with unvegetated low points, therefore hydrophytic vegetation indicators are considered problematic. In this case, indicators for wetland hydrology (high water table, presence of reduced iron, geomorphic position, and microtopographic relief) and hydric soils (presence of reduced iron in soils) were utilized to make this determination.

Palustrine Continuously Saturated Persistent Emergent/Scrub-Shrub (PEM1/SS1D) wetlands were identified at study site br_07, which located at the base of a large kettle depression approximately 50-100ft lower than surrounding upland terrain. Field verification confirmed that there was no identifiable surface water inlet or outlet. The scrub/shrub stratum is comprised predominantly of *Betula nana* (swamp birch, FAC) and *Andromeda polifolia* (bog rosemary, FACW). Also observed were *Vaccinium oxycoccos* (small cranberry, OBL) *Vaccinium uliginosum* (alpine blueberry, FAC), *Rhododendron groenlandicum* (rusty Labrador-tea, FAC), *Salix fuscescens* (Alaska bog willow, FACW). The Herb stratum is comprised predominantly of

Carex aquatilis (leafy tussock sedge, OBL), *Carex membranacea* (fragile-seed sedge, FACW), *Rubus chamaemorus* (cloudberry, FACW), *Comarum palustre* (purple marshlocks, OBL), and *Drosera rotundifolia* (round leaved sundew, OBL) were also present in the study plot.

PEM1/SS1D soil pedon is characterized by thick peat/mucky peat layers, meeting hydric soil indicators Histosol or Histel (A1) and/or Histic Epipedon (A2). There was surface water present on site, and soils were saturated at or near the surface, thus meeting the wetland hydrology indicators Surface Water (A1), High Water Table (A2), and Saturation (A3).

UPLANDS

The remaining 77.59 acres (96.8%) of the study area were mapped as Uplands (non-wetland, U; Figure 2, Table 2). Uplands in the study area were confirmed at sample plots br_01, br_03, br_10, and br_11 (Figure 2, Appendix A), and map verification plots br_02, br_05, br_08 and br_09 (Figure 2, Appendix B). These sites include open and closed canopy paper birch, quaking aspen, and white spruce forests. A drainage feature intersects the study area and is dominated by upland vegetation species with no hydric soil or hydrology indicators observed. The tree stratum ranges between 0-35% coverage and is comprised of a mix of *B. neoalaskana* trees and saplings (Alaska Paper Birch, FACU); *Picea glauca* (white spruce, FACU), and *Populus tremuloides* (quaking aspen, FACU). Dominant species in the sapling/shrub layer (coverage 15-35%) include *Rosa acicularis* (prickly rose, FACU), *Ribes triste* (swamp red currant, FAC), with a lesser presence of *Linnaea borealis* (American twinflower, FACU), *Vaccinium vitis-idaea* (northern mountain-cranberry, FAC), *S. bebbiana* (gray willow, FAC), and *Oplopanax horridus* (devil's club, FACU). The dominant species present in the herbaceous component at all upland plots typically makes up between 19-58% total cover, dominated by *G. Dryopteris* (Northern Oak Fern, FACU), *C. canadensis* (bluejoint, FAC), *Cornus suecica* (Dwarf bog bunchberry, FAC). Non-dominant plant species present in the herbaceous stratum include *Geranium erianthum* (woolly crane's- bill, FACU), *Chamaenerion angustifolium* (narrow-leaf fireweed, FACU), *Pyrola asarifolia*, (pink wintergreen, FACU), *Sorbus scopulina* (cascade mountain ash, FACU), *Sanguisorba canadensis* (Canadian burnet, FACU), *Streptopus amplexifolius* (clasping twistedstalk, FACU), *Mertensia paniculata* (Tall bluebells, FACU), *Equisetum arvense* (field horsetail, FAC), and *Dryopteris expansa* (spreading wood fern, FACU), Upland soils generally matched the typical profile for a Knik Silt Loam, with shallow hemic and fibric surface organics

in the top 0-5 inches observed. Silt loam was typically present from 5-16 inches, with one site (br_01) exhibiting silty clay loam beginning at 11 inches below the ground surface. No hydric soil indicators were observed, and only the secondary wetland hydrology indicator Geomorphic Position (D2) was observed at two upland sites (br_01, br_03).

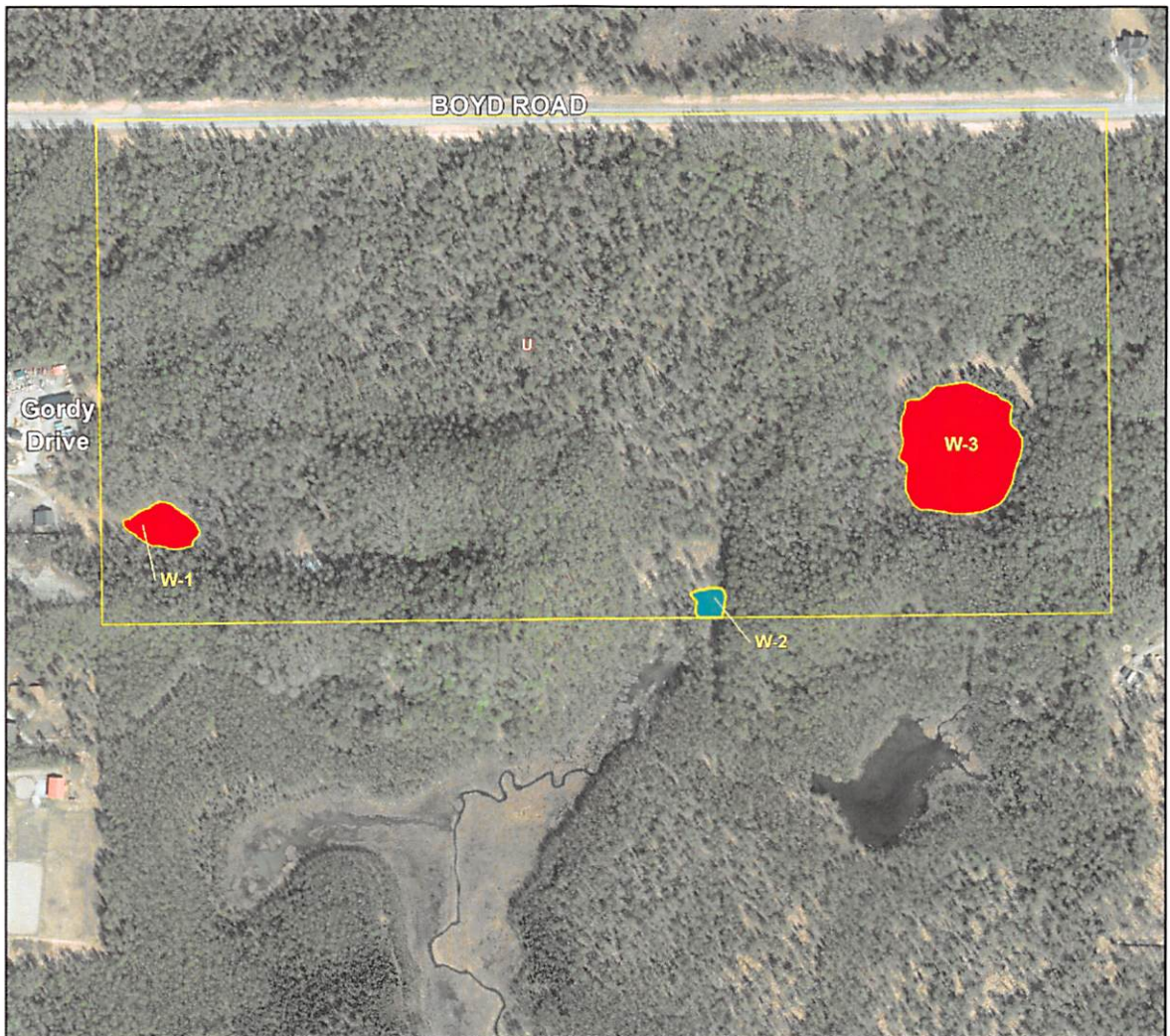
JURISDICTIONAL STATUS




The study area is in the Wasilla Creek watershed (HUC 12-190204010802, USGS 2023b). The nearest Traditional Navigable Water (TNW) to the study area is Matanuska River (Figure 1), which is navigable for its entire length (USACE 2023) and is approximately located 3.8 straight-line miles from the study area. The wetland described at plot br_06 (0.1 acres) is immediately abutting a beaver complex wetland in the headwaters of an unnamed tributary to Wasilla Creek (Figure 4) and thus meets the jurisdictional criteria of adjacency under the Sackett decision as a wetland immediately adjacent to a Relatively Permanent Water (RPW) connecting directly to a TNW (RPWWD)

The depressional wetlands identified at plots br_04 and br_07 were confirmed during field visits to be bordered by uplands with no clear inlets or outlets conveying seasonal or perennial surface water flow and may be considered isolated. Connectivity may only be confirmed under the significant nexus standard which is currently not applicable under the conforming WOTUS rule. Non-jurisdictional isolated wetlands in the Boyd Road study area encompass 2.4 acres (Figure 4).

SUMMARY OF FINDINGS

Most of the Boyd Road study area is non-jurisdictional upland terrain. The field study confirmed that the substrate in the area is composed of well-drained sandy soils which do contribute to the formation of wetlands even within numerous low-lying depressions found throughout the undulating terrain of the property. One small wetland along the southern border of the study area is connected to navigable waters through a continuous surface water connection and is thus considered jurisdictional. The remaining emergent and scrub shrub wetlands could not be connected via a relatively permanent surface water feature and are surrounded by upland terrain. These wetlands do not meet the criteria of WOTUS under the current definition and may



Proposed Jurisdictional Category ¹	Wetland Number	Area (acres)
 Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs	W-2	0.128
 Isolated (interstate or intrastate) waters, including isolated wetlands	W-1 W-3	0.373 2.041
 Non-jurisdictional (uplands)		

¹The USACE is responsible for the final jurisdictional determinations.

Imagery Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community. Background image from Mat-Su Borough Core 2022, acquired May 7, 2022, at 0.15 meter spatial resolution. Map scale 1:3,500 applies when printed at 8.5x11" dyn type="document" property="name"/>.mxd; 11 January 2024

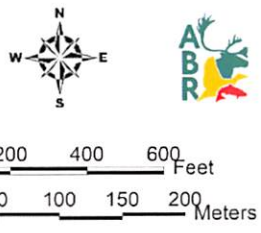


Figure 4. Proposed jurisdictional status of wetlands mapped within the Boyd Road wetlands mapping area, Wasilla, Alaska 2023.

not be subject to federal section 404 wetland permitting if fill were proposed. The limited extent of jurisdictional wetlands within the Boyd Road study area indicates that the area could be developed easily by completely avoiding impacts to WOTUS.

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Appendix A. Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - ALASKA REGION

Project/Site: Boyd Road Subdivision Wetland Delineation Borough/City: Matanuska-Susitna Borough Sampling Date: 2023-06-12
 Applicant/Owner: R&M Sampling Point: boyd-rd-01
 Investigator(s): NAF, RWM Landform (hillside, terrace, hummocks, etc.): Basin, Kettle
 Local relief (concave, convex, none): concave Slope: 0.0 % / 0.0 ° Elevation: 744
 Subregion: Alaska Lat.: 61.6707 Long.: -149.2085 Datum: WGS84
 Soil Map Unit Name: Knik Silt Loam NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			

Remarks: A dramatic kettle with clearly upland veg, upland soils, and no wetland hydrology. The surrounding kettle walls are about 15-20' tall.

VEGETATION - Use scientific names of plants. List all species in the plot.

<u>Tree Stratum</u>	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
Total Cover: <u>0.0</u> 50% of total cover: <u>0.0</u> 20% of total cover: <u>0.0</u>				
<u>Sapling/Shrub Stratum</u>				
1. <u>Betula neoalaskana</u>	<u>25.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Species <u>0.0</u> × 1 = <u>0.0</u> FACW Species <u>0.0</u> × 2 = <u>0.0</u> FAC Species <u>16.0</u> × 3 = <u>48.0</u> FACU Species <u>78.0</u> × 4 = <u>312.0</u> UPL Species <u>0.0</u> × 5 = <u>0.0</u> Column Totals: <u>94.0</u> (A) <u>360.0</u> (B) Prevalence Index = B/A = <u>3.830</u>
2. <u>Rosa acicularis</u>	<u>5.0</u>	<input type="checkbox"/>	<u>FACU</u>	
3. <u>Ribes triste</u>	<u>5.0</u>	<input type="checkbox"/>	<u>FAC</u>	
4. <u>Oplopanax horridus</u>	<u>1.0</u>	<input type="checkbox"/>	<u>FACU</u>	
Total Cover: <u>36.0</u> 50% of total cover: <u>18.0</u> 20% of total cover: <u>7.2</u>				
<u>Herb Stratum</u>				
1. <u>Gymnocarpium dryopteris</u>	<u>30.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators or hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Calamagrostis canadensis</u>	<u>8.0</u>	<input type="checkbox"/>	<u>FAC</u>	
3. <u>Dryopteris expansa</u>	<u>8.0</u>	<input type="checkbox"/>	<u>FACU</u>	
4. <u>Geranium erianthum</u>	<u>5.0</u>	<input type="checkbox"/>	<u>FACU</u>	
5. <u>Mertensia paniculata</u>	<u>3.0</u>	<input type="checkbox"/>	<u>FACU</u>	
6. <u>Cornus suecica</u>	<u>3.0</u>	<input type="checkbox"/>	<u>FAC</u>	
7. <u>Streptopus amplexifolius</u>	<u>1.0</u>	<input type="checkbox"/>	<u>FACU</u>	
Total Cover: <u>58.0</u> 50% of total cover: <u>29.0</u> 20% of total cover: <u>11.6</u>				
				Plot size (radius, or length × width) <u>10m radius</u> % Cover of Wetland Bryophytes (Where applicable) <u>0.0</u> % Bare Ground <u>0.0</u> Total Cover of Bryophytes <u>0.0</u>
				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Remarks:

SOIL

Sampling Point: boyd-rd-01

Depth (inches)	Matrix			Redox Features				Texture	Mod	Remarks
	Color (moist)	%	%	Color (moist)	%	Type ¹	Loc ²			
0-3	7.5yr	2.5/2	100	/	0	A		hemic		
3-11	10yr	2/2	85	5yr	3/3	15	C	PL		
11-16	7.5yr	2.5/3	100	/		A		silty clay loam		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, A=Absent ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol or Histel (A1)	<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Alaska Color Change (TA4) ⁴
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Alaska Alpine Swales (TA5)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Alaska Redox With 2.5Y Hue
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Alaska Gleyed Without Hue 5Y or Redder
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Underlying Layer
<input type="checkbox"/> Alaska Gleyed (A13)	<input type="checkbox"/> Red Parent Material (F21)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Alaska Redox (A14)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Alaska Gleyed Pores (A15)		

³One indicator or hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
⁴Give details of color change in Remarks.

Restrictive Layer (if present): Type: None Depth (inches):	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	---

Remarks: Relict redox features suggest this site used to be wet or is briefly saturated in early early spring before seasonal frost melts, but not long enough to develop features meeting any wetland soils indicators, including presence of reduced iron.

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one is sufficient)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rizospheres along Living Roots (C3)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Salt Deposits (C5)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-neutral Test (D5)

Field Observations:	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches):	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches):	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches):	

Recorded Data (stream gauge, monitor well, aerial photo, previous inspection) if available:
Remarks:

Sampling Point: boyd-rd-01
NWI classification: U



Hydric Soil Indicators: None
Wetland Hydrology Indicators: Geomorphic Position (D2)



WETLAND DETERMINATION DATA FORM - ALASKA REGION

Project/Site: Boyd Road Subdivision Wetland Delineation Borough/City: Matanuska-Susitna Borough Sampling Date: 2023-06-12
 Applicant/Owner: R&M Sampling Point: boyd-rd-03
 Investigator(s): RWM, NAF Landform (hillside, terrace, hummocks, etc.): Flat or fluvial related
 Local relief (concave, convex, none): concave Slope: 3.5 % / 2.0 ° Elevation: 664
 Subregion: Alaska Lat.: 61.6695 Long.: -149.2005 Datum: WGS84
 Soil Map Unit Name: Knik Silt Loam NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Remarks: No signs of wetland conditions in this part of the former channel that bisects the plot. Plot is a homogeneous birch woodland, with lots of spruce bark beetle killed spruce mixed in (dead 10-15 %cover). Alder flycatcher singing.

VEGETATION - Use scientific names of plants. List all species in the plot.

<u>Tree Stratum</u>	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>6</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>33.3%</u> (A/B)
1. <u>Betula neoalaskana</u>	<u>20.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
2. <u>Picea glauca</u>	<u>15.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
Total Cover: <u>35.0</u>				
50% of total cover: <u>17.5</u>				
20% of total cover: <u>7.0</u>				
<u>Sapling/Shrub Stratum</u>				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Species <u>0.0</u> × 1 = <u>0.0</u> FACW Species <u>0.0</u> × 2 = <u>0.0</u> FAC Species <u>20.3</u> × 3 = <u>60.9</u> FACU Species <u>63.1</u> × 4 = <u>252.4</u> UPL Species <u>0.0</u> × 5 = <u>0.0</u> Column Totals: <u>83.4</u> (A) <u>313.3</u> (B) Prevalence Index = B/A = <u>3.757</u>
1. <u>Ribes triste</u>	<u>10.0</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Rosa acicularis</u>	<u>5.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
3. <u>Salix bebbiana</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FAC</u>	
4. <u>Vaccinium vitis-idaea</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FAC</u>	
5. <u>Linnaea borealis</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FACU</u>	
Total Cover: <u>15.3</u>				
50% of total cover: <u>7.6</u>				
20% of total cover: <u>3.1</u>				
<u>Herb Stratum</u>				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators or hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Gymnocarpium dryopteris</u>	<u>10.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
2. <u>Calamagrostis canadensis</u>	<u>8.0</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Geranium erianthum</u>	<u>5.0</u>	<input type="checkbox"/>	<u>FACU</u>	
4. <u>Streptopus amplexifolius</u>	<u>3.0</u>	<input type="checkbox"/>	<u>FACU</u>	
5. <u>Mertensia paniculata</u>	<u>3.0</u>	<input type="checkbox"/>	<u>FACU</u>	
6. <u>Equisetum arvense</u>	<u>2.0</u>	<input type="checkbox"/>	<u>FAC</u>	
7. <u>Dryopteris expansa</u>	<u>2.0</u>	<input type="checkbox"/>	<u>FACU</u>	
8. <u>Cornus suecica</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FAC</u>	
Total Cover: <u>33.1</u>				
50% of total cover: <u>16.6</u>				
20% of total cover: <u>6.6</u>				
				Plot size (radius, or length × width) <u>10m radius</u> % Cover of Wetland Bryophytes (Where applicable) <u>0.0</u> % Bare Ground <u>0.0</u> Total Cover of Bryophytes <u>15.0</u>
				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Remarks: A mature birch woodland throughout the central portion of the former channel(ancient).

SOIL

Sampling Point: boyd-rd-03

Depth (inches)	Matrix			Redox Features				Mod	Remarks
	Color (moist)	%	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10yr 2/2	100	/	A				fibric	
2-5	2.5yr 3/6	100	/	A				fibric	Decomposing tree, very course fabric
5-6	7.5yr 2.5/2	100	/	A				silt loam	
6-16	10yr 3/6	100	/	A				silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, A=Absent ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Depleted Below Dark Surface (A11) Alaska Color Change (TA4)⁴
- Depleted Matrix (F3) Alaska Alpine Swales (TA5)
- Redox Dark Surface (F6) Alaska Redox With 2.5Y Hue
- Depleted Dark Surface (F7) Alaska Gleyed Without Hue 5Y or Redder
- Redox Depressions (F8) Underlying Layer
- Red Parent Material (F21) Other (Explain in Remarks)
- Very Shallow Dark Surface (F22)

³One indicator or hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
⁴Give details of color change in Remarks.

Restrictive Layer (if present):

Type: None
Depth (inches):

Hydric Soil Present? Yes No

Remarks: Possibly an ashy layer in the upper third, with wood debris near surface. There were almost indiscernible relict redox in the lower horizons

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): 0
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present?
 (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

Recorded Data (stream gauge, monitor well, aerial photo, previous inspection) if available:

Remarks:

Sampling Point: boyd-rd-03
NWI classification: U



Hydric Soil Indicators: None
Wetland Hydrology Indicators: Geomorphic Position (D2)



WETLAND DETERMINATION DATA FORM - ALASKA REGION

Project/Site: Boyd Road Subdivision Wetland Delineation Borough/City: Matanuska-Susitna Borough Sampling Date: 2023-06-12
 Applicant/Owner: R&M Sampling Point: boyd-rd-04
 Investigator(s): NAF, RWM Landform (hillside, terrace, hummocks, etc.): Basin, Kettle
 Local relief (concave, convex, none): concave Slope: 0.0 % / 0.0 ° Elevation: 667
 Subregion: Alaska Lat.: 61.6688 Long.: -149.2073 Datum: WGS84
 Soil Map Unit Name: Knik Silt Loam NWI classification: PEM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			

Remarks: Plot is an isolated wet depression. Walked inside edge of slope/vegetation break for this depressional feature. It is a true depression with no outlet. Salix shrubs on margins.

VEGETATION - Use scientific names of plants. List all species in the plot.

<u>Tree Stratum</u>	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
Total Cover: <u>0.0</u> 50% of total cover: <u>0.0</u> 20% of total cover: <u>0.0</u>				
<u>Sapling/Shrub Stratum</u>				
1. <u>Salix bebbiana</u>	<u>1.0</u>	<input type="checkbox"/>	<u>FAC</u>	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Species <u>0.0</u> × 1 = <u>0.0</u> FACW Species <u>1.0</u> × 2 = <u>2.0</u> FAC Species <u>66.0</u> × 3 = <u>198.0</u> FACU Species <u>6.0</u> × 4 = <u>24.0</u> UPL Species <u>0.0</u> × 5 = <u>0.0</u> Column Totals: <u>73.0</u> (A) <u>224.0</u> (B) Prevalence Index = B/A = <u>3.068</u>
2. <u>Salix pulchra</u>	<u>1.0</u>	<input type="checkbox"/>	<u>FACW</u>	
Total Cover: <u>2.0</u> 50% of total cover: <u>1.0</u> 20% of total cover: <u>0.4</u>				
<u>Herb Stratum</u>				
1. <u>Calamagrostis canadensis</u>	<u>65.0</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators or hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Heracleum maximum</u>	<u>6.0</u>	<input type="checkbox"/>	<u>FACU</u>	
3. <u>Viola epipsila</u>	<u>0.1</u>	<input type="checkbox"/>	<input type="checkbox"/>	
Total Cover: <u>71.1</u> 50% of total cover: <u>35.6</u> 20% of total cover: <u>14.2</u>				
Plot size (radius, or length × width) <u>10m radius</u>				
% Cover of Wetland Bryophytes (Where applicable) <u> </u>				
% Bare Ground <u>1.0</u>				
Total Cover of Bryophytes <u> </u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks: This kettle is completely choked by bluejoint that is mostly still dead at this point. There are some willows and other species encroaching on the edges.

SOIL

Sampling Point: boyd-rd-04

Depth (inches)	Matrix			Redox Features				Texture	Mod	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²			
0-2	10yr	2/1	100	/		A		peat		
2-5	10yr	2/1	100	/		A		mucky peat		
5-7	7.5yr	3/4	100	/		A		peat		Decomposing tree, very course organics
7-11	10yr	2/2	100	/		A		muck		Alpha-alpha dipyrrol confirms presence of reduced iron
11-16	10yr	2/2	100	/		A		silt loam		Alpha-alpha dipyrrol confirms presence of reduced iron

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, A=Absent ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol or Histel (A1)	<input type="checkbox"/> Depleted Below Dark Surface (A11)
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Alaska Gleyed (A13)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Alaska Redox (A14)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Alaska Gleyed Pores (A15)	

³One indicator or hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
⁴Give details of color change in Remarks.

Restrictive Layer (if present): Type: Relatively Impermeable Layer Depth (inches): 7	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: The pit is highly saturated in upper organic horizons, oozing down the sides of the pit after excavation. A positive alpha alpha dipyrrol reaction at 7 -10". There was a layer of thin barklike material at about 6 inches that seems to be helping perch the water. The soil below was also saturated but to a lesser degree.

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one is sufficient)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Salt Deposits (C5)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-neutral Test (D5)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): 0	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): 0	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 2	

Recorded Data (stream gauge, monitor well, aerial photo, previous inspection) if available:

Remarks: Positive alpha alpha at 6-9 AND 9-13". Sides of depression range from 100' to 30'.

Sampling Point: boyd-rd-04
NWI classification: PEM1B



Hydric Soil Indicators: Histic Epipedon (A2)
Wetland Hydrology Indicators: Presence of Reduced Iron (C4), Saturation (A3)



WETLAND DETERMINATION DATA FORM - ALASKA REGION

Project/Site: Boyd Road Subdivision Wetland Delineation Borough/City: Matanuska-Susitna Borough Sampling Date: 2023-06-12
 Applicant/Owner: R&M Sampling Point: boyd-rd-06
 Investigator(s): NAF, RWM Landform (hillside, terrace, hummocks, etc.): Flat or fluvial related
 Local relief (concave, convex, none): concave Slope: 3.5 % / 2.0 ° Elevation: 679
 Subregion: Alaska Lat.: 61.6681 Long.: -149.1996 Datum: WGS84
 Soil Map Unit Name: Typic Cryaquents NWI classification: PEM1B
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks: Site is just up slope of a beaver pond but there is no standing water in the study area. Mature *Betula neolaskana* is throughout the site but we described an area between trees. Alpha alpha positive from 9-12. Microlows are supporting wetland hydro/problematic soils but the broader site is upland. Site probably floods at least briefly seasonally. Upland vegetation grows on mounds interspersed with wetter areas.

VEGETATION - Use scientific names of plants. List all species in the plot.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum				
Total Cover:	<u>0.0</u>			
50% of total cover:	<u>0.0</u>	20% of total cover:	<u>0.0</u>	
Sapling/Shrub Stratum				
Total Cover:	<u>0.0</u>			
50% of total cover:	<u>0.0</u>	20% of total cover:	<u>0.0</u>	
Herb Stratum				
1.	<u>Urtica dioica</u>	<u>25.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>
2.	<u>Calamagrostis canadensis</u>	<u>20.0</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
3.	<u>Heracleum maximum</u>	<u>15.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>
4.	<u>Angelica genuflexa</u>	<u>5.0</u>	<input type="checkbox"/>	<u>FACW</u>
5.	<u>Dryopteris expansa</u>	<u>2.0</u>	<input type="checkbox"/>	<u>FACU</u>
6.	<u>Gymnocarpium dryopteris</u>	<u>1.0</u>	<input type="checkbox"/>	<u>FACU</u>
Total Cover:	<u>68.0</u>			
50% of total cover:	<u>34.0</u>	20% of total cover:	<u>13.6</u>	
Dominance Test worksheet:				
Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A)				
Total Number of Dominant Species Across all Strata: <u>3</u> (B)				
Percent of Dominant Species That are OBL, FACW, or FAC: <u>33.3%</u> (A/B)				
Prevalence Index worksheet:				
Total % Cover of: Multiply by:				
OBL Species	<u>0.0</u>	× 1 =	<u>0.0</u>	
FACW Species	<u>5.0</u>	× 2 =	<u>10.0</u>	
FAC Species	<u>20.0</u>	× 3 =	<u>60.0</u>	
FACU Species	<u>43.0</u>	× 4 =	<u>172.0</u>	
UPL Species	<u>0.0</u>	× 5 =	<u>0.0</u>	
Column Totals:	<u>68.0</u> (A)		<u>242.0</u> (B)	
Prevalence Index = B/A = <u>3.559</u>				
Hydrophytic Vegetation Indicators:				
<input type="checkbox"/> Dominance Test is > 50%				
<input type="checkbox"/> Prevalence Index is ≤ 3.0				
<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)				
<input checked="" type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators or hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Plot size (radius, or length × width) <u>10m radius</u>				
% Cover of Wetland Bryophytes (Where applicable) <u> </u>				
% Bare Ground <u> </u>				
Total Cover of Bryophytes <u>15.0</u>				
Hydrophytic Vegetation Present?				
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: Urtica dominated hummocks with unvegetated low points. Site is among a birch woodland but describing an herb dominated inclusion. Only the micro highs are vegetated and thus the vegetation is naturally problematic.				

SOIL

Sampling Point: boyd-rd-06

Depth (inches)	Matrix			Redox Features				Mod	Remarks
	Color (moist)	%	%	Color (moist)	Type ¹	Loc ²	Texture		
0-4	10yr	2/2	100	/	A		muck		
4-9	7.5yr	2.5/1	100	/	A		silty clay loam		
9-14	2.5y	3/1	100	/	A		silty clay loam		Alpha-alpha dipyritol confirms presence of reduced iron
14-20	Variegated	/	100	/	A		silty clay loam v. gravelly		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, A=Absent ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol or Histel (A1)	<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Alaska Color Change (TA4) ⁴
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Alaska Alpine Swales (TA5)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Alaska Redox With 2.5Y Hue
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Alaska Gleyed Without Hue 5Y or Redder
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Underlying Layer
<input type="checkbox"/> Alaska Gleyed (A13)	<input type="checkbox"/> Red Parent Material (F21)	<input checked="" type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Alaska Redox (A14)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Alaska Gleyed Pores (A15)		

³One indicator or hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
⁴Give details of color change in Remarks.

Restrictive Layer (if present): Type: None Depth (inches):	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: Positive alpha alpha from 9-12,

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one is sufficient)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rizospheres along Living Roots (C3)
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Salt Deposits (C5)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-neutral Test (D5)

Field Observations:	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches):	
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 9	
Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches):	
(includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 15	

Recorded Data (stream gauge, monitor well, aerial photo, previous inspection) if available:

Remarks: Site has pronounced hummocks with unvegetated lows. we are in a gently sloping drainage with steep sides 100' tall or more.

Sampling Point: boyd-rd-06
NWI classification: PEM1B



Hydric Soil Indicators: Other (explain in remarks)

Wetland Hydrology Indicators: High Water Table (A2), Microtopographic Relief (D4), Geomorphic Position (D2), Presence of Reduced Iron (C4)



WETLAND DETERMINATION DATA FORM - ALASKA REGION

Project/Site: Boyd Road Subdivision Wetland Delineation Borough/City: Matanuska-Susitna Borough Sampling Date: 2023-06-12
 Applicant/Owner: R&M Sampling Point: boyd-rd-07
 Investigator(s): RWM, NAF Landform (hillside, terrace, hummocks, etc.): Basin, Kettle
 Local relief (concave, convex, none): concave Slope: 0.0 % / 0.0 ° Elevation: 673
 Subregion: Alaska Lat.: 61.6694 Long.: -149.1961 Datum: WGS84
 Soil Map Unit Name: Histosols NWI classification: PEM1/SS1D
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			

Remarks: A pothole bog. It is a depression feature that is isolated with no outlet. The surrounding higher terrain is 50-100 ft high. Walked the outside edge to check for outlets.

VEGETATION - Use scientific names of plants. List all species in the plot.

<u>Tree Stratum</u>	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across all Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
Total Cover: <u>0.0</u> 50% of total cover: <u>0.0</u>				
<u>Sapling/Shrub Stratum</u>				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Species <u>15.2</u> × 1 = <u>15.2</u> FACW Species <u>23.0</u> × 2 = <u>46.0</u> FAC Species <u>19.0</u> × 3 = <u>57.0</u> FACU Species <u>0.0</u> × 4 = <u>0.0</u> UPL Species <u>0.0</u> × 5 = <u>0.0</u> Column Totals: <u>57.2</u> (A) <u>118.2</u> (B) Prevalence Index = B/A = <u>2.066</u>
1. <u>Betula nana</u> <u>15.0</u> <input checked="" type="checkbox"/> <u>FAC</u>				
2. <u>Andromeda polifolia</u> <u>8.0</u> <input checked="" type="checkbox"/> <u>FACW</u>				
3. <u>Vaccinium oxycoccus</u> <u>5.0</u> <input type="checkbox"/> <u>OBL</u>				
4. <u>Vaccinium uliginosum</u> <u>3.0</u> <input type="checkbox"/> <u>FAC</u>				
5. <u>Rhododendron groenlandicum</u> <u>1.0</u> <input type="checkbox"/> <u>FAC</u>				
6. <u>Salix fuscescens</u> <u>1.0</u> <input type="checkbox"/> <u>FACW</u>				
Total Cover: <u>33.0</u> 50% of total cover: <u>16.5</u> 20% of total cover: <u>6.6</u>				
<u>Herb Stratum</u>				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators or hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Carex aquatilis</u> <u>10.0</u> <input checked="" type="checkbox"/> <u>OBL</u>				
2. <u>Carex membranacea</u> <u>10.0</u> <input checked="" type="checkbox"/> <u>FACW</u>				
3. <u>Rubus chamaemorus</u> <u>4.0</u> <input type="checkbox"/> <u>FACW</u>				
4. <u>Comarum palustre</u> <u>0.1</u> <input type="checkbox"/> <u>OBL</u>				
5. <u>Drosera rotundifolia</u> <u>0.1</u> <input type="checkbox"/> <u>OBL</u>				
Total Cover: <u>24.2</u> 50% of total cover: <u>12.1</u> 20% of total cover: <u>4.8</u>				
Plot size (radius, or length × width) <u>10m radius</u>				
% Cover of Wetland Bryophytes (Where applicable) <u>70.0</u>				
% Bare Ground <u> </u>				
Total Cover of Bryophytes <u>70.0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks: A pothole bog. There are small mossy mounds dominated by sphagnums. No outlets observed after walking perimeter. The sedges are barely starting to develop inflorescences.

SOIL

Sampling Point: boyd-rd-07

Depth (inches)	Matrix			Redox Features				Mod	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		
0-4	7.5yr	2.5/3	100	/		A		peat	
4-7	7.5yr	3/3	100	/		A		peat	
7-16	7.5yr	2/2	100	/		A		mucky peat	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, A=Absent ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :	
<input checked="" type="checkbox"/> Histosol or Histel (A1)	<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Alaska Color Change (TA4) ⁴
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Alaska Alpine Swales (TA5)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Alaska Redox With 2.5Y Hue
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Alaska Gleyed Without Hue 5Y or Redder
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Underlying Layer
<input type="checkbox"/> Alaska Gleyed (A13)	<input type="checkbox"/> Red Parent Material (F21)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Alaska Redox (A14)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Alaska Gleyed Pores (A15)		

³One indicator or hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
⁴Give details of color change in Remarks.

Restrictive Layer (if present): Type: None Depth (inches):	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: histosol

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one is sufficient)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Salt Deposits (C5)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Microtopographic Relief (D4)
	<input checked="" type="checkbox"/> FAC-neutral Test (D5)

Field Observations:	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 1	
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 0	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 0	

Recorded Data (stream gauge, monitor well, aerial photo, previous inspection) if available:

Remarks: depressional bog.

Sampling Point: boyd-rd-07
NWI classification: PEM1/SS1D



Hydric Soil Indicators: Histic Epipedon (A2), Histosol or Histel (A1)

Wetland Hydrology Indicators: FAC-Neutral Test (D5), Saturation (A3), Surface Water (A1), High Water Table (A2), Geomorphic Position (D2)



WETLAND DETERMINATION DATA FORM - ALASKA REGION

Project/Site: Boyd Road Subdivision Wetland Delineation Borough/City: Matanuska-Susitna Borough Sampling Date: 2023-06-12
 Applicant/Owner: R&M Sampling Point: boyd-rd-10
 Investigator(s): RWM, NAF Landform (hillside, terrace, hummocks, etc.): Drainage
 Local relief (concave, convex, none): concave Slope: 1.7 % / 1.0 ° Elevation: 0.0
 Subregion: Alaska Lat.: 61.6711 Long.: -149.2018 Datum: WGS84
 Soil Map Unit Name: Knik Silt Loam NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Remarks: An upland site at upper limit of drainage feature splitting the SA. mature birch trees and younger White Spruce trees. No signs of impoundment on the uphill side of the road and no culverts installed. The entire drainage feature appears to be dry in the study area except a tiny feature at the furthest downslope portion that is adjacent to a beaver complex (out of the study area).

VEGETATION - Use scientific names of plants. List all species in the plot.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum					
1. <u>Betula neoalaskana</u>	<u>20.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>6</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>33.3%</u> (A/B)	
2. <u>Picea glauca</u>	<u>10.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>		
Total Cover: <u>30.0</u>					
50% of total cover: <u>15.0</u>		20% of total cover: <u>6.0</u>			
Sapling/Shrub Stratum					
1. <u>Ribes triste</u>	<u>15.0</u>	<input checked="" type="checkbox"/>	<u>FAC</u>		
2. <u>Rosa acicularis</u>	<u>5.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>		
3. <u>Linnaea borealis</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FACU</u>		
4. <u>Vaccinium vitis-idaea</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FAC</u>		
Total Cover: <u>20.2</u>					
50% of total cover: <u>10.1</u>		20% of total cover: <u>4.0</u>			
Herb Stratum					
1. <u>Gymnocarpium dryopteris</u>	<u>15.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>		
2. <u>Calamagrostis canadensis</u>	<u>6.0</u>	<input checked="" type="checkbox"/>	<u>FAC</u>		
3. <u>Sorbus scopulina</u>	<u>3.0</u>	<input type="checkbox"/>	<u>FACU</u>		
4. <u>Sanguisorba canadensis</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FACW</u>		
5. <u>Cornus suecica</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FAC</u>		
6. <u>Pyrola asarifolia</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FACU</u>		
Total Cover: <u>24.3</u>					
50% of total cover: <u>12.2</u>		20% of total cover: <u>4.9</u>			
Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Species <u>0.0</u> × 1 = <u>0.0</u> FACW Species <u>0.1</u> × 2 = <u>0.2</u> FAC Species <u>21.2</u> × 3 = <u>63.6</u> FACU Species <u>53.2</u> × 4 = <u>212.8</u> UPL Species <u>0.0</u> × 5 = <u>0.0</u> Column Totals: <u>74.5</u> (A) <u>276.6</u> (B) Prevalence Index = B/A = <u>3.713</u>					
Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators or hydric soil and wetland hydrology must be present, unless disturbed or problematic.					
Plot size (radius, or length × width) <u>10m radius</u> % Cover of Wetland Bryophytes (Where applicable) <u>0.0</u> % Bare Ground <u> </u> Total Cover of Bryophytes <u>15.0</u>					
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>					

Remarks:

SOIL

Sampling Point: boyd-rd-10

Depth (inches)	Matrix			Redox Features				Mod	Remarks
	Color (moist)	%	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10yr	2/2	100	/		A		fibric	
2-5	10yr	2/2	100	/		A		hemic	
5-9	7.5yr	3/2	100	/		A		silt loam	
9-16	7.5yr	4/3	100	/		A		silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, A=Absent ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol or Histel (A1)	<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Alaska Color Change (TA4) ⁴
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Alaska Alpine Swales (TA5)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Alaska Redox With 2.5Y Hue
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Alaska Gleyed Without Hue 5Y or Redder
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Underlying Layer
<input type="checkbox"/> Alaska Gleyed (A13)	<input type="checkbox"/> Red Parent Material (F21)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Alaska Redox (A14)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Alaska Gleyed Pores (A15)		

³One indicator or hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
⁴Give details of color change in Remarks.

Restrictive Layer (if present): Type: None Depth (inches):	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks: thin organics on sil

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one is sufficient)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rizospheres along Living Roots (C3)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Salt Deposits (C5)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-neutral Test (D5)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches):	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches):	
Saturation Present?	
(includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches):	

Recorded Data (stream gauge, monitor well, aerial photo, previous inspection) if available:

Remarks: A dry drainage feature. No culvert just upslope at road in what appears to be a topographic drainage feature, but no signs of flooding or impoundment.

Sampling Point: boyd-rd-10
NWI classification: U



Hydric Soil Indicators: None
Wetland Hydrology Indicators: None



WETLAND DETERMINATION DATA FORM - ALASKA REGION

Project/Site: Boyd Road Subdivision Wetland Delineation Borough/City: Matanuska-Susitna Borough Sampling Date: 2023-06-12
 Applicant/Owner: R&M Sampling Point: boyd-rd-11
 Investigator(s): NAF, RWM Landform (hillside, terrace, hummocks, etc.): Crest
 Local relief (concave, convex, none): convex Slope: 7.0 % / 4.0 ° Elevation: 0.0
 Subregion: Alaska Lat.: 61.6712 Long.: -149.2027 Datum: WGS84
 Soil Map Unit Name: Knik Silt Loam NWI classification: U
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Remarks: An upland site on a ridge, representative of the higher locations in the study area.

VEGETATION - Use scientific names of plants. List all species in the plot.

	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
Tree Stratum				Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A)	
1. <u>Betula neoalaskana</u>	<u>20.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Total Number of Dominant Species Across all Strata: <u>6</u> (B)	
2. <u>Populus tremuloides</u>	<u>7.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Percent of Dominant Species That are OBL, FACW, or FAC: <u>33.3%</u> (A/B)	
3. <u>Picea glauca</u>	<u>6.0</u>	<input type="checkbox"/>	<u>FACU</u>		
Total Cover: <u>33.0</u>	50% of total cover: <u>16.5</u>	20% of total cover: <u>6.6</u>			
Sapling/Shrub Stratum				Prevalence Index worksheet:	
1. <u>Ribes triste</u>	<u>10.0</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Total % Cover of: Multiply by:	
2. <u>Rosa acicularis</u>	<u>5.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	OBL Species <u>0.0</u> × 1 = <u>0.0</u>	
3. <u>Salix bebbiana</u>	<u>3.0</u>	<input type="checkbox"/>	<u>FAC</u>	FACW Species <u>0.0</u> × 2 = <u>0.0</u>	
4. <u>Vaccinium vitis-idaea</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FAC</u>	FAC Species <u>23.1</u> × 3 = <u>69.3</u>	
Total Cover: <u>18.1</u>	50% of total cover: <u>9.0</u>	20% of total cover: <u>3.6</u>		FACU Species <u>47.2</u> × 4 = <u>188.8</u>	
Herb Stratum				UPL Species <u>0.0</u> × 5 = <u>0.0</u>	
1. <u>Cornus suecica</u>	<u>10.0</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Column Totals: <u>70.3</u> (A) <u>258.1</u> (B)	
2. <u>Gymnocarpium dryopteris</u>	<u>8.0</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Prevalence Index = B/A = <u>3.671</u>	
3. <u>Geranium erianthum</u>	<u>1.0</u>	<input type="checkbox"/>	<u>FACU</u>		
4. <u>Chamaenerion angustifolium</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FACU</u>		
5. <u>Pyrola asarifolia</u>	<u>0.1</u>	<input type="checkbox"/>	<u>FACU</u>		
Total Cover: <u>19.2</u>	50% of total cover: <u>9.6</u>	20% of total cover: <u>3.8</u>		Hydrophytic Vegetation Indicators:	
				<input type="checkbox"/> Dominance Test is > 50%	
				<input type="checkbox"/> Prevalence Index is ≤ 3.0	
				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
				¹ Indicators or hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				Plot size (radius, or length × width) <u>10m radius</u>	
				% Cover of Wetland Bryophytes (Where applicable) <u> </u>	
				% Bare Ground <u> </u>	
				Total Cover of Bryophytes <u>3.0</u>	
				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks:

SOIL

Sampling Point: boyd-rd-11

Depth (inches)	Matrix			Redox Features				Texture	Mod	Remarks
	Color (moist)	%	%	Color (moist)	%	Type ¹	Loc ²			
0-5	10yr 2/2	100	/		A			hemic		
5-9	7.5yr 2.5/2	100	/		A			silt loam		
9-16	7.5yr 4/6	100	/		A			silt loam		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, A=Absent ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Alaska Color Change (TA4)⁴
- Alaska Alpine Swales (TA5)
- Alaska Redox With 2.5Y Hue
- Alaska Gleyed Without Hue 5Y or Redder
- Underlying Layer
- Other (Explain in Remarks)

³One indicator or hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
⁴Give details of color change in Remarks.

Restrictive Layer (if present):

Type: None
Depth (inches):

Hydric Soil Present? Yes No

Remarks: dry silty soil with lots of coarse fragments

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxidized Rizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-neutral Test (D5)

Field Observations:

- Surface Water Present? Yes No Depth (inches):
- Water Table Present? Yes No Depth (inches):
- Saturation Present?
(includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Recorded Data (stream gauge, monitor well, aerial photo, previous inspection) if available:

Remarks: Crest of small ridge. No hydrology indicators

Sampling Point: boyd-rd-11
NWI classification: U



Hydric Soil Indicators: None
Wetland Hydrology Indicators: None



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Appendix B. Map Verification Plots

Sampling Point: boyd-rd-02
Site: Boyd Road Subdivision Wetland Delineation
Date: 2023-06-12
NWI classification: U
Viereck code: Paper Birch Woodland

Species: *Betula nealaskana*, *Rosa acicularis*, *Oplopanax horridus*, *Linnaea borealis*, *Ribes triste*, *Sorbus aucuparia*, *Gymnocarpium dryopteris*, *Calamagrostis canadensis*, *Geranium erianthum*, *Streptopus amplexifolius*, *Galium boreale*, *Actaea rubra*, *Viola epipsila*

Notes: Steep sided (approximately 30-ft deep) enclosed kettle with well drained substrate. Vegetation is an open birch forest with . There is totally different vegetation in kettle possibly due to finer substrate that has been separated out?



Sampling Point: boyd-rd-05
Site: Boyd Road Subdivision Wetland Delineation
Date: 2023-06-12
NWI classification: U
Viereck code: Bluejoint-Herb

Species: *Oplopanax horridus*, *Heracleum maximum*, *Calamagrostis canadensis*, *Urtica dioica*, *Equisetum arvense*, *Mertensia paniculata*, *Actaea rubra*

Notes: Shallow kettle depression with upland vegetation at the base and no signs of wetland hydrology.



Sampling Point: boyd-rd-08
Site: Boyd Road Subdivision Wetland Delineation
Date: 2023-06-12
NWI classification: U
Viereck code: Paper Birch Woodland

Species: *Betula neoalaskana*, *Rosa acicularis*, *Rubus idaeus*, *Equisetum arvense*, *Heracleum maximum*, *Dryopteris expansa*, *Geranium erianthum*, *Actaea rubra*, *Mertensia paniculata*, *Thalictrum alpinum*, *Cornus suecica*

Notes: Shallow kettle depression with upland vegetation at the base.



Sampling Point: boyd-rd-09
Site: Boyd Road Subdivision Wetland Delineation
Date: 2023-06-12
NWI classification: U
Viereck code: Balsam Poplar Woodland

Species: *Betula neoalaskana*, *Populus balsamifera*, *Picea glauca*, *Ribes triste*, *Rosa sp.*, *Oplopanax horridus*, *Gymnocarpium dryopteris*, *Calamagrostis canadensis*, *Geranium erianthum*, *Heracleum maximum*, *Dryopteris expansa*, *Cornus suecica*, *Streptopus amplexifolius*, *Chamaenerion angustifolium*

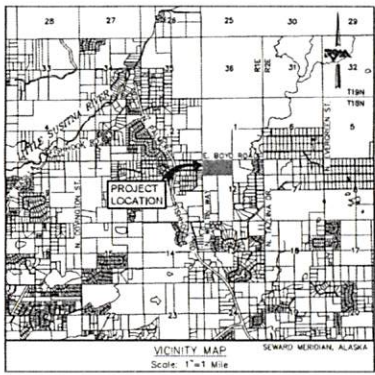
Notes: Undulating terrain supporting paper birch woodland with a shrub/herb understory.



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CIVIL SHEETS



Sheet List Table	
Sheet Number	Sheet Title
01	COVER SHEET
02	KEY NOTES & LEGEND
03	DRAINAGE PLAN
04	KEY MAP
05	P&P - COMET CIRCLE 0+00 TO END
06	P&P - SUNRISE DRIVE 0+00 TO 9+00
07	P&P - SUNRISE DRIVE 9+00 TO 18+00
08	P&P - SUNRISE DRIVE 18+00 TO END
09	P&P - NOVA CIRCLE 0+00 TO END
10	P&P - SOLSTICE CIRCLE 0+00 TO END
11	P&P - N. WELTIN WAY 0+00 TO 8+00
12	P&P - N. WELTIN WAY 8+00 TO 12+00
13	P&P - ECLIPSE CIRCLE 0+00 TO END
14	CIVIL DETAILS

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STAKING	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	CONSTRUCTION RECORD					VERTICAL DATUM	PLAN CHECK	REVISIONS	CONSULTANT	SEAL	SCALE:		
ASBUILT	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	CONTRACTOR					BASIS OF THIS DATUM: NAVD 88							
CONTRACTOR	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	INSPECTOR					WATER	MUN. FINAL CHK.						
INSPECTOR	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	RECORD					GAS							

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ABBREVIATIONS:

AC	ASPHALT CONCRETE
CL	CENTERLINE
DIA	DIAMETER
DTL	DETAIL
E	EAST / EASTING
EA	EACH
EL	ELEVATION / EASEMENT LINE
EOP	END OF PROJECT
ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EST.	ESTIMATED
EX	EXISTING
FG	FINISHED GRADE
F&I	FURNISH & INSTALL
I&W	IN ACCORDANCE WITH
LF	LINEAR FOOT
LT	LEFT
MAX	MAXIMUM
ME	MATCH EXISTING
MIN	MINIMUM
MON	MONUMENT
N	NORTH / NORTHING
N/A	NOT APPLICABLE
NFS	NON FROST SUSCEPTIBLE
NTS	NOT TO SCALE
O.D.	OUTSIDE DIAMETER
R&M	R&M CONSULTANTS, INC.
RP	RADIUS POINT
RT	RIGHT
R/W	RIGHT-OF-WAY
S	SOUTH / SLOPE
ST	STREET
TOA	TOP OF ASPHALT
TYP	TYPICAL
W	WEST

GENERAL NOTES:

OVERVIEW:

1. THE CONTRACTOR SHALL CHECK ALL SURVEY CONTROL, GRADES, INVERTS, STATIONING AND ALIGNMENTS PRIOR TO CONSTRUCTION AND ADVISE OF ANY DISCREPANCIES BETWEEN THE CONTRACT SURVEY AND THE DESIGN DRAWINGS.
2. CONTRACTOR SHALL MAINTAIN "REDLINE" RECORD DRAWINGS ON A CLEAN SET OF CONSTRUCTION DRAWINGS. CONTRACTOR SHALL MAINTAIN "REDLINES" CURRENT ON A DAILY BASIS AND SHALL MAKE AVAILABLE TO THE ENGINEER FOR INSPECTION ON THE JOBSITE. CONTRACTOR SHALL RECORD SURVEY NOTES FOR SUBMITTAL WITH AS-BUILT PLANS, INCLUDING HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED IN THE FIELD. CONTRACTOR SHALL RECORD ALL DEVIATIONS FROM THE PLANS.
3. THE CONTRACTOR SHALL SUBMIT A WORK PLAN IN WRITING TO THE OWNERS REPRESENTATIVE NOT LESS THAN TEN (10) DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS, OR WHEREVER THE CONTRACTOR PROPOSES TO CHANGE CONSTRUCTION METHODS. THE WORK PLAN SHALL CONTAIN INFORMATION ON SAFEGUARDS AND PROTECTION AROUND AND IN THE VICINITY OF ALL EXCAVATIONS AS MAY BE NECESSARY TO PREVENT DAMAGE TO PROPERTY, INCLUDING (BUT NOT LIMITED TO): SHORING; PLACEMENT OF FILL; STOCKPILE AND DISPOSAL OF EXCAVATION MATERIALS; IMPORT/EXPORT SCHEDULE AND PLAN (INCLUDING TRAFFIC CONTROL); ETC. THE WORK PLAN IS FOR CONSTRUCTION PURPOSES AND ITS SUBMITTAL TO AND REVIEW BY THE ENGINEER SHALL NOT ABSOLVE THE CONTRACTOR OF RESPONSIBILITY OF FEDERAL, STATE, AND LOCAL REGULATIONS.
4. SEE GEOTECHNICAL INVESTIGATION REPORT, DATED SEPTEMBER 2023, FOR SITE AND SOIL CONDITIONS AND BOREHOLE LOG INFORMATION.
5. ORGANIC MATERIAL SHALL BE REMOVED FROM THE SUBGRADE PER NOTE 2 SHEET 14.
6. ORGANIC AND UNCLASSIFIED MATERIAL EXCAVATION SUITABLE FOR TOPSOIL THAT MEETS THE PROJECT SPECIFICATIONS MAY BE STOCKPILED IN LOCATIONS APPROVED BY THE ENGINEER AND USED AS TOPSOIL.
7. THE CONTRACTOR SHALL COORDINATE ALL NECESSARY PERMITS THAT ARE NOT PROVIDED IN THE BID DOCUMENTS PRIOR TO BEGINNING CONSTRUCTION.
8. THE CONTRACTOR IS RESPONSIBLE FOR SEDIMENT AND EROSION CONTROL. BEST MANAGEMENT PRACTICES (BMPs) MUST BE IN PLACE TO MINIMIZE EROSION AND MITIGATE POTENTIAL SEDIMENT AND OTHER POLLUTANTS SUSPENDED IN STORMWATER FROM EXITING THE SITE. BMPs MUST BE MAINTAINED AND INSPECTED REGULARLY AND REPLACED AS NEEDED. PLEASE CONSULT THE ALASKA CONSTRUCTION GENERAL PERMIT (2021 CGP, AKR100000) FOR GUIDANCE.
9. ALL DAMAGE TO THE PROPERTY THAT IS CAUSED BY OR THAT RESULTS FROM CARRYING OUT OF THE WORK, OR FROM ANY ACT, OMISSION, OR NEGLIGENCE OF THE CONTRACTOR, HIS SUBCONTRACTORS, OR HIS EMPLOYEES, SHALL PROMPTLY BE REMEDIED BY THE CONTRACTOR EITHER BY REPAIRING, REBUILDING, OR REPLACING OF THE PROPERTY DAMAGED OR IN SOME OTHER MANNER SATISFACTORY TO THE OWNER.

CLEANUP AND TOPSOIL:

1. WORK AND MATERIALS REQUIRED FOR REMOVING LITTER OR DEBRIS THAT EXISTS WITHIN THE PROJECT LIMITS IS INCIDENTAL TO THE BID ITEM "CLEARING AND GRUBBING" (INCIDENTAL TO THE PROJECT), AND NO SEPARATE PAYMENT SHALL BE MADE.
2. CONTRACTOR SHALL RESTORE DISTURBED PROPERTY TO PRECONSTRUCTION CONDITION(S), UNLESS OTHERWISE DIRECTED BY THE ENGINEER. PAYMENT FOR RESTORING DISTURBED PROPERTY IS INCIDENTAL TO THE CONTRACT AND NO SEPARATE PAYMENT SHALL BE MADE, UNLESS SPECIFIC BID ITEMS ARE PROVIDED.
3. TOPSOIL AND SEED ALL DISTURBED AREAS NOT OTHERWISE IMPROVED UNDER THIS CONTRACT.

LEGEND

PLAN

---	EXISTING	---	PROPOSED	---	EASEMENT LINE
---	EXISTING	---	PROPOSED	---	PROPERTY LINE/ROW
---	EXISTING	---	PROPOSED	---	VEGETATION
---	EXISTING	---	PROPOSED	---	SLOPE LIMITS
---	EXISTING	---	PROPOSED	---	OVERHEAD UTILITY
---	EXISTING	---	PROPOSED	---	GAS
---	EXISTING	---	PROPOSED	---	MAJOR CONTOUR
---	EXISTING	---	PROPOSED	---	MINOR CONTOUR
---	EXISTING	---	PROPOSED	---	PAVEMENT



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ANCHORAGE AREA 278-3121
STATEWIDE 800-478-3121

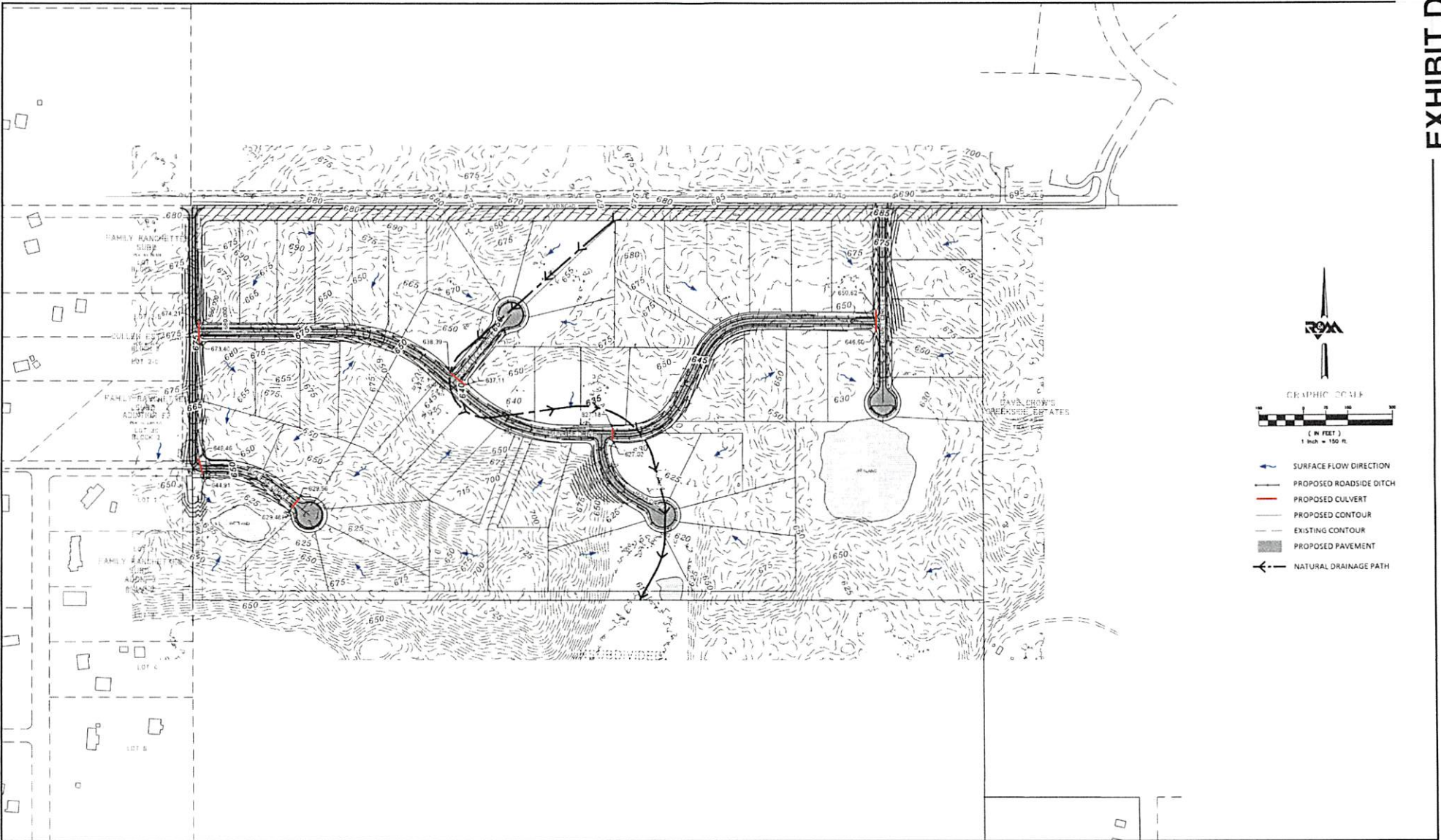
WHO WILL NOTIFY THE FOLLOWING:
ALASKA COMMUNICATIONS SYSTEMS - ALASKA DOT/ANCHORAGE STREET LIGHTS
ANCHORAGE DEPARTMENT OF PUBLIC WORKS - ANCHORAGE SCHOOL DISTRICT
ANCHORAGE WATER AND WASTEWATER UTILITY - AT&T ALASKOM
CHUGACH ELECTRIC ASSOCIATION - ENSTAR NATURAL GAS COMPANY
MUNICIPAL LIGHT & POWER DEPARTMENT - GC!

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STAKING				PROFILE			SANITARY SEMI				CABLE TV	
ASBUILT				STORM SEWER			DESIGN				QUANTITIES	
CONTRACTOR				WATER			PLAN CHECK				W&K FINAL CHK	
INSPECTOR				GAS								

G&M
Engineering, Inc.
9101 Vanguard Drive
Anchorage, Alaska 99507
Phone: 907.552.1000 Fax: 907.552.9988

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NOTES, LEGEND AND ABBREVIATIONS	
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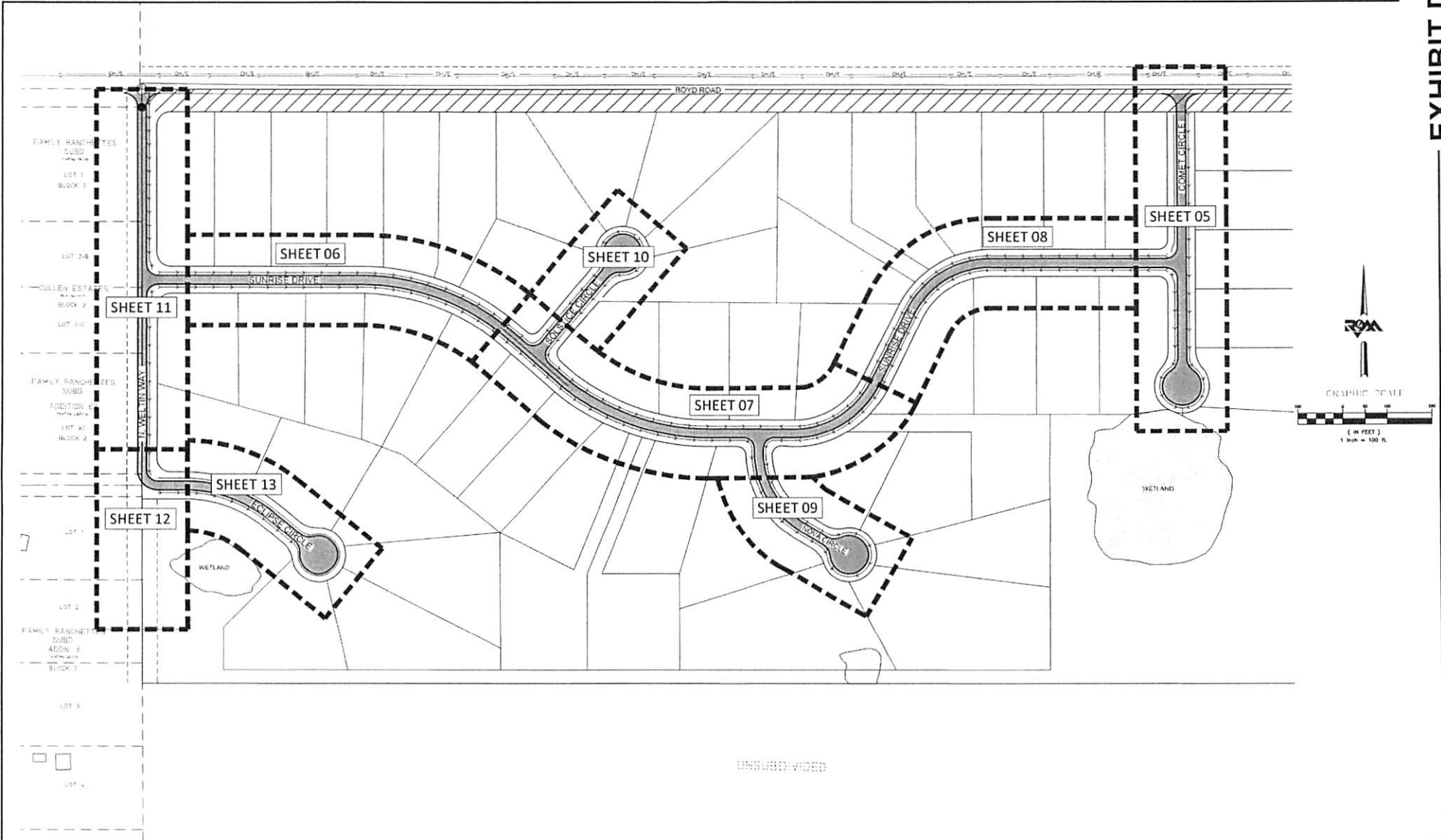
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CONTRACTOR				STORM SEWER	CR			CR				
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		VERTICAL DATUM					PLAN CHECK				REVISIONS	

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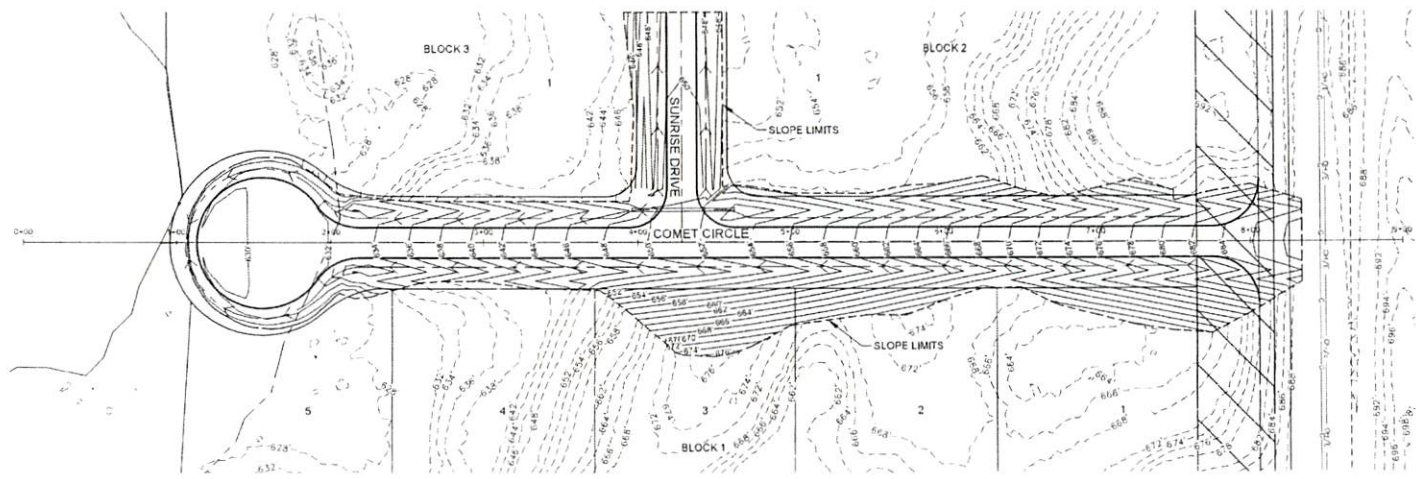
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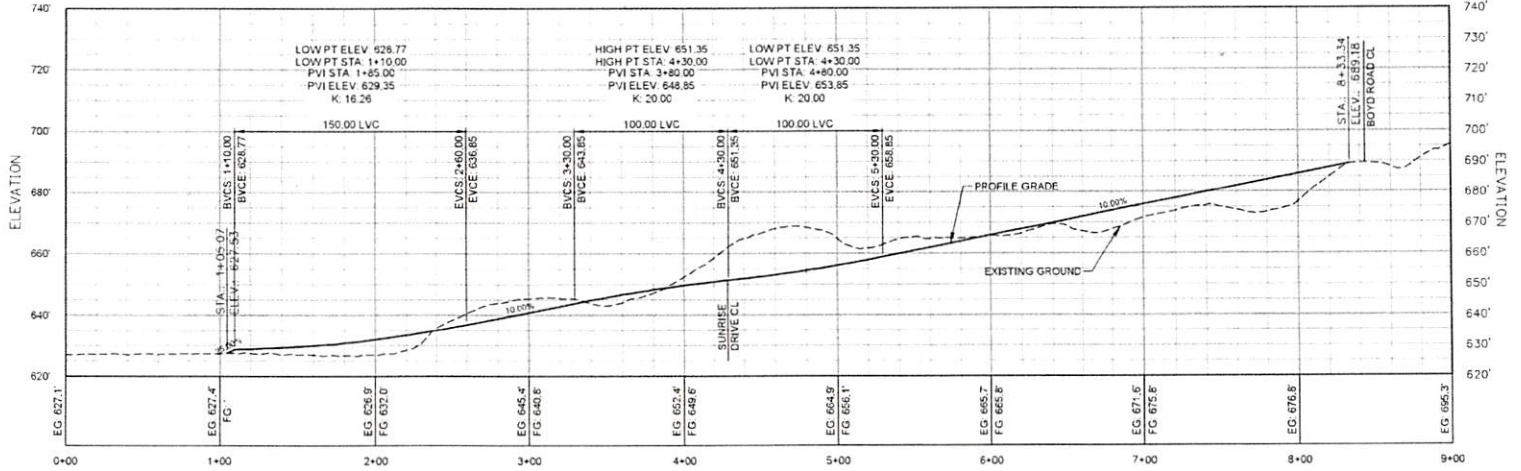
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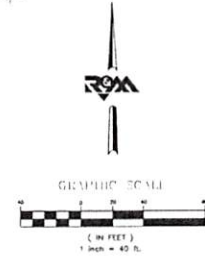
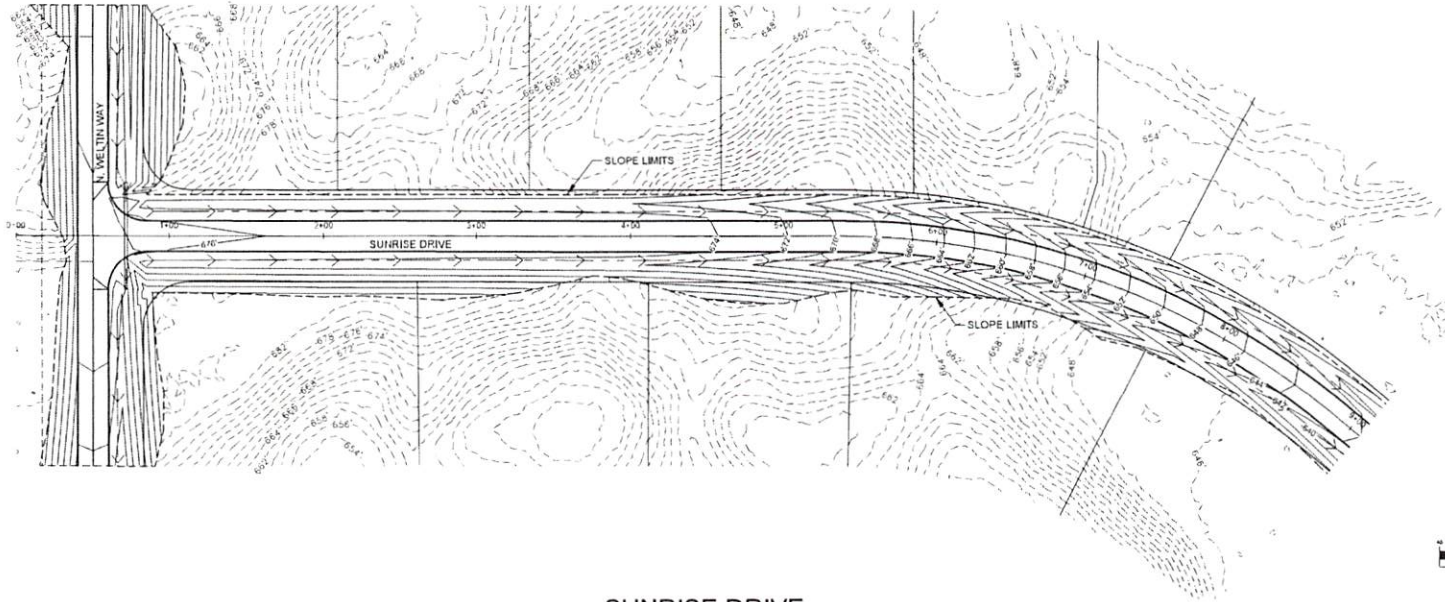
ALASKA CONSULTANTS, INC.
9103 Vanguard Drive
Anchorage, Alaska 99507
PHONE: 907.552.1200 FAX: 907.552.1405

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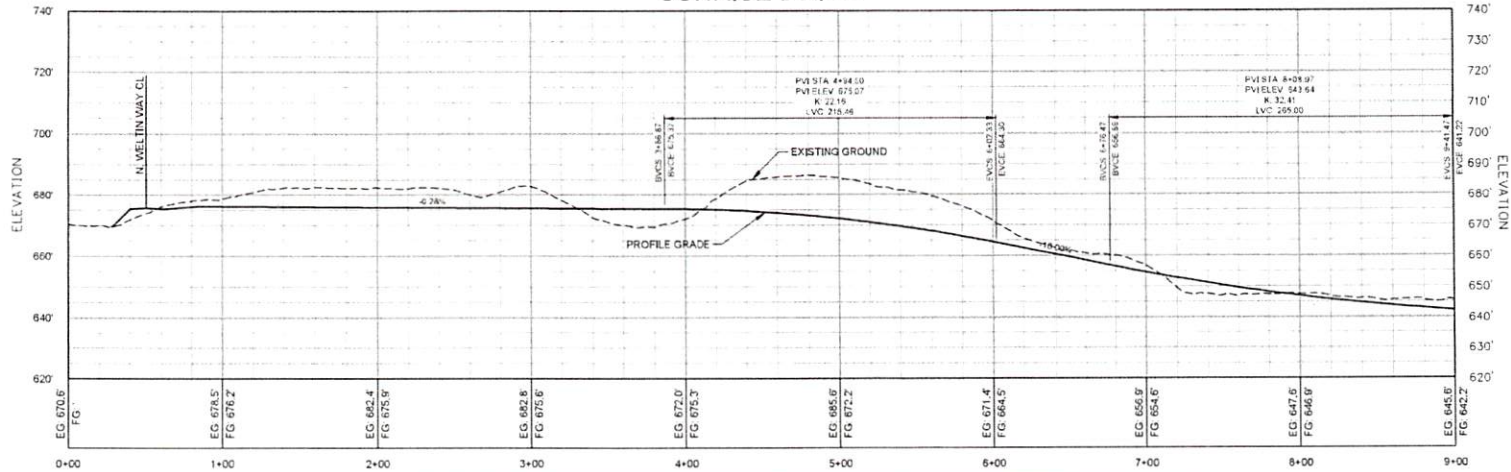
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SUNRISE DRIVE



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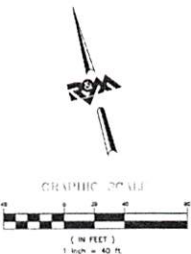
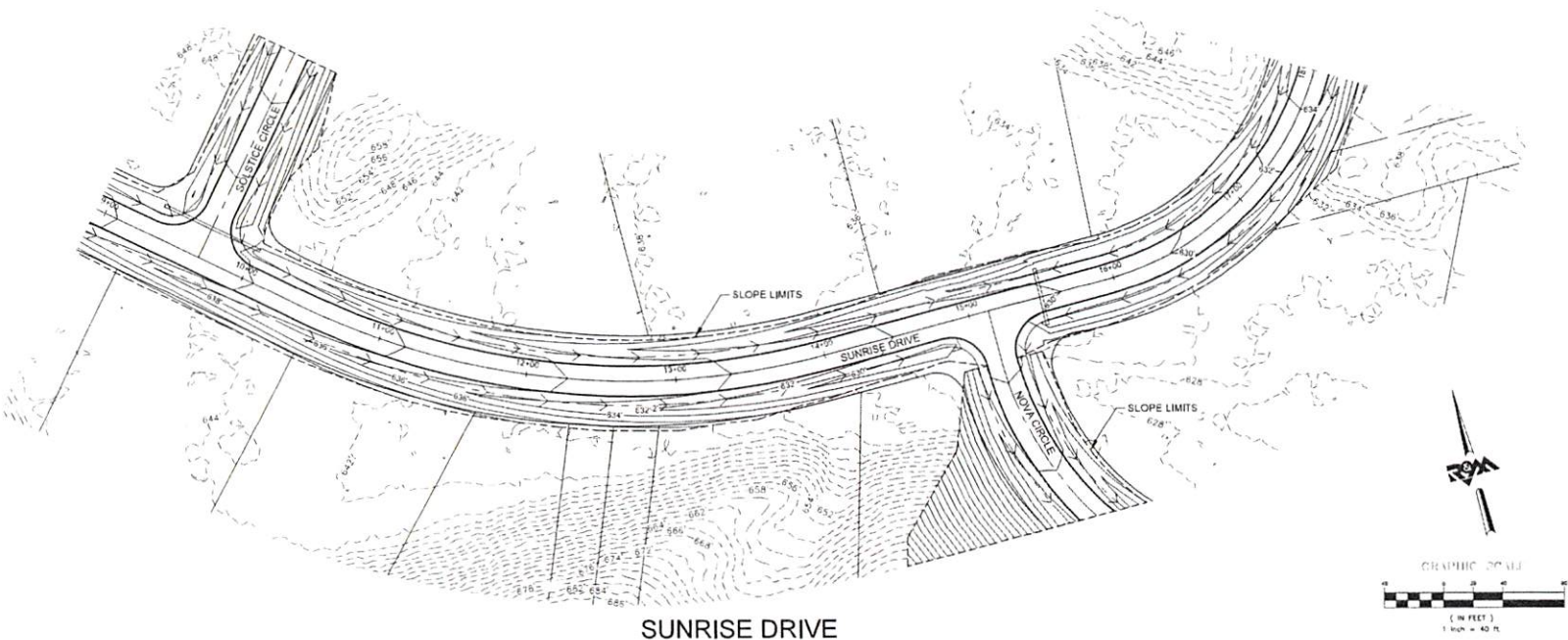
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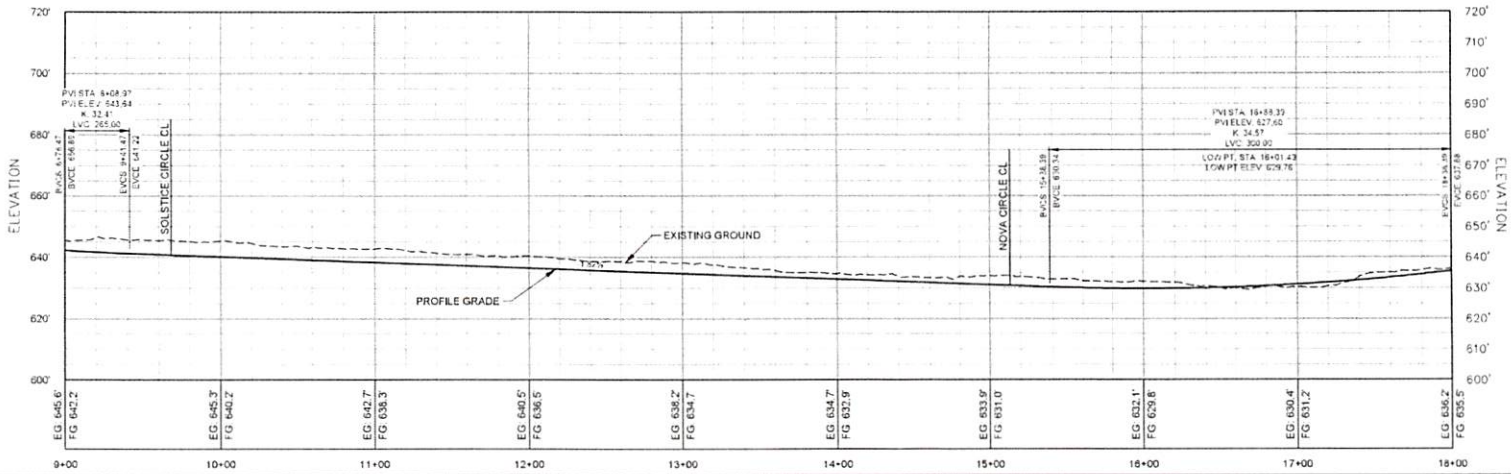
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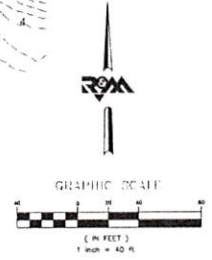
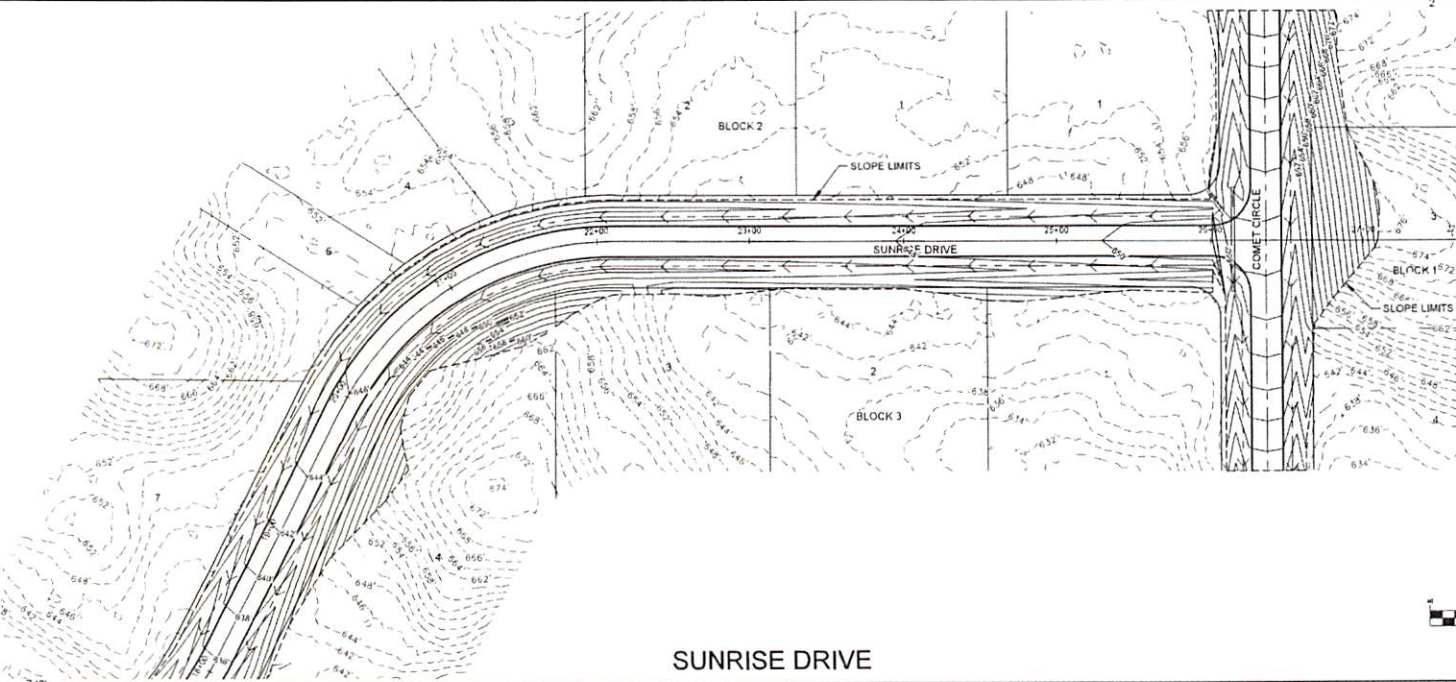
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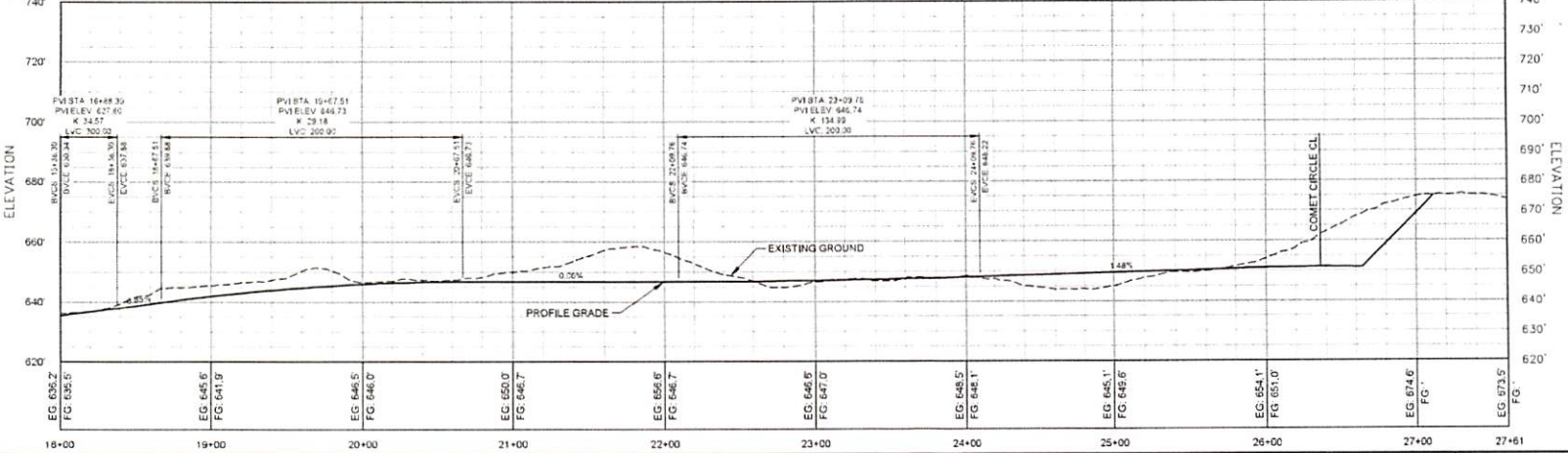
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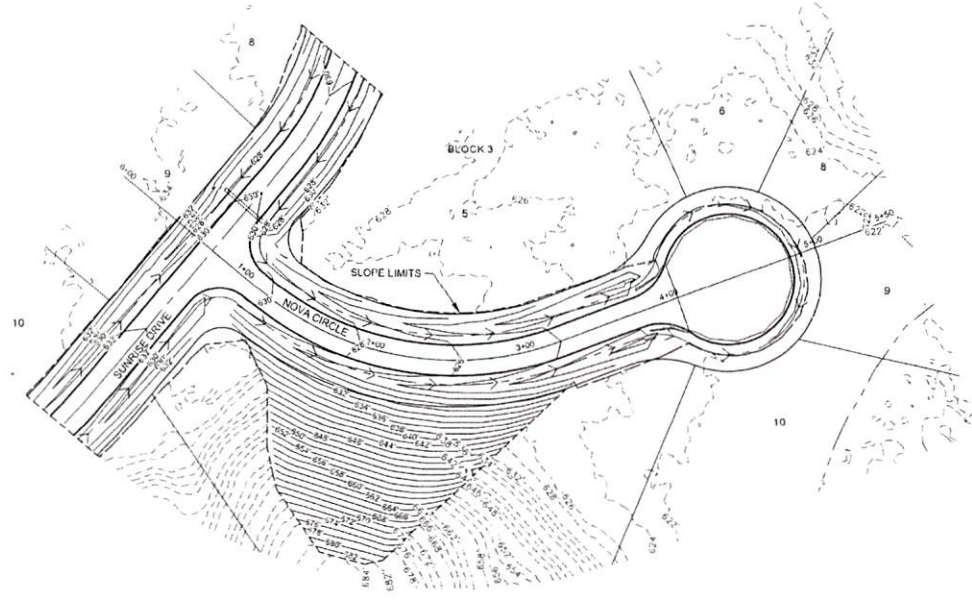
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Anchorage, Alaska 99507
Phone: 907.553.1501 Fax: 907.553.1605

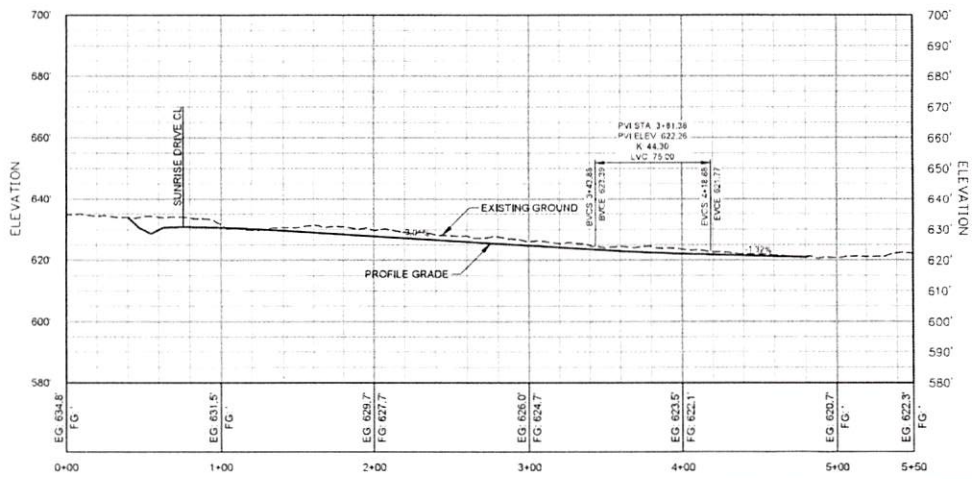
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NOVA CIRCLE

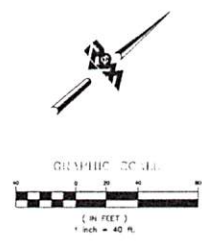
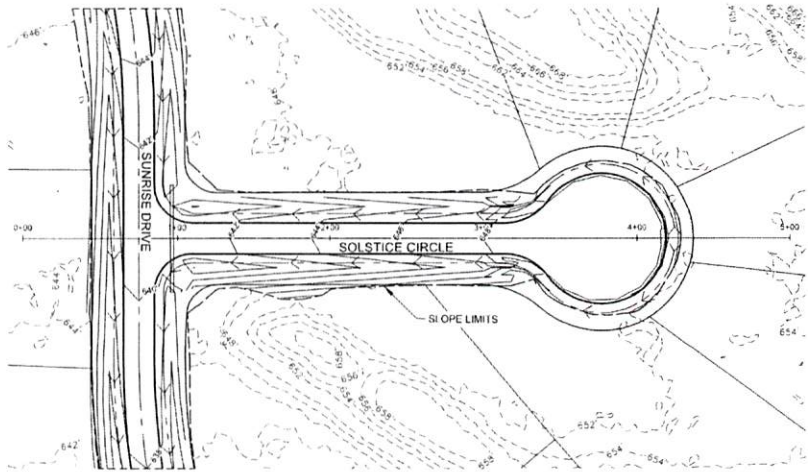


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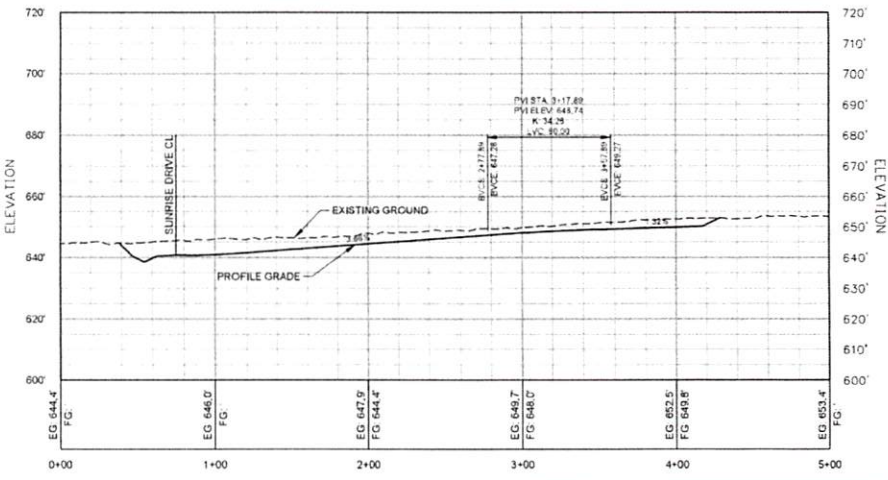
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SOLSTICE CIRCLE



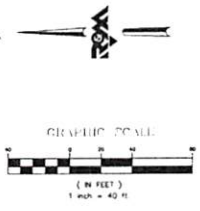
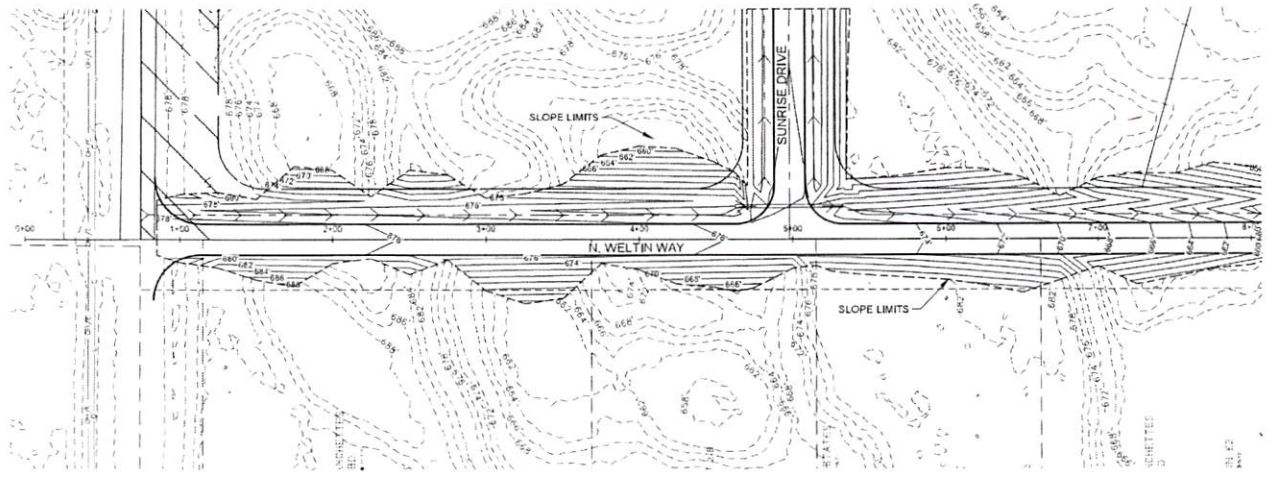
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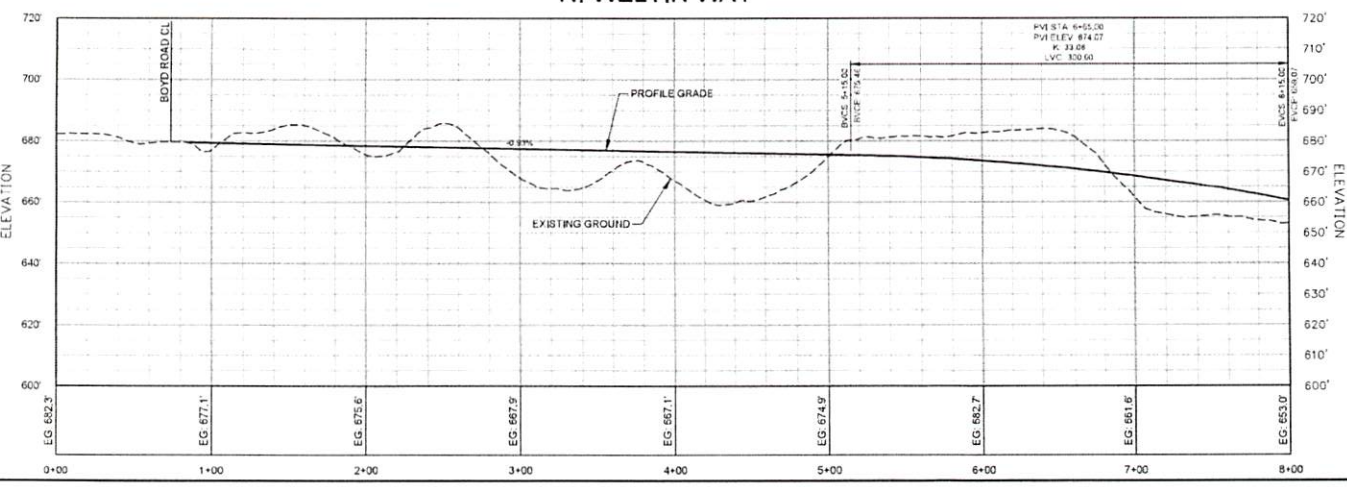
9101 Vanguard Drive
Anchorage, Alaska 99507
Phone: 907.553.7887 Fax: 907.553.0868

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N. WELTIN WAY



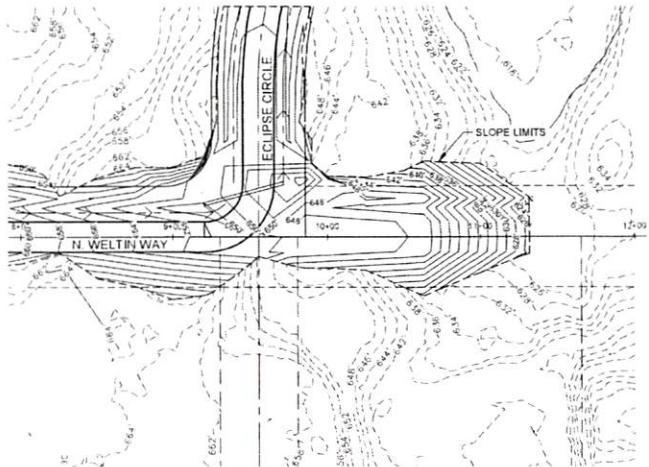
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DRAWN				TOPOGRAPHY										
STAKING				PROFILE										
ASBUILT				SANITARY SEWER										
CONTRACTOR				WATER										
INSPECTOR				GAS										
CONSTRUCTION RECORD														

G&M Engineering, Inc.
9101 Vanguard Drive
Anchorage, Alaska 99507
phone 907.552.5900 • fax 907.552.9000

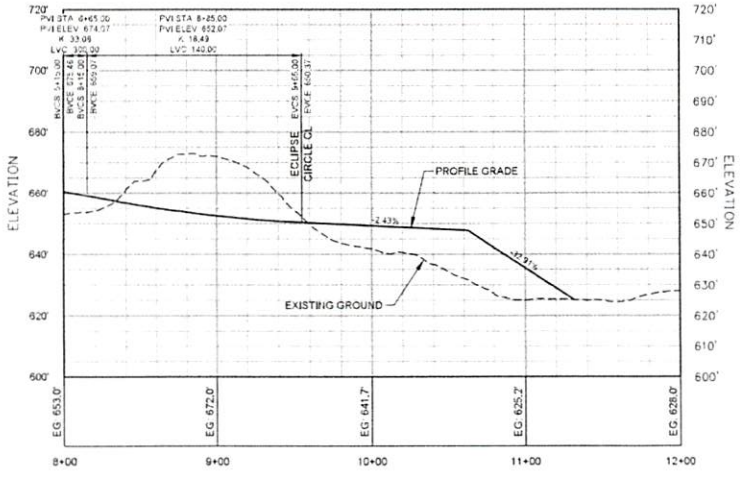
SEAL

CELESTIAL HEIGHTS SUBDIVISION		
P&P - N. WELTIN WAY 0+00 TO 8+00		
SCALE:	DATE: 4/12/24	SHEET 11 of 14

Plotted: 4/12/2024 9:45 AM



N. WELTIN WAY

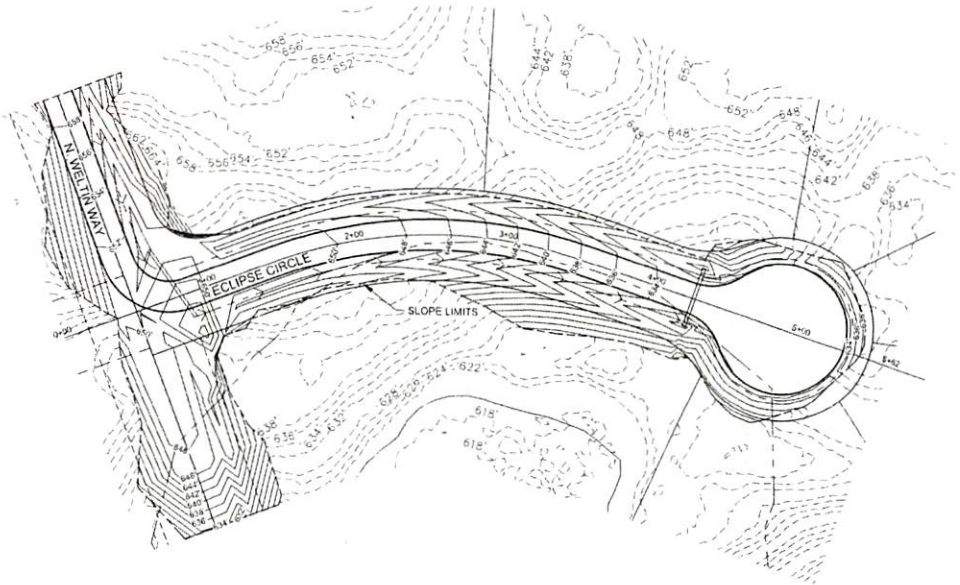


Printed: 4/12/2024 8:45 AM File Location: Z:\project\3125.02 ADHE\TLD Professional Services Term 2023 Boyd Road Substation Documents\01\ACAD\3125.02 P&P N. WELTIN WAY.dwg

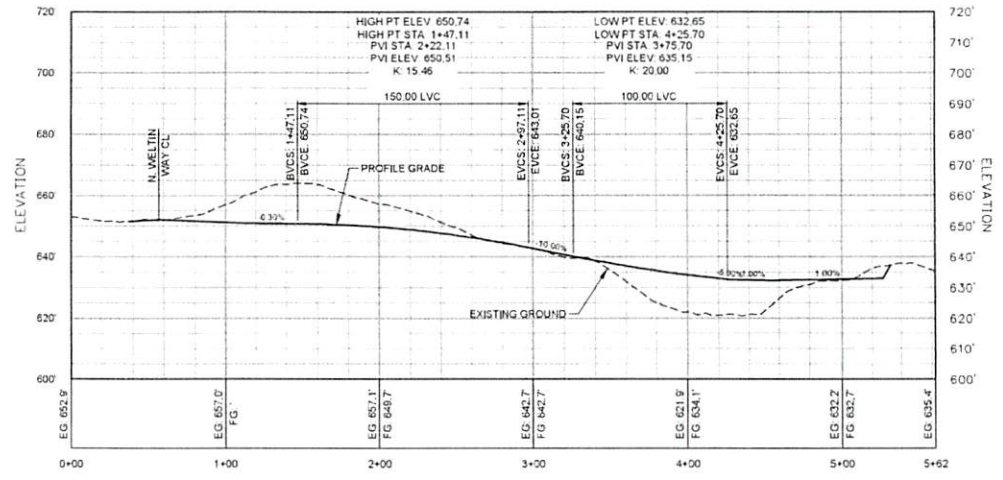
FIELD BOOKS	BM NO	LOCATION	ELEV.	DATA	DATE	BY	REVISIONS	DATE	DESCRIPTION	BY	REVISIONS	DATE	DESCRIPTION	BY
DESIGN				BASE										
DRAWN				TOPOGRAPHY										
STAKING				PROFILE										
ASBUILT				SANITARY SEWER										
CONTRACTOR				STONE SEWER										
INSPECTOR				WATER										
CONSTRUCTION RECORD				GAS										

CELESTIAL HEIGHTS SUBDIVISION
9101 Vanguard Drive
Anchorage, Alaska 99507
907.562.2222

CELESTIAL HEIGHTS SUBDIVISION	
P&P - N. WELTIN WAY 8+00 TO 12+00	
SCALE:	DATE 4/12/24 ACCT. NO. GRID: SHEET 12 of 14



ECLIPSE CIRCLE



File Location: Z:\project\13125.02_KOH..._ILO Professional Services Term 2023 Broyd Road Subdivision Documents\Civil\ACAD\13125.02_P&P\ECLIPSE CIRCLE.dwg

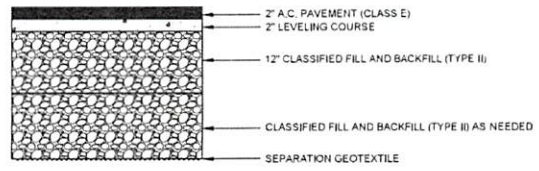
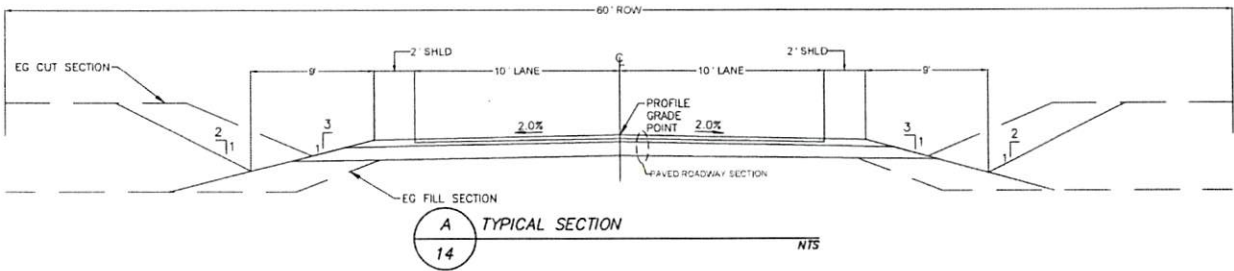
FIELD BOOKS	BM NO	LOCATION	ELEV.	DATA	DATE	BY	REV	DATE	DESCRIPTION	BY	REV	DATE	DESCRIPTION	BY
DESIGN				BASE					ELECTRIC					
DRGN				TOPOGRAPHY					CABLE TV					
STAKING				PROFILE					DESIGN					
ASBUILT				SANITARY SEWER					QUANTITIES					
CONTRACTOR				WATER					MUL FINAL CHK					
INSPECTOR				GAS										
CONSTRUCTION RECORD		VERTICAL DATUM		PLAN CHECK					REVISIONS					

GMA
ENGINEERING, INC.
9101 Vanguard Drive
Anchorage, Alaska 99507
Phone: 907.552.1987 Fax: 907.552.1988

SEAL

CELESTIAL HEIGHTS SUBDIVISION	
P&P - ECLIPSE CIRCLE 0+00 TO END	
SCALE:	DATE: 4/12/24 (GRD) ACCT. NO. SHEET 13 of 14

File Location: Z:\project\3125.02_ADR\14 D Professional Services Term 2023 Byrd Road Subdivision Documents\Civil\ACAD\3125.02 CIVL DETAILS.dwg
Printed: 4/12/24 9:45 AM



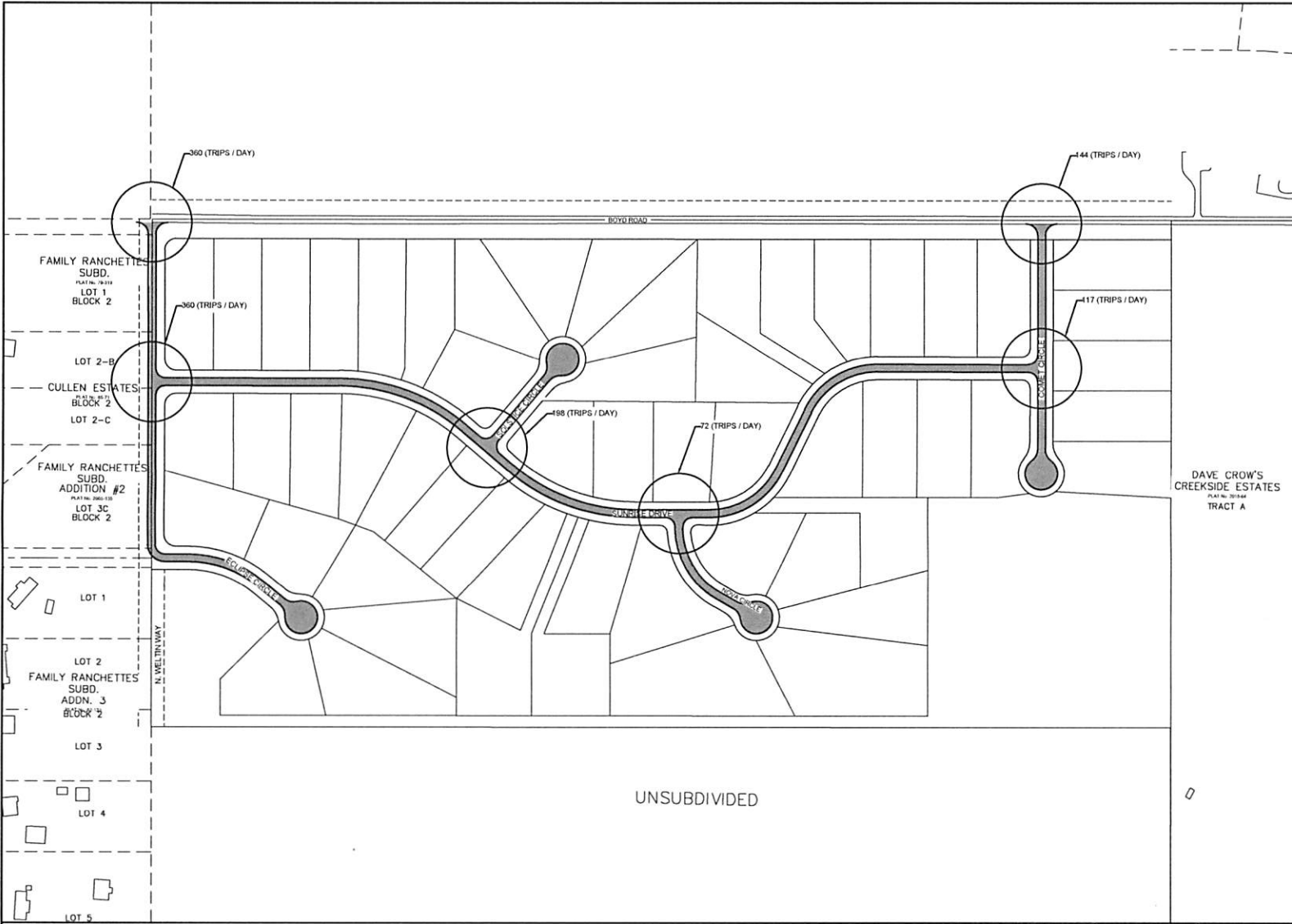
- GRADING NOTES:**
1. OSHA REQUIRES SLOPE PROTECTION AND SUPPORT FOR ALL EXCAVATIONS GREATER THAN 4 FEET DEEP. SIDE SLOPE REQUIREMENTS ARE VARIABLE DEPENDING UPON SOIL TYPE AND THE DURATION OF TIME IN WHICH THE TRENCH REMAINS OPEN. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE TO THESE REGULATIONS AT THE PROJECT ON A DAY TO DAY BASIS.
 2. WHERE UNSUITABLE SOILS (SOFT SILTS, LOOSE, COMPRESSIBLE, ORGANIC, OR DEBRIS) ARE ENCOUNTERED WITHIN THE ROAD FOOTPRINT THE UNSUITABLE SOILS SHALL BE OVER-EXCAVATED, REMOVED AND REPLACED WITH COMPACTED NFS FILL.
 3. ALL EXCAVATED MATERIAL MEETING THE REQUIREMENTS OF CLASSIFIED FILL AND BACKFILL MUST BE USED TO CONSTRUCT PROJECT FILLS BEFORE IMPORTING BORROW.
 4. ALL BACKFILL SHOULD BE PLACED IN LAYERS NOT EXCEEDING 6 TO 8 INCHES LOOSE THICKNESS AND COMPACTED. STRUCTURAL FILL SHOULD BE COMPACTED TO NO LESS THAN 95%. THE LIFT THICKNESS MAY BE INCREASED TO UP TO 12 INCHES IF IT CAN BE SHOWN THAT THE LIFT IS ADEQUATELY COMPACTED AT DEPTH.

EXHIBIT D - 14

FIELD BOOKS	BM NO.	LOCATION	ELEV.	DATA	REV. NO.	DATE	DESCRIPTION	BY	REV. DATE	DESCRIPTION	BY
DESIGN				BASE			TELEPHONE	CB			
DRAWN				TOPOGRAPHY			ELECTRIC	CB			
STAKING				PROFILE			CABLE TV				
ASBUILT				SANITARY SEWER			DESIGN				
CONTRACTOR				STORM SEWER			QUANTITIES				
INSPECTOR				WATER			W/M. FINAL CHK.				
CONSTRUCTION RECORD				GAS							
		VERTICAL DATUM					PLAN CHECK			REVISIONS	

9101 Vanguard Drive
Anchorage, Alaska 99507
phone: 907.552.2377 fax: 907.552.2368

CELESTIAL HEIGHTS SUBDIVISION	
CIVIL DETAILS	
SCALE:	DATE: 4/12/24 ACCT. NO. GRID: SHEET 14 of 14



RECEIVED
JUN 24 2024
PLATTING

DAVE CROW'S
CREEKSIDE ESTATES
TRACT A

NOTES:
TRIP GENERATION: BASED ON 9 VEH / DWELLING UNIT

File Location: Z:\project\3125.02 ADMIN\10 Professional Services Term 2023 Boyd Road Subdivision Documents\CA\ACAD\3125.02 Trip Generation.dwg
 Plotted: 6/24/2024 1:47 PM

FIELD BOOKS	BM NO.	LOCATION	ELEV.	DATA	DATE	BY	REVISIONS	DESCRIPTION	DATE	BY
SECTION				BASE		CS		TELEPHONE		
DRAIN				TOPOGRAPHY		CS		ELECTRIC		
STAKING				PROFILE		CS		CABLE TV		
ASSEMBL				SANITARY SEWER		CS		DESIGN		
CONTRACTOR				STORM SEWER		CS		QUANTITIES		
INSPECTOR				WATER		CS		MUR. FINAL OK		
CONSTRUCTION RECORD				GAS		CS				

9101 Vanguard Drive
Anchorage, Alaska 99507
907.533.1100

CELESTIAL HEIGHTS SUBDIVISION	
TRIP GENERATION	
SCALE:	DATE 6/24/24 GRID: SHEET 03 of 14
	ACCT. NO.

RECEIVED
JUN 24 2024
PLATTING

Concurrence on Applicability of Section Line Easements on Alaska
Mental Health Trust Land
Updated September 2022

The Alaska Department of Natural Resources ("DNR") and the Alaska Mental Health Trust Authority ("AMHTA"), through the Division of Mining, Land and Water ("DMLW") and the Mental Health Trust Land Office ("TLO"), respectively, and the Alaska Department of Transportation and Public Facilities (DOT&PF), have agreed on the existence and applicability of statutory section line easements under AS 19.10.010 and its predecessors, and related plat issues, as set forth below. While this agreement may not address every possible scenario and may require some parcel by parcel analysis under particular facts, the parties believe that it covers the majority of situations.

1. A statutory section line easement exists on trust land that was unreserved, surveyed, federal land prior to the time of its selection under the Alaska Mental Health Enabling Act of 1956 ("AMHEA").¹ Such a section line easement is referred to herein as an RS2477 section line easement and is 33 feet wide on each side of the center line of the surveyed section line.²
2. A statutory section line easement exists on trust land that was surveyed, state-owned land at the time it was designated as replacement trust land by sec. 40(a)(2), ch. 5 1994 FSSLA, as amended by ch. 1, SSSLA 1994 ("HB 201"). Such a section easement is referred to as a state section line easement and is 50 feet wide on each side of the center line of the surveyed section line.
3. There are no statutory section line easements on trust land that was selected by and conveyed to the State under the AMHEA ("original trust land"), except as provided in Paragraph 1. No state statutory section line easement arose on original trust land because the 1978 legislation that designated original trust lands as general grant lands was deemed void. *State v. Weiss*, 706 P.2d 681 (Alaska 1985).
4. For certainty of title and because the public may have relied on them, the TLO intends to honor plats that were finalized and approved by appropriate State signature before HB 201 (as amended) became effective in 1994 and that show a section line easement on original trust land that did not arise as described above. The cost of correcting and potentially litigating over such plats likely would vastly outweigh the diminishment in value of the lands erroneously encumbered. However, the TLO may challenge or seek compensation for any

¹ The term "survey," as used herein, means an actual, on-the-ground survey that has been approved/accepted by BLM and does not include a protraction diagram. DNR and TLO acknowledge that there have been differing legal positions asserted by different parties over the years regarding whether a section line easement can statutorily attach to a protracted section line. However, DNR and TLO currently are unaware of any trust land that is or was located only by a protraction and, therefore, it is not necessary at this time to consider this issue with respect to trust land. Should DNR or TLO identify a protracted section line on trust land in the future, they will work through that issue under the facts and circumstances presented at that time.

² Some federal land that was conveyed to the state as original trust land under the 2009 Closeout Agreement was land selected under state entitlements other than the AMHEA. Those lands will be reviewed to determine, on a case-by-case basis, whether a federal section line easement arose on them.

plats not approved by the AMHTA or the TLO that were finalized after HB 201 (as amended) became effective in 1994 that erroneously show a section line easement on original trust land.

5. For certainty of legal public access and because the public may have relied on them, the TLO will not challenge or charge for any public roads that were constructed by a state or local governmental entity or private party, with required approvals and authorizations, within a valid section line easement on trust land prior to the date HB 201 (as amended) became effective in 1994, whether the road is platted or not. This agreement does not include any road or portion of road that is not within a valid section line easement and does not grant or imply permission to expand or move such road, whether within the section line easement or not, which permission is expressly denied. Any expansion or change in location must be approved by the TLO and may require compensation to the AMHTA. For purposes of this agreement, "road" includes associated facilities necessary for a road, including signs, bike paths, turnouts and rest areas, drainage, and slopes. It does not include utilities unless state-owned and operated.

ALASKA MENTAL HEALTH
TRUST LAND OFFICE

By: ^{DocuSigned by:} Jusdi Warner
Jusdi Warner
TLO Executive Director

ALASKA DEPARTMENT OF
TRANSPORTATION AND
PUBLIC FACILITIES

By: Ryan Anderson
Ryan Anderson, P.E.
DOT&PF Commissioner

ALASKA DEPARTMENT OF
NATURAL RESOURCES

By: Brent Goodrum
Brent Goodrum
DNR Dep. Commissioner

Alaska Case Retrieval Enterprise System (ACRES)

Case Abstract for: AKA 050606

CASE DATA														
Case Serial Num:		AKA 050606						FRC Site Code:		ANC				
Case Type:		262710 Ak-Mental Health Grants						Accession Num:		RIP				
Case Status:		Closed						Box Num:		571 (of) --				
Case Status Actn:		Case Closed						Disp Date:		--				
Case Status Date:		08-JUN-1964						Location Code:		49				
SM Acres:		0.0000						Abnd Yr:		--				
Claim Name:		--												
CUSTOMER DATA														
Cust ID:		000027242												
Customer Name:		AK DEPARTMENT OF NATURAL RESOURCES DIV OF MINING LAND AND WATER REALTY SERVICES SECT						Interest Relationship:		Applicant				
Customer Address:		Withheld						Percent Interest:		0.0000				
ADMINISTRATIVE/STATUS ACTION DATA														
Date	Code Description:		Remarks				Doc ID	Ofc	Emp	Doc Img *				
20-NOV-1959	001 Application Filed		APPLICATION RECEIVED				--	PSA	BD	--				
05-DEC-1963	239 Publication Directed		NEWSPAPER				--	AJA	KB	--				
15-JAN-1964	940 Tentative Appv Given		--				TA0019640105	AJA	PAM	Not Available				
15-JAN-1964	007 ApIn Rej/Denied Part		--				DD0019640115	AJA	KB	Not Available				
08-JUN-1964	879 Patent Issued		--				PA0050640213	AJA	BD	View Doc				
08-JUN-1964	970 Case Closed		TITLE TRSF				--	AJA	KB	--				
27-JAN-1966	962 Case Sent To Nara		--				--	AJA	KB	--				
10-APR-1984	974 Automated Record Verif		--				--	AJA	KB	--				
10-APR-1984	410 Pat Verified State/Anc		--				--	AJA	KB	--				
13-NOV-1984	411 Case Audit Signed-Blm		--				--	AJA	JJL	--				
27-AUG-1992	996 Converted To Prime		--				--	940	BKM	--				
FINANCIAL ACTION DATA														
Date	Code/Description		Ofc	Emp	Money Amt		Acct Adv		Asmt Yr					
NO FINANCIAL ACTIONS FOUND														
GENERAL REMARKS														
LAND DSCRPTN LOCKD 4/10/84.														
TA ISSUED DOCUMENT NUMBER RETROACTIVELY ASSIGNED FOR														
RECORD KEEPING PURPOSES AS OF JUN 1, 2009. NOT ALL														
DOCUMENTS ARE SCANNED.														
GEOGRAPHIC NAMES														
MH 031														
LAND DESCRIPTION														
Mr	Twp	Rng	Sec	Aliquot	Survey ID	Tr	Blk	Lot	DI	Bor	NR	LS	Acres	View MTP
28	018 N	001 E	001	--	--	--	--	1	AA	170	07	PA	39.9600	MTP TWPLAT HI TWPALL
Doc ID: PA0050640213 08-Jun-1964 USR: 754														
28	018 N	001 E	001	--	--	--	--	2	AA	170	07	PA	39.8900	MTP TWPLAT HI TWPALL
Doc ID: PA0050640213 08-Jun-1964 USR: 754														
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Doc ID: PA0050640213 08-Jun-1964 USR: 754														
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Doc ID: PA0050640213 08-Jun-1964 USR: 754														
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Doc ID: PA0050640213 08-Jun-1964 USR: 754														
28	018 N	001 E	001	SW	--	--	--	--	AA	170	07	PA	160.0000	MTP TWPLAT HI TWPALL

Natasha Heindel

From: Daniel Dahms
Sent: Thursday, June 13, 2024 3:37 PM
To: Natasha Heindel
Cc: Brad Sworts; Jamie Taylor; Tammy Simmons
Subject: RE: RFC Celestial Heights Master Plan

Natasha,

- Applicant will need to submit an ADT estimate including figures or tables showing breaking down ADT at each intersection within the Subdivision and en route to a residential minor collector street or higher (in this case Palmer Fishhook Road). Please note that Boyd Road is currently classified as residential sub collector.
- Based on the Archangel Ridge Subdivision Master Plan, it appears Lot 1, Blockfontein will not have access from Archangel Ridge Subdivision. The two stub roads give access to Lot 3. Based on a review of the topography and wetlands, PD&E is ok without a stub road going from the subject parcel to Lot 1, Blockfontein.
- Verify the section line easement to the west. Surveyor should provide documentation of SLE verification.
- As a large portion of the site drains to Nova Circle, provide cross culvert across Nova Circle at the intersection with Sunrise Drive.
- To satisfy the requirements of SCM D03, drainage easements will need to be dedicated for all proposed drainage paths/structures.
- Design the drainage so that water is not planned to be detained/infiltrated in the road ROWs.
- Recommend adding 15' utility easements along all road ROWs.

Daniel Dahms, PE
Department of Public Works
Pre-Design and Engineering Division

From: Natasha Heindel <Natasha.Heindel@matsugov.us>
Sent: Friday, May 24, 2024 3:47 PM
To: dnr.scro@alaska.gov; sarah.myers@alaska.gov; colton.percy@alaska.gov; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; matthew.a.carey@usps.gov; Matthews, Jordan T - Anchorage, AK <Jordan.T.Matthews@usps.gov>; earl.almdale@gmail.com; stark@mtaonline.net; Brian Davis <Brian.Davis@matsugov.us>; Chad Cameron Contact <ccameron@palmerak.org>; Land Management <Land.Management@matsugov.us>; Tom Adams <Tom.Adams@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Daniel Dahms <Daniel.Dahms@matsugov.us>; Tammy Simmons <Tammy.Simmons@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Christina Sands <Christina.Sands@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Katrina Kline <katrina.kline@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Code Compliance <Code.Compliance@matsugov.us>; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; andrew.fraiser@enstarnaturalgas.com; row@enstarnaturalgas.com; row@mtasolutions.com; ospdesign@gci.com; mearow@mea.coop; timhaledistrict1@gmail.com
Subject: RFC Celestial Heights Master Plan

Hello team,



MATANUSKA-SUSITNA BOROUGH

Community Development

Land & Resource Management

350 East Dahlia Avenue • Palmer, AK 99645

Phone (907) 861-7869 • Fax (907) 861-8635

MEMORANDUM

DATE: June 7, 2024

TO: Fred Wagner, Platting Officer

FROM: Land & Resource Management

SUBJECT: Preliminary Plat Comments / Case #2024-068

Platting Tech: Natasha Heindel

Public Hearing: July 3, 2024

Applicant / Petitioner: The State of Alaska Mental Health Trust Land Office

TRS: 18N01E12

Tax ID: 18N01E12B002

Subd: Celestial Heights Master Plan

Tax Map: WA 01

Comments:

- The plat is unclear if the 30' recreational corridor and Tract A are proposed to be dedicated to public or private use.
- Land Management has no objection if the 30' recreational corridor and Tract A are dedicated to private use.
- Land Management objects to the 30' recreational corridor and Tract A if they are dedicated to public use. The Borough does not have funds to manage, maintain or improve the tract.

Natasha Heindel

From: Permit Center
Sent: Wednesday, May 29, 2024 8:21 AM
To: Natasha Heindel
Subject: RE: RFC Celestial Heights Master Plan

Thanks Natasha. No comments from the Permit Center for this.

Brandon Tucker

Permit Technician

[Matanuska-Susitna Borough Permit Center](#)

350 E Dahlia Ave

Palmer AK 99645

P (907) 861-7871

F (907) 861-8158

From: Natasha Heindel <Natasha.Heindel@matsugov.us>

Sent: Friday, May 24, 2024 3:47 PM

To: dnr.scro@alaska.gov; sarah.myers@alaska.gov; colton.percy@alaska.gov; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; matthew.a.carey@usps.gov; Matthews, Jordan T - Anchorage, AK <Jordan.T.Matthews@usps.gov>; earl.almdale@gmail.com; stark@mtaonline.net; Brian Davis <Brian.Davis@matsugov.us>; Chad Cameron Contact <ccameron@palmerak.org>; Land Management <Land.Management@matsugov.us>; Tom Adams <Tom.Adams@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Daniel Dahms <Daniel.Dahms@matsugov.us>; Tammy Simmons <Tammy.Simmons@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Christina Sands <Christina.Sands@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Katrina Kline <katrina.kline@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Code Compliance <Code.Compliance@matsugov.us>; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; andrew.fraiser@enstarnaturalgas.com; row@enstarnaturalgas.com; row@mtasolutions.com; ospdesign@gci.com; mearow@mea.coop; timhaledistrict1@gmail.com

Subject: RFC Celestial Heights Master Plan

Hello team,

The following link contains a Request for Comments for Celestial Heights Master Plan, tax ID # 118N01E12B002, MSB Case 2024-068.

Comments are due by **06/14/2024**.

[☐ Celestial Hts MSP](#)

Please let me know if you have any questions.

Have a great day,

Natasha Heindel

From: Cayla Ronken <cronken@mtasolutions.com>
Sent: Wednesday, May 29, 2024 11:51 AM
To: Natasha Heindel
Subject: RE: RFC Celestial Heights Master Plan

Follow Up Flag: Follow up
Flag Status: Flagged

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Hi Natasha,

Thank you for sending this out.

I do not see utility easements. MTA would like to request 15' UE to serve these lots.

Thank you,

Cayla Ronken, Right of Way Agent

1740 S. Chugach St., Palmer, Alaska 99645

Office: (907) 761-2465 | www.mtasolutions.com



Life. Technology. Together.

From: Natasha Heindel <Natasha.Heindel@matsugov.us>

Sent: Friday, May 24, 2024 3:47 PM

To: dnr.scro@alaska.gov; sarah.myers@alaska.gov; colton.percy@alaska.gov; regpagemaster@usace.army.mil; pamelaj.melchert@usps.gov; matthew.a.carey@usps.gov; Matthews, Jordan T - Anchorage, AK <Jordan.T.Matthews@usps.gov>; earl.almdale@gmail.com; stark@mtaonline.net; Brian Davis <Brian.Davis@matsugov.us>; Chad Cameron Contact <cameron@palmerak.org>; Land Management <Land.Management@matsugov.us>; Tom Adams <Tom.Adams@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Daniel Dahms <Daniel.Dahms@matsugov.us>; Tammy Simmons <Tammy.Simmons@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Christina Sands <Christina.Sands@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Katrina Kline <katrina.kline@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Code Compliance <Code.Compliance@matsugov.us>; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; andrew.fraiser@enstarnaturalgas.com; row@enstarnaturalgas.com; Right of Way Dept. <row@mtasolutions.com>; ospdesign@gci.com; mearow@mea.coop; timhaledistrict1@gmail.com

Subject: RFC Celestial Heights Master Plan



ENSTAR Natural Gas Company, LLC
Engineering Department, Right of Way Section
401 E. International Airport Road
P. O. Box 190288
Anchorage, Alaska 99519-0288
(907) 277-5551
FAX (907) 334-7798

May 28, 2024

Matanuska-Susitna Borough, Platting Division
350 East Dahlia Avenue
Palmer, AK 99645-6488

To whom it may concern:

ENSTAR Natural Gas Company, LLC has reviewed the following abbreviated plat and has no comments or recommendations.

- **CELESTIAL HEIGHTS SUBDIVISION
(MSB Case # 2024-068)**

If you have any questions, please feel free to contact me at 334-7944 or by email at james.christopher@enstarnaturalgas.com.

Sincerely,

A handwritten signature in cursive script that reads "James Christopher".

James Christopher
Right of Way Agent
ENSTAR Natural Gas Company, LLC

Natasha Heindel

From: OSP Design Group <ospdesign@gci.com>
Sent: Thursday, June 13, 2024 11:09 AM
To: Natasha Heindel
Cc: OSP Design Group
Subject: RE: RFC Celestial Heights Master Plan
Attachments: Agenda Plat.pdf

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Natasha,

In review GCI has no comments or objections to the plat, attached is the signed plat for your records.

Thanks,

GCI | OSP Design

e: OSPDesign@gci.com | w: www.gci.com

From: Natasha Heindel <Natasha.Heindel@matsugov.us>

Sent: Friday, May 24, 2024 3:47 PM

To: dnr.scro@alaska.gov; sarah.myers@alaska.gov; colton.percy@alaska.gov; regpagemaster@usace.army.mil; pamela.j.melchert@usps.gov; matthew.a.carey@usps.gov; Matthews, Jordan T - Anchorage, AK <Jordan.T.Matthews@usps.gov>; earl.almdale@gmail.com; stark@mtaonline.net; Brian Davis <Brian.Davis@matsugov.us>; Chad Cameron Contact <ccameron@palmerak.org>; Land Management <Land.Management@matsugov.us>; Tom Adams <Tom.Adams@matsugov.us>; Brad Sworts <Brad.Sworts@matsugov.us>; Jamie Taylor <Jamie.Taylor@matsugov.us>; Daniel Dahms <Daniel.Dahms@matsugov.us>; Tammy Simmons <Tammy.Simmons@matsugov.us>; Elaine Flagg <Elaine.Flagg@matsugov.us>; Christina Sands <Christina.Sands@matsugov.us>; Charlyn Spannagel <Charlyn.Spannagel@matsugov.us>; Katrina Kline <katrina.kline@matsugov.us>; MSB Farmers <MSB.Farmers@matsugov.us>; Alex Strawn <Alex.Strawn@matsugov.us>; Fred Wagner <Frederic.Wagner@matsugov.us>; Planning <MSB.Planning@matsugov.us>; Permit Center <Permit.Center@matsugov.us>; Code Compliance <Code.Compliance@matsugov.us>; John Aschenbrenner <John.Aschenbrenner@matsugov.us>; andrew.fraiser@enstarnaturalgas.com; row@enstarnaturalgas.com; row@mtasolutions.com; OSP Design Group <ospdesign@gci.com>; mearow@mea.coop; timhaledistrict1@gmail.com
Subject: RFC Celestial Heights Master Plan

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Hello team,

The following link contains a Request for Comments for Celestial Heights Master Plan, tax ID # 118N01E12B002, MSB Case 2024-068.

Comments are due by 06/14/2024.

 [Celestial Hts MSP](#)

Please let me know if you have any questions.

Natasha Heindel

From: Sam Sullivan <samsullivan@gmail.com>
Sent: Thursday, June 13, 2024 7:26 PM
To: MSB Platting
Subject: Objection to Celestial Heights

[EXTERNAL EMAIL - CAUTION: Do not open unexpected attachments or links.]

Good Evening,

My name is Samuel Sullivan I live with my wife Elizabeth, daughter Abigail, and son Ethan. Our address is 8110 N Morning Glory Dr. I strongly object to the proposed Celestial Heights subdivision.

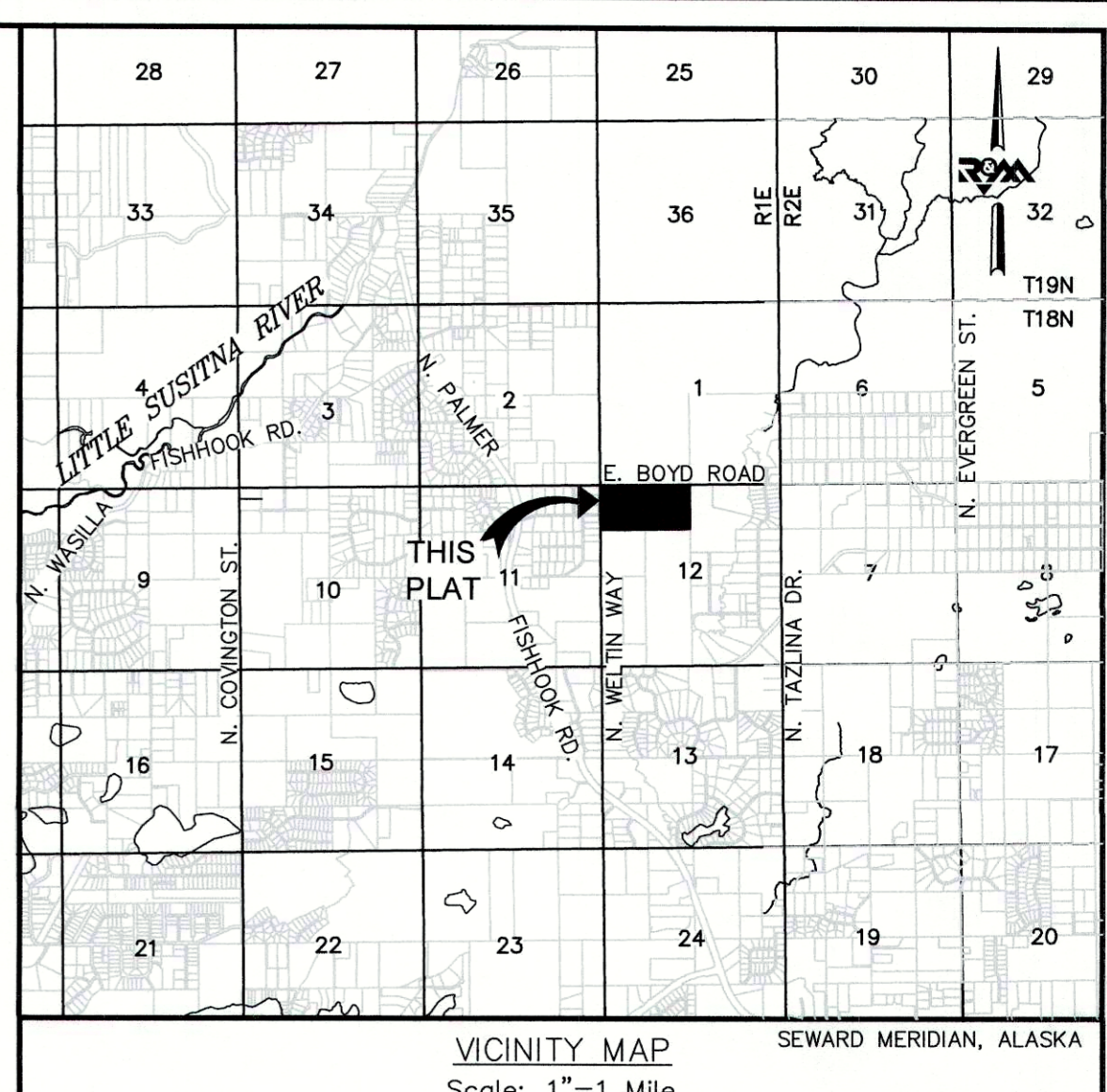
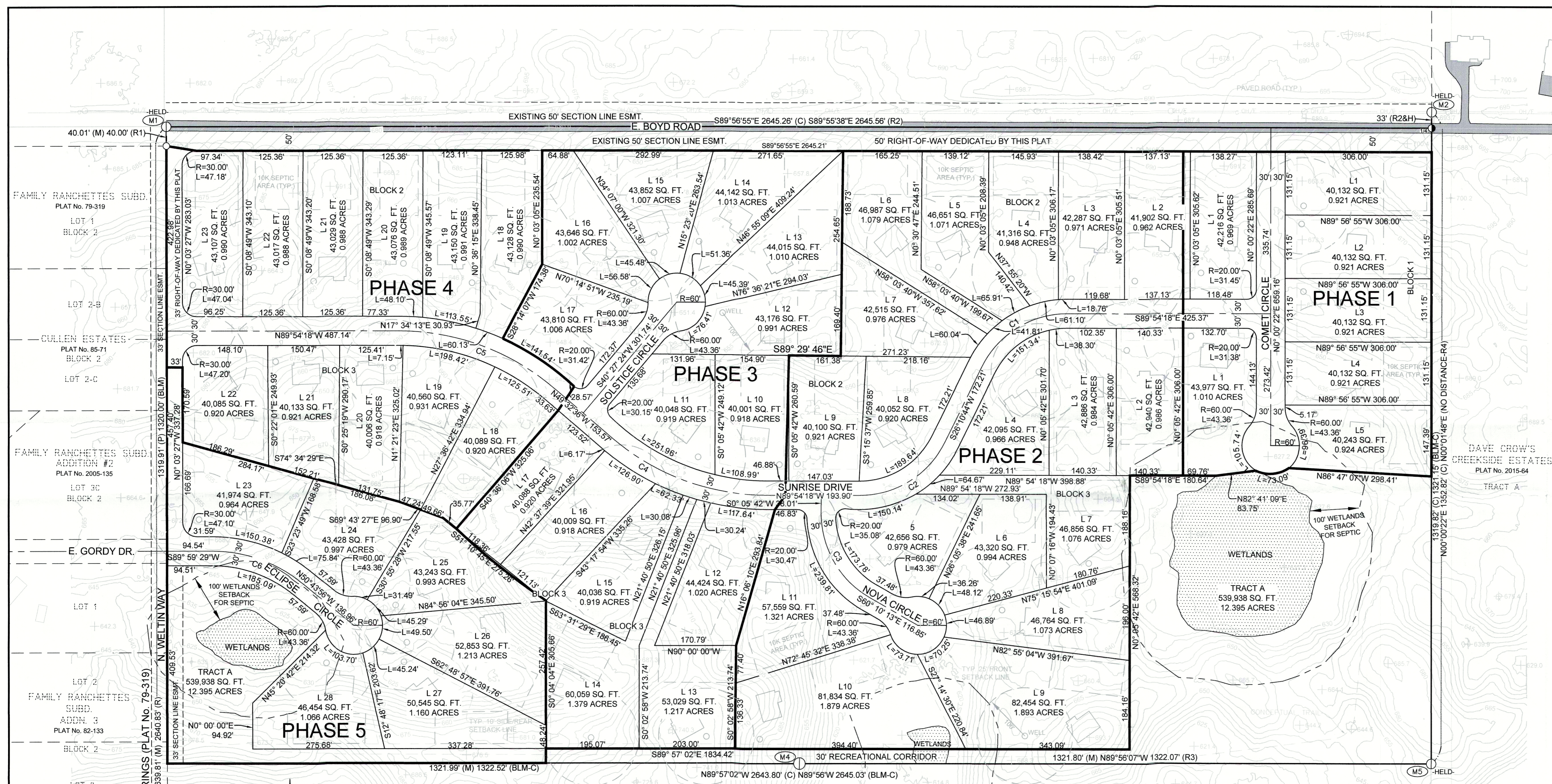
1. The first reason is we can and should do better with the land. There are over 5,000 people in Fishhook alone and there are no facilities for children to play. There should be a playground in this lot. A successful playground in Anchorage in a similar circumstance would be Ray E. Storck Homestead Park located at 7020 Clarks Rd. 99516. This park is at the entrance to Bear Valley and is a fantastic recreation area for people of all ages. We can have something similar but keep much more of the beautiful forest intact.

2. E. Boyd road is narrow and has a high amount of foot traffic. People from surrounding neighborhoods constantly are walking on E. Boyd and it is so narrow I need to drive on the opposite side of the road to avoid the pedestrian traffic. The increased neighborhood traffic would make it more dangerous for people outside. The steep hill at the beginning of E. Boyd is already a hazard and having more traffic from 56 lots will not make it any better.

3. People moved to E. Boyd for a reason. It is quiet. I paid for peace. I want peace. I want a community where we are able to extol Alaskan values of helping each other out, where we respect the environment, where the individual people matter. If we continue to build sub division after sub division we are just a suburb of Anchorage and lackys to Anchorage politics and I expect better from my local government. The proposed subdivision would need to level the lots and clear the current forest. People don't want lower 48 suburbia. The new lots at View Pointe at the Ranch and off of N. Stringfield are so close, we are not helping provide a better life; we are making suburban commuters. I don't see or know anyone from the many surrounding neighborhoods because why would I? Where would we meet? Fred Meyers? Perk-Up espresso? There are fantastic subdivisions off of Tex Al Dr, Fern Rd, N. Bush Rd, E. Gold Bullion Dr. But, I won't meet those people because we are Anchorage lite. If we want communities we need places to gather. A park would be a good start.

If you have any questions please feel free to e-mail me.

Thank you for your time,
Samuel Sullivan



CERTIFICATE OF OWNERSHIP AND DEDICATION
I, JUSDI WARNER, THE UNDERSIGNED, DO HEREBY CERTIFY THAT I AM THE EXECUTIVE DIRECTOR OF THE ALASKA MENTAL HEALTH TRUST LAND OFFICE, AND THAT THE ALASKA MENTAL HEALTH TRUST AUTHORITY IS THE OWNER OF T1S 2021-03 AS SHOWN HEREON. PURSUANT TO AS 38.05.801 AND THE REGULATIONS PROMULGATED THEREUNDER, I HEREBY ADOPT THIS PLAN OF SUBDIVISION BY MY FREE CONSENT AND DEDICATE FOR PUBLIC OR PRIVATE USE AS SHOWN, ALL EASEMENTS, PUBLIC UTILITY AREAS, AND RIGHTS OF WAY AS NOTED AND DESCRIBED HEREON.

NOTARY ACKNOWLEDGMENT
FOR: JUSDI WARNER
ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 2024
MY COMMISSION EXPIRES: _____ NOTARY PUBLIC FOR THE STATE OF ALASKA

CERTIFICATE OF PAYMENT OF TAXES
I HEREBY CERTIFY THAT ALL CURRENT TAXES AND SPECIAL ASSESSMENTS, THOUGH _____, 20 _____ AGAINST THE PROPERTY INCLUDED IN THE SUBDIVISION HEREON, HAVE BEEN PAID.

PLANNING AND LAND USE DIRECTOR'S CERTIFICATE
I CERTIFY THAT THIS SUBDIVISION PLAN HAS BEEN FOUND TO COMPLY WITH THE LAND SUBDIVISION REGULATIONS OF THE MATANUSKA-SUSITNA BOROUGH, AND THAT THE PLAT HAS BEEN APPROVED BY THE PLATTING AUTHORITY BY:
PLANNING AND LAND USE DIRECTOR _____ DATED _____
ATTEST: PLATTING CLERK _____

RECEIVED
MAY 14 2024
PLATTING
Agenda Copy

MASTER PLAN OF TRUST LAND SURVEY 2024-X CELESTIAL HEIGHTS SUBDIVISION
LOTS 1-5, BLOCK 1, LOTS 1-23, BLOCK 2, AND LOTS 1-28, BLOCK 3, AND TRACT A
AN 80,000 ACRE SUBDIVISION OF THE NORTH HALF OF THE NORTHWEST 1/4 OF SECTION 12, TOWNSHIP 18 NORTH, RANGE 1 EAST, SEWARD MERIDIAN, ALASKA
LOCATED WITHIN THE NW1/4, SECTION 12, TOWNSHIP 18 NORTH, RANGE 1 EAST, SEWARD MERIDIAN, ALASKA
PALMER RECORDING DISTRICT, THIRD JUDICIAL DISTRICT, STATE OF ALASKA
9101 Vanguard Drive, Anchorage, Alaska, 99507
PH (907) 522-1707 FAX (907) 522-3403
www.rmconsult.com
AECC 111
DRAWN: DCH SCALE: 1"=120' MSB FILE No. _____
CHECKED: XX PROJECT: 2846.01 DATE: 05/02/2024 SHEET: 1 OF 1

DRAFT

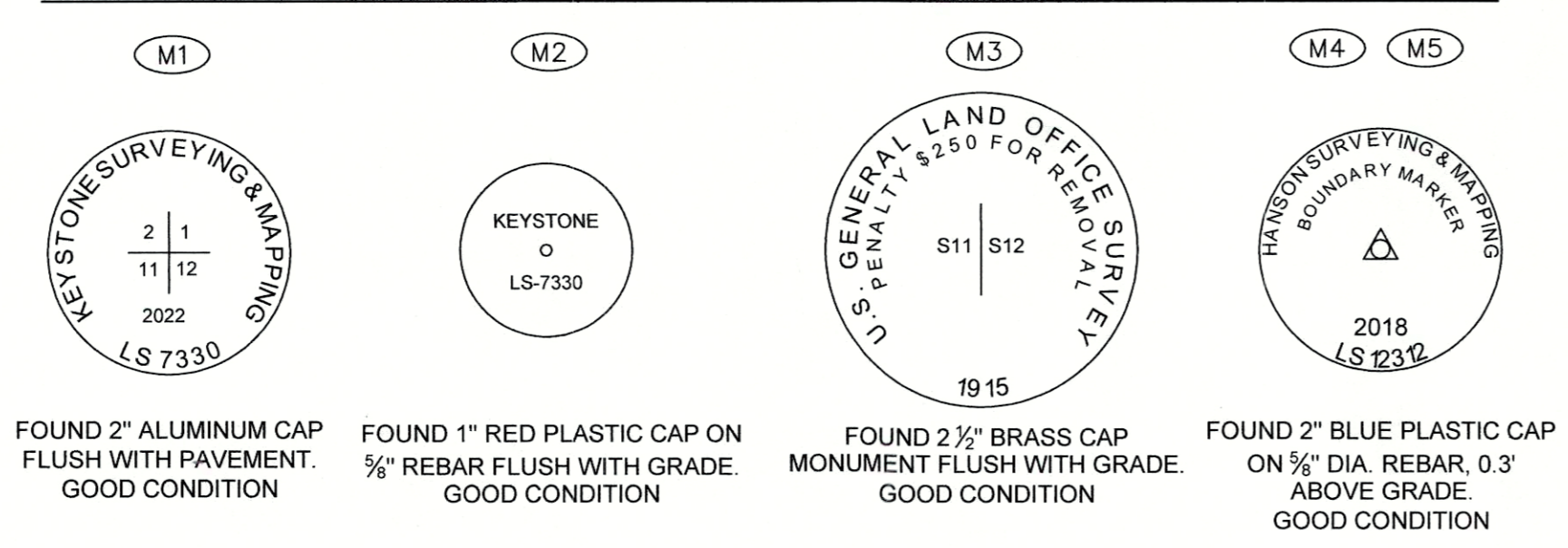
- NOTES**
- THERE MAY BE FEDERAL, STATE, AND LOCAL REQUIREMENTS GOVERNING LAND USE. THE INDIVIDUAL PARCEL OWNER SHALL OBTAIN A DETERMINATION WHETHER THESE REQUIREMENTS APPLY TO THE DEVELOPMENT OF PARCELS SHOWN ON THE PLAT TO BE RECORDED.
 - NO INDIVIDUAL WATER SUPPLY SYSTEM OR SEWAGE DISPOSAL SYSTEM SHALL BE PERMITTED ON ANY LOT UNLESS SUCH SYSTEM IS LOCATED, CONSTRUCTED, AND EQUIPPED IN ACCORDANCE WITH THE REQUIREMENTS, STANDARDS, AND RECOMMENDATIONS OF THE STATE OF ALASKA, DEPARTMENT OF ENVIRONMENTAL CONSERVATION, WHICH GOVERN THOSE SYSTEMS.
 - BUILDING SETBACKS (TYP):
FRONT=25'
SIDE/BACK=10'
 - TYPICAL 2" ALCAP TO BE SET AT EACH CORNER.

TYPICAL SET MONUMENTS



TYPICAL
2" ALUMINUM CAP ON 5/8" X 30"
REBAR SET THIS SURVEY

FOUND MONUMENTS



CURVE TABLE

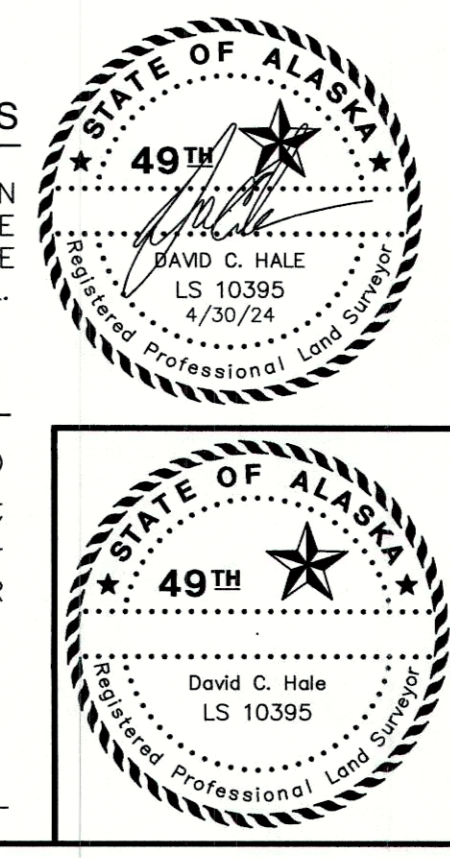
CURVE #	LENGTH	RADIUS	DELTA	TANGENT	CH. BEARING	CH. DISTANCE
C1	223.11'	200.00'	63° 54' 59"	124.77'	S58° 08' 13"W	211.72'
C2	223.11'	200.00'	63° 54' 59"	124.77'	S58° 08' 13"W	211.72'
C3	210.37'	200.00'	60° 15' 56"	116.09'	S30° 02' 16"E	200.80'
C4	352.22'	500.00'	40° 21' 42"	183.77'	N69° 43' 27"W	344.98'
C5	352.22'	500.00'	40° 21' 42"	183.77'	N69° 43' 27"W	344.98'

SURVEYOR'S CERTIFICATE FOR CONTOURS AND IMPROVEMENTS

THE CONTOURS SHOWN HEREON WERE OBTAINED USING A DJI DRONE WITH AN M300 LIDAR UNIT FLOWN AT LOW LEVEL AND CHECKED WITH REAL-TIME KINEMATIC METHODS. THE DATA WAS GATHERED IN MAY, 2023, AND THE CONTOUR INTERVAL IS FIVE- FEET. NO IMPROVEMENTS EXIST WITHIN THE PARCEL.

SURVEYOR'S CERTIFICATE

I, DAVID C. HALE, HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR IN THE STATE OF ALASKA AND THAT THIS PLAT OF CELESTIAL HEIGHTS SUBDIVISION REPRESENTS A SURVEY MADE BY ME, OR UNDER MY DIRECT SUPERVISION, AND THAT THE MONUMENTS SHOWN ON THE PLAT ACTUALLY EXIST AS DESCRIBED, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



DAVID C. HALE, L.S. 10395 DATE _____

- LEGEND**
- ⊕ FOUND PRIMARY MONUMENT AS DESCRIBED
 - FOUND ALUMINUM CAP / PLASTIC CAP AS DESCRIBED
 - FOUND 5/8" REBAR
 - SET 3 1/4" ALUMINUM CAP MONUMENT ON 2" DIA. X 30" LONG ALUMINUM POST THIS SURVEY
 - SET 2" ALUMINUM CAP ON 5/8" X 30" REBAR THIS SURVEY
 - (M) MEASURED DIMENSION
 - (C) COMPUTED DIMENSION
 - HELD- HELD MONUMENT POSITION
 - (R1) RECORD DIMENSIONS PER PLAT No. 79-319
 - (R2) RECORD DIMENSIONS PER PLAT No. 2018-29
 - (R3) RECORD DIMENSIONS PER PLAT No. 2022-56
 - (R4) RECORD DIMENSIONS PER PLAT No. 2015-64
 - (BLM) RECORD DIMENSIONS PER BLM SURVEY APPROVED APRIL 2, 1915
 - EXTERIOR PROPERTY BOUNDARY
 - INTERIOR PROPERTY BOUNDARY
 - EASEMENT LINE
 - ADJACENT PROPERTY LINE
 - RIGHT-OF-WAY CENTERLINE

