MEMORANDUM

State of Alaska

Department of Transportation and Public Facilities

TO: Distribution

DATE: November 18, 2025

FROM: Matthew Hansen, P.E.
Contracts Section
(907) 269-0602

FILE NO.: CFAPT01199

SUBJECT: LHD Aprons A, B, E, and Taxiway E Surface Seal
PS&E Review

Attached for final review and comments is the contract assembly and design analysis for this project.

Comments are due by 5:00 pm Friday, December 5, 2025.

For DOT&PF Employees, navigate to http://web.dot.state.ak.us/nreg/design/des_com/index.cfm, enter your employee name and password as if you are logging into your computer each morning, enter your region, and section, then the program number **CFAPT01199**. Click on the PS&E tab and follow the instructions to enter your comments. See the following page for instructions on how to enter your comments. Please follow the instructions so that review meetings can proceed in an orderly fashion.

For reviewers outside of DOT&PF, please forward your comments to jennifer.lombardo@alaska.gov using the Excel comment spreadsheet attached to the Outlook meeting invitation.

Review documents (project manual and plan set) are available for viewing and/or download at the following location:
https://dot.alaska.gov/creg/design/aviation/review/CFAPT01199

A review meeting is scheduled for 10:00 a.m. on Tuesday, December 9, 2025, in the Construction Conference Room at 4111 Aviation Avenue. This is an in-person meeting only. There will be no option for Microsoft Teams participation.

The following specific replies are requested in addition to any other comments:

Right of Way	Status of project ROW, material agreements, easements, etc.
Utilities	Utility agreement status.
Project Control	Status of funding considering the current estimate.
Environmental	Permits required and an estimated date when they will be acquired.

Please charge review time to Program No.: CFAPT01199, Phase: T02FA1, Template: TTPJ001, and Activity Code _ _ _P (insert your own activity code in the blank spaces).

Instructions for entering comments into the On-line Review Comment System

Front End Document Comments

Cover: Choose General Category and enter "Cover" in the Item field

Table of Contents: Choose General Category and enter "TOC" in the Item field

Invitation to Bid: Choose General Category and enter "ITB" in the Item field

Special Notice to Bidders: Choose General Category and enter "SNB" in the Item field

Engineers Estimate Comments

Engineers Estimate: In the Category field, choose "Engineer's Estimate" and enter Pay Item numbers exactly as they appear in the engineer's estimate in the Pay Item field such as "P165.010.0000" or "D751.010.0048" (without quotation marks). DO NOT enter words. DO NOT enter "Item P165.010.0000" or "Item D751.010.0048 Manhole". Place any other descriptions in the comment field.

Specifications Comments

Standard Mod and special provision: Use specification page only such as: "GCP-20-4" or "P-152-3" NOT "P 152a" or "P-152-2.3e". Describe in the comment field the exact location in the section to which the comment applies. For appendices, Appendix A would be entered as: "Z-A" Appendix B would be: "Z-B", etc. Describe in the comment field where within the appendix your comment applies.

Plans Comments

Plans: In the Category field, choose "Plans" and then enter the plan sheet number only in the Sheet Number field such as "01" or "10" (no quotes) or "E10" or "D-04.21". DO NOT enter words. DO NOT enter: "Sheet 10" or "Plan 10" or "Safety Plan". If your comment extends to other sheets, enter the first sheet the comment applies to in the Sheet Number field and then list the other sheets the comment applies to in the comment. For Standard Plans use the Plan number such as "D-01.02". For Standard Plans with multiple sheets, tell reviewers which sheet in the series the comment refers to in the comment itself.

Engineer's Design Report (EDR) Comments

EDR: Choose the "EDR" tab (If available, there is a pdf document to view/download on the review comment website)

Geotechnical Comments

Geo: Choose the "Geo" tab (If available there is a pdf document to view/download on the review comment website)

Modification to Construction Standards (MCS) Comments

MCS: Choose General Category and enter "MCS" in the Item field. Describe exact location of comment in the comment field.

Plans In Hand Comment Response (PIHCR) Comments

PIHCR: Choose General Category and enter "PIHCR) in the item field. Describe exact location comment refers to in the comment field (ie comment number and name of PIH commenter).

Cross Section (XC) Comments

XC: Choose General Category and enter "XC" Describe what cross section comment refers to in comment field.

Quantity Calculations (QC) Comments

QC: Chose General Category and enter "QC" Describe what location in the Quantity Calculations comment applies to.

LHD Aprons A, B, E, and Taxiway E Surface Seal
CFAPT01199

PS&E Review

COMMENTS DUE: **Friday, December 5, 2025**
REVIEW MEETING: **Tuesday, December 9, 2025 – 10:00 a.m.**

Distribution, (1 copy, MS 2525 unless otherwise noted)

Aviation Design:
*Luke Bowland, Preconstruction Engineer
*Steven Rzepka, Aviation Design Chief
*Michael Hansmeyer, Specifications Engineer
*Jeff Burnett, Drafting Technician

Central Region Materials (MS 2526):
Mitch Miller, Regional Materials Eng. **(2)**

Statewide Materials (MS 2538)
*Mike San Angelo, State Materials Engineer

Traffic Safety & Utilities:
Cynthia Ferguson, TS&U Group Chief
David Freese, Regional Utilities Eng.

ANC:
Jennifer Lombardo, Project Manager **(10)**

Construction:
*Joel G. St. Aubin, Regional Constr. Engineer
Eric Desentis, Constr. Group Chief
Talisa Rodrigues, Constr. Project Manager
Frank Lee, Constr. Project Engineer **(3)**
*Laren Meyer, Construction Office Engineer
*Athena Marinkovic, ESCP Coordinator

Quality Assurance:
Mahear Abou Eid, Concurrent Review Engineer
Jim Klebesadel, Lead Materials Rover

* Electronic Only

Mail/FedEx/ZendTo

Evan Griffith
Stantec, 3900 C St, Suite 902, Anchorage, AK 99503 **(2)**

*Jenelle Brinkman, FAA Lead Civil Engineer
*Peter Mamrol, FAA Project Manager

Contracts:
Sharon Smith, Section Chief
Matthew Hansen, Review Engineer

PD&E:
*Alex Read, PD&E Group Chief
*Brian Elliot, Environmental Manager
Orion LeCroy, Regional Hydraulics Engineer
Elliot Smith, Hydraulics Engineer

Right-of-Way
Melanie Arnolds, Right-of-Way Group Chief
*Bob Keiner, ROW Engineering Supervisor
*James Sowerwine, Proj. Coordination Supervisor

Surveys
*Travis Test, Survey Manager

Project Control
*Jennifer Coisman, Project Control Chief

PROJECT MANUAL FOR:

LHD Aprons A, B, E, and Taxiway E Surface Seal
Program No. AIP 3-02-0013-XXX-2026 / CFAPT01199

AS ADVERTISED: Date
Document Fee: $100.00

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5. Federal Wage Rates

Federal wage rates can be obtained at https://sam.gov/content/home for the State of Alaska. Use the federal wage rates that are in effect 10 days before Bid Opening. The Department will include a paper copy of the federal wage rates in the signed Contract.

6. State Wage Rates

State wage rates can be obtained at http://www.labor.state.ak.us/lss/pamp600.htm. Use the State wage rates that are in effect 10 days before Bid Opening. The Department will include a paper copy of the State wage rates in the signed Contract.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

INVITATION TO BID

for Construction Contract

Date Month xx, 2025

LHD Aprons A, B, E, and Taxiway E Surface Seal
Program No. AIP 3-02-0013-XXX-2026 / CFAPT01199

The Department invites bidders to submit bids for furnishing all labor, equipment, and materials and performing all work for the project described below. The Department will only consider bids received **before 2:00 PM local time (per the Department's time source) on the __th day of Month 2025.** On that date, the Department will assemble, open, and then publicly announce the timely-received bids at Anchorage, Alaska at 2:15 PM, or as soon thereafter as practicable.

Location of Project: Anchorage, Alaska
Contracting Officer: Sean L. Holland, P.E., Regional Director
Issuing Office: Central Region

State Funded ☐ Federal Aid ☒

Description of Work:
This federally funded project at Lake Hood Seaplane Base will repave Aprons E, and B, and surface seal Apron A and Taxiway E. This project also includes replacing a 24 inch diameter culvert under Taxiway E and replacing all painted pavement markings on these aprons and the taxiway.

Project DBE Utilization Goal: ☒ Race-Neutral

The Engineer's Estimate is between **$2,500,000** and **$5,000,000**

All work shall be completed by **October 31, 2026.**
The Department will identify interim completion dates, if any, in the Special Provisions.

The apparent successful bidder must furnish a payment bond in the amount of 100% of the contract and a performance bond in the amount of 100% of the contract as security conditioned for the full, complete and faithful performance of the contract. The apparent successful bidder must execute the said contract and bonds within **ten (10)** calendar days, or such further time as may be allowed in writing by the Contracting Officer, after receiving notification of the acceptance of their bid.

Submission of Bidding Documents

Bidders may submit bidding documents electronically via the Department's approved online bidding service, through the mail or hand delivered. For mailed or hand delivered bids and for electronically submitted bids with a paper bid guaranty, documents shall be submitted in a sealed envelope marked as follows:

Bidding Documents for Project: **LHD Aprons A, B, E, and Taxiway E Surface Seal** **Program No. AIP 3-02-0013-XXX-2026 /** **CFAPT01199**	**ATTN:** **State of Alaska** **Department of Transportation & Public Facilities** **PO Box 196900** **4111 Aviation Avenue** **Anchorage, AK 99519-6900**

It is incumbent upon the bidder to ensure its bid, any amendments, and/or withdrawal arrive, in its entirety, at the location and before the deadline stated above. A bidder sending a bid amendment or withdrawal via email must transmit its documentation to the Department at this email address: crdotpfcontracts@alaska.gov.

To be responsive, a bid must include a bid guaranty equal to 5% of the amount bid. (*When calculating the bid amount for purposes of determining the 5% value of the bid guaranty, a bidder shall include its base bid amount, plus the amount bid for alternate and supplemental bid items, if any.)*

The Department hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this Invitation, Disadvantaged Business Enterprises will be afforded full opportunity to submit bids and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

NOTICE TO BIDDERS

Bidders must have a Vendor ID or your bid may not be accepted. More information can be obtained at the following website: http://dot.alaska.gov/aashtoware/docs/AWP-Vendor-List-Guidance.pdf

The following data may assist a bidder in preparing its bid:

See attached Special Notice to Bidders for this project.

A bidder may obtain hard copy project plans and specifications for the price of **$100.00** from:
State of Alaska, Department of Transportation & Public Facilities
Plans Room
4111 Aviation Avenue
PO Box 196900
Anchorage, AK 99519-6900

Phone: (907) 269-0408

If a bidder has a question relating to design features, constructability, quantities, or other technical aspects of the project, it may direct its inquiry to the questions and answers area of the Bid Express proposal page: https://www.bidx.com/ak/lettings

A bidder requesting assistance in viewing the project site must make arrangements at least 48 hours in advance.
The point of contract for inquiries for this project is **Jennifer Lombardo, P.E.**

Email: jennifer.lombardo@alaska.gov Phone: (907) 266-2731

For questions relating to electronic bidding or for assistance with your Bid Express account, contact Bid Express customer support at customer.support@bidx.com or call toll free (888)352-BIDX(2439) Monday through Friday 7:00am to 8:00pm (Eastern).

A bidder may direct questions concerning bidding procedures and requirements to:
Sharon L. Smith, P.E.
Chief of Contracts
PO Box 196900
Anchorage, AK 99519-6900

Email: sharon.smith@alaska.gov Phone: (907) 269-0414

Other Information:

The Bid Calendar, Plan Holder List, Bid Results and DBE information are available on the Internet at: www.dot.alaska.gov under Procurement.

This project was designed in US customary (USC) units. Inspection will take place in USC units. Submittal must be provided in USC units.

To report bid rigging activities call: 1-800-424-9071.

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., Eastern Time. Anyone with knowledge of possible rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

Special Notice to Bidders

1. Bidders are hereby notified that data to assist in preparing bids is available for viewing on the Bid Express advertising web site as follows:

   a. Erosion and Sediment Control Plan
   b. Quantity Calculations

2. The Alaska Storm Water Pollution Prevention Plan Guide, March 2021 is available online at: https://dot.alaska.gov/stwddes/desenviron/resources/stormwater.shtml

3. The Alaska Test Methods Manual effective September 1, 2024 is available online at: https://dot.alaska.gov/stwddes/desmaterials/mat_resource.shtml

4. The Department, in coordination with the US DOT, has adopted a Race-Neutral DBE Program effective for Federal-aid projects advertised in Central Region after June 30, 2015. In particular, all bidders shall be aware that Good Faith Effort Documentation is required from the successful bidder for all contracts, regardless of DBE goal or DBE utilization, in accordance with Item G-120 Disadvantaged Business Enterprise (DBE) Program.

   Direct questions about this notice to the Manager of the Civil Rights Office, (907) 269-0848, http://www.dot.state.ak.us/cvlrts/index.shtml.

5. Bidders are cautioned that required documents for bid, required documents after notice of apparent low bidder, and required documents for award have changed. Carefully review Required Documents Form 25D-4A. Failure to complete and submit the listed documents in accordance with the requirements may result in a finding of non-responsiveness.

6. Bidders are hereby notified that products specifically listed in the advertising documents with “or approved equal” have not been verified that they meet Buy American Program requirements. In addition, FAA-certified equipment in AC 150/5345-53D, Airport Lighting Equipment Certification Program may or may not meet Buy American Program compliance. Many of these products are listed on the Nationwide Buy American Waiver List, and if not, they must be covered by a Type III waiver. Bidders are encouraged to review information regarding this issue at the following links:

   https://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentnumber/150_5345-53

   https://www.faa.gov/airports/aip/buy_american/nationwide_waivers_issued

7. The Governor’s emergency declaration and mandates relating to COVID-19 expired on February 14, 2021. However, contractors are encouraged to review COVID-19 Response and Recovery Health Advisories that can be accessed at:

   https://covid19.alaska.gov/health-advisories/

Contractors will still be required to meet any applicable local ordinances or requirements currently in effect, and comply with any future federal, state, or local declarations or mandates that might be adopted while work on the project is ongoing.

Consistent with Section 70-01 of the *Standard Specifications for Airport Construction*, the Contractor will be responsible for paying all costs and expenses incurred to comply with any COVID-19 Health Mandates or Health Advisories in effect during times when the Contractor is performing project-related work activities. The Contractor will additionally be responsible for preparing any general or site-specific mitigation and response plans required for its forces, along with any attendant schedule delays or impacts.

8. 2 CFR 200.216, prohibits certain telecommunication and video surveillance equipment, services or systems on all Federal-Aid Projects. Refer to GCP 60-01 Prohibition on Certain Telecommunication and Video Surveillance Services or Equipment.

9. Certified payroll must be submitted electronically through AASHTOWare for contracts awarded after January 1, 2021. In order to submit certified payroll, Contractors, Subcontractors, and lower tier Subcontractors must be active in AASHTOWare, which requires they have a valid Vendor ID with a 913 commodity code. To obtain a Vendor ID, register with the state of Alaska via the Vendor Self-Serve (VSS). Instructions for creating a new account in the VSS system can be found under the Reference Guides and Forms at the following link: https://iris-vss.alaska.gov/PRDVSS1X1/Advantage4. For information on certified payroll contact the Department of Labor and Workforce Development, Wage and Hour Administration:

    Juneau (907) 465-4842
    Anchorage (907) 269-4900
    Fairbanks (907) 451-2886

    DOT&PF AASHTOWare Project Guidance, including schedule, FAQs, training options: http://dot.alaska.gov/aashtoware/

10. The award of this contract is contingent upon adequate funding being received from the Federal Aviation Administration.

11. Bidders are cautioned to pay special attention to the modification of Item G-100 Mobilization and Demobilization where the payment distribution has been modified.

12. Contract Price Adjustment(s): The Department will not provide cost escalation or de-escalation price adjustment for this contract, except for specific items described in the bid package at the time of bid opening.

13. The Build America, Buy America (BABA) sections in Public Law No. 117-58 (Bipartisan Infrastructure Law (BIL)) establish three classes of materials that must be declared as being produced in the United States:
    - Iron and Steel
    - Manufactured Products
    - Construction Materials

Section GCP 60-09 incorporates changes to the Buy American Preference requirements to comply with recent FAA interpretations. Because individual construction materials are not eligible FAA projects, FAA considers construction materials incorporated in AIP funded construction projects to be combined with other materials through a manufacturing process into a final manufactured good [the project]. This allows construction materials incorporated on the project to be part of the Type 3 waiver process.

FAA has clarified that structural iron, like structural steel, must be 100% U.S. origin. Small amounts of iron used in components and subcomponents that are not structural may be included in a Type 3 waiver.

As part of this change, form 25D-151 was modified. Form 25D-154 was not changed, and the other forms used in the waiver process are available through the FAA website below.

Appendix A4 of the FAA's *Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects* (FAA Contract Guidelines) contains information on FAA's requirements under BABA, Executive Order 14005, and 49 USC § 50101. FAA has also published two fact sheets containing guidance information regarding BABA, IIJA, and Executive Order 14005.

Included in the Fact Sheet for IIJA, BABA, and Executive Order 14005 is a clarification (at Item 17) that nationwide waivers issued more than 180 days prior to 11/15/2021 are no longer current. The Nationwide Buy American Waivers list contains expired items with an effective date prior to this. New projects wishing to use such items must include them as part of the Type 3 waiver request.

The second page of FAA Form 5100-136, Buy American Project/Product Content Percentage Calculation – Worksheet, does not need to be completed for a Type 3 Waiver. That page is for a Type 2 or 4 waiver.

BABA can be found in Sections 70901-70952 of the BIL.

The BIL can be found at https://www.congress.gov/bill/117th-congress/house-bill/3684/text

FAA Contract Guidelines can be found at https://www.faa.gov/sites/faa.gov/files/2023-01/combined-federal-contract-provisions-2023-1-20.pdf

Executive Order 14005 can be found at https://www.federalregister.gov/documents/2021/01/28/2021-02038/ensuring-the-future-is-made-in-all-of-america-by-all-of-americas-workers

FAA's Buy American Waiver forms and Nationwide Buy American Waivers list can be found at https://www.faa.gov/airports/aip/buy_american/

FAA Buy American Preference BABA Implementation Fact Sheet https://www.faa.gov/airports/aip/buy_american/baba_implementation_fact_sheet

FAA Buy American Preference Implementation of IIJA, BABA, and Executive Order 14005 Fact Sheet
https://www.faa.gov/airports/aip/buy_american/baba_executive_order_14005

14. All bidders on federally funded projects must submit the Alaska DOT&PF Bidders List Form with their bid submittal at the time of bid opening. This is a federal requirement of all bidders but is not a condition of responsiveness.

    Fill out the Alaska DOT&PF Bidders List Form for all subcontractors contacted for quotes regardless of whether they are the successful subcontractor. Ensure that NAICS codes submitted in the Alaska DOT&PF Bidders Form align the subcontractor scope for the work requested with the appropriate federal code. This may result in multiple NAICS codes for each subcontractor.

    Vendor IDs are available at
    https://dot.alaska.gov/procurement/awp/vendorcheck.html
    If a Subcontractor does not have a Vendor ID in AASHTOWare, leave that field blank but fill in the Vendor Name and applicable NAICS codes.

    The Bidders List Form is available as an attachment to the Proposal on the BidX advertising website. For electronically submitted bids, attach a copy of the completed Excel file as an attachment in BidX. If submitting a manual bid, email the Excel file to the regional contracts office conducting the procurement prior to the bid opening.

    Central – crdotpfcontracts@alaska.gov
    Northern – dot.nrcontracts@alaska.gov
    Southcoast – srdotpfcontracts@alaska.gov

    The collection of this information is a requirement of 49 CFR 26.11(c) and is required of all bidders at the time of bid to ensure DOT&PF's compliance with Federal Regulation.

15. Issuance of a Notice to Proceed cannot occur until an approved FAA Form 7460-1 is obtained by the Contractor (see Subsection 80-03). Approval may take up to 45 business days, or longer, and Contractor is advised to submit the form as soon as practicable after contract award.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

STANDARD SPECIFICATIONS
FOR
AIRPORT CONSTRUCTION

LHD Aprons A, B, E, and Taxiway E Surface Seal
CFAPT01199 / AIP 3-02-0013-XXX-2026

(Advisory Circular 150/5370-10H, Standard Specifications for Construction of Airports, as modified, and approved by the Federal Aviation Administration for Airport Improvement Program contracts in Alaska)

Revised 9/23
Original Issue Date 12/21
US Customary

NOTE: Special Provisions for each project are marked as changes to the text of the Standard Specifications. Deleted text is identified by strikethrough. Additions are underlined. The location of each Special Provision is shown by a vertical bar in the margin.

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SECTION 10
DEFINITION OF TERMS

10-01 GENERAL. The following terms and definitions apply in these Specifications. If a term is not defined, the ordinary, technical, or trade meanings for that term shall apply, within the context in which it is used.

Titles and headings of sections, subsections, and subparts are intended for convenience of reference and will not govern their interpretation. Working titles which have a masculine gender, such as “workman” and “flagman” and the pronouns and adjectives “he”, “his” and “him” are utilized in the contract documents for the sake of brevity, and are intended to refer to persons of either sex. Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.

Cited publications refer to the most recent issue, including interim publications, in effect on the date of the Invitation To Bid, unless specified by year or date.

These Specifications are written to the Bidder or Contractor. Unless otherwise noted, all actions required by the specifications are to be performed by the Bidder, the Contractor, or the Contractor's agent.

Some portions of these Specifications are written using imperative mood, abbreviated format, incomplete sentences and/or active voice to communicate the Contractor's responsibilities in a direct and concise manner. Omission of words or phrases such as “a,” “an,” “the,” “the Contractor shall,” “unless otherwise specified,” or “unless otherwise directed” is intentional. Interpret the Contract as if they were included.

For all Specification language except the General Contract Provisions, whenever anything is, or is to be, done, if, as, or, when, or where “acceptable, accepted, approval, approved, authorized, determined, designated, directed, disapproved, ordered, permitted, rejected, required, satisfactory, specified, submit, sufficient, suitable, suspended, unacceptable, unsatisfactory, or unsuitable,” the expression is to be interpreted as if it were followed by the words “by the Engineer” or “to the Engineer.”

10-02 ACRONYMS. Wherever the following abbreviations are used in these Specifications or on the Plans, they are to be construed the same as the respective expression represented. :

AAC	*Alaska Administrative Code*
AASHTO	American Association of State Highway and Transportation Officials
AC	*FAA Advisory Circular*
ACI	American Concrete Institute
ADEC	Alaska Department of Environmental Conservation
AIA	American Institute of Architects
AIP	Airport Improvement Program
AKOSH	Alaska Occupational Safety and Health
ANC	Ted Stevens Anchorage International Airport
ANSI	American National Standards Institute
AOA	Air Operations Area
AS	*Alaska Statute*
ASDS	*Alaska Sign Design Specifications*
ASTM	American Society for Testing & Materials
ATM	Alaska Test Method
ATMM	*Alaska Test Methods Manual*
CFR	*Code of Federal Regulations*
CSPP	Construction Safety and Phasing Plan
CTAF	Common Traffic Advisory Frequency
DOLWD	Alaska Department of Labor and Workforce Development
DOT&PF	Alaska Department of Transportation and Public Facilities
DRO	Diesel Range Organics

EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FM	Factory Mutual
FOD	Foreign Objects and Debris
FOP	Field Operating Procedure (See *Alaska Test Methods Manual*)
FSS	Flight Service Station
GCP	General Contract Provision(s)
GRO	Gasoline Range Organics
ICEA	Insulated Cable Engineers Association (formerly IPCEA)
LHD	Lake Hood Seaplane Base
MCL	Materials Certification List
MRP	Mining and Reclamation Plan
NEC	*National Electrical Code*
NEMA	National Electrical Manufacturers Association
NOTAMs	*Notices to Airmen*
PFAS	Per- and Polyfluoroalkyl substances
PFOA	Perfluorooctonoic acid
PFOS	Perfluorooctanesulfonic acid
RASSO	Regional Airport Safety and Security Officer
SPCC	*Spill Prevention, Control, and Countermeasure* (Plan)
SPCD	Safety Plan Compliance Document
SSAC	*DOT&PF Standard Specifications for Airport Construction*
SSPC	Society for Protective Coatings
SWPPP	*Storm Water Pollution Prevention Plan*
TCP	*Traffic Control Plan*
UL	Underwriters Laboratory
WAQTC	Western Alliance for Quality in Transportation Construction (See *Alaska Test Methods Manual*)

10-03 DEFINITIONS.

ACCEPTANCE SAMPLING AND TESTING. Sampling and testing performed by the State of Alaska, or its designated agent, to evaluate acceptability of the final product.

ACCESS ROAD. The right-of-way, the roadway, and all improvements constructed thereon connecting the airport to another public thoroughfare.

ADDENDA. Clarifications, corrections, or changes to the Plans, Specifications, or other Contract documents issued graphically or in writing by the Department after the advertisement but prior to bid opening.

ADVERTISEMENT. The public announcement, as required by law, inviting bids for specified work or materials.

ADVISORY CIRCULAR (AC). FAA standards and guidance for their Airport Improvement Program.

AGREED PRICE. An amount negotiated between the Department and the Contractor after Contract award for additional work performed or additional materials supplied under the Contract.

AIR OPERATIONS AREA (AOA). Any area of the airport used or intended to be used for the landing, takeoff, surface maneuvering, or parking of aircraft. An air operation area shall include such paved or unpaved areas~~,~~ that are used or intended to be used for the unobstructed movement of aircraft, in addition to its associated runway, taxiway, or apron.

AIRPORT. An area of land or water that is used or intended for use for the landing and takeoff of aircraft, and any appurtenant areas that are used or intended for use for airport buildings or other airport facilities or right of way, together with airport buildings and facilities.

AIRPORT IMPROVEMENT PROGRAM (AIP). A grant-in-aid program, administered by the FAA.

ALASKA STANDARD PLAN. Detail drawing adopted by the Department for repetitive use, showing details to be used where appropriate. Alaska Standard Plans are adopted as Alaska's accepted standards, in accordance with AS 19.10.160(a), and for use in conformity with 12 AAC 36.185(a)(2).

ALASKA TEST METHODS MANUAL (ATMM). The materials testing manual used by the Department. It contains Alaska Test Methods, WAQTC Test Methods, WAQTC FOPs for AASHTO Test Methods, and Alaska Standard Practices for evaluating test results and calibrating testing equipment.

ALASKA TRAFFIC MANUAL. The standard for traffic control devices on Alaska roads, per AS 28.01.010(d). The Alaska Traffic Manual is comprised of the Manual on Uniform Traffic Control Devices (MUTCD) published by the Federal Highway Administration as modified by the Alaska Traffic Manual Supplement, and any adopted revisions or interim addenda issued subsequently and corrections to known errors in either document.

APPENDICES. Supplemental Contract Documents.

AVIATION MATERIALS CERTIFICATION LIST. See Materials Certification List.

AWARD. Acceptance of the successful bid by the Department. The award is effective upon execution of the Contract by the Contracting Officer.

BASE COURSE. One or more layers of specified material placed on a subbase or subgrade to support a surface course.

BID (OR PROPOSAL). The bidder's offer, on the prescribed forms, to perform the specified work at the prices quoted.

BID BOND. A type of bid guaranty.

BIDDER. An individual, firm, corporation, joint venture, or any acceptable combination of individuals and entities submitting a bid for the advertised work.

BID FORMS. Department-furnished forms that a bidder must complete and submit when making a bid in response to an advertised project. Bid forms may include a bid schedule, certification forms, acknowledgment forms, and other documents.

BID GUARANTY. The security furnished with a bid to guarantee that the bidder will enter into a contract if the Department accepts the bid.

CALENDAR DAY. Every day shown on the calendar, beginning and ending at midnight.

CHANGE ORDER. A written order by the Department to the Contractor making changes to the Contract, within its general scope, and establishing the basis of payment and time adjustment, if any, for the work affected.

COMMON TRAFFIC ADVISORY FREQUENCY (CTAF). A designated frequency for the purpose of carrying out airport advisory practices while operating to or from an airport that does not have a control tower or an airport where the control tower is not operational. CTAF is identified in appropriate aeronautical publications such as the current *FAA Chart Supplement Alaska,* a civil/military flight information publication issued by FAA every 56 days.

COMPLETION DATE. The date on which all Contract work is specified to be completed.

CONSTRUCTION. Physical activity by the Contractor or any Subcontractor using labor, materials or equipment within the Project, or within material sources planned for use on the Project.

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP). The overall plan for safety and phasing of a construction project developed by the Department and approved by the FAA. It is included in the appendix ~~invitation for bids~~ and becomes part of the project specifications.

CONTINGENT SUM. A method for paying for a Contract bid item reserved by the Department for specified contingencies. The Contractor shall perform Contingent Sum work only upon the Directive of the Engineer. The basis of payment for Contingent Sum work shall be specified in the Contract or the Directive.

CONTRACT. The written agreement between the Department and the Contractor setting forth the obligations of the parties for the performance and completion of the work.

The Contract includes the Invitation To Bid, Bid Form, Standard Specifications, Special Provisions, Appendices, Plans, Bid Schedule, Contract Forms, Contract Bonds, Addenda, and any Change Orders, Interim Work Authorizations, Directives, or Supplemental Agreements that are required to complete the work in an acceptable manner, all of which constitute one instrument.

CONTRACTING OFFICER (PROCUREMENT OFFICER). The person authorized by the Commissioner of the Department to enter into and administer the Contract on behalf of the Department. The Contracting Officer has authority to make findings, determinations, and decisions with respect to the Contract and, when necessary, to modify or terminate the Contract. The Contracting Officer is identified on the Invitation To Bid.

CONTRACT ITEM (PAY ITEM). A specifically described item of Contract work listed on the Bid Schedule or in a Change Order.

CONTRACTOR. The individual, firm, corporation, joint venture, or any acceptable combination of individuals and entities contracting with the Department for performance of the Contract.

CONTRACT TIME. The time allowed under the Contract, including authorized time extensions, for the completion of all work by the Contractor.

CONTROLLING ITEM. Any feature of the work considered at the time by the Engineer: (1) essential to the orderly completion of the work and (2) a feature which, if delayed, will delay the time of completion of the Contract (such as an item of work on the critical path of a network schedule).

COST. Amounts actually incurred by the Contractor in the performance of the Contract that are (a) actually reflected in contemporaneously maintained accounting or other financial records and (b) supported by original source documentation. Costs are to be stated in U.S. dollars.

CULVERT. A pipe or arch half pipe, that provides an opening under the embankment.

DAY. Calendar day unless preceded by the word “working”.

DEPARTMENT. The State of Alaska Department of Transportation and Public Facilities.

DIGITAL SIGNATURE. An electronic signature that conforms to the Uniform Electronic Transactions Act, AS 09.80.010 et seq.

DIRECTIVE. A written communication to the Contractor from the Engineer enforcing or interpreting a Contract requirement or ordering commencement or suspension of an item of work already established in the Contract.

DRAINAGE SYSTEM. The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.

ELECTRONIC BID. A bid that a bidder (i) prepares on the Department’s bid forms accessed through the Department’s approved online bidding service and (ii) submits to the Department through use of that bidding service’s online submittal process.

ELECTRONIC MAIL (EMAIL). A system for sending messages from one person to another via telecommunications links between computers or terminals using dedicated software.

ENGINEER. The authorized representative of the Department's Contracting Officer. The Engineer is responsible for administration of the Contract.

EQUIPMENT. All machinery, tools, apparatus, and supplies necessary to preserve, maintain, construct, and complete the work.

EQUITABLE ADJUSTMENT. An increase or decrease in Contract price or time calculated according to the terms of this Contract.

EXTRA WORK. An item of work not provided for in the Contract as awarded but found essential by the Engineer for the satisfactory completion of the Contract within its intended scope.

FEDERAL AVIATION ADMINISTRATION (FAA). Branch of the U.S. Department of Transportation. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.

FEDERAL SPECIFICATIONS. The most current version of the Federal Specifications and Standards, Commercial Item Descriptions, and supplements, amendments, and indices thereto which are prepared and issued by the General Services Administration (GSA) of the Federal Government in effect on the date bids are opened.

FOREIGN OBJECT DEBRIS (FOD). Any object, live or not, located in an inappropriate location in the airport environment that has the capacity to injure airport or air carrier personnel and damage aircraft.

HIGHWAY, STREET, OR ROAD. A general term denoting a public way used by vehicles and pedestrians, including the entire area within the right-of-way.

HIGHWAY TRAFFIC CONTROL PLAN. See traffic control plan.

HOLIDAYS. State of Alaska legal holidays are:

a. New Year's Day - January 1
b. Martin Luther King, Jr. Day - Third Monday in January
c. Presidents' Day - Third Monday in February
d. Seward's Day - Last Monday in March
e. Memorial Day - Last Monday in May
~~**e.**~~**f.** Juneteenth – June 19
~~**f.**~~**g.** Independence Day - July 4
~~**g.**~~**h.** Labor Day - First Monday in September
~~**h.**~~**i.** Alaska Day - October 18
~~**i.**~~**j.** Veteran's Day - November 11
~~**j.**~~**k.** Thanksgiving Day - Fourth Thursday in November
~~**k.**~~**l.** Christmas Day - December 25
m. Every Sunday
~~**l.**~~**n.** Every day designated by public proclamation by the President of the United States or the governor as a legal holiday.

If a holiday listed above falls on a Saturday then that Saturday and the preceding Friday are both legal holidays for officers and employees of the state. If the holiday falls on a Sunday, except (~~12~~m.) above, then that Sunday and the following Monday are both legal holidays.

INSPECTOR. An authorized representative of the Engineer assigned to make all necessary inspections, observations, and/or tests, observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

INTERIM WORK AUTHORIZATION. A written order by the Engineer initiating changes to the Contract, within its general scope, until a subsequent Change Order is executed.

INVITATION TO BID. The advertisement for bids for all work or materials on which bids are required.

LABORATORY. The official testing laboratories of the Department or such other laboratories as may be designated by the Engineer.

LIGHTING. A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.

MAJOR CONTRACT ITEM. A Contract item for which the Contractor's Bid Amount is 5 percent or more of the total Contract award amount. Determination of a Major Contract Item is made at the time of Award.

MANUAL BID. A bid that a bidder (i) prepares on the Department's bid forms accessed either through the Department's approved online bidding service or obtained from the Department's Regional Contracts Office and (ii) submits to the Department in physical paper form by hand delivery, U.S. Mail, or courier service.

MATERIALLY UNBALANCED BID. A mathematically unbalanced bid that either (a) gives rise to a reasonable doubt that it will ultimately result in the lowest overall cost to the Department, even though it may be the lowest bid or (b) is so unbalanced as to be tantamount to allowing a significant advance payment.

MATERIALS. Substances specified for use in the construction of the project.

MATERIALS CERTIFICATION LIST (MCL). Also referred to as "Aviation Materials Certification List". A list of materials for which the Contractor shall submit certifications to the Engineer. The MCL will also designate electrical products requiring listing by an approved independent electrical testing laboratory. The MCL is included in the Contract documents as an appendix.

MATHEMATICALLY UNBALANCED BID. A bid (a) where each pay item fails to carry its share of the cost of the work plus the bidder's overhead and profit, or (b) based on nominal prices for some pay items and enhanced prices for other pay items.

MINOR CONTRACT ITEM. A Contract item with a total value of less than 5 percent of the Contract award amount.

NON-FROST SUSCEPTIBLE. Stone, gravel or sand, that contains 6 percent or less material passing the No. 200 screen as determined by sieve analysis performed with ATM 304 on the minus 3-inch material, and has a plastic index of 6 or less as determined by ATM 205.

NOTICE OF INTENT TO AWARD. The written notice by the Department announcing the apparent successful bidder and establishing the Department's intent to award the Contract when all required conditions are met.

NOTICE TO PROCEED. Written notice to the Contractor to begin the Contract work.

ORIGINAL GROUND (OG). The ground surface prior to the start of work.

PAVEMENT STRUCTURE. The combination of subbase, base course, and surface course placed on a subgrade to support and distribute the traffic load. Some layers may not be present, see Plans.

PAYMENT BOND. The security furnished by the Contractor and the Contractor's Surety to guarantee payment of all persons who supply labor and material in prosecution of the work provided for in the contract.

PERFORMANCE BOND. The security furnished by the Contractor and the Contractor's Surety to guarantee performance and completion of the work provided for in the contract.

PLANS. The Department's contract drawings, profiles, typical cross sections, and supplemental drawings or reproductions showing the location, character, dimensions, and details of the work.

PRECONSTRUCTION CONFERENCE. A meeting between the Contractor and the Engineer to discuss the project before the Contractor begins the work.

PROCESS CONTROL. See quality control.

PROCUREMENT OFFICER. See contracting officer.

PROFILE. The vertical elevation of the surface of the layer at the location indicated. It is typically indicated at the longitudinal centerline of the top layer of pavement on the runway, taxiway, apron, or roadway. On a material or fabrication it may be used to indicate a shape, or a thickness of material or thickness of a coating.

PROJECT. (a) The specific section of the airport or other property and related facilities on which construction is to be performed, or (b) the work that is to be performed under the Contract whether completed or partially completed.

QUALIFIED PRODUCTS LIST. A list of products that the Department has found conforms to the SSAC, except for Buy American and Alaska Agricultural/Wood Products. The Department makes no guarantee that any product on the Qualified Products List meets the requirements of Subsection 60-09 Buy American Steel and Manufactured Products, or Alaska Agricultural/Wood Products.

QUALITY CONTROL (QC) also called **PROCESS CONTROL**. The system used by a contractor to monitor, assess and adjust their production or placement processes to ensure that the final product will meet the specified level of quality. Quality control includes sampling, testing, inspection and corrective action (where required) to maintain continuous control of a production or placement process.

RESOURCES. Labor, equipment, materials, supplies, tools, transportation, and supervision necessary to perform the work.

RESPONSIBLE BIDDER. A bidder that the Department determines has the skill, ability, financial resources, legal capacity to contract, equipment, required licenses, integrity, satisfactory record of performance and that is otherwise fully capable of performing the Contract.

RESPONSIVE BID. A bid that the Department determines conforms in all material respects with the solicitation for bids.

RETAINAGE. A percentage of a payment established in advance under a contract or subcontract to be withheld from a progress payment due on the contract or subcontract. Payment or a percentage of payment withheld for unsatisfactory performance is not retainage.

RIGHT-OF-WAY. Land or property or an interest in property available for a project. The uses allowed in portions of right-of-way may be restricted.

RUNWAY. The area of the airport prepared for the landing and takeoff of aircraft.

RUNWAY SAFETY AREA (RSA). A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event an aircraft undershoots, overshoots, or departs from the runway.

SAFETY PLAN COMPLIANCE DOCUMENT (SPCD). A document prepared by the Contractor that details how the Contractor will comply with the CSPP, and approved by the Department.

SECURITY PLAN. A Contract document that specifies methods of controlling the operations of the Contractor, subcontractors, and suppliers so as to provide for (1) security of workers, equipment, and public, (2) security of aircraft in the Air Operations Areas of the airport, and (3) security of the Airport property.

SPECIAL PROVISION. Addition or revision that amends or supersedes the Standard Specifications and is applicable to an individual project.

SPECIALTY ITEM. A Contract item identified in the Contract that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract.

SPECIFICATIONS. General term applied to all Contract terms, conditions, directions, provisions, and requirements.

STANDARD SPECIFICATIONS. A book or electronic file of specifications approved by the Department for general application and repetitive use.

STATE. The State of Alaska, acting through its authorized representative.

STRUCTURE. Bridge, building, catch basin or inlet, cribbing, culvert, electrical duct, flexible and rigid pavements, handholes, junction boxes, lighting fixture and base, manhole, navigational aid, retaining wall, storm and sanitary sewer lines, transformer, underdrain, vault, visual aid, water line, and other manmade features of the airport that may be encountered in the work and not otherwise classified herein.

SUBBASE. Layer of specified material between the subgrade and base course.

SUBCONTRACTOR. Individual or legal entity to whom or to which the Contractor sublets part of the Contract.

SUBGRADE. The soil or embankment upon which the pavement structure is constructed.

SUBSIDIARY. Work or material not measured or paid for directly. Compensation for such work is included in the payment for other items of work.

SUBSTANTIAL COMPLETION. The point at which the project (1) can be safely and effectively used by the public without further delays, disruption, or other impediments; and (2) pavement structure, shoulder, drainage, sidewalk, permanent signing and markings, guardrail and other traffic barrier, fencing, safety appurtenance, structures, utilities, lighting, bridge deck and parapet work, and guidance systems for aircraft is complete.

For projects built in phases the work is substantially complete when it is ready for the subsequent ~~project~~phase.

SUPERINTENDENT. The Contractor's authorized representative in responsible charge of the work.

SUPPLEMENTAL AGREEMENT. Negotiated written agreement between the Department and the Contractor authorizing performance of work beyond the general scope of, but in conjunction with, the original Contract. Supplemental agreements are new procurements under the State Procurement Code, AS 36.30.

SURETY. Corporation, partnership, or individual, other than the Contractor, executing a bond furnished by the Contractor.

SURFACE COURSE. Top homogenous layer of the pavement structure. It is designed to withstand the wear of traffic and the disintegrating effects of climate. Sometimes called the wearing course.

TAXIWAY. The portion of the air operations area of an airport that has been designated for movement of aircraft to and from runways or aircraft parking areas.

TAXIWAY SAFETY AREA (TSA). A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.

TRAFFIC CONTROL PLAN (TCP). Also referred to as “Highway Traffic Control Plan”. A drawing or drawings indicating the method for safely guiding and protecting motorists, pedestrians, bicyclists, and workers in a highway traffic control zone. The TCP depicts the highway traffic control devices and their placement and times of use.

UTILITY. Line, facility, or system for producing, transmitting, or distributing communications, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water not connected with highway drainage, or other similar commodity, including a publicly owned fire or police signal system, street lighting system, or railroad which directly or indirectly serves the public. Also means lighting as defined in this subsection. Also means a utility company, inclusive of any subsidiary.

VERIFICATION SAMPLING AND TESTING. See ACCEPTANCE SAMPLING AND TESTING.

WORK. Depending on the context, (a) The act of furnishing all resources for the project and performing all duties and obligations required by the Contract or (b) the physical construction, facility or end–product that is contemplated under the Contract, whether completed or partially completed.

WORKING DAYS. Calendar days, except Saturdays and state holidays.

WORKING DRAWINGS. Stress sheets, shop drawings, erection plans, falsework plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, wiring diagrams and schematics, traffic control plans, or any other supplementary plans or similar data which the Contractor is required to submit to the Engineer for approval.

SECTION 20
PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 QUALIFICATION OF BIDDERS. A bidder shall:

a. When requested, submit a completed Contractor's Questionnaire (Form 25D-8) stating previous experience in performing comparable work, business and technical organization, financial resources, and equipment available to be used in performing the work;

b. On wholly state-funded projects, submit evidence of a valid Department of Commerce, Community, and Economic Development certificate of Contractor Registration (Contractor Registration) under AS 08.18, and submit evidence of a valid Alaska Business License prior to award under AS 36.30.110(b); and

c. On federal-aid projects, submit evidence of Alaska Business License and Contractor Registration prior to award.

All firms desiring to participate in DOT&PF construction projects must register annually by submitting a completed Bidder Registration (Form 25D-6).

20-02 CONTENTS OF BID PACKAGE. Upon request, the Department will furnish prospective bidders with a bid package, at the price stated in the Invitation To Bid.

The bid package includes the following:

a. Location and description of the project;

b. Estimates of quantities of work and materials to be furnished;

c. Schedule of contract items for which bid prices are invited;

d. Time in which the work must be completed

e. Amount of the bid guaranty;

f. Date, time, and place for the bid opening;

g. Plans and specifications; and

h. Bid forms.

Unless otherwise stated in the bid package, the Plans, Specifications, permits, forms and any other documents designated in the bid package are considered a part of the bid whether attached or not.

20-03 INTERPRETATION OF QUANTITIES IN BID SCHEDULE. Bid prices shall be based on the estimated quantities shown in the bid schedule. Quantities of work to be done and materials to be furnished are approximate and are prepared only for the comparison of bids. These quantities may increase, decrease, or be eliminated. Payment for unit price items will be made for the actual accepted quantities of work performed and materials furnished under the Contract, as determined using the method of measurement specified in the Contract.

20-04 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND WORK SITE. Bidders shall examine the work site and all Contract documents before preparing a bid. Submitting a bid is a binding representation that the bidder has examined the work site, is aware of the conditions to be encountered, and has examined and understands all of the Contract documents.

Department records of subsurface and hydrological investigations, including but not limited to, boring logs, test results, soil investigation reports, material reports, and other supplemental information are made

available for information purposes only. These records are not part of the Contract. These records indicate subsurface conditions only at specific locations at the time sampled, and only to the depths penetrated. They do not necessarily reflect frozen state, or variations in soil, rock or hydrology that may exist between or outside such locations or at other times. Actual conditions, including ground water levels and saturation, may differ from what is shown in the records.

Material sources referenced in Department records may not contain materials of sufficient quantity or quality to meet project requirements. Sources may be subject to operational restrictions. The availability of these records does not constitute approval, nor guarantee suitability of soils or sources, or the right to use sources referenced in these records for this project. Department records shall not substitute for independent investigation, interpretation, or judgment of the bidder. The Department is not responsible for any interpretation or conclusion drawn from its records by the bidder. Bidders shall examine Subsection 60-02 Material Sources for further information.

Geotechnical reports referenced in the Notice to Bidders, or otherwise made available, may contain data, discussions, and references to material sources. The inclusion of material source information in these reports does not mean they are a Mandatory, Designated, or Available Source as described in Subsection 60-02. For a material source to be considered Mandatory, Designated, or Available, it must be included in the Special Provisions, or so described on the Plans.

Any questions about bidding procedures, site conditions, or Contract requirements must be submitted in writing according to the Invitation To Bid (Form 25D-7). Questions must be submitted in sufficient time to get a reply before submitting a bid. No oral responses or other oral statements are binding on the Department. Any response to a material question shall be issued by addendum sent to all bidders.

20-05 PREPARATION OF BID. A bidder shall prepare its bid using either the Department approved bid preparation software or the Department provided bid forms or legible copies of the Department's forms. All entries shall be legible and in ink or type. Bidders shall:

a. Enter all prices required on the Bid Schedule, in figures;

b. Enter a unit price for each contract item for which a quantity is given;

c. Enter the products of the respective unit prices and quantities in the column provided;

d. Enter lump sum prices for lump sum contract items in the column(s) provided; and

e. Enter the total amount of all contract items for the basic bid and, when specified, any alternates.

When a bid item contains a choice to be made by the bidder, the bidder shall indicate a choice according to the Specifications for that item. No further choice is permitted.

The bid must be signed in ink or by digital signature by the person or persons authorized to sign the Contract for the bidder. If a bidder is a corporation, the bid must be signed by a corporate officer or agent with authority to bind the corporation. If a bidder is a partnership, a partner must sign. If the bidder is a joint venture, the bid must be signed by an officer or agent with authority to bind the joint venture. If a bidder is a sole proprietorship, the owner must sign. Each person signing the bid must initial any changes made to entries on the bid forms.

A bidder submitting an electronic bid agrees that its digital signature constitutes a binding signature.

The bidder shall make no claim against the Department in the event it is unable to submit its bid through approved online bidding service and/or approved online bidding service is unable to submit the bid(s) to the Department. The Department reserves the right to postpone the public bid opening in the event of technical problems.

For multiple-project bid openings, the bidder may limit the total dollar amount or number of projects to be accepted by completing and attaching the following statement with its bid for at least one of the projects. The Department will then determine which of the low bids it will accept, up to the total indicated.

> *"We wish to disqualify all of our successful bids at this bid opening which exceed the total of $_____ or ____ contracts and hereby authorize the Department to determine which bids to disqualify, based on this limit."*

20-06 NONRESPONSIVE BIDS.

a. A bid shall be rejected as nonresponsive if it:

(1) Is not properly signed by an authorized representative of the bidder and in a legally binding manner;

(2) Contains unauthorized additions, conditional or alternative bids, or other irregularities that make the bid incomplete, indefinite, or ambiguous;

(3) Includes a reservation of the right to accept or reject any award, or to enter into a contract pursuant to an award, except for an award limitation under Subsection 20-05;

(4) Fails to include an acceptable bid guaranty with the bid;

(5) Is materially unbalanced

(6) Fails to meet any other material requirement of the Invitation To Bid; or

(7) Fails to include a materially complete Certification of Buy American Compliance (Form 25D-151 or Form 25D-152), except on wholly state-funded projects.

b. A bid may be rejected as nonresponsive, in the Department's discretion, if it:

(1) Is not typed or completed in ink;

(2) Fails to include an acknowledgement of receipt of each addendum by assigned number and date of issue; or

(3) Is missing a bid price for any pay item, except when alternate pay items are authorized.

20-07 BID GUARANTY. Bids shall be accompanied by a bid guaranty in the amount specified on the Invitation To Bid. The guaranty shall be unconditionally payable to the State of Alaska and shall be in the form of an acceptable paper Bid Bond (Form 25D-14), an electronic bid bond acceptable to the Department and verified through its online bidding service, a certified check, a cashier's check, or a money order.

The surety of a Bid Bond may be any corporation or partnership authorized to do business in Alaska as an insurer under AS 21.09. A legible power of attorney shall be included with each paper Bid Bond (Form 25D-14).

An individual surety will not be accepted as a bid guaranty.

20-08 RESERVED.

20-09 DELIVERY OF BIDS. Bids shall be submitted electronically through the online bidding service, or shall be submitted in a sealed envelope. When bids are submitted in a sealed envelope, the envelope shall clearly indicate its contents and the designated address, as specified on the Invitation to Bid. Bids for other work may not be included in the envelope. In the event of a bid delay, electronic bidders that

have already submitted their bid prior to the bid delay must resubmit their bid utilizing all Bid Forms EBSX Files or their bid will not be received.

The Department will not accept a bid submitted by email or fax unless specifically called for in the Invitation to Bid.

20-10 WITHDRAWAL OR REVISION OF BIDS. Manual Bids may be withdrawn or revised in writing delivered by mail, fax, or email, provided that the designated office receives the withdrawal or revision before the deadline stated in the in the Invitation To Bid. Withdraw requests must be signed and submitted by the bidder's duly appointed representative who is legally authorized to bind the bidder. Revisions shall include both the modification of the unit bid price and the total modification of each item modified but shall not reveal the amount of the total original or revised bids.

Electronic Bids may be withdrawn or resubmitted through the online bidding service. Revisions to electronic bids delivered by mail, fax, or email will not be permitted. If electronic bid withdrawal is unsuccessful, electronic bids may be withdrawn in writing delivered by mail, fax, or email provided that the designated office receives the withdrawal before the deadline stated in the Invitation To Bid. Written withdrawal requests must be signed and submitted by the bidder's duly appointed representative who is legally authorized to bind the bidder.

20-11 PROTEST OF INVITATION TO BID. An interested party, as defined in AS 36.30.699, may protest an Invitation to Bid before the bid opening according to AS 36.30.560 and AS 36.30.565. Submit a protest to the Contracting Officer.

20-12 ADDENDA REQUIREMENTS. The Department will issue addenda if it determines, in its discretion, that clarifications or changes to the Contract documents or bid opening date are needed. The Department may send addenda by any reasonable method such as fax, email, or may post the addenda on its website or online bidding service. Unless picked up in person or included with the bid documents, addenda or notice that an addendum has been issued will be addressed to the individual or company to whom bidding documents were issued and sent to the email address or fax number on the plan holders' list. Notwithstanding the Department's efforts to distribute addenda, bidders are responsible for ensuring that they have received all addenda affecting the Invitation To Bid. Bidders must acknowledge all addenda on the Bid Forms, by fax, or by email before the deadline stated in the Invitation to Bid.

20-13 RECEIPT AND OPENING OF BIDS. The Department will only consider bids, revisions, and withdrawals received before the scheduled deadline stated in the Invitation to Bid.

The Department will assemble, open, and publicly announce timely-received bids at the time and place indicated in the Invitation to Bid, or as soon thereafter as practicable. The Department is not responsible for prematurely opening or failing to open bids that are improperly addressed or identified.

20-14 RESPONSIBILITY OF BIDDERS. The Department may find a bidder is nonresponsible for any one of the following reasons, but is not limited in its responsibility analysis to the following factors:

- **a.** Evidence of bid rigging or collusion;
- **b.** Fraud or dishonesty in the performance of previous contracts;
- **c.** More than one bid for the same work from an individual, firm, or corporation under the same or different name;
- **d.** Unsatisfactory performance on previous or current contracts;
- **e.** Failure to pay, or satisfactorily settle, all bills due for labor and material on previous contracts;
- **f.** Uncompleted work that, in the judgment of the Department, might hinder or prevent the bidder's prompt completion of additional work, if awarded;

g. Failure to reimburse the state for monies owed on any previous contracts;

h. Default under previous contracts;

i. Failure to submit evidence of registration and licensing;

j. Failure to comply with any qualification requirements of the Department;

k. Engaging in any activity that constitutes a cause for debarment or suspension under the State Procurement Code (AS 36.30) or submitting a bid during a period of debarment;

l. Failure to satisfy the responsibility standards set out in state regulations;

m. Lack of skill, ability, financial resources, or equipment required to perform the contract; or

n. Lack of legal capacity to contract.

Nothing contained in this section deprives the Department of its discretion in determining the lowest responsible bidder.

20-15 FOREIGN TRADE RESTRICTION. The Contractor by submission of an offer and/or execution of a contract, certifies that it:

a. Is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);

b. Has not knowingly entered into any contract or subcontract for this project with a contractor that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list; and

c. Has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation according to 49 CFR 30.17, no contract shall be awarded to a contractor who is unable to certify to the above. If the Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on the said list for use on the project, the FAA may direct, through the Department, cancellation of the contract at no cost to and with no damages available from the Department or the Federal government.

The Contractor shall incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The Contractor shall require subcontractors to provide immediate written notice to it if the subcontractor learns that its certification was erroneous, or has become erroneous, by reason of changed circumstances. The Contractor may rely upon the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The Contractor shall provide immediate written notice to the Department if the Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the FAA may direct, through the Department, cancellation of the contract or subcontract for default at no cost to, and with no damages available from, the Department or the Federal Government.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information

of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United Stated of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

20-16 ELECTRONIC MAIL. Within its submitted bid, a bidder must include a current electronic mail (email) address of bidder's representative who possesses authority to receive, process, and respond to Department emails regarding the advertised project.

The Department may send notices and information to a bidder by using the furnished email address of the bidder's authorized representative.

A bidder shall notify the Department if the bidder requests the Department to send email notices or information to an address different from the email address initially provided in its bid forms. The bidder shall notify the Department of such change by sending a request in writing to the Contract's point of contact identified on the Invitation to Bid that is signed by a representative who is authorized and empowered to legally bind the bidder.

Delivery of an email sent by the Department is complete upon receipt in the addressee's email account. An email sent after 4:30 pm shall be deemed to have occurred at the opening of business on the next working day.

If needed, the Department may demonstrate proof of email delivery by affidavit or certification that includes the following:

a. The date and time that the Department sent the email message;

b. The email address from which the Department sent the message;

c. The name and email address to which the Department sent the message;

d. A statement that the Department sent the email message and that the person signing the affidavit or certification believes the transmission to have been complete and without error; and

e. An attached copy of the subject email.

SECTION 30
AWARD AND EXECUTION OF CONTRACT

30-01 CONSIDERATION OF BIDS. After the bids are opened and read, the bids will be mathematically checked and compared on the basis of the sum of the products of the bid schedule quantities and the unit bid prices. The unit bid prices govern if there is an error in extending the unit bid prices, or in totaling the extensions, or if an extension is missing. The results of the bid comparisons will be made available to the public as soon as practicable.

Until the Award, the Department may reject any or all bids, waive minor informalities or advertise for new bids without liability to any bidder if the Department, in its discretion, determines that to do so is in the best interests of the state.

A bidder may request withdrawal of a bid after opening and before the Award only according to AS 36.30.160(b) and State procurement regulations. Submit the request to the Contracting Officer.

An interested party, as defined in AS 36.30.699, may protest a proposed Award of contract as per AS 36.30.560 and AS 36.30.565. Submit the protest to the Contracting Officer.

WHOLLY STATE-FUNDED PROJECTS. On wholly state-funded projects, determination of the low bidder will include bidder preferences as required under AS 36.30.321, according to subsections a. – d. below. Alaska Bidder Preference, Alaska Veteran Preference, Alaska Product Preference, and Alaska Military Skills Preference, are not applicable on projects with federal funding.

a. Alaska Bidder Preference: A bidder claiming this preference shall provide with their bid an Alaska Bidder Preference Certification, certifying they qualify as an Alaska bidder eligible for Alaska Bidder Preference according to AS 36.30.

If the bidder qualifies as an Alaska Bidder, a five percent (5%) preference will be applied to the price of the bid. "Alaska bidder" means a person who:

(1) holds a current Alaska business license;

(2) submits a bid for goods, services, or construction under the name appearing on the person's current Alaska business license;

(3) has maintained a place of business within the state staffed by the bidder or an employee of the bidder for a period of six months immediately preceding the date of the bid;

(4) is incorporated or qualified to do business under the laws of the state, is a sole proprietorship and the proprietor is a resident of the state, is a limited liability company organized under AS 10.50 and all members are residents of the state, or is a partnership under former AS 32.05, AS 32.06, or AS 32.11 and all partners are residents of the state; and

(5) If a joint venture, is composed entirely of ventures that qualify under (1) through (4), above.

b. Alaska Veteran Preference: A bidder claiming this preference shall provide an Alaska Veteran Preference Certification, certifying they qualify as an Alaska bidder eligible for Alaska Veteran preference according to AS 36.30.

If a bidder qualifies as an Alaska bidder and is a qualifying entity, an Alaska Veteran Preference of five percent shall be applied to the bid price. The preference may not exceed $5,000 (AS 36.30.321). A “qualifying entity” means an entity that:

(1) sole proprietorship owned by an Alaska veteran;

(2) partnership under AS 32.06 or AS 32.11 if a majority of the partners are Alaska veterans;

(3) limited liability company organized under AS 10.50 if a majority of the members are Alaska veterans; or

(4) corporation that is wholly owned by individuals, and a majority of the individuals are Alaska veterans.

A preference under this section is in addition to any other preference for which the bidder qualifies.

To qualify for this preference, the bidder must add value by the bidder itself actually performing, controlling, managing and supervising a significant part of the services provided or the bidder must have sold supplies of the general nature solicited to other state agencies, governments, or the general public.

An Alaska veteran is a resident of Alaska who:

(1) served in the Armed forces of the United States, including a reserve unit of the United States armed forces; or the Alaska Territorial Guard, the Alaska Army National Guard, the Alaska Air National Guard, or the Alaska Naval Militia; and

(2) was separated from service under a condition that was not dishonorable.

c. Alaska Product Preference: A bidder claiming this preference shall complete and sign the Alaska Product Preference Worksheet, according to the worksheet instructions, and submit the completed worksheet with their bid.

Except for timber, lumber and manufactured lumber products used in the construction project under AS 36.30.322(b), an Alaska products preference will be given as required under AS 36.30.326 - 36.30.332 when the bidder designates the use of Alaska products.

If the successful bidder/contractor proposes to use an Alaska product and does not do so, a penalty will be assessed against the successful bidder/contractor according to AS 36.30.330(a).

Each Alaska product declared on the Alaska Product Preference Worksheet must have an "Approval" date on the Alaska Product Preference Program List, that is on or before the bid opening date for this contract, and that does not expire before the bid opening date for this contract.

d. Alaska Military Skills Preference: A bidder claiming this preference shall provide an Alaska Military Skills Preference Certification, Form 25D-21, certifying they qualify as an Alaska bidder eligible for Alaska Military Skills preference according to AS 36.30.321.

If a bidder qualifies as an Alaska bidder and is a qualifying entity, an Alaska Military Skills Preference of 2 percent shall be applied to the bid price. The preference may not exceed $5,000 (AS 36.30.321(*l*)). A "qualifying entity" means an entity that:

(1) employs at least one person who is currently enrolled in, or within the previous two years graduated from, a United States Department of Defense SkillBridge or United States Army Career Skills Program for service members or spouses of service members that offers civilian work experience through specific industry training, pre-apprenticeships, registered apprenticeships, or internships during the last 180 days before a service member separates or retires from the service; or

(2) has an active partnership with an entity that employs an apprentice through a program described in (1) of this subsection.

A preference under this section is in addition to any other preference for which the bidder qualifies.

To qualify for this preference, the bidder must add value by the bidder itself actually performing, controlling, managing and supervising a significant part of the services provided or the bidder must have sold supplies of the general nature solicited to other state agencies, governments, or the general public.

30-02 SUBCONTRACTOR LIST. The apparent low bidder shall submit a completed Subcontractor List, Form 25D-5, within five working days following receipt of written notification by the Department that it is the low bidder.

An apparent low bidder who fails to submit a completed Subcontractor List form within the time allowed will be declared nonresponsible and may be required to forfeit the bid security. The Department will then consider the next lowest bidder for award of the Contract.

If a bidder fails to list a subcontractor, or lists more than one subcontractor for the same portion of work, and the value of that work is in excess of one-half of one percent of the total bid amount, the bidder agrees to perform that portion of work without a subcontractor and represents that it is qualified to perform that work.

A bidder who lists as a subcontractor another contractor who, in turn, sublets the majority of the work required under the Contract, violates this subsection.

On federal-aid projects, subcontractors must obtain an Alaska business license and certificate of contractor registration prior to award of the Contract.

On wholly state-funded projects, all subcontractors listed by the Contractor shall have a valid Alaska business license and a valid certificate of registration as a contractor, as defined in AS 08.18, at the time the bid is opened. If a subcontractor listed by the Contractor does not have a valid business license and certificate of registration at the time the bid is opened, the Contractor shall replace the subcontractor with a subcontractor that had a valid Alaska business license and a valid certificate of registration as a contractor under AS 08.18 at the time the bid was opened.

A bidder or Contractor may, without penalty, replace a listed subcontractor who:

a. Fails to comply with licensing and registration requirements of AS 08.18;

b. Fails to obtain a valid Alaska business license;

c. Files for bankruptcy or becomes insolvent;

d. Fails to execute a subcontract for performance of the work for which the subcontractor was listed, and the bidder acted in good faith;

e. Fails to obtain bonding acceptable to the Department;

f. Fails to obtain insurance acceptable to the Department;

g. Fails to perform the subcontract work for which the subcontractor was listed;

h. Must be replaced to meet the bidder's required state or federal affirmative action requirements;

i. Refuses to agree or abide with the bidder's labor agreement; or

j. Is determined by the Department to be not responsible.

In addition to the circumstances described above, a Contractor may in writing request permission from the Department to add a new subcontractor or replace a listed subcontractor. The Department will approve the request if it determines in writing that allowing the addition or replacement is in the best interest of the State.

A bidder or Contractor shall submit a written request to add a new subcontractor or replace a listed subcontractor to the Contracting Officer a minimum of five working days before the date the new subcontractor is scheduled to begin work on the construction site. The request must state the basis for the request and include supporting documentation acceptable to the Contracting Officer.

If a bidder or Contractor violates this subsection, the Contracting Officer may:

a. Cancel the Contract after Award without any damages accruing to the Department; or

b. After notice and a hearing, assess a penalty on the bidder or Contractor in an amount not exceeding 10 percent of the value of the subcontract at issue.

30-03 AWARD OF CONTRACT. The Department will award the Contract to the lowest responsible and responsive bidder unless it rejects all bids. The Department will notify all bidders in writing via email, fax, or U.S. Mail of its intent to award.

The Department will notify the successful bidder in writing of its intent to award the Contract and request that certain required documents, including the Contract Form, bonds, insurance and, except on wholly state-funded projects, a completed Form 25D-159 (Certification for Tax Delinquency and Felony Convictions) be submitted within the time specified. The successful bidder's refusal to sign the Contract and provide the requested documents within the time specified may result in cancellation of the notice of intent to award and forfeiture of the bid security.

If an award is made, it will be made as soon as practicable and usually within 40 days after bid opening. Award may be delayed due to bid irregularities or a bid protest, or if the award date is extended by mutual consent. Bids shall be valid for 120 days after bid opening, and may be extended by mutual consent.

For AIP contracts, no award shall be made until the FAA has concurred in the Department’s recommendation to make such award and has approved the Department's proposed contract to the extent that such concurrence and approval are required by 49 CFR Part 18.

30-04 RETURN OF BID GUARANTY. The Department will return bid guaranties, other than bid bonds:

a. To all except the two lowest responsive and responsible bidders, as soon as practicable after the opening of bids; and

b. To the two lowest responsive and responsible bidders immediately after Contract award.

30-05 PERFORMANCE AND PAYMENT BONDS. The successful bidder shall furnish all required Performance and Payment Bonds on forms provided by the Department for the sums specified in the Contract. If no sum is specified, the successful bidder shall comply with AS 36.25.010. The Surety on each bond may be any corporation or partnership authorized to do business in the state as an insurer under AS 21.09 or two individual sureties approved by the Contracting Officer.

If individual sureties are used, two individual sureties must each provide the Department with security assets located in Alaska equal to the penal amount of either the performance bond or the payment bond. Any costs incurred by the Contractor and the individual Surety are subsidiary and shall be borne by the Contractor or the individual Surety. In no event will the Department be liable for these costs.

Individual sureties shall provide security by one, or a combination, of the following methods:

a. **Escrow Account.** An escrow account with a federally insured financial institution, in the name of the Department. Acceptable securities include, but are not limited to, cash, treasury notes, bearer instruments having a specific value, or money market certificates.

b. **Irrevocable Letters of Credit.** Irrevocable letters of credit with a financial institution approved by the Contracting Officer, with the Department named as beneficiary.

c. Cashiers or Certified Check. A cashier's check or certified check made payable to the State of Alaska issued by financial institutions approved by the Contracting Officer.

These bonds and security assets, as applicable, shall remain in effect for 12 months after the date of final payment or, if longer, until all obligations and liens under this Contract are satisfied, including, but not limited to, obligations under Subsection 70-19.

The Department may, in its discretion, notify the bonding company or Surety of any potential default or liability.

The Contractor shall substitute, within five working days, another bond or surety acceptable to the Department if an individual Surety or the Surety on any bond furnished in connection with the Contract:

a. Becomes insolvent or is declared bankrupt;

b. Loses its right to do business in any state affecting the work;

c. Ceases to meet Contract requirements;

d. Fails to furnish reports of financial condition upon request; or

e. Otherwise becomes unacceptable to the Department.

When approved by the Contracting Officer, the Contractor may replace:

a. An individual surety with a corporate surety; or

b. Posted collateral with substitute collateral.

Failure to maintain the specified bonds or to provide substitute bonds when required under this section may be grounds for withholding contract payments until substitute bonding is obtained, and may, in the Department's discretion, be grounds for declaring the Contractor in default.

30-06 INSURANCE REQUIREMENTS. The Contractor shall provide evidence of insurance with an insurance carrier or carriers satisfactory to the Department covering injury to persons and property suffered by the State of Alaska or by a third party as a result of operations under this contract by the Contractor or by any subcontractor. The Contractor's insurance shall provide protection against injuries to all employees of the Contractor and the employees of any subcontractor engaged in work under this Contract. All insurance policies shall be issued by insurers that (i) are permitted to transact the business of insurance in the State of Alaska under Title 21 of the Alaska Statutes and (ii) have a financial rating acceptable to the Department. A certificate of insurance must be furnished to the Department prior to award. The certificate of insurance must provide for notice of cancellation or non-renewal in accordance with policy provisions.

Where specific limits and coverages are shown, it is understood that they shall be the minimum acceptable. The requirements of this subsection shall not limit the Contractor's indemnity responsibility under Subsection 70-13. Additional insurance requirements specific to this contract are contained in the Special Provisions, when applicable.

The Contractor shall maintain the following policies of insurance with the specified minimum coverages and limits in force at all times during the performance of the Contract:

a. Workers' Compensation: as required by AS 23.30.045, for all employees of the Contractor engaged in work under this Contract. The Contractor shall be responsible for Workers' Compensation Insurance for any subcontractor who performs work under this Contract. The coverage shall include:

(1) Waiver of subrogation against the state;

(2) Employer's Liability Protection at $500,000 each accident/each employee and $500,000 policy limit;

(3) “Other States” endorsement if the Contractor directly utilizes labor outside of the State of Alaska;

(4) United States Longshore and Harbor Workers’ Act Endorsement, whenever the work involves activity over or about navigable water; and

(5) Maritime Employer’s Liability (Jones Act) Endorsement with a minimum limit of $1,000,000, whenever the work involves activity from or on a vessel on navigable water.

b. Commercial General Liability: on an occurrence policy form covering all operations, including contractual liability and products-completed operations, with combined single limits not less than:

(1) $1,000,000 Each Occurrence;

(2) $1,000,000 Personal Injury;

(3) $2,000,000 General Aggregate; and

(4) $2,000,000 Products-Completed Operations Aggregate.

c. Automobile Liability: covering all vehicles used in Contract work, with combined single limits not less than $1,000,000 each occurrence.

d. Umbrella Coverage: for Contract amounts over $5,000,000 not less than $5,000,000 umbrella or excess liability. Umbrella or excess policy shall include products-completed operations coverage and may be subject to $5,000,000 aggregate limits. Further, the umbrella or excess policy shall contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.

The State of Alaska shall be named as an additional insured on policies required by paragraphs **b** thru **d** above. All of the above insurance coverages shall be considered to be primary and non-contributory to any other insurance carried by the State of Alaska, whether through self-insurance or otherwise.

In any contract or agreement with subcontractors performing work, the Contractor shall require that all indemnities and waivers of subrogation it obtains, and any stipulation to be named as an additional insured it obtains, shall also be extended to waive rights of subrogation against the State of Alaska and to add the State of Alaska as an additional named indemnitee and as an additional insured.

The apparent low bidder shall furnish evidence of insurance to the Department before award of the Contract. The evidence shall be issued to the Department and shall be either a certificate of insurance or the policy declaration page with all required endorsements attached and must:

a. Denote the type, amount, and class of operations covered;

b. Show the effective (and retroactive) dates of the policy;

c. Show the expiration date of the policy;

d. Include all required endorsements;

e. Be executed by the carrier's representative; and

f. Provide that the Department shall receive written notice of cancellation or non-renewal in accordance with policy provisions.

The Department's acceptance of deficient evidence of insurance does not constitute a waiver of Contract requirements.

Failure to maintain the specified insurance or to provide substitute insurance if an insurance carrier becomes insolvent, is placed in receivership, declares bankruptcy, or cancels a policy may be grounds for withholding Contract payments until substitute insurance is obtained, and may, in the Department's discretion, be sufficient grounds for declaring the Contractor in default.

30-07 EXECUTION AND APPROVAL OF CONTRACT. The successful bidder shall execute and return the Contract Form and all other required documents to the Department within the time specified, or within 15 days after receipt by the bidder if no time is specified. A contract is awarded only after it has been signed by the Contracting Officer.

30-08 FAILURE TO EXECUTE CONTRACT. If the successful bidder fails to appropriately execute and return the Contract Form and other documents within time specified, as required above, the Department may cancel the intent to award and keep the bid guaranty. The Department will then, in its discretion, award the Contract to the next lowest responsive and responsible bidder or readvertise the work.

30-09 ORAL STATEMENTS. The written terms of the Contract are binding. No oral statement of any person shall, in any manner or degree, modify or otherwise affect, change, or amend the terms of the Contract.

30-10 INTEGRATED CONTRACT. This Contract is an integrated document and contains the complete agreement and understanding of the parties. There are no unwritten agreements or understandings between the parties. Changes ordered or agreed upon, Directives given, or Equitable Adjustments issued under this Contract, and all other matters affecting the Contract, must be in writing in order to be binding and effective.

SECTION 40
SCOPE OF WORK

40-01 INTENT OF CONTRACT. The intent of the Contract is to provide for the construction and completion of every detail of the described work. The Contractor shall furnish all labor, material, supervision, equipment, tools, transportation, supplies, and other resources required to complete the work in the time specified and according to the Contract.

The Contractor is responsible for the means, methods, techniques, sequence, and procedures of construction, safety, and quality control. This includes ensuring safety and overseeing the safety of all personnel and Subcontractors. In the event of a multi-employer site, the Contractor is the controlling employer responsible for coordinating site-wide safety efforts, ensuring compliance with applicable safety regulations, and mitigating potential hazards across all employees, Subcontractors or suppliers on the site, consistent with any applicable federal, state, and local laws, rules, regulations, and ordinances.

40-02 CHANGES.

a. Within Contract Scope. The Engineer may order changes within the general scope of the Contract at any time, and without notice to sureties, including altering, ordering additions to, or ordering deletions of quantities of any item or portion of the work. These changes shall be made by a written Change Order and shall not invalidate the Contract or release the sureties.

(1) If the change does not materially differ in character or unit cost from specified Contract work, the Contractor shall perform the work at the original contract measurement methods and prices, subject to the provisions of Subsection 90-04.

(2) If the change is materially different in character or unit cost from that specified in the Contract, a new Contract Item will be established, and an equitable adjustment to Contract price and Contract time shall be calculated by one of the following methods:

(a) The Engineer and Contractor agree upon an adjustment to Contract price and Contract time, and the Engineer issues a change order for the described work;

(b) The Engineer requires the Contractor to proceed with the described work, with an adjustment to contract price and contract time, calculated by time and materials basis under Subsection 90-05, and the Engineer issues a change order for the work. The Contractor shall keep complete daily records of the cost of such work; or

(c) The Engineer may issue a unilateral Change Order requiring the Contractor to proceed with the work with an adjustment to the payment amount or Contract time based on the Engineer's estimate of reasonable value. The Contractor shall keep complete daily records of the cost of such work.

(3) If the Engineer eliminates a Contract item, the Contractor shall accept compensation under Subsection 90-09.

b. Outside Contract Scope. Changes determined to be outside the general scope of the Contract shall be made only by Supplemental Agreement issued according to AS 36.30 and the State's procurement regulations. Additional bonding or insurance may be required.

c. Cost and Pricing Data. Before a Change Order or Supplemental Agreement covering work for which there is no established Contract price will be written, the Contractor shall submit detailed cost or pricing data regarding the changed work. The cost or pricing data shall include an itemization of production rates and all costs including labor, materials, and equipment required for the work. The Contractor shall certify that the data submitted are, to the best of its knowledge and belief, accurate, complete, and current as of a mutually agreed date and that the data will continue to be accurate and complete during the performance of the changed work.

d. Time Analysis. Before a Change Order or Supplemental Agreement that adds or subtracts time from the Contract will be written, the Contractor shall provide an analysis and documentation demonstrating changes to controlling items of work that affect Contract time. The Contractor shall certify that the data submitted are, to the best of its knowledge and belief, accurate, complete, and current as of a mutually agreed date and that the data will continue to be accurate and complete during the performance of the changed work.

40-03 DIFFERING SITE CONDITIONS. If, during the progress of the work, a differing site condition is discovered, the party discovering the differing site condition shall promptly notify the other party in writing of the specific differing conditions. The written notification shall occur before the site is further disturbed and before the affected work is performed. A differing site condition is defined as:

a. Subsurface or latent physical conditions at the site, differing materially from those shown in the Contract documents, that could not have been discovered by a careful examination of the site; or

b. Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

When the Contractor is the discovering party, failure of the Contractor to give the Engineer prompt written notice of the alleged differing site condition as required under this section constitutes a waiver of any future claim arising from or relating to the alleged differing site condition.

Unless otherwise directed by the Engineer, the Contractor shall leave the affected area undisturbed and suspend work in that area until the Engineer investigates the conditions.

The Engineer will notify the Contractor of the determination whether or not an adjustment of the contract is warranted. If the Engineer finds that such conditions differ materially and increase or decrease the cost of, or the time required for, performance of the Contract, the Engineer will prepare a Change Order for an Equitable Adjustment to the Contract. The Contractor shall cooperate with the Engineer's preparation of the Change Order, and submit data for actual costs and time to perform differing site work according to Subsection 40-02.

The Change Order will provide an equitable adjustment to Contract price and Contract time, as agreed, to perform the work under a differing site condition. The Change Order will not include expected reimbursement, or anticipated profits suffered or claimed, for the work affected by the differing site condition.

If the Contractor and the Engineer are unable to reach an agreement concerning the alleged differing site condition, the Contractor may file a claim under Subsection 50-17.

The Contractor shall keep accurate and detailed records of the actual cost of the work done as a result of the alleged differing site condition and shall allow the Engineer access to those records. Failure to keep records, to provide the Engineer with access to those records, or to give the notice required above will bar any recovery for the alleged differing site condition.

40-04 USE OF MATERIALS FOUND ON THE WORK. Before using borrow, the Contractor shall utilize Useable Excavation to construct the embankment layer on the project. Useable Excavation is material encountered within the lines and grades of the project that is determined suitable by the Engineer under P-152-2.3, Suitable Material. For excavating the Useable Excavation and constructing the embankment with Useable Excavation, the Contractor shall be paid only the unit bid price for excavation. Hauling, placing, compacting and other activities required to construct the embankment with Useable Excavation shall be subsidiary to excavation, and the Contractor shall not be paid additional sums for those activities. The Engineer may approve the use of borrow when Useable Excavation is not available.

The Engineer may authorize the Contractor to use the Useable Excavation for Contract items other than construction of embankment, and the Contractor shall be paid both for the excavation of the Useable

Excavation and for the other Contract Item for which it is acceptably used. If this action results in a shortage of embankment material:

a. The Contractor shall replace the Useable Excavation used for Contract items other than embankment, on a yard for yard basis with borrow acceptable to the Engineer; and

b. This replacement shall be at the Contractor's expense and at no additional cost to the Department. The Contractor shall pay any royalties required for the borrow.

The Contractor shall not excavate or remove any material that is within the project limits but outside the lines and grades, without written authorization from the Engineer.

In the event the Contractor has processed material from state-furnished sources in excess of the quantities required for performance of the Contract, the Department may retain possession of the surplus processed materials, including any waste material produced as a by-product, without obligation to pay the Contractor for processing costs. When the surplus materials are in a stockpile, the Engineer may direct the Contractor to leave the materials in the stockpile, level the stockpile(s) or remove the materials and restore the premises to a satisfactory condition at no additional cost to the Department.

The Contractor may temporarily use material from a structure that is designated to be removed to erect a new structure, but shall not cut or otherwise damage such material without the Engineer's approval.

40-05 MAINTENANCE OF TRAFFIC. It is the explicit intention of the Contract that the safety of aircraft, the public, the airport's equipment and personnel, and the Contractor's equipment and personnel, shall be the most important consideration. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas of the airport, except as specifically provided in this Contract or in the SPCD, with respect to its own operations and the operations of all its subcontractors. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft, whenever the airport is open to the arrival or departure of aircraft as detailed on the plans, CSPP, and SPCD.

With respect to the Contractor's own operations and the operations of all the Contractor's subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying: personnel; equipment; vehicles; storage areas; and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, maintenance vehicles, or support vehicles at the airport.

When the Contract requires the maintenance of vehicular traffic on an existing roadway, the Contractor shall keep such roadway open to all traffic, and shall provide such maintenance as may be required to accommodate traffic and to keep the roadway smooth and even. The Contractor shall furnish, erect, and maintain barricades, warning signs, flaggers, and other traffic control devices in reasonable conformity with the *Manual on Uniform Traffic Control Devices for Streets and Highways* (published by the United States Government Printing Office) and the *Alaska Traffic Manual Supplement*, unless otherwise specified by the Department. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roadways, and as required in Subsection 50-13.

The Contractor shall make their own estimate of all labor, materials, equipment, and incidentals necessary for providing the maintenance of aircraft and vehicular traffic as specified in this subsection.

The cost of maintaining the aircraft and vehicular traffic specified in this subsection shall not be measured or paid for directly, but shall be subsidiary to the various contract items, except when pay items are included in the bid schedule that directly pay for traffic control measures. The traffic control measures included for payment will be specifically described under those items.

40-06 REMOVAL OF EXISTING STRUCTURES. The Contractor shall leave in place, work around and protect from damage existing structures encountered within the project lines and grades; unless such existing structures are to be removed, demolished, relocated, or salvaged.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the Plans, the Contractor shall notify the Engineer prior to disturbing such structure. The Engineer will determine the disposition of existing structures so encountered according to the provisions of the contract.

The cost of working around and protecting existing structures, or removing existing structures including landfill waste fees, shall not be measured or paid for directly, but shall be subsidiary to the various contract items.

Structures that may be encountered within the project lines and grades shall be utilized in the work, and shall remain the property of the owner when so utilized in the work, unless otherwise indicated in the Contract.

40-07 CLEANUP. The Contractor shall remove all rubbish, solid waste, temporary structures, excess materials, and equipment from the project site, from state owned materials sources, and from all work areas before project completion, or seasonal suspension of construction activities.

SECTION 50
CONTROL OF WORK

50-01 AUTHORITY OF THE ENGINEER. The Engineer has immediate charge of the engineering details of the project and is responsible for Contract administration. The Engineer has authority to reject defective material and suspend work not performed in accordance with the Contract. The Engineer has authority to accept completed work, issue Directives, Interim Work Authorizations, and Change Orders, and recommend Contract payments.

The Engineer will decide all questions about the quality and acceptability of the materials furnished and whether the work performed by the Contractor was in accordance with the Contract, the Contractor's rate of progress, Contract interpretation and all other questions relating to Contract compliance.

The Engineer has authority to suspend work for reasons listed under Subsection 80-06. If the suspension is to protect the traveling public from imminent harm, the Engineer may orally order the suspension of work. Following an oral order of suspension, the Engineer will promptly give written notice of suspension to the Contractor. In other circumstances, the Engineer will give the Contractor written notice of suspension before suspension of work. A notice of suspension will state the defects or reasons for a suspension, the corrective actions required to stop suspension, and the time allowed to complete corrective actions. If the Contractor fails to take the corrective action within the specified time, the Engineer may:

a. Suspend the work until it is corrected; and

b. Employ others to correct the condition and deduct the cost from the Contract amount.

The Engineer may, at reasonable times, inspect any part of the plant or place of business of the Contractor or any subcontractor that is related to Contract performance, including private or commercial plants, shops, offices, or other places of business.

The Engineer may audit all books and records related to performance of the Contract, whether kept by the Contractor or a subcontractor, including cost or pricing data submitted under Subsection 40-02.

50-02 PLANS AND WORKING DRAWINGS. The Department shall provide the Contractor at least two full size sets of the conformed Plans and Contract including Special Provisions. If cross-sections are available, one set will be provided if requested in writing by the Contractor. The Contractor shall keep a complete set of these documents available on the project site at all times.

The Contractor shall supplement structure plans with working drawings that include all details that may be required to adequately control the work and that are not included in the Plans furnished by the Department. The Contractor shall not perform work or order materials until the working drawings for such work, or for changes, are approved by the Engineer. The Engineer's approval of working drawings or changes shall not be deemed a determination that the working drawings or changes comply with federal, state or local laws, rules, regulations and ordinances. It is Contractor's duty to ensure the working drawings comply with the Contract and any applicable federal, state or local laws, rules, regulations, and ordinances.

The Contractor shall submit to the Engineer for approval any required preliminary detail or working drawings. The project name and number shall be stated in the title block for all drawings, as shall the state bridge number, when applicable. The Contractor shall submit drawings in either an electronic or paper format that is acceptable to the Engineer. When paper copies are submitted, provide three sets.

The Contractor shall submit drawings to the Engineer in time to allow for review and correction before beginning the work detailed in the drawing. The Engineer shall return one set of these drawings, either approved or marked with corrections to be made, and shall retain the other sets. The Engineer's approval of working drawings does not change the Contract requirements or release the Contractor of the responsibility for successful completion of the work.

The Contractor is responsible for the accuracy of dimensions and details and for conformity of the working drawings with the Plans and Specifications. The Contractor shall indicate clearly on the working drawings any intended deviations from the Plans and Specifications and itemize and explain each deviation in the Contractor's transmittal letter. The Engineer may order the Contractor to comply with the Plans and Specifications at the Contractor's sole expense if the approved working drawings deviate from the Plans and Specifications and the Contractor failed to itemize and explain the deviations in the Contractor's transmittal letter.

Once the Contractor receives approval of the working drawings, the Contractor shall furnish to the Engineer:

a. Enough additional copies to provide eight approved sets of prints;

b. One set of reproducible transparencies (polyester film); and

c. If requested, an electronic file in AutoCAD drawing interchange format (.DXF).

The Contractor shall include the cost of furnishing all working drawings in the Contract price.

50-03 CONFORMITY WITH PLANS AND SPECIFICATIONS. Work performed and materials furnished shall conform to the Plans, Specifications and approved Working Drawings, and be within specified tolerances. When tolerances are not specified, the Engineer will determine the limits allowed in each case.

All work or material not conforming to the Plans, Specifications, and approved Working Drawings is considered unacceptable unless the Engineer finds that reasonably acceptable work has been produced. In this event, the Engineer may allow non-conforming work or material to remain in place, but at a reduced price. The Engineer will document the basis of acceptance and payment by Change Order, unless the contract specifies a method to adjust the price of that item.

The failure of the Department to strictly enforce the Contract in one or more instances does not waive its right to do so in other or future instances.

50-04 COORDINATION OF PLANS, SPECIFICATIONS, AND SPECIAL PROVISIONS. These Standard Specifications, Plans, Special Provisions, and all supplementary documents are essential parts of the Contract. They are intended to complement each other and describe and provide for a complete project. A requirement occurring in one is as binding as if occurring in all.

In case of conflict, calculated dimensions will govern over scaled dimensions. In the event that any of the following listed contract documents conflict with another listed contract document, the order of precedence is (with **a.** having precedence over **b.**, and **b.** having precedence over **c.**, etc.):

a. Special Provisions

b. Plans

c. Standard Specifications

d. Materials testing standards

e. FAA Advisory Circulars

The Contractor shall not take advantage of any apparent error or omission in the Contract documents. The Contractor may not base a claim for additional compensation or Contract time on a patent error, omission, or conflict in the Contract documents. The Contractor shall notify the Engineer immediately of any apparent errors or omissions in the Contract documents. The Engineer will make any corrections or interpretations necessary to fulfill the intent of the Contract.

50-05 COOPERATION BY CONTRACTOR. The Contractor shall give the work the constant attention necessary for its progress, and shall cooperate fully with the Engineer, Department staff, and other contractors in every way possible.

Either the Contractor's Superintendent or an acting Superintendent with authority to represent and act for the Contractor shall be available on-site, or within a reasonable distance to ensure timely response and oversight of the project whenever work is occurring. The Contractor shall employ, as its agent, a competent superintendent thoroughly experienced in the work being performed and capable of reading and thoroughly understanding the Plans and Specifications.

The Contractor shall be responsible for maintaining a safe work environment, ensuring compliance with all applicable safety regulations, and overseeing the safety of all work being performed. The Superintendent shall have the Contractor's authority to stop work and implement immediate corrective action if safety concerns arise, or if the work is not being performed in accordance with the Contract documents.

The Contractor shall provide 24-hour contact information for the Superintendent. The Contractor shall ensure that the superintendent is available at all times to receive and execute Directives and other instructions from the Engineer, to supervise personnel and to coordinate the work of subcontractors. The Contractor shall give the superintendent full authority to supply the resources required. The Contractor shall furnish superintendence regardless of the amount of work sublet.

50-06 UTILITIES.

a. Bid Considerations. Bidders shall include in their bid the cost of:

(1) Providing uninterrupted operation of all visual and electronic signals, including power supplies and Lighting used in the guidance of aircraft, except as specified in the CSPP and SPCD;

(2) All utility work that is specified in the Contract as work to be performed by the Contractor;

(3) Working around or through all permanent and temporary utilities shown on the Plans, in both their present and adjusted positions;

(4) Accommodating the removal, adjustment, or relocation of utilities shown on the Plans by entities other than the Contractor;

(5) Construction and removal of temporary utilities, to provide temporary utility service during the construction or repair of a permanent utility; and

(6) Other utility work not specifically identified as compensable in Subparagraph d Compensation.

The Department will show the approximate locations of utilities it knows to be within the work zone on the Plans. Bidders shall expect that the location, elevation and nature of utilities may vary from what is shown on the Plans and shall factor those contingencies into the bid price. Additional utilities may exist that are not shown on the Plans. Compensation related to utilities not shown on the plans will only be available according to Subparagraph d Compensation.

When an entity other than the Contractor is to remove, adjust, or relocate any utility, or perform other utility related work within the project boundaries, the applicable completion dates or specific calendar days to complete the removal, adjustment, relocation, or other utility related work may be stated in the Special Provisions. If no date is stated in the Special Provisions, the Contractor shall work cooperatively with the utility owner during the Project.

b. Cooperation with Utility Owners. The Contractor assumes the obligation of coordinating their activities with utility owners, and shall cooperate with utility owners to facilitate removal, adjustment, or relocation operations, avoid duplication of work, and prevent unnecessary interruption of services. When a utility owner is identified in the Contract as being responsible for removing, adjusting, or relocating a utility, the Contractor shall give the utility owner 15 days advance written

notice regarding the dates when the utility owner is required to begin and end operations. The Contractor shall allow the utility up to 15 additional working days to secure a contractor, if needed, to begin operations.

The Contractor shall cooperate with utility owners to determine a utility progress schedule for all parties' utility work. The Contractor shall submit the schedule to the Engineer before beginning that portion of utility work. The Contractor shall update the utility progress schedule monthly and shall note time delays and their cause.

Utility owners are not required to work in more than one location at a time, and shall be allowed to complete a specific section of work prior to commencing another section. Utility owners will not normally perform adjustment or relocation of underground utilities when the ground is frozen. Utility owners may prohibit the Contractor, through the Engineer, from working near utilities when the ground is frozen.

The Department has sole discretion to grant permits for utility work within the state right-of-way. The Contractor shall allow parties with utility permits to work and make excavations in the project**.**

If utility owners do not complete their work in a timely manner, the Engineer may direct the Contractor to temporarily relocate the utilities, to construct new utilities, or to make necessary repairs to complete the utility work.

The Contractor shall comply with all provisions of subsection GCP 80-04, g.

c. Utility Work. The Contractor shall:

(1) Make all necessary arrangements with utility owners to locate all utilities that may be within an area of work before excavation in that area, according to AS 42.30.400;

Prior to working with or near exposed airfield lighting circuits and components operating at or above 50 volts, such circuits and components shall be deenergized in accordance with the Lockout/Tagout procedures listed in sections 16.2-16.3 of the Ted Stevens Anchorage International Airport (ANC) Airfield Maintenance Safety and Health Plan. Additional electrical safety-related work practices shall be implemented, as necessary, in accordance with OSHA 29 CFR 1910.331-335.

The Contractor is responsible for requesting locates from all utilities having facilities in the area. Initiate locates for the following utilities by contacting the Locate Call Center at 907-278-3121 or 800-478-3121:

Alaska Communications (ACS)
Anchorage Water and Wastewater Utility (AWWU)
Andeavor (formerly Tesoro)
Chugach Electric Association (CEA)
Enstar Natural Gas Company
General Communications, Inc. (GCI)
Menzies Aviation

In addition, contact the following utilities separately and individually for locates of their utility lines. All costs associated with this work are considered subsidiary to other pay items and no separate payment will be made.

ANC Field Maintenance	907-266-2425
ANC Field Maintenance, Electric	907-266-2423
ANC Building Maintenance	907-266-2192
FAA Anchorage SSC	907-271-6783
FAA Turnagain SSC	907-271-6780

When your operations are anticipated to occur within 3 feet of an underground electrical line according to locates provided by the owning Utility, advise the owning Utility in writing at least 24 hours in advance of the work. In the notice, indicate the location and duration of the work to be performed.

When the Contractor's equipment is operating in such a way that any part is capable of reaching within 10 feet of an underground fuel line, according to locates provided by the owning Utility, advise the owning Utility in writing at least 14 days in advance of the work. In the notice, indicate the location and duration of the work to be performed.

Contact the FAA for locates prior to excavation. The FAA has various navigational aids and other equipment in operation at ANC. The approximate location of the power cable, control cables and equipment is shown on the plans. There may be cables and equipment that are not shown on the plans.

(2) Provide right-of-way staking and construction staking with lines and grades before excavation in that area;

(3) Prevent damage to utilities or utility property within or adjacent to the project;

(4) Carefully uncover utilities where they intersect the work;

Work around existing underground utilities. When utility lines are found in areas of excavation, hand dig pot-holes every 100 feet along the line to maintain visibility of the line. Excavations shall be hand dug when within 2 feet of an underground utility. This hand work is subsidiary to the applicable item(s) of work being performed that require this service.

(5) Immediately stop excavating in the vicinity of a utility and notify the Engineer and the utility owner if an underground utility is discovered that was not field marked or was inaccurately field marked;

(6) Promptly notify the utility owner, the Engineer, and the Airport Manager in the event of accidental interruption of utility service, and cooperate with the utility owner and the Engineer until service is restored;

(7) Take all precautions necessary to protect the safety of workers and the public when performing work involving utilities;

(8) Follow an approved TCP;

(9) Keep the length of open trench excavation to a minimum, backfill trenches as work is completed;

(10) Cover open trenches with metal plates capable of bearing traffic where traffic will cross trenches;

(11) Maintain continuous utility service and install temporary utility systems where needed;

(12) Ensure all excavation conforms to AS 42.30.400 – 42.30.490;

(13) Ensure all excavation and utility work conforms to excavation requirements in 29 CFR 1926, Subpart P, and confined space requirements in 29 CFR 1926.21(b)(6);

(14) Ensure all work undertaken near energized high voltage overhead electrical lines or conductors conforms to AS 18.60.670, AS 18.60.675, AS 18.60.680 or other applicable law;

(15) Ensure all work undertaken near gas lines, fuel lines, and energized high voltage underground electric lines or conductors, or any other utility lines conforms to all applicable laws and safety requirements of the utility owner;

When working near Chugach Electric Association facilities, adhere to the requirements in Electrical Facility Clearance Requirements attached to these specifications as an appendix or available from the utility owner.

When working near ENSTAR Natural Gas Company facilities, adhere to the requirements in Safety Requirements for Excavation Adjacent to Natural Gas Pipelines attached to these specifications as an appendix or available from the utility owner.

(16) When required by the utility owner, provide for a cable watch of overhead power, underground power, telephone, and gas;

Provide an attendant, employed by and representing the utility owner, whose sole responsibility is to perform as a safety observer while equipment is operating such that any part is capable of reaching within 10 feet of an electrical, gas, or fuel line. Providing a safety observer for a utility watch will not be paid for separately, but is considered subsidiary to the item(s) of work being performed that require these services.

(17) Obtain plan approval from the local fire authority, and provide for the continued service of fire hydrants, before working around fire hydrants;

(18) Do all pressure testing or camera testing required to verify utility acceptance in a timely manner; and

(19) Coordinate the Storm Water Pollution Prevention Plan (SWPPP) (Item P-641) with their work and the utility companies' work.

d. Compensation.

(1) Except as otherwise specifically provided in this Subparagraph d, no equitable adjustment will be paid by the Department:

(a) Due to any variations in location, elevation, and nature of utilities shown on the Plans, or the operation of removing, adjusting, or relocating them;

(b) For any delays, inconvenience, or damage sustained as a result of interference from utility owners, interference from utilities, or interference from the operation of removing, adjusting, or relocating utilities; or

(c) For any adjustments or relocations of utilities requested for the Contractor's convenience.

(2) Except as otherwise specifically provided in this Subparagraph d, the Engineer will issue a Change Order with equitable adjustment if:

(a) Utilities not shown on the Plans require removal, adjustment, or relocation;

(b) Conflicts occur between utilities not shown on the Plans and other necessary work; or

(c) Conflicts due to the required elevation of a utility occur between new and existing utilities that are both shown on the Plans.

(3) When the Contractor damages utilities, the utility owner may choose to repair the damage or require the Contractor to repair the damage. When the Contractor damages utilities:

(a) No equitable adjustment will be paid by the Department, and the Contractor shall be solely responsible for repair costs and expenses, when:

1. The Contractor failed to obtain field locates before performing the work that resulted in the damage;

2. The utility was field located by the utility owner or operator, and the field locate is accurate within 24 horizontal inches if the utility is buried 10 feet deep or less, or the field locate is accurate within 30 horizontal inches if the utility is buried deeper than 10 feet;

3. The plan profile or the field locate does not indicate or inaccurately indicates the elevation of a buried utility;

4. The utility is visible in the field; or

5. The Contractor could otherwise reasonably have been aware of the utility.

(b) The Engineer will issue a Change Order with an equitable adjustment for the cost of repairing damage if:

1. The field locate by the owner or operator of a buried utility erred by more than 24 horizontal inches if the utility is buried 10 feet deep or less, or 30 horizontal inches if the utility is buried deeper than 10 feet;

2. The utility was not shown on the Plans or other Contract documents, and the Contractor could not reasonably have been expected to be aware of the utility's existence; or

3. The Contractor made a written request for a field locate according to AS 42.30.400, the utility owner did not locate the utility according to AS 42.30.410, and the Contractor could not reasonably have been expected to be aware of the utility's existence or location.

(4) If a delay is caused by a utility owner, is beyond the control of the Contractor, and is not the result of the Contractor's fault or negligence, the Engineer may issue a Change Order with an equitable adjustment to contract time, but no equitable adjustment will be made for the cost of delay, inconvenience or damage. Additional contract time may be granted if the cause of delay is because a utility owner is to perform utility work:

(a) By dates stated in the Special Provisions, and the utility work is not completed by the dates stated; or

(b) In cooperation with the Contractor and the utility owner does not complete the work in a timely manner, based on a written progress schedule agreed upon by the Contractor, the utility owner, and the Engineer.

(5) If the Engineer orders the Contractor to make necessary construction or repairs due to incomplete utility work by utility owners, the Contractor will be paid as specifically provided for in the Contract, or the Engineer will issue a Change Order with equitable adjustment.

e. Cooperation with Airport Operations Center ~~Management~~ and FAA. The Contractor shall coordinate their activities and cooperate with the Airport ~~Management~~ Operations Center and the FAA, and shall provide 45 days advance written notice to them before working on utilities in the Air Operations Area. When the work of this contract impacts FAA facilities or operations such as closing of a runway that has visual or navigational aids, interruption of service to these aids, provide one (1) week advance notice (through the Engineer) for the FAA to deactivate/activate these devices. Comply with Subsection 80-04d FAA Systems Operations Control Center notification

requirements. All coordination with Airport ~~Management~~ Operations Center and the FAA shall be through the Engineer. Refer to the CSPP for coordination requirements. The Contractor shall include and cooperate with Airport ~~Management~~ Operations Center, the FAA, and the Engineer, in determining a utility progress schedule for work on the Airport Property.

The Contractor shall submit a written plan to repair damaged utilities to the Engineer, and shall follow the plan when repairing damaged utilities. The plan shall identify repair personnel or subcontractors. The Contractor shall not work on or adjacent to utilities unless repair personnel are available to repair damaged utilities. Personnel repairing utilities shall be licensed for the work required, and shall have the tools and material required to repair damaged utilities within the time limits required.

When damage affects, or may in the Engineer's opinion affect, the function of navigational or visual aids, the Contractor shall repair damage within two hours. When damage affects, or may in the Engineer's opinion affect, the function of utilities, the Contractor shall repair the damage within 24 hours.

50-07 COOPERATION BETWEEN CONTRACTORS. The Department may, at any time, contract for and perform other or additional work on or near the Project. The Contractor shall allow other contractors reasonable access across or through the Project.

The Contractor shall cooperate with other contractors working on or near the Project, and shall conduct work without interrupting or inhibiting the work of other contractors. All contractors working on or near the Project shall accept all liability, financial or otherwise, in connection with their Contract. No claim shall be made by the Contractor or paid by the Department for any inconvenience, delay, damage or loss of any kind to the Contractor due to the presence or work of other contractors working on or near the Project.

The Contractor shall coordinate and sequence the work with other contractors working within the same project limits. The Contractor shall properly join the work with work performed by other contractors and shall perform the work in the proper sequence to that of the others. The Contractor shall arrange, place, and dispose of materials without interfering with the operations of other contractors on the same project. The Contractor shall defend, indemnify and save harmless the Department from any damages or claims caused by inconvenience, delay, or loss that the Contractor causes to other contractors.

The following state-owned projects may be under construction concurrently with this project.

Project Name:	**Project No:**
ANC PFAS Remediation	CSAPT01228
ANC Taxiway Z Improvements West - Phase 1	CFAPT00465
ANC Taxiway R North and TL U Improvements	CFAPT00880
ANC North Terminal Northside Aprons & Taxilane Reconstruction	CFAPT00881
ANC Access Gate & HBO Installation	CSAPT00931
ANC Taxiway K Tug Road Reconstruction	CFAPT00992
ANC Terminal Water Main Improvements	CFAPT00993
ANC Taxilane E and M Improvements	CFAPT01002
ANC West Perimeter Road	CFAPT01136
ANC Postmark Drive Repairs 2024	CSAPT01146
ANC South Terminal Employee Parking Area Improvements	CSAPT01183
ANC RON 12-14 Rehabilitation	CFAPT01192
ANC ATCT Replacement Parking	CRMBS00831

ANC RON 7-11 Rehabilitation	CFAPT01270
ANC Gates N2 & N4 Rehabilitation	CFAPT01205

50-08 SURVEY CONTROL. The Department will provide sufficient horizontal and vertical control data to establish the planned lines, grades, slopes, shapes, and structures. The Contractor shall provide all additional survey work to maintain control during the project.

50-09 DUTIES OF THE INSPECTOR. The Department's inspectors are authorized to examine all work done and materials furnished, but cannot approve work or materials. Only the Engineer can approve work or materials. The inspectors can reject work or materials until any issues can be referred to and decided by the Engineer. The inspectors may not alter or waive any Contract requirements, issue instructions contrary to the Contract or act as foremen for the Contractor.

50-10 INSPECTION OF WORK. All materials and each part and detail of the work shall be subject to inspection by the Department for compliance with the Contract. The Contractor shall allow safe access to all parts of the work and provide information and assistance to the Engineer to ensure a complete and detailed inspection.

Any work done or materials used without inspection by an authorized Department representative may be ordered removed and replaced at the Contractor's expense, unless the Department failed to inspect after being given reasonable written notice that the work was to be performed.

The Contractor shall remove and uncover portions of finished work when directed. After inspection, the Contractor shall restore the work to Contract requirements. The cost to uncover and restore work shall be at the Contractor's expense, except the Department will pay the cost to uncover and restore work if (1) an authorized Department representative had previously inspected the work or the Contractor had provided reasonable prior written notice that the work was to be performed and (2) the Department finds the uncovered work to be acceptable. If the Department finds the uncovered work to be unacceptable, the cost to correct the work, or remove and replace the work, shall be at the Contractor's expense.

Representatives of Contract funding agencies have the right to inspect the work. This right does not make that entity a party to the Contract and does not interfere with the rights of parties to the Contract.

The Department's observations, inspections, tests and approvals shall not relieve the Contractor from properly fulfilling its Contract obligations and performing the work according to the Contract. Work that has been inspected but contains latent or hidden defects shall not be deemed acceptable even though it has been inspected and found to be according to the Contract.

The State of Alaska Department of Labor may require electrical inspection of Public Structures. The Contractor shall request inspection by contacting the Electrical Inspector in Anchorage, Alaska, Phone (907) 269-4925. The Contractor shall request inspection a minimum of two weeks prior to the expected date of inspection being needed. If more than one item requires inspection, the Contractor shall submit a list to the Engineer and Electrical Inspector, with dates for all stages that requires inspection. The Department has no control over or responsibility for the timing of inspections by the Electrical Inspector.

50-11 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK. All work that does not conform to the requirements of the Contract shall be deemed unacceptable by the Engineer, unless otherwise determined acceptable under Subsection 50–03. The Contractor shall correct, or remove and replace, work or material that the Engineer deems unacceptable, as ordered by the Engineer and at no additional cost to the Department.

The Contractor shall establish necessary lines and grades before performing work. Work done before necessary lines and grades are established, work done contrary to the Department's instructions, work done beyond the limits shown in the Contract, or any extra work done without authority, will be considered

as unauthorized and shall not be paid for by the Department, and may be ordered removed or replaced at no additional cost to the Department.

If the Contractor fails to promptly correct, remove, or replace unacceptable or unauthorized work as ordered by the Engineer, the Engineer may employ others to remedy or remove and replace the work and will deduct the cost from the Contract payment.

50-12 LOAD RESTRICTIONS. The Contractor shall comply with all vehicle legal size and weight regulations of 17 AAC 25 and the *Administrative Permit Manual,* and shall obtain permits from the DOT&PF Division of Measurement Standards & Commercial Vehicle Enforcement before moving oversize or overweight equipment on a state highway. Overweight vehicle movements must also be approved by ANC Engineering, through the Engineer.

The Engineer may permit oversize and overweight vehicle movements within the project limits provided the Contractor submits a written request and an acceptable Traffic Control Plan. No overloads will be permitted on a pavement, base or structure that will remain in place in the completed project. The Contractor shall be responsible for all damage done by their equipment due to overloads, and for damage done by a load placed on a material that is curing and has not reached adequate strength to support the load. The Contractor shall repaint any airfield or roadway markings, within and outside the work area, that are damaged by hauling operations.

Maintain haul routes using a minimum of three sweeper trucks during paving operations. Trucks used to haul asphalt must be hand swept to remove excess material when leaving the asphalt plan and when leaving the Airport.

50-13 MAINTENANCE DURING CONSTRUCTION. The Contractor shall maintain the airport and related airport facilities located within the project from the date construction begins until the Contractor receives a letter of project completion. The Contractor shall maintain these areas continually and effectively on a daily basis, with adequate resources to keep them in satisfactory condition at all times. The Contractor shall maintain those areas outside the project that are affected by the work, such as haul routes, detour routes, structures, material sites, and equipment storage sites during periods of their use.

Do not place foreign objects and debris (FOD) or any debris capable of causing damage to aircraft landing gears or propellers or of being ingested in jet engines on surfaces in active aircraft movement areas. Ensure that all loose material and debris has been removed from the sides of equipment and haul vehicles prior to travel on airport or road surfaces. Keep all active runway, taxiway, and apron areas free of materials spilled by the Contractor's ~~your~~ operations. Clean spilled materials off of closed runways, taxiways, or aprons prior to opening these areas to aircraft. If FOD is spilled on an active runway, taxiway, or apron, remove it immediately. The Engineer reserves the right to suspend all hauling operations until FOD is removed from active aircraft movement areas. Hauling time lost due to the suspended haul will not be considered reason to extend contract time or reason for a claim. The Engineer will allow hauling to continue when the spilled material is cleaned up to his satisfaction. FOD preventive measures and FOD cleanup of runways, taxiways, haul routes, and equipment is subsidiary to the contract and no additional payment will be made. Refer to GCP subsection 80-04f for hauling routes and hauling restrictions.

The Engineer may relieve the Contractor of this maintenance responsibility for specified portions of the project:

a. During a seasonal suspension of work. Approximately one month prior to seasonal suspension of work, the Contractor shall hold a preliminary meeting with the Engineer and Airport Management to outline the work the Contractor expects to complete before shut down and the condition the project is to be left in. The Contractor shall then schedule a field review for acceptance by the Department for winter maintenance. At the field review a punch list shall be prepared for implementation prior to acceptance. In order for the Contractor to be relieved of winter maintenance responsibility, the surface of all embankments shall be properly crowned for drainage, all edge lighting shall be in good working order, and all NAVAIDS installed by the Contractor shall first have been accepted by the FAA. After acceptance for winter maintenance and until the Contractor

resumes construction operations, maintenance of the facility agreed upon will be the responsibility of the Department; or

b. Following partial completion (Subsection 50-14); or

c. Following project completion (Subsection 50-15).

The Department is responsible for routine snow removal and ice control only on those portions of the project that the Department accepts for maintenance.

The Contractor shall maintain previously constructed work until a subsequent course, layer, or structure covers that work. The Contractor shall repair damage done to the work as described in Subsection 70-15.

All costs of maintenance work shall be subsidiary to the prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

If in the Engineer's opinion, the Contractor at any time fails to provide adequate maintenance, the Engineer will notify the Contractor of such noncompliance. The notification will specify the areas or structures for which there is inadequate maintenance, the corrective maintenance required, and the time allowed to complete corrective maintenance. If the Contractor fails to take the corrective action within the specified time, the Engineer may:

a. Suspend the work until corrective maintenance is completed;

b. Assess a traffic price adjustment against the Contract Amount when an adjustment rate is specified in the Contract; and

c. Employ others for corrective maintenance and deduct the cost from the Contract amount.

50-14 PARTIAL COMPLETION. The Contractor may submit a written request for partial acceptance of a substantially complete geographically separate portion of the project. The Engineer will accept the portion in writing before project completion and relieve the Contractor of further maintenance responsibility for the completed work, if the Engineer inspects the portion and finds that it is substantially complete to Contract requirements, and acceptance is in the best interest of the State.

Partial completion of the portion neither voids nor alters any Contract terms.

50-15 PROJECT COMPLETION. The Contractor shall notify the Engineer, in writing, upon substantial completion of all work provided for under the Contract. The Engineer will then schedule and conduct the final inspection. If the inspection discloses that any work is incomplete or unsatisfactory, the Engineer will give the Contractor a list of work items that must be completed or corrected to reach substantial completion and to reach final completion. The Contractor shall promptly complete or correct any work determined unsatisfactory by the final inspection and request a re-inspection.

The Engineer will identify the date of substantial completion in a letter of substantial completion. The letter of substantial completion will relieve the Contractor of further maintenance responsibility of the completed work. The letter of substantial completion will not stop Contract time or relieve the Contractor of the obligation to fully complete the work as required by the Contract specifications.

When all physical work and cleanup provided for under the Contract is found to be complete, the Engineer will issue a letter of project completion. Project completion stops the Contract time, but does not relieve the Contractor of any other Contract obligations.

50-16 FINAL ACCEPTANCE AND RECORD RETENTION. The Department will issue the letter of Final Acceptance after all of the following:

a. Project completion;

b. Receipt of all certificates, as-builts, warranties, and other required documents;

c. Receipt of the Contractor's Release, with no exceptions;

d. Certification of payment of payroll and revenue taxes by DOLWD and State Dept. of Revenue; and

e. Final payment under the Contract.

Final Acceptance will release the Contractor from further Contract obligations, except those:

a. Specified under Subsection 70-19;

b. Required by law or regulation; or

c. Continuing obligations established by provisions of this Contract, such as warranty, guaranty, indemnity, insurance, or bond.

The Contractor and the subcontractors shall maintain all books and records relating to performance of the Contract for three years after the date of final payment of the Contract and each subcontract.

50-17 CLAIMS. The Contractor shall notify the Engineer as soon as the Contractor becomes aware of any act or occurrence that may form the basis of a claim for additional compensation or an extension of Contract time or of any dispute regarding a question of fact or interpretation of the Contract. The Engineer has no obligation to investigate any fact or occurrence that might form the basis of a claim or to provide any additional compensation or extension of Contract time unless the Contractor notifies the Engineer in a timely manner of all facts the Contractor believes form the basis for the claim.

If the Contractor believes that he is entitled to an extension of Contract time, the Contractor must state the contract section on which the extension request is based, provide the Engineer with sufficient information to demonstrate that the Contractor has suffered excusable delay, and show the specific amount of time to which the Contractor is claiming entitlement. The Department will not grant an extension of Contract Time if the Contractor does not timely submit revised schedules in accordance with Subsection 80-03.

If the basis of claim or dispute is not resolved by agreement within seven days of the date the Engineer is notified by the Contractor, the Contractor shall within the next fourteen days submit a Contractor Intent to Claim (Form 25D-18) to the Engineer. Failure to submit a Contractor Intent to Claim as required under this section constitutes a waiver of any future claim arising from or relating to the alleged act or occurrence.

If the Contractor believes additional compensation or time is warranted, the Contractor shall immediately begin keeping complete, accurate, and specific daily records concerning every detail of the potential claim including actual costs incurred, and shall give the Engineer access to any such records and furnish the Engineer copies, if requested. Equipment costs must be based on the Contractor's internal rates for ownership, depreciation, and operating expenses and not on published rental rates. In computing damages, or costs claimed for a change order, or for any other claim against the Department for additional time, compensation or both, the contractor must establish actual damages based on internal costs for equipment, labor or efficiencies. Total cost, modified total cost or jury verdict forms of presentation of damage claims are not permitted. Labor inefficiencies must be shown to actually have occurred and can be proven solely based on job records. Theoretical studies are not a permissible means of showing labor inefficiencies. Home office overhead will not be allowed as a component of any claim against the Department.

The Contractor shall submit a written claim to the Contracting Officer within 90 days after the date the Contractor became aware of the basis of the claim or should have known of the basis of the claim, whichever is earlier. Any Claim not filed within this 90-day period will be deemed irrevocably waived by the Contractor, regardless of whether the requested relief is sought for the ultimate benefit of the Contractor or its subcontractor(s). The Contracting Officer will issue a written acknowledgement upon receipt of the claim.

The Contractor waives any right to claim if the Engineer was not notified properly or afforded the opportunity to inspect conditions or monitor actual costs or if the Claim is not filed on the date required.

a. The written Claim must include all of the following:

(1) The act, event, or condition giving rise to the claim;

(2) The Contract provisions that apply to the claim and that provide for the requested relief;

(3) The item or items of Contract work affected and how they were affected;

(4) The specific relief requested, including Contract time if applicable, and the basis upon which it was calculated;

(5) Revised progress schedules under Subsection 80–03; and

(6) A certification signed by the Contractor that to the best of the contractor's knowledge and belief, the data submitted is accurate, complete, and current and is the actual cost to the contractor or additional time for performing the additional work or supplying the additional materials.

b. The claim, in order to be considered, must show:

(1) That the Contractor suffered damages or delay;

(2) The damages or delay were caused by the act, event, or condition listed in the claim; and

(3) That the Contract entitled the Contractor for relief due to the act, event, or condition specified in the Claim.

The Department may request the Contractor to provide additional information relating to the claim at any time before issuing a decision. The Contractor shall provide the Department with the requested additional information within 30 days of receiving a request. Failure to furnish the additional information may be regarded as a waiver of the claim.

The Contracting Officer will issue a decision within 90 days of receipt of all information relating to the claim. The time for the Contracting Officer to issue a decision may be extended according to AS 36.30.620.

The Contracting Officer's decision is final and conclusive unless the Contractor delivers a notice of appeal to the Commissioner within 14 days of receipt of the decision. The Contractor shall also serve a copy of the notice of appeal on the Contracting Officer.

Appeals from a Contracting Officer’s decision shall be decided according to the State Procurement Code’s appeal procedures, including AS 36.30.625, AS 36.30.627, AS 36.30.630, and AS 36.30.631.

Criminal and civil penalties authorized under AS 36.30.687 (including, but not limited to, forfeiture of all claimed amounts) may be imposed on the Contractor if the Contractor makes or uses a misrepresentation in support of a claim, or defrauds or attempts to defraud the Department at any stage of prosecuting a claim under this Contract.

SECTION 60
CONTROL OF MATERIALS

60-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. The Contractor shall furnish all materials required to complete the work except those specified to be furnished by the Department. The Contractor shall supply materials that are new and that meet Contract requirements. All manufactured materials shall be delivered and stored in their original containers and shall show the manufacturer's name, brand, and identifying number.

The Contractor shall furnish airport lighting equipment that conforms to the requirements of cited materials specifications. In addition, where an FAA specification for airport lighting equipment is cited in the Plans or Specifications, the Contractor shall furnish such equipment that is certified and listed under AC 150/5345-53, *Airport Lighting Equipment Certification Program*.

The Contractor shall notify the Engineer of proposed sources of materials at least 30 days before shipment, and shall submit to the Engineer and to the Department's State Materials Engineer a complete list of materials to be purchased from suppliers sufficiently in advance of fabrication or shipment to permit the Department to inspect the materials.

The Department's inspectors may inspect any materials, including those originating outside Alaska, at the supply source or other locations. Materials may be conditionally approved at the supply source or other location, but are subject to field inspection and may be ordered removed under Subsection 50-11 if they do not conform to Contract requirements. Inspectors are authorized to reject materials that do not conform to specifications until any issues can be referred to and decided by the Engineer. Inspectors will report their actions to the Engineer.

The Contractor shall submit a manufacturer's certificate of compliance for each item listed on the Material Certification List. The Engineer may authorize the use of materials based on a manufacturer's certificate of compliance, see Subsection 60-05. Materials incorporated into the project on the basis of a manufacturer's certificate of compliance may be tested at any time, whether in place or not, and, if they do not conform to Contract specifications, they may be rejected and ordered removed under Subsection 50-11.

The Engineer may authorize the use of materials listed in the Department's *Qualified Products List*. Materials incorporated into the project on the basis of the *Qualified Products List* may be tested at any time, whether in place or not, and, if they do not conform to Contract specifications, they may be rejected and ordered removed under Subsection 50-11.

The Contractor may request substitution of specified materials with equivalent materials. Requests for substitution shall be submitted to the Engineer, and shall include a manufacturer's statement that certifies, for each lot delivered:

a. Conformance to the specified performance, testing, quality or dimensional requirements; and

b. Suitability for the use intended in the Contract work.

The Engineer will determine the acceptability of a proposed substitute for use in the project. If a substitute is approved, a Change Order will be executed. The Department is never required to accept substitution. The Contractor shall not incorporate substitute materials into the project without written approval from the Engineer. The Engineer may test substitute materials at any time, whether in place or not, and, if the substitute materials do not meet Contract specifications, they may be rejected and ordered removed under Subsection 50-11.

PROHIBITION ON CERTAIN TELECOMMUNICATION AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT. On projects using federal funds, the Contractor shall comply with the requirements of 2 CFR 200.216, Prohibition on certain telecommunication and video surveillance services or equipment, including any future amends thereto that are applicable to the project**.**

By submitting a bid or by execution of the contract, the Contractor certifies that it has not entered into a contract nor extended or renewed a contract to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system produced by:

- Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- Any entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

The Contractor further certifies that it has complied with the requirements of 2 CFR 200.216 and that it will continue to do so throughout the term of the Contract.

60-02 MATERIAL SOURCES.

a. General. The Contractor shall:

(1) Utilize Useable Excavation according to Subsection 40-04 before using material sources listed in Subsection 60-02.d. When there is insufficient useable excavation furnish additional required materials from sources of the Contractor's choice, except that the Contractor shall use a mandatory source when identified in the Contract;

(2) Produce a sufficient quantity of materials meeting the specifications to complete the project;

(3) As a subsidiary cost: clear and grub, strip, drill and blast, excavate, crush, sort, blend, screen, wash, stockpile, haul, and rehandle material as needed to produce and deliver the specified product;

(4) Determine the type of equipment and methods to be used;

(5) Expect variations in material quality within the deposits, and procure material only from acceptable portions of the deposit, regardless of source ownership; and

(6) Prevent erosion, sedimentation, and pollution within a materials source.

The Contractor agrees that:

(7) The costs to explore and develop material sources, including all production effort, are subsidiary to the cost of providing the specified material;

(8) The Engineer may order the Contractor to procure material only from certain portions of the source and may reject material from other portions of the source that does not conform to the specifications; and

(9) All material required may not be procurable from any one source and the Contractor may need to change between sources. That contingency is to be factored into the unit bid price for the Contract Item.

b. Inspection and Acceptance. The Contractor shall perform sampling and testing during materials processing and placement according to its Quality Control Plan (Subsection 60-03.a.) and shall obtain acceptable material samples from locations designated within the source.

The Department will sample and test materials to determine the quality of the source, at its expense, as part of its Acceptance Testing (Subsection 60-03.b.). The Department will reject materials when

the samples do not meet specifications. The Department may reject a proposed materials site when samples do not meet specifications.

c. Awareness Training. The operator of the Contractor's sand and gravel surface mine or other similar materials source shall provide Site-Specific Hazard Awareness Training in compliance with 30 CFR 46.11 for all the Engineer's personnel before beginning operations. All other workers shall be given training in compliance with 30 CFR 46 before exposure to mine hazards. The training must be offered at each surface mine that will be used to supply processed aggregates. A qualified person must provide the training. The training shall be according to the operator's written training plan approved by the Mine Safety and Health Administration, covering the following items:

(1) Site-specific health and safety risks;

(2) Recognition and avoidance of hazards;

(3) Restricted areas;

(4) Warning and evacuation signals;

(5) Evacuation and emergency procedures;

(6) Other special safety procedures; and

(7) A site tour.

The Contractor shall require the Engineer's personnel to sign the *Visitor's Log Book* upon completion of the training to indicate that training was provided. Training is a subsidiary cost.

d. Type of Sources.

When there is insufficient Useable Excavation, as defined in Subsection 40-04, the Contractor shall supply additional required material from one or more of the following sources:

(1) Contractor-Furnished Sources. For a material source that is a commercial plant as defined in Subsection 80-01.d.(1) the Contractor shall:

(a) Acquire the necessary rights and permits to obtain material from a commercial plant;

(b) Pay as subsidiary costs all related costs to obtain and use material from the source; and

(c) Be solely responsible for the quality and quantity of materials.

For all Contractor-Furnished sources that are not a commercial plant, the Contractor shall:

(d) Acquire the necessary rights and permits to take materials from the sources including state-owned sources that are not under the Department's control;

(e) Pay as subsidiary:

1. all related costs to obtain, develop, and use the sources, including but not limited to permit costs and mineral royalties;

2. the material costs identified in the Material Sales Agreement you obtain for State owned sources where an existing or draft Material Sales Agreement is not included in the contract; and

3. the material costs identified in the Material Sales Agreement for material obtained from State owned sources for which an existing or draft Material Sales Agreement is included in the contract;

(f) Be solely responsible for quality and quantity of materials; and

(g) Obtain all necessary rights, permits, and plan approvals before clearing or disturbing the ground in the material source. The contractor shall certify in writing to the Engineer that all permits and clearances relating to the use of the material source have been obtained prior to any clearing or ground disturbance in the materials source.

No equitable adjustment or other compensation will be made for any additional costs, including increased length of haul, if the Contractor:

(h) Chooses to change material sources for any reason;

(i) Is unable to produce a sufficient quantity or quality of materials from Contractor-Furnished sources; or

(j) Encounters unexpected, unforeseen, or unusual conditions within Contractor-Furnished sources.

(2) Mandatory Sources. The Department may identify material sources in the Contract from which the Contractor is required to take a specified quantity of material. No other source will be permitted for that portion of material unless prior approval is obtained from the Engineer. The Contract will specifically define these sources as Mandatory Sources and define rights and stipulations for each site. The Department will provide a materials report for these sources.

The Contractor acknowledges that samples from within a source may not be representative of the entire source. The Contractor must expect variations of quality and quantity within the source and shall factor that contingency into the unit bid price for the material. No equitable adjustment will be paid for variations encountered within the source.

When using a Mandatory Source, if it is found that the quality or quantity of material producible from the Mandatory Source does not meet project requirements and a change of source is necessary for that reason alone, a Change Order with equitable adjustment will be made.

(3) Designated Sources. The Department may identify material sources in the Contract which are available to the Contractor but which the Contractor is not required to use. The Contract will specifically define these sources as Designated Sources and define rights and stipulations for each site. The Department will provide a materials report for these sources.

The Contractor acknowledges that samples from within a source may not be representative of the entire source. The Contractor must expect variations of quality and quantity within the source and shall factor that contingency into the unit bid price for the material. No equitable adjustment will be paid for variations encountered within the source.

If the Contractor elects to use a Designated Source, and it is found that the quality or quantity of material producible from the Designated Source does not meet project requirements and a change of source is necessary for that reason alone, a Change Order with equitable adjustment will be made. If the Contractor chooses to change between or among sources for any other reason than quantity or quality of material, no equitable adjustment will be paid.

(4) Available Sources. The Department may identify other material sources that are available for use for the project by the Contractor. The Contract will specifically define these sources as Available Sources. The Department makes no guarantee as to quality or quantity of material in Available Sources. The Contractor is responsible for determining the quality and quantity of material, and if additional sources are needed. The Contractor shall be responsible for identifying the rights and stipulations for each site with the owner of the site.

When the Department furnishes copies of existing boring logs, test results, or other data in its possession concerning Available Sources, the Contractor is responsible for determining the

accuracy and completeness of this data, for any assumptions the Contractor makes based on this data, and for exploring all Available Sources to the Contractors satisfaction.

The Department makes no representation, guarantees, or warranty whatsoever, expressed or implied, as to:

(a) The quality or quantity of materials producible from an Available Source, even if such information is indicated in a Materials Report or Soils Investigation Report;

(b) Whether boring logs, test results or data reliably represent current existing subsurface conditions;

(c) Whether interpretations of the boring logs, test results, or other data are correct;

(d) Whether moisture conditions and indicated water tables vary from those found at the time borings were made;

(e) Whether the ground at the location of the borings was physically disturbed or altered after the boring was made; and

(f) The condition, materials, or proportions of the materials between borings, regardless of any subsurface information the Department may make available.

The availability of subsurface information from the Department shall not relieve the Contractor from any risks, or of any duty to make on-site examinations and investigations, or of any other responsibility under the Contract or as may be required by law.

No equitable adjustment will be made if the quality and quantity of material available from an Available Source is not as represented in any information provided by the Department, nor if a change of source is necessary for any other reason whatsoever. The use of Available Sources is entirely at the Contractor's option and the Contractor bears all risk associated with their decision to use an Available Source.

(5) Excluded Material Sources. Department owned, managed, or permitted material sources not identified in the Contract are excluded from use for the project. This exclusion does not prevent the Contractor from considering material sources as provided for under Subsection 60-02.d.(1) Contractor-Furnished Sources, nor does it prevent post-award consideration of other material sources as provided under Subsection 40-08.

e. Rights, Permits and Plan Approvals for Material Sources. Before disturbing the site of a material source, the Contractor shall acquire and pay for all necessary rights, permits and plan approvals indicated in this subsection and in subsection 70-02. For each material site the Contractor shall:

(1) Acquire approval for a Mining and Reclamation Plan (MRP) or receive an exemption, according to AS 27.19. The MRP shall include:

(a) Plan and cross-sectional views of the site;

(b) Applicable boundaries or property lines;

(c) Areas and depths to be developed;

(d) Locations of access roads, stripping, sorting, and waste piles, crushing and plant sites, stockpile sites, drainage features, erosion and pollution control features; and

(e) Condition the Contractor will leave the site after the materials extraction is completed, including reseeding.

(2) Submit a SWPPP as required by Item P-641.

f. Reclamation. After completing work in a materials source, the Contractor shall finish and grade work areas to a neat, acceptable condition according to the approved MRP. Reclamation of a Contractor-furnished source will be in accord with the Contractor's MRP.

60-03 TESTING AND ACCEPTANCE. Materials are subject to inspection and testing by the Department at any time before, during, or after they are incorporated into the project. Use of untested materials is at the Contractor's risk. The Contractor shall remove and replace unacceptable material according to Subsection 50-11.

a. QUALITY CONTROL. The Contractor is responsible for the quality of construction and materials used in the work. Quality control is process control, and includes all activities that ensure that a product meets Contract specifications. Contractor quality control is subsidiary to the applicable items unless a contract item for Quality Control is established on the bid schedule.

The Contractor shall implement a Quality Control Program in conformance with Section 100, Contractor Quality Control Program.

b. ACCEPTANCE TESTING. The Department has the exclusive right and responsibility for determining the acceptability of the construction and incorporated materials.

The Department will sample materials and perform acceptance tests at its expense. Copies of tests will be furnished to the Contractor upon request. When material is sampled by other than DOT&PF personnel or their agent(s), the sampling must be witnessed by, and possession of the sample immediately transferred to, DOT&PF personnel or their agent(s).

The Contractor shall not rely on the Department’s acceptance testing for its quality control. The Department's acceptance testing is not a substitute for the Contractor's quality control. The Engineer may retest materials that have failed the Department's acceptance test, but is not required to do so.

Acceptance sampling and testing frequencies may be located in the Appendix to these Specifications, and are incorporated into the Contract.

60-04 PLANT INSPECTION. The Department may periodically inspect manufacturing methods, manufactured lots and materials at the source of production. The Department may approve, conditionally approve, or reject them.

The Contractor shall:

a. Notify the Department of the production and fabrication schedule at least 30 days before beginning work on any item requiring inspection, and notify the Department 48 hours before beginning production or fabrication;

b. Give the inspector full and safe access to all parts of the plant used to manufacture or produce materials; and

c. Cooperate fully and assist the inspector during the inspection.

Materials may be rejected if the Department requests a plant inspection and the materials are produced or fabricated without a plant inspection. The materials may be tested at any time before final acceptance, whether in place or not and whether approved at a plant inspection or not. If the materials do not meet Contract specifications, they may be rejected and ordered removed under Subsection 50-11. If rejected materials are incorporated into the project, the Department may require those materials to be removed and replaced at the Contractor's expense under Subsection 50-11.

60-05 CERTIFICATES OF COMPLIANCE. The submittal requirements of this subsection are in addition to the submittal requirements of Subsection 60-09 Buy American Steel and Manufactured Products.

The Engineer may authorize the use of certain materials or assemblies based on either a manufacturer's certificate of compliance or based on a Contractor's summary sheet with applicable documentation attached.

a. If by manufacturer's certification, the certificate must include the project name and number, the signature of the manufacturer, and must include information that clearly demonstrates the material or assembly fully complies with the Contract requirements.

b. If by Contractor's summary sheet, the summary sheet must include the project name and number, the signature of the contractor, and must include attached documentation that clearly demonstrates the material or assembly fully complies with the Contract requirements.

Electronic submittals that are submitted by email from the Contractor's email account are considered signed.

The Contractor shall submit additional certificates of compliance or test data if required by the Contract or by the Engineer. The Engineer may refuse permission to incorporate materials or products into the project based on a certificate of compliance that does not meet the Contract requirements.

60-06 STORAGE OF MATERIALS. Materials shall be stored to preserve their quality and fitness for the work, and so they can be readily inspected. Materials inspected before storage may be inspected again, before or after being incorporated into the project. The Contractor shall:

a. Use only approved portions of the project site for storage of materials and equipment or plant operations;

b. Provide any additional space needed for such purposes without extra compensation;

c. Restore Department-owned or controlled storage and plant sites to their original condition without extra compensation;

d. Obtain the landowner's or lessee's written permission before storing material on private property, and furnish copies of the permission to the Engineer, if requested; and

e. Restore privately owned or leased storage sites, without extra compensation from the Department, to their original condition or as agreed to between the Contractor and the private owner.

60-07 DEPARTMENT-FURNISHED MATERIAL. Material furnished by the Department will be made available to the Contractor at a state yard or delivered at the locations specified in the Special Provisions.

The Contractor shall include the cost of handling and placing all materials after they are delivered in the Contract price for the item in connection with which they are used. The Contractor is responsible for all material delivered to the Contractor. Deductions will be made from any monies due the Contractor to make good shortages and deficiencies from any cause whatsoever, for any damage that may occur after delivery, and for demurrage charges.

60-08 SUBMITTAL PROCEDURE. The Contractor shall complete a Submittal Register, and shall submit it to the Engineer on forms provided by the Department or similar forms of the Contractor's choice as approved by the Engineer. The intent of the Submittal Register is to provide a blueprint for the smooth flow of specified project documents. The Contractor shall fill it out sequentially by bid item and allow at least three spaces between bid items. The Submittal Register shall list all working drawings, schedules of work, and other items required to be submitted to the Department by the Contractor including but not limited to: Progress Schedule, anticipated dates of material procurement, SPCD, TCP, SWPPP, Quality Control Program, Utility Progress Schedule, Blasting Plan, Mining Plan, annual EEO reports, DBE payment documentation and subcontracts.

The Contractor shall submit materials (product) information to the Engineer for review, as required by the Contract.

Unless otherwise specified, provide all submittals in an electronic format acceptable to the Engineer.

If the Contract has a duration of 180 days or less, the Contractor shall, within fifteen days after the date of the Notice to Proceed, submit to the Department for review all submittals and the submittal register. If the Contract has a duration greater than 180 days, the Contractor shall, within fifteen days after the date of the Notice to Proceed, submit to the Department for review, an anticipated schedule for transmitting submittals.

Each submittal shall include a Submittal Summary sheet. The Contractor shall sign submittals and submit them to the Engineer. Electronic submittals that are submitted by email from the Contractor's email account are considered signed. The Department will return submittals to the Contractor as either: approved, conditionally approved with the conditions listed, or rejected with the reasons listed. The Contractor may resubmit a rejected submittal to the Engineer with more information or corrections. The Department's approval of a submittal in no way relieves the Contractor of its responsibility for the means, methods, techniques, sequence, and procedures of construction, safety, and quality control.

The Contractor shall be responsible for timely submittals. Failure by the Department to review submittals within 30 days or as otherwise provided in the applicable subsection may be the basis for a request for extension of Contract time but not for additional compensation.

Payment for a specific contract item will not be made until the Department has received the Submittal Register for all items and approved all required submittals for that specific contract item.

When material invoices, freight bills, and mill certificates are submitted, they shall provide sufficient information for the Engineer to identify: the date, supplier and origin of invoice (bill, certificate); project name and number where material will be incorporated; manufacturer, product number, quantity, cost and bid item.

60-09 BUY AMERICAN PREFERENCE.

a. GENERAL. The requirements of this subsection do not apply to wholly state-funded projects. Appendix A4 of the FAA *Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects* shall be used in interpreting the requirements of this subsection.

b. CERTIFICATION OF COMPLIANCE WITH FAA BUY AMERICAN PREFERENCE STATEMENT. The bidder certifies that its bid is in compliance with 49 USC Section 50101, Build America Buy America (BABA), and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel, manufactured goods, and construction materials used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as a Non-Available Article in Federal Acquisition Regulations subpart 25.104; or has a current FAA Nationwide Buy American Waiver.

Per Executive Order 14005 "Made in America Laws" means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to "Buy America" or "Buy American," that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

The bidder must complete and submit the Certificate of Buy American Compliance (Form 25D-151) with their bid. The Department will reject as nonresponsive any bid that does not include a completed Certificate of Buy American Compliance.

c. WAIVER SUBMITTAL. The apparent low bidder who indicates they will request a Type 3 waiver on the Certificate of Buy American Compliance, must complete FAA Form 5100-136 Buy American Product Content Percentage Worksheet and FAA Form 5100-137 Buy American Final Assembly

Questionnaire. Submit FAA Form 5100-136 and associated documentation within 5 working days after date of notification of apparent low bidder.

Structural iron and structural steel are not eligible for a Type 3 waiver.

d. MATERIAL SUBMITTALS. During performance of the Contract, the Contractor must provide a Material Submittal for Buy American Compliance (Form 25D-154), from the supplier for each iron, steel, manufactured good, or construction material prior to incorporating any iron, steel, manufactured good, or construction material into the project. The supplier certifying Form 25D-154 may be the original manufacturer, fabricator, vendor, contractor, or subcontractor; provided the supplier has sufficient control and knowledge of the manufacturing process to accept responsibility and certify full and complete conformance with 49 USC Section 50101. Provide mill certificates or other material documentation when required by the Engineer. False statements may result in criminal penalties prescribed under AS 36.30.687 and Title 18 USC Section 1001.

60-10 OPERATION AND MAINTENANCE MANUALS. The Contractor shall provide operation and maintenance manuals for equipment and systems incorporated in the work. The Contractor shall submit one set of all manuals 60 days prior to substantial completion for review by the Department. The Contractor shall make corrections noted by the Department, and submit 5 complete sets of manuals 14 days prior to substantial completion.

The Contractor shall submit the manuals in neatly bound hard cover loose-leaf three ring binders. Include project name, Contractor's/Subcontractor's name, address and telephone number on each cover. Prepare data in the form of an instruction manual with a table of contents and a tabbed fly leaf for each section.

The Contractor shall provide a separate section for each product or system installed which includes the following:

a. Description of each unit or system and the component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests. Systems shall include:

(1) Heating System

(2) Fuel Oil Storage and Supply System

(3) Runway Lighting System

b. Product data with each sheet marked to clearly identify the specific products, component parts, and data applicable to installation. Delete inapplicable information. Product data shall include:

(1) Lighting Fixtures

(2) Wiring Devices

(3) Electric Power Distribution Components

(4) Runway Lighting System Components

(5) Thaw Wire and Heat Trace System Components

c. Include drawings to supplement product data and illustrate relations of component parts of equipment and systems. Show control and flow diagrams. Provide copies of all approved shop drawings. Drawings shall include:

(1) Equipment Storage Building Plans

(2) Electrical Equipment Enclosure Plans

(3) Runway Lighting One-line Control and Power Diagrams

(4) Electric Power One-line Diagrams

(5) Electric Power Panel Directories

(6) Thaw Wire and Heat Trace Systems

d. Type text as required to supplement product data and show logical sequence of operations for each procedure, incorporating the manufacturer's instructions.

e. Operating procedures to include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include any special operating instructions. Include reprogramming instructions for all programmable equipment. Systems shall include:

(1) Runway Lighting System

(2) Heating System

(3) Fuel Oil Storage and Distribution System

f. Maintenance requirements and repair data. Include routine procedures. Provide a guide for troubleshooting, disassembly, repair, and reassembly. Provide alignment, adjusting, and checking instructions. Maintenance and repair data shall include:

(1) Heating System

(2) Fuel Oil Storage and Distribution System

g. Supplies and replacement parts. For each item of equipment and each system list names, addresses, and telephone numbers of subcontractors and suppliers. Provide local source of supplies and replacement parts with complete nomenclature and commercial number of replacement parts. Provide a copy of manufacturer's recommended spare parts list for applicable equipment. Provide data for:

(1) Lamps for Runway Lighting System

(2) Lamps for Lighting Fixtures

(3) Fuel Oil System

h. Warranties. Include copies of warranties.

i. Tests. Include logs of all tests performed.

60-11 ALASKA AGRICULTURAL/WOOD PRODUCTS. On wholly state-funded projects, agricultural/wood products harvested in Alaska shall be used pursuant to AS 36.15.050 and AS 36.30.322 whenever they are priced no more than seven percent above agricultural/wood products harvested outside the state and are of a like quality as compared with agricultural/wood products harvested outside the state.

The Contractor shall maintain records which establish the type and extent of agricultural/wood products utilized. When such products are not utilized, the Contractor shall document the efforts he made towards obtaining agricultural/wood products harvested in Alaska and include in this documentation a written statement that he contacted the manufacturers and suppliers identified on the Department of Commerce and Economic Development's list of suppliers of Alaska forest products concerning the availability of agricultural/wood products harvested in Alaska and, if available, the product prices. The Contractor shall complete this documentation at a time determined by the Contracting Officer.

The Contractor's use of agricultural/wood products that fail to meet the requirements of this Subsection shall be removed and replaced in accordance with Subsection 50-03, Conformity with Plans and Specifications.

SECTION 70
LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

70-01 LAWS TO BE OBSERVED. The Contractor shall keep fully informed of, observe, and comply with all federal, state, and local laws, ordinances, and regulations, and all orders and decrees of bodies or tribunals having any jurisdiction or authority, that in any manner affect those engaged or employed on the work or which in any way affect the conduct of the work.

The Contractor and the Surety shall defend, indemnify, and hold harmless the state and its representatives against any claim or liability related to violations of any laws, ordinances, regulations, orders, decrees or permits by the Contractor, the Contractor's agents, the Contractor's employees, a subcontractor at any tier, or a supplier or service provider.

The Contractor has the affirmative duty to keep informed of and comply with all laws. The Contractor is not entitled to and shall not rely on any Department employee's interpretation, whether oral or written, of any law, ordinance, regulation, order, or decree, or any permit issued by an agency other than the Department.

The Contractor is responsible for conspicuously displaying required posters in an area readily accessible to workers.

a. For wholly state-funded projects, display all posters listed on the Department of Labor and Workforce Development website at http://labor.alaska.gov/lss/posters.htm.
b. For projects using federal funds, display posters required by law or funding agency including posters listed under Related Information on the FAA website http://www.faa.gov/airports/engineering.

70-02 PERMITS, LICENSES, AND TAXES. The terms, conditions, and stipulations in permits obtained either by the Department or by the Contractor are made a part of this Contract. Permits obtained by the Department for this project are attached to these Specifications as appendices. Contact names and phone numbers for permits obtained by the Department are shown on the individual permits.

The Department will:

a. Secure permits and licenses that the Department determines are required for the construction of the proposed project, and the use of mandatory sources, designated sources and designated waste disposal areas for the proposed project; and

b. Modify Department-acquired permits during the performance of the contract, if deemed necessary by the Engineer.

The Contractor shall:

~~**a.**~~**c.** Acquire any permits and licenses required to complete the project that are not acquired by the Department;

~~**b.**~~**d.** Provide qualified professionals to collect data or perform studies necessary to acquire permits for the use of sites not previously permitted;

~~**c.**~~**e.** Give all notices required for the prosecution of the work;

~~**d.**~~**f.** Abide by all permits and licenses whether acquired by the Department or by the Contractor;

~~**e.**~~**g.** Notify the Engineer promptly if any activity cannot be performed as specified in the permits, and cease conducting the activity until permit modifications or any required additional permits are obtained;

~~**f.**~~**h.** Obtain modifications to permits acquired by the Contractor;

~~g.~~ **i.** Pay all charges, fees and taxes; and

~~h.~~ **j.** Provide proof of payment of all taxes before the Department makes final payment.

~~i.~~ **k.** Provide the information necessary to comply with the Alaska Department of Environmental Conservation, Alaska Pollutant Discharge Elimination System (APDES) to discharge stormwater from the construction site. Requirements for this permit are given under P-641, Erosion, Sediment, and Pollution Control.

The provisions of permits acquired by the Contractor, and of notices and information under this section does not shift or create responsibility for compliance with Federal or State law to the Department, or otherwise impose a duty for oversight or review.

In addition, before using an area on or off project site not previously permitted for use by the Contract, the Contractor shall:

l. Contact all government agencies having possible or apparent permit authority over that area;

m. Obtain all required permits, clearances, and licenses from those agencies;

n. Obtain permission from any property owners or lessees with an interest in the property; and

o. Provide all of the following to the Engineer:

(1) All permits or clearances necessary to use the site for its intended purpose(s);

(2) A written statement that all permits or clearances necessary have been obtained;

(3) Written evidence that the Contractor has contacted all of the relevant agencies and that no additional permits are required on the part of the Contractor, including at a minimum the name of the agency and staff person contacted, the date contacted, and result of coordination; and

(4) A plan that identifies how the site will be finally stabilized and protected.

The Engineer may reject a proposed site if the Contractor fails to provide any of the above information or to demonstrate that a proposed site can be finally stabilized to eliminate future adverse impacts on natural resources and the environment.

70-03 PATENTED DEVICES, MATERIALS AND PROCESSES. If the Contractor employs any design, device, material, or process covered by patent, trademark, or copyright, the Contractor shall obtain and provide the Engineer with a copy of a suitable legal agreement with the patentee or owner.

The Contractor and the Surety shall defend, indemnify, and hold harmless the state and its representatives and any affected third party or political subdivision from any claim, cause of action, and damages for infringement arising from or relating to the Contractor's use of a patented design, device, material, process, trademark, or copyright.

70-04 WAGE RATES. The Contractor and all subcontractors shall pay the current prevailing rate of wages as per AS 36.05.010 and this Contract. On federally funded projects the Contractor and all subcontractors shall pay the higher of the appropriate wage rates published by the Alaska Department of Labor and the U.S. Department of Labor, for each individual job classification. The Contractor and all subcontractors shall file certified payroll with the Alaska Department of Labor and Workforce Development (DOLWD) and with the Engineer for all work performed on the project. Submit signed and certified payrolls electronically to the DOLWD and the Engineer.

Before beginning work the Contractor shall file a Notice of Work with DOLWD and pay all required fees. After finishing work the Contractor shall file a Notice of Completion with DOLWD and pay all additional fees required by increases in the Contract amount.

70-05 FEDERAL PROVISIONS. The Contractor shall:

a. Observe all federal laws, rules, regulations, and requirements applicable to the project; and

b. Allow appropriate federal officials access to inspect the work.

The federal government is not a party to the Contract. The Contractor agrees that federal inspections will not form the basis for any claim against the federal government or the State for interference with the rights of the Contract parties.

70-06 SANITARY, HEALTH, AND SAFETY PROVISIONS. The Contractor shall provide and maintain neat and sanitary accommodations for employees that meet all federal, state and local requirements.

The Contractor shall comply with federal, state, and local laws, rules, and regulations concerning construction safety and health standards, including U.S. Mine Safety and Health Administration rules when the project includes pit or quarry operations.

The Contractor shall not expose the public to, or require any workers to work under, conditions that are unsanitary, hazardous, or dangerous to health or safety.

The Contractor is responsible for ensuring all workers are adequately protected. The Contractor shall have a safety and health management program that complies with AKOSH requirements, and includes:

a. A Site Specific Safety Plan(s) (SSSP) prior to the commencement of work. This plan must outline the safety measures and procedures to be followed on-site, ensuring compliance with all applicable federal, state, and local safety regulations.

b. The SSSP shall be accessible to all contractor personnel and subcontractors, and provided to the Department upon request.

c. A hazard analysis prior to the commencement of work. It must specifically focus on the job functions and the hazards associated with performing them. The Contractor is responsible for ensuring that all necessary personnel are informed of and follow the hazard analysis guidelines.

d. New employee training and periodic worker training regarding safety and health.

e. Regular safety meetings with written documentation of attendance, safety topics discussed, worker safety complaints, and corrective actions taken; and

f. The Contractor shall implement a comprehensive Safety Program to oversee site safety, including the development and maintenance of the SSSP, hazard analysis, employee training, and safety meetings. The program must ensure compliance with safety regulations and promote a proactive safety culture. For specific tasks, refer to Subsection 80-03.

The Contractor shall implement measures to comply with the following:

~~a.~~ **g.** Executive Order 13513 - Federal leadership on reducing text messaging while driving, dated October 1, 2009, and DOT Order 3902.10 - Text messaging while driving, dated December 30, 2009; and

~~b.~~ **h.** Alaska Statute 28.35.161 - Driving a motor vehicle with a screen device operating; unlawful installation of television, monitor, or similar device

The Contractor and Surety shall defend, indemnify and hold harmless the State of Alaska from all claims, causes of action and judgments arising from or relating to the Contractor's failure to comply with any applicable federal, state or local safety requirement, regulation or practice, whether or not listed above.

70-07 ARCHAEOLOGICAL OR HISTORICAL DISCOVERIES. When the Contractor's operation encounters prehistoric artifacts, burials, remains of dwelling sites, paleontological remains, shell heaps, land or sea mammal bones, tusks, or other items of historical significance, the Contractor shall:

~~c.~~ **i.** Immediately cease operations at the site of the find;

~~d.~~ **j.** Immediately notify the Engineer of the find; and

~~e.~~ **k.** Not disturb or remove the finds or perform further operations at the site of the finds until directed by the Engineer.

The Engineer will issue an appropriate Change Order if the Engineer orders suspension of the Contractor's operations or orders the Contractor to perform extra work in order to protect an archaeological or historical find.

70-08 PUBLIC CONVENIENCE AND SAFETY, AND RAILWAY PROVISIONS. The Contractor shall control its operations and those of its subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft, airport personnel and vehicular traffic in the AOA, except as specifically provided in this Contract. The Contractor's operations and those of its subcontractors and all suppliers, shall be done according to Subsection 40-05 and shall limit operations for the convenience and safety of the traveling public as specified in Subsection 80-04.

The Contractor shall conduct all operations on or near a railroad according to the Contract, any contract between the Department and the railroad, and any permits issued by the railroad. The Department shall obtain permits for hauling materials across railroad tracks at locations specified in the Contract. If the Contractor desires additional crossings, the Contractor shall obtain any required permits at the Contractor's expense.

70-09 BARRICADES, WARNING SIGNS AND HAZARD MARKINGS, AND TRAFFIC CONTROL PLAN. The Contractor shall furnish, erect, and maintain all barricades, warning signs and markings for hazards necessary to protect the public and the work. It shall be the Contractor's responsibility to maintain markers at all times to separate areas closed to aircraft from adjacent areas that are open to aircraft.

For public vehicular and pedestrian traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in conformity with the *Manual on Uniform Traffic Control Devices for Streets and Highways* (published by the United States Government Printing Office) and the *Alaska Traffic Manual Supplement*, and according to the approved TCP.

When the work requires closing an airport operations area of the airport or portion of such area, the Contractor shall furnish, erect and maintain temporary markings and associated lighting conforming to the requirements of AC 150/5340-1, *Standards for Airport Markings*, and according to the CSPP and SPCD.

For work within the airport property, the Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stockpiles, and parked construction equipment that may be hazardous to the operation of emergency, fire-rescue, maintenance or support vehicles on the airport in conformance to AC 150/5370-2, *Operational Safety on Airports During Construction*.

The Contractor shall identify each motorized vehicle or piece of construction equipment in conformance to AC150/5370-2 and 150/5210-5.

The Contractor shall furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work that requires such erection and shall maintain the barricades, warning signs, and markings for hazards until their removal is directed by the Engineer.

Open-flame type lights shall not be permitted within the air operations areas of the airport.

Provide an individual on call 24 hours a day for emergency maintenance of Airport Hazard Lighting and Barricades. Inform the Airport Communications Center, telephone 907-266-2415 or 907-266-2575, of the individual's name and telephone number. The Contractor shall provide an on-site response within 30 minutes of receiving notice from the Airport Communications Center or Airport Operations. Upon failure of the designated individual to be available to receive notice or of the Contractor to respond accordingly, Airport Operations, Safety and Security (OSS) has authority to remedy the emergency and to collect the cost from any monies due or to become due the Contractor.

All labor, materials, equipment, replacement parts, batteries, tools and other items necessary to maintain the barriers, flags, and lights are subsidiary to the contract and no separate payment will be made.

Submit a traffic control plan for approval a minimum of five (5) calendar days prior to any work except surveying.

Ensure that the traffic control plan is developed, set-up, and maintained by the American Traffic Safety Services Association (ATSSA) or the International Municipal Signal Association (IMSA) certified work site supervision. The cost of plans, signs, permanent construction signs, channelization devices, and marking to meet this requirement is an obligation subsidiary to other items. No separate payment will be made.

70-10 USE OF EXPLOSIVES. The use of explosives is not permitted on airport property.~~The Contractor shall obey all laws, regulations and permits applicable to using, handling, loading, transporting, or storing explosives. When using explosives, the Contractor shall take utmost care not to endanger life, property, new construction, or existing portions of the project and facilities that are to remain in place after the project is complete.~~

~~The Contractor shall provide notice to property owners, the traveling public, and utility companies in the vicinity before using explosives. The Contractor shall provide a minimum of three working days' notice to the Federal Aviation Administration and the airport manager. The Contractor shall notify police and fire authorities in the vicinity before transporting or using explosives. The Contractor shall provide notice sufficiently in advance to enable all potentially affected parties to take whatever steps they may deem necessary to protect themselves and their property from injury or damage. The Contractor shall not use explosives on or near airport property until a Notices to Airmen (NOTAMs) has been issued. Each new use of explosives may require a separate NOTAMs to be issued. The Contractor shall not use electric blasting caps within 1,000 feet of the airport property.~~

~~The Contractor is liable for all property damage, injury, or death resulting from the use of explosives on the project. The Contractor and Surety shall indemnify, hold harmless, and defend the State of Alaska from all claims related to the use of explosives on the project, including claims from government agencies alleging that explosives were handled, loaded, transported, used, or stored improperly.~~

70-11 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE.

a. Restoring Areas. Areas used by the Contractor, including haul routes, shall be restored to their original condition after the Contractor's operations are completed. The original condition of an area shall be determined as follows: Prior to commencement of operations, the Engineer and the Contractor shall inspect each area and haul route that will be used by the Contractor and take photographs to document their condition. After construction operations are completed or prior to seasonal suspension of work, the condition of each area and haul route will be compared to the earlier photographs. Contractor shall repaint any project markings or general airport markings that get damaged within haul routes or during construction on adjacent phases due to their hauling operations. Prior to demobilization or seasonal suspension of work, the Contractor shall repair

damages attributed to its operations. The Contractor agrees that all costs associated with repairs shall be subsidiary to other items of work and will not be paid for directly.

b. Material Disposal Sites. Offsite disposal areas may be at locations of the Contractor's choice, provided the Contractor obtains from the owner of such land written permission for such disposal and a waiver of all claims against the State for any damage to such land which may result therefrom, together with all permits required by law for such disposal. A copy of such permission, waiver of claims, and permits shall be filed with the Engineer before commencing work on private property. The Contractor's selected disposal sites shall also be inspected and approved by the Engineer prior to use of the sites.

c. Property marks. The Contractor shall:

(1) Be responsible for and protect from disturbance all land monuments and property marks until the Engineer has approved the witnessing or otherwise referenced their locations; and

(2) Not move such monuments or marks without the Engineer's approval.

d. Damage to property. The Contractor shall:

(1) Be responsible for all damage to public or private property resulting from any act, omission, neglect, or misconduct in the manner or method of executing the work;

(2) Be responsible for all damage to public or private property resulting from defective work or materials at any time, before, during, or after project completion; and

(3) Restore all such damaged property to a condition similar or equal to that existing before the damage occurred, at no additional cost to the Department.

e. Protection of natural resources. The Contractor shall:

(1) Conduct work in a manner that minimizes disturbance to and protects natural resources in compliance with all federal, state, and local laws and regulations;

(2) When working near designated wetlands, as defined by the Corps of Engineers, place no fill, nor operate equipment outside the permitted area; and

(3) When working in or near designated anadromous fish streams, as defined by AS 41.14.840 and AS 41.14.870, place no fill or dredge material, nor operate equipment, within or on the banks of the stream (including fording) except as permitted by the State Fish Habitat Permit issued for the project.

~~(3)~~(4) Eagles are protected under 16 U.S.C. 668-668c Protection of Bald and Golden Eagles (The Act) that prohibits "takes" of eagles, their eggs, nests, or any part of the bird. The Act defines "taking" as "to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb."

The Contractor shall follow the current National Bald Eagle Management Guidelines: https://www.fws.gov/media/national-bald-eagle-management-guidelines.

Do not disturb a nesting eagle. Notify the Engineer when an active eagle nest is within 660 feet of the project limits.

Delays caused by the presence of nesting eagles may entitle the Contractor to an extension of time, but no additional compensation will be made.

f. Hazardous materials. Hazardous materials include but are not limited to petroleum products, oils, solvents, paints, lead based paints, asbestos, and chemicals that are toxic, corrosive, explosive, or flammable. Except as otherwise specified in this Contract, the Contractor shall:

(1) Not excavate, nor use for fill, any material at any site suspected of or found to contain hazardous materials or petroleum fuels;

(2) Not raze and remove, or dispose of structures that contain asbestos or lead-based paints;

(3) Not stockpile, nor dispose of, any material at any site suspected of or found to contain hazardous materials or petroleum;

(4) Report immediately to the Engineer any known or suspected hazardous material discovered, exposed, or released into the air, ground, or water during construction of the project;

(5) Report any containment, cleanup, or restoration activities anticipated or performed as a result of such release or discovery;

(6) Handle and dispose of hazardous material with properly trained and licensed personnel who follow an approved Hazardous Material Control Plan as per Item P-641.

g. Protected areas. The Contractor shall not use land from any park, recreation area, wildlife or waterfowl refuge, or any historical site located inside or outside of the project limits for excess fill disposal, staging activities, equipment or material storage, or for any other purposes unless permitted by the Contract or unless all permits and clearances necessary for such work have been obtained by the Contractor as detailed in Subsection 70-02.

h. Solid waste. The Contractor shall remove all debris, trash, and other solid waste from the project site as soon as possible and according to the Alaska Department of Environmental Conservation Solid Waste Program.

70-12 FOREST PROTECTION. The Contractor shall:

a. Comply with all laws and regulations of the United States and the State of Alaska, local governments, or other authorities governing the protection of forests and the carrying out of work within forests;

b. Keep forest areas in an orderly condition;

c. Dispose of all refuse and obtain permits for the construction and maintenance of all construction camps, stores, warehouses, residences, latrines, cesspools, septic tanks, and other structures according to the requirements of the supervising authorities;

d. Take all reasonable precautions to prevent and suppress forest fires;

e. Require workers and subcontractors, both independently and at the request of officials, to do all reasonably within their power to prevent and suppress and to assist in preventing and suppressing forest fires; and

f. Make every possible effort to notify the appropriate forestry agency at the earliest moment of the location and extent of any forest fire.

70-13 RESPONSIBILITY FOR DAMAGE CLAIMS. The Contractor shall indemnify, hold harmless, and defend the State of Alaska and its agents and employees from any and all claims or actions for injuries or damages whatsoever sustained by any person or property that arise from or relate to, directly or indirectly, the Contractor's performance of the Contract; however, this provision has no effect if, but only if, the sole proximate cause of the injury or damage is the Department’s negligence.

This Contract does not create a third party benefit to the public or any member of the public, nor does it authorize any person or entity not a party to this Contract to maintain a suit based on this Contract or any term or provision of the Contract, whether for personal injuries, property damage, or any other claim or cause of action.

70-14 OPENING SECTIONS OF THE PROJECT TO TRAFFIC. Unless prohibited by the CSPP, the Engineer may, at his discretion, order the Contractor to open sections of the work to traffic prior to completion of the entire project. Openings under this section shall not constitute (a) acceptance of the opened sections or any other part of the work or (b) a waiver of any other provision of the Contract.

The Engineer may establish a time period for completing any features of the opened section of work that are behind schedule.

The Contractor shall:

a. Maintain the opened portions of the work without additional compensation;

b. Perform all necessary repairs or renewals on the opened sections of the work without additional compensation;

c. Conduct the remainder of the work with minimum interference to traffic; and

d. Maintain barricades and other safety devices required by AC 150/5370-2, *Operational Safety on Airports During Construction*, to provide separation of opened and closed sections of the project.

70-15 CONTRACTOR'S RESPONSIBILITY FOR WORK. The Contractor shall be responsible for implementing all preventative measures necessary to protect, prevent damage, and repair damage to the work from all causes at no additional cost to the Department. This duty continues from the date construction begins until the date specified in a letter of Substantial Completion or Partial Acceptance of a specific section of the project. Where there is a Partial Acceptance, the duty ends only as to the accepted portion of the work. This duty continues during periods of suspended work, except in specific sections the Department has agreed to maintain under Subsection 50-13.a. Seasonal Suspension of Work.

The Contractor shall rebuild, repair, restore, and make good all losses or damages to any portion of the work including that caused by vandalism, theft, accommodation of public traffic, and weather. The Department will only be responsible for loss or damage due to unforeseeable causes beyond the control of and without the Contractor’s fault or negligence, such as Acts of God, the public enemy, and governmental authorities.

In case of suspension of work from any cause, the Contractor shall take such precautions as may be necessary to prevent damage to the work or facilities affected by the work. This will include providing for drainage and erecting any necessary temporary structures, signs, or other facilities and maintaining all living material such as plantings, seedings, and soddings.

70-16 RESERVED.

70-17 FURNISHING RIGHT-OF-WAY. The Department will secure all necessary right-of-way or property in advance of construction. Any exceptions will be indicated in the Contract.

70-18 PERSONAL LIABILITY OF PUBLIC OFFICIALS. There shall be no liability upon the Engineer and their authorized representatives, either personally or as officials of the state, in carrying out any of the provisions of this Contract, or in exercising any power or authority granted to them by or within the scope of the Contract, it being understood that in all such matters the Engineer and their authorized representatives act solely as agents and representatives of the State. The Contractor shall bring no suit related to or arising under this Contract naming as defendants any State officer, employee or representative in either their personal or official capacities, and shall include a prohibition to that effect in all subcontracts entered into for this Project.

70-19 NO WAIVER OF LEGAL RIGHTS. The Department shall not be precluded nor estopped by any measurement, estimate, or certificate made either before or after the completion and acceptance of the work and payment, from showing the true amount and character of the work performed and materials furnished by the Contractor, nor from showing that any measurement, estimate, or certificate is untrue or is incorrectly made, nor that the work or materials do not in fact conform to the Contract.

The Department shall not be precluded nor estopped, notwithstanding any measurement, estimate, or certificate and payment, from recovering from the Contractor or the Contractor's Sureties, or both, such damages as it may sustain by reason of the Contractor's failure to comply with the terms of the Contract.

Neither the acceptance by the Department, or by any representative of the Department, nor any payment for or acceptance of the whole or any part of the work, nor any extension of time, nor any possession taken by the Department, shall operate as a waiver by the Department of any portion of the Contract or of any right of the Department to damages. A waiver by the Department of any breach of the Contract shall not be held to be a waiver of any other subsequent breach.

70-20 GRATUITY AND CONFLICT OF INTEREST. The Contractor shall not extend any loan, gratuity, or gift of money of any form whatsoever to any employee of the Department, nor will the Contractor rent or purchase any equipment or materials from any employee of the Department or to the best of the Contractor's knowledge from any agent of any employee of the Department. The Contractor shall execute and furnish the Department an affidavit certifying that the Contractor has complied with this section before final acceptance.

70-21 FEDERAL AFFIRMATIVE ACTION (RESERVED).

70-22 SECURITY.

a. Security Program

The following information will guide you through the security requirements and procedures at Ted Stevens Anchorage International Airport (ANC). ANC has assigned oversight for compliance with all security requirements and procedures to Airport Operations. Departments within Airport Operations have specific responsibilities which are defined in greater detail below.

Note: Important Contact Phone Numbers

Airport Operations: 907-266-2600
Airport Security Manager 907-782-5419
Airport Badge Office: 907-266-2409
Airport Communications Center 907-266-2415

Prior to commencement of a project, the Contractor will meet with the Airport Construction Coordinator and/or the Airport Security Manager for a security briefing covering security requirements and procedures specific to the project.

The terms and conditions relating to security at ANC rely, in part, on requirements imposed by the Transportation Security Administration (TSA) under 49 C.F.R. Part 1542. The badging, training, and access control measures noted herein implement federal, state and airport requirements that are anticipated to cover the Contractor's operations. However, ANC reserves the right to impose any further security measures required by the TSA such as in emergency situations, and the Contractor will be required to comply at no additional cost to the State of Alaska. Although Contractor will receive training as described below, and a packet of materials further outlining applicable security requirements and procedures, not every security scenario can be covered. In any situation not clearly covered herein, the Contractor shall contact the Airport Security Manager at 907-782-5419 for guidance or clarification.

b. Air Operations Area Entry Control

The Contractor is responsible for preventing unauthorized access to the Air Operations Area (AOA) by way of the construction site. This includes ensuring ANC perimeter gates and doors are locked or attended by appropriately badged individuals who allow only authorized personnel or vehicles to enter the AOA. Opening/closing of gates within the AOA perimeter fence requires coordination with Airport Operations. Contact Airport Operations at 266-2600.

Those individuals designated to control access points into the AOA shall be instructed by Airport Operations regarding the proper identification requirements for persons and vehicles wishing to enter the AOA. These requirements are specific to each project and may change during different phases of the project.

The Contractor will provide those individuals designated to control access points into the AOA with the capability to communicate with Airport Operations and the Airport Communications Center.

The Contractor will maintain a minimum six (6) foot clear zone on both sides of any perimeter fencing affected by the project.

c. Airport Identification Badges

The airport identification badge, developed and adopted by ANC, is the only identification system recognized as authority to enter the Security Identification Display Area (SIDA), Secured Areas and Sterile Areas of the airport. Only individuals identified by this system are allowed unescorted access to these areas. Airport identification badges must be worn at all times on the individual's outermost garment, above the waist.

Any individual found in the AOA, SIDA, Secured Areas or Sterile Area of the airport who are not in compliance with identification requirements will be removed from the area and appropriate action will be taken in accordance with Federal, State and Municipal regulations, statutes and codes.

d. Control Authority

ANC has delegated authority for approving issuance, system control, implementation and accountability of the badging system to the Airport Badge Office. The Airport Badge Office may be contacted at 907-266-2409.

An airport identification badge will be used by each Contractor employee requiring unescorted access to the SIDA, Secured Areas or Sterile Areas for the project. The airport identification badge is only valid within the project area and the approved travel routes to and from the project.

e. Airport Identification Badge Issuance

The Contractor is responsible for ensuring that all background checks, security training and badging will be accomplished in time to staff the project as necessary.

To obtain an airport identification badge, individuals must first pass a fingerprint based Criminal History Records Check (CHRC) and a Security Threat Assessment (STA). Individuals must have no disqualifying criminal offenses in the previous ten (10) years to qualify for an airport identification badge. The Department will be notified of the results of the background checks within seven (7) to ten (10) business days.

Once background check clearances are received, individuals must attend Security Training and, if they will be driving within the AOA, Ramp Driver Training. Security Training lasts approximately 45 minutes. Ramp Driver Training is an additional 45 minutes. Individuals requesting Ramp

Driver Training must have a driver's license valid in the State of Alaska (verified by the Alaska Public Safety Information Network) and must pass a test.

Detailed instructions and applicable request templates will be distributed to the Contractor by the Department.

(1) Airport Badge Office General Information

Most Badge Office services are now by appointment.

https://www.picktime.com/eb608fd0-2ec0-40a0-8463-a005cfd71c45

No appointment is necessary for picking up/dropping off permits, keys, etc, replacement of defective badges, general questions.

The Badge Office sign in computer is located in the North Terminal lobby. Customers sign in and wait in the lobby until called into the office via intercom.

- Location: North Terminal, 4600 Postmark Drive, Room NA165
- Hours: Monday through Friday 7:00 am to 4:00 pm. Closed State and some Federal holidays.
- Phone: 266-2409
- Security, Ramp, and Signatory Training: Monday through Friday by Appointment only.
- Fees: CHRC - $40.00, STA - $20.00, Airport Identification Badge - $40.00, Lost Badge Not Replaced - $200.00, Lost Badge Replaced - $40.00, Non-returned Badge Fee - $200.00.

(2) Miscellaneous Badging Requirements

The Contractor and all Subcontractors and employees receiving airport identification badges shall review and strictly comply with the provisions of all training materials and instructional booklets provided as part of the Security Training.

Whenever a badge-holder ceases work on the project for any reason, whether because of project completion or completion of that portion of the project on which the badge-holder was working, reassignment to another project or task with no plan for return, separation from employment, or for any other reason, the Contractor shall immediately contact the Airport Badge Office and request deactivation of the airport identification badge(s). After hours, contact the Airport Communications Center. Badges will be returned within five business days after badge-holder ceases work on the project.

Lost badges must be reported to the Airport Badge Office immediately upon discovery that the badge is lost. After hours, contact the Airport Communications Center. Lost badges may be replaced upon submission of the Airport Badge Office's badge replacement request form and payment of the then-applicable fee. The Airport Badge Office's current badge replacement fee is $200.00.

f. Vehicle Access to the AOA

Contractor vehicles are not allowed into the AOA except within the project area, including access routes to and from the construction site. Vehicle permits must be properly displayed and all occupants must have the required airport identification properly displayed.

Vehicles operated in the AOA must be operated by authorized personnel holding an airport identification badge with a ramp driving endorsement. Vehicles must display applicable vehicle permits.

Vehicles must display a company logo on each side of the vehicle. The overall dimensions of the company logo must be a minimum of 5" x 5" and letters must be a minimum of 1.5" in height.

Non-permitted vehicles operated by non-badged contractors may be allowed entry to the AOA under certain conditions. These conditions will be discussed at the pre-construction security briefing.

g. Inspections and Fines

Project personnel are subject to random checks for compliance with security requirements and procedures. These checks may be made by Airport Police, Airport Operations or the Transportation Security Administration (TSA).

The Contractor is responsible for and shall indemnify, defend, and hold the Department and State of Alaska harmless for any liability, including fines levied by the State of Alaska or the TSA, resulting from the failure of the Contractor, its employees, or its subcontractors, to comply with the requirements of this subsection 70-22.

A non-refundable fee of up to $300.00 will be levied against the Contractor if the Department is unable, because of Contractor conduct, to return each badge to the Airport Badge Office within five (5) business days of completion of the project.

A non-refundable fee of $50.00 will be levied against the Contractor for each vehicle permit not returned to the Airport Badge Office within five (5) business days of completion of the contract.

Final payment to the Contractor will be withheld pending return of all airport identification badges and vehicle permits to the Airport Badge Office and settlement of all fees due with Anchorage Airport Accounting.

SECTION 80
EXECUTION AND PROGRESS

80-01 SUBCONTRACTING OF CONTRACT. The Contractor shall submit a Contractor Self Certification, Form 25D-042, and, except on wholly state-funded projects, a completed Certification for Tax Delinquency and Felony Convictions, Form 25D-159, for each Subcontractor and each Lower Tier Subcontractor, before the Contractor or any subcontractor subcontracts, sells, transfers, assigns, or otherwise disposes of the Contract or any portion of the Contract. The Department has authority to review subcontracts and to deny permission to subcontract work. The Department may penalize the Contractor for false statements or omissions made in connection with Form 25D-042.

The Contractor shall perform, with the Contractor's own organization, work amounting to at least 30 percent of the difference between the original Contract price and the price of designated Specialty Items. For the purpose of this subsection, work is defined as the dollar value of the services, equipment, materials, and manufactured products furnished under the Contract. The Engineer will determine the value of the subcontracts based on Contract unit prices or upon reasonable value, if entire items are not subcontracted.

The Department's consent to the subcontracting, sale, transfer, assignment, or disposal of all or a part of the Contract shall not relieve the Contractor and the Surety of responsibility for fulfillment of the Contract or for liability under the bonds regardless of the terms of the transfer or sublet approvals.

a. The Contractor shall ensure that for all subcontracts (agreements):

(1) The Department is furnished with one completed Contractor Self Certification, Form 25D-042, for each subcontract;

(2) The subcontractors have submitted a Bidder Registration, Form 25D-6;

(3) The required prompt payment provisions of AS 36.90.210 are included in all subcontracts:

(4) A clause is included requiring the Contractor to pay the subcontractor for satisfactory performance according to AS 36.90.210 and within eight (8) working days after receiving payment from which the subcontractor is to be paid;

(5) A clause is included requiring the Contractor to pay the subcontractor interest, according to AS 45.45.010(a), for the period beginning the day after the required payment date and ending on the day payment of the amount due is made:

(6) A clause is included requiring the Contractor to pay the subcontractor all retainage due under the subcontract, within eight (8) working days after final payment is received from the Department, or after the notice period under AS 36.25.020(b) expires, whichever is later;

(7) A clause is included requiring the Contractor to pay interest on retainage, according to AS 36.90.250 and AS 45.45.010(a):

(8) Other required items listed in Form 25D-042, including but not limited to Form 25D-55A, are included in the subcontracts;

(9) The subcontractors pay current prevailing rate of wages as per Subsection 70-04 and file signed and certified payrolls with the Engineer and DOLWD for all work performed on the project; and

(10) Upon receipt of a request for more information regarding subcontracts, the requested information is provided to the Department within 5 calendar days.

b. The Contractor shall ensure that for all lower tier subcontracts (agreements between subcontractors and lower tier subcontractors):

(1) The Department is furnished with one completed Contractor Self Certification, Form 25D-042, for each lower tier subcontract;

(2) The required prompt payment provisions of AS 36.90.210 are included in all lower tier subcontracts;

(3) A clause is included requiring the subcontractor to pay the lower tier subcontractor for satisfactory performance according to AS 36.90.210, and within eight (8) working days after receiving payment from which the subcontractor is to be paid;

(4) A clause is included requiring the subcontractor to pay the lower tier subcontractor interest, according to AS 45.45.010(a), for the period beginning the day after the required payment date and ending on the day payment of the amount due is made;

(5) A clause is included requiring the subcontractor to pay the lower tier subcontractor all retainage due under the subcontract, within eight (8) working days after final payment is received, or after the notice period under AS 36.25.020(b) expires, whichever is later;

(6) A clause is included requiring the subcontractor to pay the lower tier subcontractor interest on retainage, according to AS 36.90.250 and AS 45.45.010(a);

(7) Other required items listed in Form 25D-042, including but not limited to Form 25D-55A, are included in the lower tier subcontracts;

(8) The lower tier subcontractors pay current prevailing rate of wages as per Subsection 70-04 and file signed and certified payrolls with the Engineer and DOLWD for all work performed on the project; and

(9) Upon receipt of a request for more information regarding lower tier subcontracts, the requested information is provided to the Department within 5 calendar days.

c. The following will be considered as subcontracting, unless performed by the Contractor:

(1) Roadside Production. Roadside production of crushed stone, gravel, and other materials with portable or semi-portable crushing, screening, or washing plants set up or reopened in the vicinity of the project to supply materials for the project, including borrow pits used exclusively or nearly exclusively for the project.

(2) Temporary Plants. Production of aggregate mix, concrete mix, asphalt mix, other materials, or fabricated items from temporary batching plants, temporary mixing plants, or temporary factories that are set up or reopened in the vicinity of the project to supply materials exclusively or nearly exclusively for the project.

(3) Hauling. Hauling from the project to roadside production, temporary plants, or commercial plants, from roadside production or temporary plants to the project, from roadside production or temporary plants to commercial plants, and all other hauling not specifically excluded in this subsection.

(4) Other Contractors. All other contractors working on the project site under contract with the Contractor are considered subcontractors unless specifically excluded in this subsection.

d. The following will not be considered as subcontracting, but the Contractor shall comply with the prompt payment provisions of AS 36.90:

(1) Commercial Plants. The purchase of sand, gravel, crushed stone, crushed slag, batched concrete aggregates, ready-mixed concrete, asphalt paving mix, and any other material or fabrication produced at and furnished from established and recognized commercial plants that sell to both public and private purchasers.

(2) Hauling. Delivery of materials from a commercial plant to a different commercial plant, and delivery from a commercial plant to the project site by vehicles owned and operated by the commercial plants or by commercial freight companies that have a contract with the commercial plant. Commercial freight companies are trucking or hauling companies that deliver multiple types of materials to multiple clients, both public and private, on an established route and on a recurrent basis.

(3) Contractors' General Business. Work within permanent home offices, branch plants, fabrication plants, tool yards, and other establishments that are part of a contractor's or subcontractor's general business operations.

e. Owner-Operators. Hauling of materials for the project by bona fide truck owner-operators who are listed as such on the signed and certified payroll of the Contractor or approved subcontractor is not considered subcontracting for purposes of AS 36.30.115.

The Contractor shall ensure that the required prompt payment provisions of AS 36.90.210 are included in contracts with owner-operators.

The Contractor shall collect and maintain at the project site current and valid copies of the following to prove that each trucker listed is a bona fide owner-operator:

(1) Alaska Driver's License with appropriate CDL class and endorsements;

(2) Business license for trucking with supporting documents that list the driver as the business owner or corporate officer;

(3) Documents showing the driver's ownership interest in the truck, including copies of:

(a) Truck registration; and

(b) Lease (if truck is not registered in driver's name or in the name of the driver's company).

The Contractor shall maintain legible copies of these records for a period of at least three years after final acceptance of the project.

Owner-operators must qualify as independent contractors under the current Alaska Department of Labor’s criteria. Owner-operators may be required to show:

(4) The owner-operator’s right to control the manner in which the work is to be performed;

(5) The owner-operator’s opportunity for profit or loss depending upon their managerial skill;

(6) The owner-operator’s investment in equipment or materials required for their task, or the employment of helpers;

(7) Whether the service rendered requires a special skill;

(8) The degree of permanence of the working relationship; and

(9) Whether the service rendered is an integral part of the owner-operator’s business.

The status of owner-operators is subject to evaluation throughout the project period. If the criteria for an independent contractor are not met, the Contractor shall submit amended payrolls listing the driver as an employee subject to all labor provisions of the Contract.

The Contractor shall issue each owner-operator a placard in a form approved by the Engineer that identifies both the truck driver and the vehicle. The placard shall be prominently displayed on the vehicle so that it is visible to scale operators and inspectors.

Notwithstanding the Department's definitions of contracting and subcontracting, the Contractor shall be responsible for determining and complying with all federal and state laws and regulations regarding contracting, subcontracting, and payment of wages. The Contractor shall promptly pay any fines or penalties assessed for violations of those laws and regulations, and shall promptly comply with the directives of any government agency having jurisdiction over those matters.

80-02 NOTICE TO PROCEED. The Department will issue a Notice to Proceed authorizing construction to begin and indicating the date when Contract time will begin. The Contractor shall not begin construction before the effective date of the Notice to Proceed. The Notice to Proceed may include limits or restrictions on allowable activities. The Department will, in its sole discretion, refuse to pay for construction begun before the effective date of the Notice to Proceed. The Contractor shall notify the Engineer at least 48 hours before construction begins at the project site.

80-03 PROSECUTION AND PROGRESS. The Contractor shall meet with the Engineer at the regional construction office for a preconstruction conference before beginning construction. The Engineer will schedule the Preconstruction Conference no less than five days after the following have been received:

a. A Critical Path Method (CPM) schedule is required as described in section G-300. ~~A progress schedule, in a format acceptable to the Engineer, showing the order in which the Contractor proposes to carry out the work and the contemplated dates on which the Contractor and the subcontractors will start and finish each of the salient features of the work, including any scheduled periods of shutdown. The schedule shall indicate the anticipated hours of operation and any anticipated periods of multiple-shift work.~~

b. A list showing anticipated dates for procurement of materials and equipment, ordering of articles of special manufacture, furnishing of plans, drawings and other data required under Subsections 50-02 and 60-08, and for other events such as inspection of structural steel fabrication

c. A list showing all subcontractors and material suppliers

d. A Storm Water Pollution Prevention Plan, a Hazardous Material Control Plan, and a Spill Prevention Control and Countermeasure Plan, with the line of authority and designated field representatives, as required under Item P-641 (see submittal deadlines under P-641-1.3)

e. A letter designating the Contractor's Project Superintendent, defining that person's responsibility and authority, and providing a specimen signature

f. A letter designating an Equal Employment Opportunity Officer and a Disadvantaged Business Enterprise Officer, and designating those person's responsibilities and authority

g. A Quality Control Program, as required under Subsection 60-03 and Section 100

h. An approved Safety Plan Compliance Document (SPCD), as required under Subsection 80-04

i. A Traffic Control Plan, as required under Subsection 70-09 and Item G-710

j. A Utility Repair Plan, as required under Subsection 50-06.e.

k. The Contractor shall provide a letter designating a Safety Officer, and designating that person's responsibilities and authority. The Safety Officer is responsible for the Safety Program. The Safety Officer must be familiar with the project plans, specifications, and proposed operations and have the necessary experience and training to assess and address safety elements associated with the project.

l. The Contractor shall implement a comprehensive Safety Program for the Project to ensure all safety measures are met throughout the duration of the project and that the program complies with all applicable federal, state, and local safety regulations.

Requirements. The Safety Program shall include the development, implementation, and ongoing maintenance of the Site-Specific Safety Plan (SSSP), along with the preparation and regular updating of hazard analyses to identify and mitigate risks associated with specific construction activities. It shall ensure that the site complies with project-specific safety requirements, OSHA/AKOSH regulations, and oversees the appropriate use of personal protective equipment (PPE) on-site.

The program will involve routine safety inspections to identify hazards, site-specific safety orientations, and ensure all personnel and Subcontractors receive the necessary training in accordance with AKOSH/OSHA standards. It will also establish procedures for investigating incidents, injuries, and near misses, with corrective actions implemented as needed. Detailed records, such as safety meeting minutes, training logs, incident reports, safety audits, and inspections shall be maintained. Safety reports shall be submitted to the project manager, engineers, or clients as requested.

The Safety Program shall have clear procedures for halting work and implementing immediate corrective actions if safety concerns arise, or if the work is not being conducted in compliance with the Contract documents, safety standards, or applicable federal, state, and local laws.

Provide suitable proof of filing and subsequent approval of a completed FAA Form 7460-1 Notice of Proposed Construction or Alteration, at least 45 days before the start date of work occurring on the project. Coordinate with the RASSO and Engineer when filing Form 7460-1. The Contractor is encouraged to file the form electronically. The FAA 7460-1 form and the electronic submittal instructions may be found at: https://oeaaa.faa.gov/oeaaa/external/portal.jsp

The Contractor shall provide adequate materials, labor and equipment to ensure the completion of the project according to the Plans and Specifications. The work shall be performed as vigorously and as continuously as weather conditions or other interferences may permit. The Contractor shall take into consideration and make due allowances at the Contractor's expense for foreseeable delays and interruptions to the work such as unfavorable weather, frozen ground, equipment breakdowns, shipping delays, quantity overruns, utility work, permit restrictions, and other foreseeable delays and interruptions. The Contractor shall identify these allowances on the progress schedule.

The Contractor shall adjust forces, equipment and work schedules as necessary to ensure completion of the work within the Contract time, and shall notify the Engineer at least 24 hours before resuming suspended operations. Upon a substantial change to the work schedule or when directed by the Engineer, the Contractor shall submit a revised progress schedule in the form required, including a written explanation for each revision made in the schedule or methods of operation.

The Engineer's review or approval of the documents, plans, and schedules provided by the Contractor under this section shall not change the Contract requirements, release the Contractor of the responsibility for successful completion of the work or relieve the Contractor of the duty to comply with applicable laws. The Engineer's review or approval of schedules shall not indicate agreement with any assertions of delay or claims by the Contractor.

It is the Contractor's responsibility to prepare and submit documents that satisfy all applicable contract requirements. By reviewing and approving the Contractor's documents, the Department does not warrant that following the Contractor's documents will result in successful performance of the work. The Department's failure to discover defects in the Contractor's documents, the assumptions upon which they are based or conditions that prevent the Contractor from performing the work as indicated in the documents will not entitle the Contractor to additional compensation or time. If the Contractor becomes aware of any act or occurrence that may form the basis of a claim for additional compensation or an extension of time, it must specifically advise the Engineer of these conditions according to Subsection 50-17.

80-04 LIMITATION OF OPERATIONS. The Contractor shall not open up work to the detriment of work already started. The Contractor shall minimize interference with traffic within the project. The Contractor shall not stop or otherwise impede traffic outside the project limits without the Engineer's prior written

permission. The Engineer may require the Contractor to finish a section of work in progress before starting additional sections if the Engineer determines it is necessary for the convenience of the public or the Department.

The Contractor shall control its operations and the operations of its subcontractors and all suppliers, so as to provide for the least inconvenience to traffic and the free and unobstructed movement of aircraft in the Air Operations Areas of the airport, except as specifically provided in this Contract. Under all circumstances, safety shall be the most important consideration.

a. Environmental Limitations. The Contractor shall comply with all environmental commitments, permit stipulations, and construction limitations, in the Contract permits and specifications. These may include time periods in which certain construction activities are not allowed. The Contractor shall avoid disturbing wetlands unless permitted to do so. The Contractor shall avoid disturbing threatened and endangered species, historic sites, and hazardous materials sites.

b. Construction Safety.

(1) Construction Safety and Phasing Plan (CSPP). This document is included within the contract documents when attached as an appendix to this document. The CSPP specifies minimum requirements for operational safety during construction activities.

(2) Safety Plan Compliance Document (SPCD). When the contract documents include a CSPP, the Contactor shall submit to the Engineer a SPCD in accordance with the provisions set forth within the current version of AC 150/5370-2, *Operational Safety on Airports During Construction*. The SPCD shall include a general statement that the Contractor has read and will abide by the CSPP and shall include the Contractor's name, the title of the project CSPP, the approval date of the CSPP, and a reference to any supplemental information (example statement: "I, Name of Contractor, have read the Title of the Project CSPP, approved on Date, and will abide by it as written and with the following additions as noted."). The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, "No supplemental information," should be written after the corresponding subject title. The SPCD should not merely duplicate information in the CSPP. No deviations or modifications may be made to the approved CSPP or SPCD unless approved in writing by the Engineer.

The Contractor shall implement all necessary CSPP and SPCD measures prior to commencement of any work activity. The Contractor shall conduct daily checks of its workers, equipment, and construction methods to assure compliance with the CSPP and SPCD measures. The Contractor shall document the checks in writing and sign them. Documented checks shall be available for inspection by the Engineer.

The Contractor is responsible for the conduct of all subcontractors and suppliers it employs on the project. The Contractor shall assure that all subcontractors and suppliers are made aware of the requirements of the CSPP and SPCD, and that the subcontractors and suppliers implement and maintain all necessary safety measures.

The CSPP and SPCD will indicate areas within airport property boundaries that may be used for material stockpile, and will indicate the maximum height of stockpile allowed. The Contractor shall obtain prior approval from the Engineer before using other areas within airport property. The Engineer may limit stockpile heights or equipment heights in any area, either inside or outside of airport property, based on requirements in the ACs or other factors necessary to ensure the free and unobstructed operation of aircraft.

c. Security Plan. When required by the Contract, the Contractor shall control its operations and the operations of its subcontractors and all suppliers so as to provide for the security of the Airport. The Contactor's operations shall be conducted according to the Security Plan and the provisions set

forth within the current version of DOT/FAA/AR-00/52, *Recommended Security Guidelines for Airport Planning and Construction*. No deviations or modifications may be made to the approved Security Plan unless approved in writing by the Engineer. The security plan for this project is incorporated into the CSPP, Appendix C.

d. Notification. When the work requires the Contractor to conduct its operations within an Air Operations Area of the airport, the work shall be coordinated in accordance with the requirements of the CSPP. The Contractor shall begin coordination through the Engineer with the Airport Operations Center ~~Manager~~, FAA, other project stakeholders, at least 45 days before working in the Air Operations Area. When written correspondence is approved by the Engineer the Contractor shall copy to the Engineer all correspondence with the Airport Operations Center ~~Manager~~, the FAA, and other project stakeholders.

The Contractor shall provide information and coordinate with the Airport Operations Center~~Manager~~, through the Engineer, for all required NOTAMs. Begin coordination at least 14 days prior to the date that the NOTAM needs to be issued by. Provide final information on a form provided by the Department, and submit the form through the Engineer to the Airport Operations Center ~~Manager~~ at least 72 hours prior to: closure or change in the Air Operations Area; or startup, resumption, cessation of, or change in construction activity that affects aircraft operations.

The Contractor shall not begin work for any Phase that requires issuance of a NOTAM until all of the following have been met:

(1) Coordination required by the CSPP and the SPCD has been accomplished;

(2) The NOTAM has been authorized by Airport Operations Center ~~Manager~~ and its issuance by the FAA has been confirmed;

(3) The necessary temporary marking and associated lighting are accepted;

(4) The necessary NAVAIDS have been modified as specified in the CSPP, SPCD, and Subsection 70-09; and

(5) The Engineer has authorized the Contractor to begin work.

Coordinate all questions to the FAA through the Engineer.

Contact the FAA Systems Operations Control Center at least 45 days prior to:

(6) Closing a runway

(7) Re-opening a closed runway

(8) Interrupting service or removing visual or navigational aids

(9) Displacing a runway threshold

Notify Airport Operations through the Engineer to coordinate construction and haul activities and comply with their instructions concerning apron closures and the movement of construction equipment, men, and materials in the vicinity of existing ramp areas, runways, or taxiways. Notification is required at least 1 week in advance of any planned closure or change.

Contacts. Except as provided in GCP 50-06e, all contacts with the ANC Operations Center and the FAA will be through the Engineer.

Project Engineer
Frank Lee
DOT&PF Aviation Construction
P.O. Box 196900
Anchorage, Alaska 99519-6900
Telephone (907) 243-4169
Cellular (907) 727-4808
FAX (907) 243-4597

Airport Operations Center
Airport Operations Construction Coordinator
Ted Stevens Anchorage International Airport
P.O. Box 196960
Anchorage, Alaska 99519-6960
Telephone (907) 266-2615 (24 hr)
Cellular (907) 748-2107
FAX (907) 266-2646

Other Contacts (Note: primary contact is Airport Operations Center through the Engineer):
Zaramie Lindseth, Airfield Maintenance Manager
Ted Stevens Anchorage International Airport
P.O. Box 196960
Anchorage, Alaska 99519-6960
Telephone (907) 266-2427
Cellular (907) 250-9491
FAX (907) 266-2677

Dennis “Beav” Deering
Airfield Electrician Foreman
Ted Stevens Anchorage International Airport
P.O. Box 196960
Anchorage, Alaska 99519-6960
Telephone (907) 266-2423
Cellular (907) 748-2310
FAX (907) 266-2164

e. Work Procedures and Communications within the Airport Operations Area.

Vehicles, equipment and materials shall never be parked or left standing on runways, runways safety areas, and taxiways open to aircraft. In Air Operations Areas, all vehicles shall be equipped with a functional flashing amber hazard light and all obstructions except stakes or hazard markers shall be removed during non-working hours. The Contractor shall remove construction equipment from and otherwise clear the runway and the designated Runway Safety Areas for operation of regularly scheduled airline flights. The Contractor shall remain continuously informed regarding flight schedule times.

The Contractor shall not allow their labor force or equipment to interfere with the operation of aircraft on any runway or taxiway. **Aircraft always have the right of way.** The Contractor shall not park vehicles or equipment or leave materials standing within 300 feet of an active runway or within an active taxiway or taxi lane object free area. When work is to be performed within the limits specified, the Contractor shall ensure that the runway or taxiway is closed to aircraft or maintain radio contact with the tower. Time shall be minimized in restricted areas. The Contractor shall provide responsible personnel, such as a foreman, for radio communication.

When the contract work requires the Contractor to work within an Air Operations Area of the airport on an intermittent basis (intermittent opening and closing of all or a portion of the Air Operations

Area), the Contractor shall maintain constant communications as hereinafter specified, immediately obey all instructions to vacate the Air Operations Area, and immediately obey all instructions to resume work in such Air Operations Area. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the Air Operations Area, with no damages available from the Department, until the satisfactory conditions are provided. The Contractor shall establish and maintain communication or monitor communications with the appropriate radio facility as prescribed in the following:

(1) Airports With Control Towers: At those airports with control towers, the Contractor shall comply with the instructions of the airport controller. The Contractor shall continuously monitor 2-way radio communication on the appropriate ground control frequency. The Contractor shall furnish a liaison radio operator and 2-way radio communication with each work party located within the Air Operations Area. Ensure that all persons communicating with the control tower are trained by Airport Operations in radio communication procedures.

(2) Airports Without Control Towers: At those airports without control towers, the Contractor shall comply with the instructions of a FSS Employee, a pilot, or a pilot's representative. The Contractor shall continuously monitor by 2-way radio, the CTAF published in the current *FAA Chart Supplement Alaska*. The Contractor shall furnish a liaison radio operator and 2-way radio communication with each work party located within the Air Operations Area.

f. Haul Routes and Hauling Restrictions.

Reconstruction of roads affecting access to areas around ANC may take place during the duration of this project. Haul routes may require adjustment and delays may be encountered. Plan your work accordingly. No additional compensation shall be paid. Claims due to delays caused by such projects will not be considered. Confine your vehicles to the haul routes and work areas shown on the plans. Alternate haul routes require approval by the Engineer and the Airport Operations Center prior to use. The operator of any vehicle hauling material or equipment on the project is required to possess an Engineer approved map of the designated project haul route. The operator is required to present the map to any Department employee upon request. Any driver failing to display the map will be required to cease work until their vehicle is equipped with a copy of the approved map.

Any person working on the project that hauls material or equipment outside of the designated haul route will have their Ramp Operator's License suspended for the duration of the project. Any vehicle used on the project to haul material or equipment outside of the designated haul route will have its Ramp Access Permit suspended for the duration of the project. For the purposes of this subsection (f), operating unloaded vehicles is considered a haul.

Photographs, video recordings, or the testimony of residents living near Northern Lights Boulevard will be considered adequate proof of individual vehicles hauling outside of the project's designated haul route. This paragraph does not preclude proof by other means. For this project, the legal load on Northern Lights Boulevard is zero (0).

Refer to GCP subsection 50-12 for additional legal load restrictions.

The Contractor is responsible for the maintenance and restoration of all roads that are utilized for hauling purposes in the construction of this project. Condition of haul routes before and after construction will be documented in accordance with GCP subsection 70-11 and by a joint inspection with the Engineer, Contractor, and ANC Operations. Return road conditions to at least their original condition upon completing the work. The Department will not make final payment until all haul routes are restored to at least their original condition. Provide water or other dust palliative using appropriate distribution equipment as required for dust control on haul routes and work areas.

Excess material must be hand-swept from each truck before leaving the work area.

Avoid placing foreign objects and debris (FOD) or any debris capable of causing damage to aircraft landing gears or propellers or of being ingested in jet engines on surfaces in active aircraft movement areas. Refer to GCP subsection 50-13 for Contractor's responsibility. Maintain a sweeper truck at the job site at all times to clean loose material immediately if it is spilled on any runway or taxiway. Cleaning spilled material from adjacent taxiways, taxi lanes or ramp areas is of primary concern to the ANC Operations Center. Therefore, upon discovery of spilled material on the haul route that you are not cleaning up, the Engineer or his representative will present a hand written memo to your on-site foreman or superintendent stating the location of the spilled material and the time of the memo. You will then have thirty (30) minutes to complete cleanup operations after being notified of the spill. Failure to complete cleanup operations within thirty (30) minutes of receipt of the memo or failure to maintain a sweeper truck at the job site will result in institution of an order from the Engineer for you to cease all hauling operations. If you fail to meet these conditions, the Department reserves the right to hire another contractor to accomplish cleanup activities and to reduce the contract amount by this cost plus costs incurred by the Department to implement the cleanup contract.

Clean all runway and taxiway lights prior to opening to aircraft.

g. Utilities.

Refer to GCP subsection 50-06 for Contractor's responsibility to notify utilities, secure all utility locates, and maintain uninterrupted service of existing utilities as a subsidiary obligation for which no additional payments shall be made. Ensure that all lighting systems, telecommunications, and control cables remain in operation continuously throughout the construction period except as noted in the plans and specifications. Facilities that are directly related to work items for this project may be placed out of service only as long as necessary to make the alterations as shown on the plans. Obtain permission from the Engineer before taking any of the above facilities out of service. Provide at least 72 hours final notice to the Airport Operations Center through the Engineer before placing any airport lighting or NAVAIDS out of service. Notify ANC Airfield Maintenance (266-2425) when work is expected to begin for de-energizing any circuit. Upon completion of each stage, notify ANC Airfield Maintenance before energizing that portion of the system.

Coordinate requests to temporarily remove any other underground utilities from service with the Engineer.

h. After Hours.

During non-working hours, remove all materials that are subject to being blown onto active areas of the airport.

Thirty (30) minutes before shutting down construction operations for each day, coordinate through the Engineer, a joint inspection of the construction site with the Airport Operations Center.

i. Staging Areas.

Locations for Contractor staging areas are shown on the construction safety and phasing plans. These locations are for your exclusive use for the full time that you are working on the project. No utilities are available at the sites.

Use of staging areas is limited to the storage of construction equipment and supplies used for construction under this contract. Drip pans are required for all powered equipment parked on unpaved surfaces.

Prior to occupying a staging area, mark the staging area limits with lath and flagging. Arrange for a joint inspection with the Engineer and ANC Operations to record the original condition of the staging area. Marking of the staging areas is subsidiary to Pay Item G135.010.0000, Construction

Surveying by the Contractor. Final payment is subject to the stipulation that each staging area is regraded and reseeded as required to restore to original condition as noted in the initial joint inspection or as approved by the Engineer.

Site preparation, improvements, maintenance and restoration of staging areas is considered subsidiary, and no additional payment will be made.

Erosion, sediment, and pollution control and prevention as required by Section P-641 shall be fully implemented for staging areas.

Concrete and asphalt plants or crushers are permitted on airport property only as approved by the Engineer.

j. Storage Areas.

Locations for materials storage areas are shown on the plans. These locations shall be used for the short and long term storage of aggregate materials as approved by the Engineer.

Prior to occupying a storage area, mark the storage area limits with lath and flagging. Arrange for a joint inspection with the Engineer and ANC Operations to record the original condition of the storage area. Marking of the storage areas is subsidiary to Pay Item G135.010.0000, Construction Surveying by the Contractor. Final payment is subject to the stipulation that each storage area is regraded and reseeded as required to restore to original condition as noted in the initial joint inspection or as approved by the Engineer.

Site preparation, improvements, maintenance and restoration of storage areas is considered subsidiary, and no additional payment will be made.

Erosion, sediment and pollution control and prevention as required by Section P-641 shall be fully implemented for storage areas.

80-05 CHARACTER OF WORKERS, METHODS, AND EQUIPMENT. The Contractor shall employ sufficient labor and equipment to complete the work required under the Contract and to complete it on time.

The Contractor shall ensure that all workers on the project have the skills and experience necessary to properly perform their assigned work. Workers engaged in special work or skilled work shall have sufficient experience in that work and in the operation of the equipment required to properly perform that work.

The Contractor shall comply with any written order by the Engineer to remove workers, who, in the opinion of the Engineer, violate operational regulations, violate CSPP requirements, violate SPCD requirements, perform the work in an unskilled manner, create risk of imminent harm for the traveling public, who are intemperate or disorderly, or who fail to perform the work in accordance with the Contract and any and all applicable federal, state, and local laws, rules, regulations, and ordinances. The Contractor shall allow removed workers to return to the project only with the Engineer’s written permission. The Engineer may suspend the work if the Contractor fails to furnish suitable and sufficient personnel necessary to perform the work, or fails to remove any worker at the Engineer's order.

The Contractor shall not use prisoner labor on the project.

The Contractor shall use equipment of the appropriate size and mechanical condition to produce the specified quality and quantity of work by the means specified in the Contract, if any, and shall ensure that the equipment does not damage roadways or property.

The Contractor shall ensure all equipment, materials, and articles incorporated into the work are new and of the specified quality, unless the Contract specifically permits otherwise.

The Contractor shall provide the Engineer with a list of all powered equipment that will be used on the project, showing the make, model, year, capacity, horsepower, and related information. The Contractor shall update this list when equipment is added or removed from the work site, but need not update more frequently than weekly.

When the methods and equipment to be used by the Contractor are not prescribed by the contract, the Contractor is free to use any method, means or equipment that is satisfactory to produce the specified work in conformity with the Contract, except as provided above. At the request of the Engineer, the Contractor shall demonstrate that the method, means and equipment chosen will produce the work specified in the Contract in the time allowed under the Contract. The Contractor shall bear all costs and impacts associated with any means, methods and equipment chosen by the Contractor. No suggestion, statement or observation from the Engineer or other Department representatives shall alter this responsibility.

If the Contract specifies a particular method, means or type of equipment for performance of the work, the Contractor must use that method, means or equipment unless the Contractor first requests, in writing, permission to alter the Contract requirement and receives prior written approval from the Engineer. The written request shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the contract items involved, nor in contract time, as a result of authorizing a change in methods or equipment under this subsection, except as specifically provided under Subsection 40-08.

80-06 CONTRACT TIME, EXTENSION OF CONTRACT TIME AND SUSPENSION OF WORK. Contract time will be specified in Calendar Days, by Completion Date, or both.

a. Calendar Days. When the contract time is specified on a calendar days basis, all work under the Contract shall be completed within the number of calendar days specified. If no starting day is specified in the Contract, the count of Contract time begins on the day following receipt of the Notice to Proceed by the Contractor.

Calendar days shall continue to be counted against Contract time until and including the date of project completion. Calendar days shall not be counted during the period from November 1 through April 30, except for days that the Contractor is working on the project site.

b. Completion Date. When the contract time is specified on a completion date basis, all work under the Contract shall be completed by the specified completion date.

c. Reasons for Suspension of Work and Extension of Contract Time. The Department may order a suspension of work for any reason listed in this subparagraph c., items (1) through (16).

The Department shall not pay additional compensation, but may extend Contract time only, if there are delays in the completion of controlling items of work from unforeseeable causes that are beyond the Contractor's control and are not the result of the Contractor's fault or negligence, including:

(1) Acts of God;

(2) Acts of the public enemy;

(3) Fires;

(4) Floods;

(5) Epidemics;

(6) Quarantine restrictions;

(7) Strikes;

(8) Freight embargoes;

(9) Unusually severe weather;

(10) According to Subsection 50-06.d.(4), delays by utility owners beyond completion dates specified in the Special Provisions for relocating or adjusting utilities and related facilities; or

(11) Delays of subcontractors, suppliers and fabricators from unforeseeable causes beyond the control of the subcontractors, suppliers or fabricators and that are not the fault of the subcontractors, suppliers or fabricators, including those causes listed in this Subparagraph c, Items (1) through (10).

No additional Contract time or additional compensation will be allowed due to delays caused by or suspensions ordered due to:

(12) Failure to correct conditions that create risk of imminent harm for the traveling public, violations of the Contract or any applicable federal, state, and local laws, rules, regulations, and ordinances;

(13) Adverse weather that is not unusually severe;

(14) Failure to carry out Contract provisions;

(15) Failure to carry out orders given by the Engineer; or

(16) Failure to timely obtain materials, equipment, or services.

The Contractor shall notify the Engineer as soon as the Contractor becomes aware of any act or occurrence that may form the basis of a request for a time extension under this section. The Contractor shall submit a request for a time extension to the Engineer within 10 days of the act or occurrence, and if an agreement is not reached, the Contractor may submit a Claim under Subsection 50-17.

The time allowed in the Contract, as awarded, is based on performing the original estimated quantities of work set out in the bid schedule. An assertion that insufficient time was originally specified shall not constitute a valid reason for extension of contract time.

If satisfactory fulfillment of the Contract requires extra work, the Department may extend Contract time according to Subsection 40-02.

d. Suspension of Work. The Engineer will suspend work on the project, in whole or in part, for such periods and for such reasons as the Engineer determines to be reasonable, necessary, in the public interest, or for the convenience of the Department.

(1) The Engineer will issue a written order to suspend, delay, or interrupt all or any part of the work. The Contractor shall not be compensated for the suspension, delay, or interruption if it is imposed for a reasonable time under the circumstances.

(2) Unless another Contract section specifically provides otherwise, the Contractor will be compensated by equitable adjustment for a suspension, delay, or interruption of the work only if:

(a) The period of suspension, delay, or interruption is for an unreasonable time under the circumstances and another Contract section allows compensation in the event of a

suspension, delay, or interruption of the work under the circumstances that actually caused the suspension, delay, or interruption; or

(b) The delay, suspension, or interruption results from the Department's failure to fulfill a contractual obligation to the Contractor within the time period specified in the Contract or, if no time period is specified, within a reasonable time.

(3) No equitable adjustment will be made under this subsection for any suspension, delay, or interruption of the work if the Contractor's performance would have been suspended, delayed, or interrupted by any other cause for which:

(a) The Department is not responsible under the Contract, including the Contractor's fault or negligence; or

(b) An equitable adjustment is either provided for or excluded under any other section of this Contract.

(4) Claims for equitable adjustments under this section shall be filed under Subsection 50-17 except that:

(a) The Contractor must give written notice of intent to claim no later than 20 days after the event giving rise to the delay, suspension, or interruption;

(b) The claim may not include any costs incurred more than 20 days before the Contractor files the Contractor's written notice of intent to claim;

(c) The contractor must submit a written request for adjustment within 7 calendar days of receipt of the notice to resume work;

(d) No profit will be allowed on an increase in cost necessarily caused by the suspension, delay, or interruption.

80-07 FAILURE TO COMPLETE ON TIME. For each calendar day that the work is not substantially complete after the expiration of the Contract time or the completion date has passed, the Engineer shall deduct the full daily charge corresponding to the original Contract amount shown in Table 80-1 from progress payments.

For each calendar day that the work is substantially complete but the project is not complete, after the expiration of the Contract time or the completion date has passed, the Engineer shall deduct 20 percent of the daily charge corresponding to the original Contract amount shown in Table 80-1 from progress payments.

If no money is due the Contractor, the Department may recover these sums from the Contractor, from the Surety, or from both. These are liquidated damages and not penalties. These charges shall reimburse the Department for its additional administrative expenses incurred due to the Contractor's failure to complete the work within the time specified.

Table 80-1
DAILY CHARGE FOR LIQUIDATED DAMAGES
FOR EACH CALENDAR DAY OF DELAY

Original Contract Amount		Daily Charge
From More Than	To and Including	
$ 0	1,000,000	$1,500
1,000,000	5,000,000	2,900
5,000,000	25,000,000	5,500
25,000,000	---------	6,900

Permitting the Contractor to continue work after the durations, dates, and times specified in the Contract have elapsed, or after the Contract time has elapsed or the completion date has passed does not waive the Department's rights to collect liquidated damages under this section.

80-08 DEFAULT OF CONTRACT. The Contracting Officer will give a written Notice of Default to the Contractor and the Surety if the Contractor:

a. Fails to begin work under the Contract within the time specified;

b. Fails to perform the work with sufficient workers, equipment, or materials to ensure the prompt completion of the work;

c. Performs the work unsuitably or neglects or refuses to remove materials or to replace rejected work;

d. Discontinues the prosecution of the work;

e. Fails to resume work that has been discontinued within a reasonable time after notice to do so;

f. Becomes insolvent except that if the Contractor declares bankruptcy, termination shall be according to the Federal Bankruptcy Code. In the event that the Contractor declares bankruptcy, the Contractor agrees that the Contract will be assumed by the Surety in a timely manner so as to complete the Contract by the date specified in the Contract;

g. Allows any final judgment to stand against the Contractor unsatisfied for a period of 60 days;

h. Makes an assignment for the benefit of creditors, without the consent of the Engineer;

i. Fails to comply with applicable minimum wage or civil rights requirements;

j. Is a party to fraud, deceit, misrepresentation, or malfeasance in connection with the Contract; or

k. Fails to perform the work in an acceptable manner for any other cause whatsoever.

The written Notice of Default will include a notice to cure and will establish a date by which the cure must be completed. The Contracting Officer may allow more time to cure than originally stated in the Notice to Default if the Contracting Officer deems it to be in the best interests of the Department. Failure to cure the delay, neglect, or default within the time specified in the Contracting Officer's Notice of Default authorizes the Department to terminate the contract. The Department will provide the Contractor and the Contractor's Surety with a written Notice of Termination.

After the Notice of Termination is issued, the Department may take over the work without further notice; may complete it by itself, by contract or otherwise; and may take possession of and use materials, appliances, equipment, or plant on the work site necessary for completing the work.

The Department may transfer the obligation to perform the work from the Contractor to the Surety. In that event, the Surety shall submit its plan for completion of the work, including any contracts or agreements with third parties for completion, to the Department for approval before beginning work. The Surety must follow the Contract requirements for approval of subcontracts, except that the limitation on percent of work subcontracted will not apply. On receipt of the transfer notice, the Surety shall take possession of all materials, tools, equipment, and appliances at the work site, employ an appropriate work force, and complete the Contract work as specified. The Contract specifications and requirements shall remain in effect, except that the Department will make subsequent Contract payments directly to the Surety. The Contractor forfeits any right to claim for the work and is not entitled to receive any further balance of the amount to be paid under the Contract.

The Contractor and the Contractor's Surety are jointly and severally liable for any damage to the Department resulting from the Contractor's delay, neglect, or default, whether or not the Department

terminates the Contractor's right to prosecute the work. The Department's damages include any increased costs incurred by the Department in completing the work or paying for the work to be completed. The Department's rights and remedies are in addition to any other rights and remedies provided by law or under the Contract.

If, after notice of termination of the Contractor's right to proceed under this clause, it is determined that the Contractor was not in default, or that the default was excusable, the rights and obligations of the parties will be determined under Subsection 80-09, Termination for Convenience.

80-09 TERMINATION FOR CONVENIENCE.

a. Notice. The Contracting Officer may terminate the Contract in whole or in part due to:

(1) Executive Orders of the President of the United States or the Governor of the State of Alaska with respect to the prosecution of war or the interest of national defense, or any disaster declaration.

(2) Restraining orders or injunctions by a court of competent jurisdiction affecting prosecution of the work based on acts or omissions of persons or agencies other than the Contractor.

(3) Any reason determined by the Contracting Officer to be in the best interest of the Department.

The Contracting Officer will issue a written Notice of Termination to the Contractor. The Notice of Termination shall state the extent to which performance of work under the Contract is terminated, the effective date of the termination, and for which of the above-listed reasons the Contract is terminated.

b. Required Actions. Unless otherwise directed by the Contracting Officer, upon receipt of a Notice of Termination the Contractor shall immediately:

(1) Stop work as directed in the Notice.

(2) Place no further orders or subcontracts for materials, services, or facilities except as approved to complete work not terminated.

(3) Terminate all orders and subcontracts for the terminated work.

(4) Accomplish either (a) or (b) below as directed by the Contracting Officer:

(a) Assign to the Department all right, title and interest in any terminated orders or subcontracts. The Contracting Officer will settle all claims on the terminated orders or subcontracts.

(b) Settle any outstanding liabilities and claims arising from termination of orders and subcontracts. Settlements must be limited to costs allowed under this section.

(5) Submit to the Contracting Officer a list, certified as to quantity and quality, of all materials acquired or produced for incorporation into the project and that are properly allocable to the terminated portion of the project, exclusive of items disposed of under Subsection 80-09.b.(6), below.

(6) Dispose of materials in the Contractor’s possession or control that were acquired or produced but not incorporated into the project as of the termination date as directed by the Contracting Officer under either (a) or (b) below:

(a) Transfer title and deliver the materials to the Department. The Department will pay for the materials at the actual cost delivered to the project or storage site, including transportation charges, to which cost 15% will be added.

(b) Sell the materials. Credit will not have to be extended to prospective purchasers.

The Contractor may acquire the materials if the Contracting Officer approves the sale price and the Contractor meets any other conditions prescribed by the Contracting Officer.

At the sole discretion of the Contracting Officer, the proceeds of any sale, transfer, or disposition of materials may be:

(c) Applied to reduce any payments to be made by the Department under the Contract;

(d) Credited to the cost of the work; or

(e) Paid in any other manner as directed.

(7) Deliver to the Department completed or partially completed plans, drawings, information, and other property required to be furnished under the Contract.

(8) Take all necessary actions and comply with all directives to protect contract-related property in which the Department has or may acquire an interest.

(9) Complete work not terminated.

The Contractor shall proceed immediately with performance of the above obligations notwithstanding any delay in determining or adjusting the amount of any item or reimbursable cost under this clause.

c. Claim. The Contractor shall submit any termination claim to the Contracting Officer within 90 days after the effective date of termination, unless the date for submitting a claim is extended in writing by the Contracting Officer.

(1) Without duplication of any amount paid for under Subsection 80-09.b., the claim may be for the total of:

(a) Costs incurred in performing the terminated work from the date of Contract award to the effective date of the termination subject to the provisions of 80-09.c.(2) regarding reimbursement of equipment costs and 80-09.c.(3) regarding unallowable items.

(b) Payments approved by the Contracting Officer under 80-09.b.(4)(b) to settle the termination claims of suppliers and subcontractors to the extent not covered under 80-09.c.(1)(a).

(c) Reasonably incurred costs for:

(i) Accounting, legal, clerical, and other costs reasonably necessary for preparation of the termination claim and settlement negotiations, excluding costs incurred after the date an appeal is filed with the Appeals Officer under 80-09.h.

(ii) Settling subcontractor and supplier claims, excluding the amounts of those settlements paid under 80-09.c.(1)(b).

(d) Reasonable profit on the costs included in Subsection 80-09.c.(1)(a) based on the Contractor's bid rate for profit or as determined under any other reasonable accounting method. However, if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, the Contracting Officer will allow no profit and will reduce the settlement to reflect the indicated rate of loss under Subsection 80-09.d. The Department will not pay profit on costs included in Subsections 80-09.c.(1)(b) and 80-09.c.(1)(c).

(2) Equipment claims will be reimbursed as follows:

(a) Contractor-owned equipment usage, based on the Contractor's ownership and operating costs for each piece of equipment as determined from the Contractor's accounting records. Do not base equipment claims on published rental rates.

(b) Idle time for Contractor-owned equipment, based on the Contractor's internal ownership and depreciation costs. Idle equipment time is limited to the actual period of time equipment is idle as a direct result of the termination, not to exceed 30 days. Operating expenses will not be included for payment of idle equipment time.

(c) Rented equipment, based on reasonable, actual rental costs. Equipment leased under "capital leases" as defined in Financial Accounting Standard No. 13 will be considered Contractor-owned equipment. Equipment leased from an affiliate, division, subsidiary or other organization under common control with the Contractor will be considered Contractor-owned equipment.

(3) The following costs are not payable under a termination settlement agreement or Contracting Officer's determination of the termination claim, or on appeal:

(a) Anticipated profits on work that is not performed prior to issuance of the Notice of Termination, or any consequential or compensatory damages.

(b) Unabsorbed home office overhead (also termed "General & Administrative Expense") related to ongoing business operations.

(c) Bidding and project investigative costs.

(d) Direct costs of repairing equipment to render it operable for use on the terminated work.

d. Adjustment for Loss. If the Contractor would have sustained a loss on the entire Contract had it been completed, the Department will not pay the Contractor more than the total of:

(1) The amount due for termination claim costs under Subsection 80-09.c.(1)(c); plus

(2) The remainder of the total allowable claim amount due reduced by multiplying the remainder by the ratio of (a) the total contract price to (b) the remainder plus the estimated cost to complete the entire Contract; minus

(3) All disposals and other credits, all advance and progress payments and all other amounts previously paid under the Contract.

e. Deductions. In arriving at the amount due under this subsection, the Department will deduct:

(1) All previous payments made before termination;

(2) Any claim which the Department may have against the Contractor;

(3) The proceeds of the sale or transfer of any materials, supplies, or other items acquired for the terminated work and not otherwise recovered by or credited to the Department;

(4) All partial payments made under this section; and

(5) Any adjustment for loss determined under Subsection 80-09.d.

f. Agreed Settlement. The Contractor shall make every effort to arrive at a claim settlement with the Contracting Officer that is fair to both parties, that reflects the reasonable and allocable incurred costs allowable under Subsection 80-09.c, that includes a profit under Subsection 80-09.c.(1)(d)

or, where appropriate, a loss adjustment under Subsection 80-09.d., and that takes into account the Contractor's reasonable business judgment in performing the work.

The total settlement, whether determined under this Subsection 80-09.f. or under Subsection 80-09.g., exclusive of the costs listed in Subsection 80-09.c.(1)(c), may not exceed the total contract price as reduced by previous payments made and the contract price of work not terminated.

If an agreement is reached in whole or in part, the Department will amend the contract and will pay the agreed amount.

g. Determined Settlement. If the Contractor fails to submit a termination claim within the time allowed, or if an agreement is not reached on the amount due, the Contracting Officer may determine in a Contracting Officer's Decision, the amount due under Subsection 80-09 on the basis of information available to the Department.

h. Right of Appeal. The Contractor may appeal a Contracting Officer's Decision within the time and in the manner specified in Subsection 50-17.

i. Partial Payments. In the sole discretion of the Contracting Officer, the Department may make partial payments against costs incurred by the Contractor in connection with the terminated portion of the Contract. The sum of these partial payments will not exceed the Contracting Officer's estimate of the total amount that will be due as a result of the termination. The estimate will be based on available information. The Contracting Officer may adjust the estimate as additional information becomes available. If the Contracting Officer orders an audit of the Contractor's financial or project records, the Contracting Officer may decline to make partial payments until the audit is completed.

j. No Waiver of Rights. The termination of work by the Department does not affect or extinguish any of the rights of the Department against the Contractor or the Contractor's Surety then existing or which may thereafter accrue. Any retention or payment of monies by the Department due under the terms of the Contract will not release the Contractor or the Contractor's Surety from the contractual obligations or warranties made under Subsection 70-19 or elsewhere in the Contract.

k. Retaining Records. The Contractor shall unless otherwise provided for in the Contract or by applicable statute, keep all books, records, documents, and other evidence bearing on the Contractor's cost and expenses under the Contract and relating to the work terminated for a period of 3 years after final settlement under this Contract. Records must be made available to the Department at the Contractor's office and at all reasonable times.

l. Definitions. In this Subsection 80-09, the term "cost" and the term "expense" mean a monetary amount in U.S. Dollars actually incurred by the Contractor, actually reflected in the Contractor's contemporaneously maintained accounting or other financial records and supported by original source documentation.

m. Cost Principles. The Department may use the federal cost principles at 48 CFR §§ 31.201-1 to 31.205-52 (or succeeding cost principles for fixed price contracts) as guidelines in determining allowable costs under this subsection to the extent they are applicable to airport construction contracts and consistent with the specifications of this Contract. The provisions of this contract control where they are more restrictive than, or inconsistent with, these federal cost principles.

SECTION 90
MEASUREMENT AND PAYMENT

90-01 GENERAL. Wherever the Contract provides that certain work is subsidiary or it is without extra compensation, the payment for that work is included in the payment for other items of work, and no further or additional payment shall be made for that work.

When more than one type of material or work is specified for a pay item, the pay item and the proposal line number are used to differentiate the material or work.

Lump sum items will not be measured for payment. The Contractor shall accept the bid amount for a lump sum item as complete payment for all work necessary to complete that item. Quantities shown for lump sum items are approximate. No adjustment in the lump sum price will be made if the quantity furnished is more or less than the estimated quantity unless the Contract specifically states otherwise.

90-02 MEASUREMENT OF QUANTITIES. All work completed under the Contract will be measured using the U.S. Customary system of measure. The Engineer may agree for purposes of making progress payments to use a method of measurement other than the methods described below. However, all final payments for quantities will be calculated using one or more of the methods of measurement described below and in the applicable pay item section. Unless otherwise specified, work will be measured as follows:

a. Acre (43,560 ft^2). Horizontally, unless specified on the ground surface. No deductions will be made for individual fixtures with an area of 500 ft^2 or less.

b. Contingent Sum. Measured as specified in the Contract or Directive authorizing the work. The method of payment may include: (1) a lump sum basis, (2) a price multiplied by the units of work performed, (3) a pay adjustment based on the quality of work, or (4) a deduction from the contract amount.

c. Cubic Yard (yd^3). At the location specified using method (1), below. Methods (2) through (5) may be used with written approval of the Engineer.

(1) Average End Area. End area is the calculated area between original ground cross section and either the design cross section or at the Engineer's discretion the final cross section. Volume of material is calculated using the average of end areas multiplied by the distance along centerline between end areas. In extreme cases where most of the earthwork lies along a single horizontal curve the Engineer may compute volume using the average of end areas multiplied by the distance along centroid of cross section between end areas.

(2) Three-Dimensional. Where it is impractical to measure material by cross sectioning due to erratic location of isolated deposits, acceptable methods involving three-dimensional measurements may be used.

(3) Neat Line. Structures will be measured according to neat lines shown on the Plans or as altered to fit field conditions.

(4) Nominal. Volume calculated as nominal width times nominal thickness times the average length of each piece.

(5) Weight. With the Engineer's written approval, material that is specified to be measured by volume may be weighed and converted to volume for payment purposes. The Engineer will determine the appropriate conversion factors. When liquid asphalt is a pay item, ASTM D4311 will be used to convert from weight to volume at 60 °F.

d. Cubic Yard Vehicle Measure (CYVM). Material measured by volume in the hauling vehicle will be measured at the point of delivery. Vehicles may be of any acceptable size or type provided

that the volume of the actual contents may be readily and accurately determined. Vehicles shall be loaded to the measured vehicle volume. If vehicles are not loaded to the measured vehicle volume, the Engineer at their discretion, may apply a percentage of full factor to the measured volume. Loads shall be leveled when directed. No payment will be made for loads that exceed the legal capacity of the vehicle.

e. Linear Foot (LF). From end to end, in place, parallel to the centerline of the item or ground surface on which the items are placed.

f. Thousand Feet Board Measure (MBM). Nominal volume based on nominal widths and thickness times actual extreme length of each piece. One thousand feet board measure = 1,000 ft^2 X 1 inch thick.

g. Thousand Gallon (MGal). By using method (1), below. Methods (2) or (3) may be used with written approval of the Engineer:

(1) Measured or calibrated volume tank;

(2) Metered volume, using a certified calibrated meter; or

(3) Weighed under this subsection and converted to volume, using a specified or approved conversion factor.

h. Mile. From end to end, measured horizontally along centerline.

i. Pound. Using a certified scale or the net weight of packaged material as labeled by the manufacturer. The Engineer will accept nominal weights for standard manufactured items, unless otherwise specified. The Engineer will accept industry-established manufacturing tolerances, unless otherwise specified.

j. Square Foot (ft^2). Parallel to the surface being measured. No deductions will be made for individual fixtures with an area of 1 ft^2 or less. Transverse measurement for area computations will be the neat dimensions shown on the Plans or as directed by the Engineer.

k. Square Yard (yd^2). Parallel to the surface being measured. No deductions will be made for individual fixtures with an area of 1 yd^2 or less. Transverse measurement for area computations will be the neat dimensions shown on the Plans or as directed by the Engineer.

l. Station (100 feet). Horizontally, parallel to centerline.

m. Ton (2,000 pounds). By using method (1) or (2), below. Method (3), below, may be used with written approval of the Engineer:

(1) Commercial Weighing System. Permanently installed and certified commercial scale that meets the requirements for the project weighing system.

(2) Project Weighing System. Approved automatic digital scale and scale house. All scales are subject to approval according to the Weights and Measures Act, AS 45.75.

Spring balances and belt conveyor scales shall not be used to determine pay weight.
The Contractor may use proportioning (batch) scales for weighing material for payment when the batching equipment includes an approved and certified automatic weighing, cycling, and monitoring system.
Weigh scales used with a storage silo may be used to weigh the final product for payment, provided the scales are approved and certified.
Vehicle scales shall be maintained with the platform level and rigid bulkheads at each end. The platform must be long enough to permit simultaneous weighing of the hauling vehicle including coupled vehicles, in a single draft. Double draft weighing is not allowed.

(a) Scale Requirements. The Contractor shall:

1. Ensure that vehicle scale(s) are installed and maintained to the standards listed in the National Institute of Standards and Technology (NIST), Handbook 44, Specifications, Tolerances and other Technical Requirements for Commercial Weighing and Measuring Devices, as adopted by AS 45.75.050(d);

2. Contact the Division of Measurement Standards/Commercial Vehicle Enforcement (MSCVE) to coordinate scale inspections before use, at required intervals or as directed by the Engineer and for clarification or possible exceptions to this section;

3. Ensure that a weatherproof housing is provided to protect the scale indicating/recording equipment and allows the scale operator convenient access to the weigh indicator, scale computer, ticket printer, and sequential printer;

4. Use competent personnel to operate the scale system;

5. Furnish and maintain on-site, NIST Class-F cast iron test weights in denominations of 500-lb and/or 1000-lb. The required minimum for vehicle scales is 4000-lb; the required minimum for hopper scales is 2000-lb. Test weights shall have a recognized calibration certificate on file which is dated no more than two years from date of Notice to Proceed. Test weights will be used as directed by the Engineer or MSCVE for initial accuracy calibration testing and may be used for subsequent scale testing or inspection. Projects accessible by direct road access from the communities identified on the dot.alaska.gov/mscve website, 5 days before bid opening, are exempt from the requirement to furnish and maintain on-site test weights;

6. Provide the following information on any scale used to weigh materials for payment:

(a) Owner of the scales and scale locations;
(b) Manufacturer's name, model serial number, maximum capacity, and type of scales (single beam, double beam, self-reading, etc.)
(c) Date(s) the scales were installed and/or adjusted;
(d) Scale service company inspections and accuracy checks (attach copy);
(e) Division of Measurement Standards inspections and accuracy checks (attach copy); and
(f) Time and dates of notification of any malfunctions.

(b) Electronic Computerized Weighing System. The Contractor shall provide and use an electronic computerized weighing system (ECWS) with the following minimum capabilities:

1. Computer. A computer with a self-reading scale system that includes the scale load cell, a sealed direct reading weight indicator, scale computer, ticket printer, and sequential printer, and that can record a complete shift's transaction in an electronic format approved by the Engineer.

The computer must store project numbers, all pay item descriptions for multiple projects and products that are weighed, and the following information for each hauling vehicle used on the project:

(a) Vehicle identification number marked on the vehicle;
(b) Tare weight; and
(c) Maximum allowable gross vehicle weight (MAVW).

During weighing operations, the ECWS must compare each vehicle's gross weight to its MAVW. If the vehicle exceeds its MAVW, the system must alert the scale operator that an "overload" exists. The system must not issue a ticket for an overload.
The computer must have a battery backup and protection for power surges or brown outs. The computer system must retain all stored data during a power outage and must operate during a power outage to allow the scale operator to shut down the hard drive without losing information.

2. **Tickets.** The ECWS must have a ticket printer that prints a legible, serially numbered weigh ticket for the Engineer with the following information on each ticket in the order listed:

   (a) Project number;
   (b) Item number and description;
   (c) Date weighed;
   (d) Time weighed;
   (e) Ticket number;
   (f) Vehicle Identification Number;
   (g) Maximum allowable gross vehicle weight;
   (h) Gross weight;
   (i) Tare weight;
   (j) Net weight;
   (k) Subtotal item net weight for each haul unit since start of shift; and
   (l) Accumulated item net weight for all haul units since start of shift.

   Tickets must show all weights in pounds in accordance to NIST Handbook 44, and in tons reported to two decimal places.
   After printing, the weigh ticket must automatically advance to a perforation so it can be torn off and handed to the driver. Each ticket shall be initialed by the scale operator before handoff to the driver.

3. **Sequential Printer.** A sequential printer that prints out all transactions (keystrokes) made by the computer concurrently with the ticket printer. For permanent commercial scales, the printer may print at the end of the company's daily shift with the Engineer's approval. The printer must print all scales transactions including tares, voided tickets, and data changes made by the scale operator. The printer must allow for advancing the paper manually so that the scale operator can write notes on the paper when special situations occur, such as voided tickets, incorrect vehicle identification number used, etc. The scale operator shall also note these special situations in the Scales Diary.

   The sequential printout shall be submitted to the Engineer at the end of each shift.

4. **Data Files.** Submit electronic data files to the Engineer at the end of each shift, with all ticket information produced during the shift recorded. These Data files must be complete and correct without conversion or manipulation.

5. **Scale Diary.** The scale operator shall keep a Scale Diary in an electronic format acceptable to the Engineer. The scale operator shall complete the Scale Diary with the following information: dates of action, type of material, source, time the scale opened and time the scale closed, times of scale balance, ticket sequence, time the haul for each material started and stopped, voided ticket numbers, vehicle identification numbers, times of tare and tare weights, and the scale operator's signature. The Scale Diary shall include the following information on any scale used to weigh materials for payment:

(a) Owner of the scales and scale locations;
(b) Manufacturer's name, model serial number, maximum capacity, and type of scales (single beam, double beam, self-reading, etc.);
(c) Date(s) the scales were installed and/or adjusted;
(d) Scale service company inspections and accuracy checks (attach copy);
(e) Division of Measurement Standards inspections and accuracy checks (attach copy); and
(f) Time and dates of notification of any malfunctions.

The Scale Diary shall be given to the Engineer at the end of each shift. The Scale Diary is the property of the Department.

(c) Weighing Procedures. The scale operator shall tare hauling vehicles and record tare weights at least once daily; perform additional tares and record additional tare weights as directed by the Engineer; perform tares in the presence of the Engineer when requested; and ensure that each hauling truck displays a unique, legible identification mark.

The Engineer will calculate the MAVW for each vehicle and list all vehicles and their MAVW(s) in the scale house. The MAVW is either the maximum allowable legal weight determined by the Engineer when the Contractor cannot haul overloads, or the manufacturer's recommended maximum allowable gross vehicle weight as certified by the Contractor when vehicles are allowed to haul overloads. Only MAVWs that the Engineer has provided in writing shall be used. Tickets may not be issued to a vehicle until the Engineer provides the MAVW.

No payment will be made for any material weighed without using the ECWS, unless the Contractor obtains the Engineer's prior written authorization. If the ECWS malfunctions or breaks down, weights shall be manually weighed and recorded for up to 48 hours as directed by the Engineer. The manual weighing operation shall meet all other Contract requirements.

The system must generate a report either during or at the end of the day or shift that summarizes the number of loads and total net weight for each date, project, and product. The scale operator shall submit the original report to the Engineer at the end of each shift.

No payment for any hauled material on a given date will be made until the following are delivered to the Engineer:

1. Sequential printout;

2. Daily data; and

3. Scale Diary.

The Contractor will not receive payment for any material hauled in a vehicle that does not conform to the requirements of Subsection 50-12, Load Restrictions, and this Subsection. The Contractor shall dump material from non-conforming vehicles until they conform, then reweigh the vehicles.

When a weighing device indicates less than true weight, the Contractor will not receive additional payment for material previously weighed and recorded. When a weighing device indicates more than true weight, all material received after the last previously correct weighing accuracy test will be reduced by the percentage of error that exceeds 0.5 percent.

If the Engineer incurs extra construction engineering expenses from checking non-machine data entries or other data irregularities, the total value of those expenses will be deducted from the value of the Contract item before payment.

The Contractor shall accept natural variations in the specific gravity of aggregates, without adjustment in Contract unit price.

(3) Invoices. Supplier's invoice with net weight or volume converted to weight for bulk material that is shipped by truck or rail and is not passed through a mixing plant. Periodic check weighing may be required. Net certified weights or volumes of asphalt materials are subject to correction for temperature and foaming. All materials are subject to correction for material that is lost, wasted, or otherwise not incorporated into the work, for computing quantities.

All aggregate paid by weight shall be less than 2% over optimum moisture, or as approved by the Engineer.

90-03 SCOPE OF PAYMENT. The Department will make payment at the Contract price or prices for each item shown on the bid schedule or as modified by change order with specified price adjustments. The Contractor shall accept the Contract prices as full and complete payment for (a) furnishing all equipment, materials, tools, and labor necessary to complete the work in a complete and acceptable manner, and for (b) all of the Contractor's risk, loss, damage, or expense of whatever character arising from or relating to the work and performance of the work.

90-04 COMPENSATION FOR ALTERED QUANTITIES. Payment to the Contractor for unit price items shall be made only for the actual quantities of work performed and accepted or materials furnished, in conformance with the Contract. When the accepted quantities of work or materials vary from the quantities stated in the bid schedule, the Contractor shall accept payment at the original Contract unit prices for the quantities of work and materials furnished, completed and accepted as payment in full. Payment at the Contract unit price shall compensate the Contractor for all costs, expenses, and profit that the Contractor is entitled to receive for the altered quantities, except as provided below:

a. When the final quantity of a Major Contract Item varies more than 25 percent above or below the bid quantity, either party to the Contract may receive an equitable adjustment, excluding anticipated profits, in the Contract unit price of that item. If the final quantity of work is:

(1) Greater than 125 percent of the bid quantity, the equitable adjustment will be made only for those units that are in excess of 125 percent of the bid quantity.

(2) Less than 75 percent of the bid quantity, the equitable adjustment will be made for those units of work done and accepted, except that the total payment for the item shall not exceed 75 percent of the total amount bid for the item.

Except as provided above and in Subsection 40-02, no allowance shall be made for any increased expenses, expected reimbursement, or anticipated profits suffered or claimed, either directly from alterations in quantities or indirectly from unbalanced allocations among the contract items on the part of the bidder and subsequent loss of expected reimbursements, or any other causes.

90-05 COMPENSATION FOR EXTRA WORK ON TIME AND MATERIALS BASIS. When the Engineer orders extra work to be performed on a time and materials basis, compensation will be computed as follows:

a. Labor. Based on the sum of **(1)** through **(6)**:

(1) Total hours worked times the straight time rate of pay. The rates of pay are those indicated on the certified payroll for all labor and foremen in direct charge of the specific operations. Rates shall not exceed those for comparable labor currently employed on the project, and shall not include general superintendence.

(2) Overtime hours worked times the difference between the overtime rate and the straight time rate. No markup is allowed.

(3) Fringe benefit rate times the total hours worked. Fringe benefits include Health and Welfare, Pension Fund, etc., when such amounts are required by collective bargaining

agreement or other employment contracts generally applicable to the classes of labor employed on the project.

(4) Workers' Compensation Insurance at 8 percent of (1). The actual net rate may be used if it exceeds 10 percent and if proof of rates is furnished within 30 days of the completion of the extra work.

(5) Either subsistence and travel allowances or prorated camp costs. If an employee is due and receives subsistence or camp privileges on their days off, divide that cost by the number of days worked that week and add to their daily subsistence entitlement. If the employee did not work an entire day on time and materials work, prorate the entitlement for the hours worked on time and materials.

(6) Markup at 35 percent of the sum of (1), (3), (4), and (5). This includes and shall fully compensate the Contractor for all overhead and profit, including general superintendence, additional bond, property damage liability insurance, unemployment insurance contributions, social security and other taxes, administrative overhead costs, and profit.

b. Materials. Actual invoiced material and delivery costs plus 15 percent markup. The material must be approved and incorporated into the work. The Contractor shall furnish to the Engineer proof of payment for materials used in the work plus applicable transportation charges. For Contractor-produced materials, certify in writing the Contractor's actual direct costs, the quantities used, and attach cost spreadsheets and production documentation to verify the costs.

c. Equipment. Includes machinery and special equipment (other than small tools) necessary for the work and authorized by the Engineer. No additional compensation will be made for overhead, profit, maintenance, service, repairs, fuels, lubricants, or replacement parts.

(1) Hourly Rental Rate. Based on rental rates in the current edition and appropriate volume of the *Rental Rate Blue Book,* by EquipmentWatch, Penton Media, Inc.

The regular hourly rental rate is equal to the equipment rate plus the estimated hourly operating cost. These rates apply for equipment used during the Contractor's regular shift of 10 hours per day. No markup is allowed.

The equipment rate is equal to the age adjusted monthly rate for the basic equipment plus the age adjusted monthly rate for applicable attachments, both divided by 176, and multiplied by the regional adjustment factor. The equipment rate is per hour.

The age adjusted monthly rate is that resulting from application of the age adjustment formula, to eliminate replacement cost allowances in machine depreciation and contingency cost allowances.

Only the attachments required for the time and materials work will be included.

The rental rate area adjustment factors for this project shall be as specified on the adjustment maps for the Alaska - South Region.

(2) Hourly Overtime Rate. Half of the equipment rate plus the full estimated hourly operating cost. The overtime rate will apply to hours the equipment is used in excess of 10 hours per day, either on the Contractor's normal work or on time and materials, and either on single or multiple shifts. No markup is allowed.

(3) Hourly Stand-by Rate. Half of the equipment rate, for equipment ordered on stand-by during the Contractor's normal work shift, not to exceed eight hours per day. No operating costs or markup is allowed.

(4) Unlisted Equipment. For equipment not listed in The Blue Book, the Contractor and the Engineer may agree to a rate before extra work is begun. If agreement is not reached, the Engineer has authority to establish a rate based on similar equipment in the Rental Rate Blue Book or prevailing commercial rates. No markup is allowed.

(5) Leased or Rented Equipment. Equipment that must be rented or leased specifically for work required under this section and authorized in writing by the Engineer shall be paid at invoice price plus 15 percent markup.

Equipment rented or leased for other work under the Contract and used for work under this section shall be paid based on c.(1), (2), and (3). (above) with no markup, except that the adjusted monthly rate is the monthly rate determined directly from the submitted rental or lease agreement.

(6) Transportation of Equipment. The actual cost of moving equipment to and from the work site. To receive reimbursement for transportation of equipment, the Contractor shall obtain the equipment from the nearest approved source and use the equipment exclusively for time and materials work. Payment for move-out will not exceed the amount of the move-in. No markup is allowed, except on operator's wages.

Basis of payment:

(a) If by common carrier: paid freight bill or invoice.

(b) If hauled with the Contractor's own resources: hourly rental rate for hauling unit plus operator wages.

(c) If equipment must be moved under its own power: half of the normal hourly rental rate plus operator's wages.

Provide a printed copy of the current EquipmentWatch rate sheet for each piece of equipment utilized on time and materials work.

d. Work by a Subcontractor or Owner-Operator. For time and materials work performed by an approved subcontractor or owner-operator under items **a.** through **c.** above, the Contractor will receive a 5 percent markup for administrative costs. No percentage will be paid on work covered under bid items in the original Contract. No percentage over the amount covered above will be paid for work done by a lower tier subcontractor.

e. Work by a Specialty Subcontractor. The Contractor shall obtain the Engineer's advance agreement that the specialty item needed is beyond the Contractor's ability or expertise or that of the Contractor's other subcontractors. For work on a specialty item performed by an approved specialty subcontractor, the Contractor will receive the approved invoice cost of work or service plus a 15 percent markup for administrative costs.

f. Records. The Engineer will maintain a daily record of labor, equipment and materials utilized in the extra work. The Engineer will present this record to the Contractor at the end of each day's work for verification and signature.

g. Compensation. Payment for time and materials work will be made in the progress estimate following receipt of the verified daily records and all required supporting information from the Contractor. If, at any time, a unit price or lump sum basis of compensation is agreed to for work being performed under this subsection, that compensation will be set forth in writing as a Change Order.

90-06 PROGRESS PAYMENTS. The Department will make monthly progress payments to the Contractor based on estimates of the value of work performed and materials on hand under Subsection

90-07. At the Departments discretion, a progress payment may be made twice monthly if the value of the estimate exceeds $10,000.

Contractor's failure to pay subcontractors, or subcontractor's failure to pay lower tier subcontractors, according to prompt payment provisions required under Subsection 80-01 is considered unsatisfactory performance.

The Department will not withhold payment as retainage but may withhold payment for unsatisfactory performance. If satisfactory progress is being made and subcontractors are paid according to Subsection 80-01 and AS 36.90.210, the Engineer will authorize 100 percent payment for the estimated value of work accomplished, less any authorized deductions.

If the Engineer finds that satisfactory progress is not being made or payment for satisfactory work by a subcontractor or lower tier subcontractor is not paid according to Subsection 80-01, the Engineer may withhold up to 100 percent of the total amount earned from subsequent progress payments. The Engineer may withhold up to 200 percent of the estimated cost to complete final punch list items for unsatisfactory performance until those items are complete. The Engineer will notify the Contractor in writing within eight (8) working days of a request for a progress payment of the reasons why part or all of the payment is being withheld for unsatisfactory performance and what actions may be taken by the Contractor to receive full payment.

Payments of withheld amounts will be made in accordance with AS 36.90.200. No interest will be paid to the Contractor for amounts withheld for unsatisfactory performance except if the Department fails to pay the amount withheld within twenty one (21) calendar days after the Contractor satisfactorily completes the remedial actions identified by the Engineer, as provided in AS 36.90.200(e).

The Contractor shall pay interest on retainage withheld from subcontractors, and at an interest rate according to AS 36.90.250 and AS 45.45.010(a).

90-07 PAYMENT FOR MATERIAL ON HAND.

a. Partial Payment. The Engineer will make partial payment for materials designated for incorporation into the work. The material shall:

(1) Meet Contract requirements;

(2) Be delivered and stockpiled at the project or other approved location;

(3) Be supported by invoices, freight bills, and other required information; and

(4) Not be living or perishable.

b. Payment Requests. The Contractor shall make each payment request in writing and:

(1) List stockpiled items, quantities of each, and stockpile location(s);

(2) Certify that materials meet the applicable Contract specifications;

(3) For purchased materials, attach copies of invoices, freight bills, and manufacturer's published storage recommendations;

(4) For Contractor-produced materials, attach production statements showing quantities and dates produced and copies of process quality control test results; and

(5) Include other information requested by the Engineer.

c. Storage Conditions. The Contractor shall protect material from damage or loss while in storage. The Contractor shall:

(1) Physically separate stockpiled materials from other materials at the storage location;

(2) Clearly label materials with the project name and number; and

(3) Store materials per the manufacturer's recommendations.

If storage conditions become unsatisfactory, liens are filed on any materials, or the storage location is changed without approval, the Engineer will deduct any previous payments made for such materials.

d. Method of Payment. The Engineer will include payments for acceptably stockpiled materials in the progress estimate following receipt of the Contractor's written request and all required documentation. The Engineer will:

(1) Pay for materials purchased by the Contractor at the delivered cost but not to exceed 85% of the Contract amount for those items.

(2) Pay for materials produced by the Contractor at up to 50% of the Contract amount for those items.

(3) Deduct the Department's cost to inspect materials stored off the limits of the project.

(4) Deduct partial payment quantities as they are incorporated into the project.

The Contractor shall release and discharge the Department from any liability for damages or delays related to the storage or transport of, and to the payment for, material on hand.

The Department's payment for material on hand will not constitute final acceptance by the Department.

90-08 FINAL PAYMENT. When the project has been completed as provided in Subsection 50-15, the Engineer will prepare the final estimate of the quantities of the various classes of work performed. All prior progress estimates and payments shall be subject to correction in the final estimate and payment. The final estimate will not be processed until the Alaska Department of Labor and Workforce Development has verified that final payment can be released. The Department will not process the final estimate until the Contractor completes Items **a** through **d** in the first paragraph of Subsection 50-16.

If the Contractor certifies the final estimate, or does not file a claim within 90 days of receiving the final estimate, the estimate shall be processed for final payment. Final payment shall consist of the entire sum found to be due after deducting all previous payments and all amounts to be retained or deducted under the provisions of the Contract. Failure to file a claim within 90 days of receiving the final estimate is a waiver of any and all claims relating to or arising from the final estimate.

When the Contractor executes the Certification of Final Estimate (Form 25D-116) and the Contractor's Release (Form 25D-117), final payment will be processed.

The Contractor may reserve any unresolved claims that were timely filed according to Subsection 50-17 by listing those claims as exceptions on the Contractor's Release. Any claims listed as exceptions that were not filed before the Contractor executes the final estimate will be considered null and void. Any claims filed in a timely manner but not listed on the Contractor's Release are waived and deemed released.

If the Contractor fails or declines to approve the final estimate within 90 days but does not file any claims, the Department will consider the estimate approved and process the estimate for final payment. Any subsequently raised claims will be considered null and void.

On federally funded projects, if DOLWD Wage and Hour Administration notifies the Department of a pending prevailing wage investigation, and that the investigation is preventing the closing out of the project, the Contractor may place the notified amount in escrow under Wage and Hour for the exclusive

purpose of satisfying unpaid prevailing wages. Upon receipt of notice from Wage and Hour that the contractor has satisfactorily transferred the necessary funds into escrow, the Department will proceed to issue final payment.

90-09 ELIMINATED ITEMS. When the Contractor is notified of the elimination of a minor Contract item, the Contractor will be reimbursed for actual work performed and all direct costs incurred before notification. In no case will any payment be made for anticipated profits or overhead.

Should it become necessary to eliminate a major Contract item, an equitable adjustment will be made and the Contract modified in writing accordingly.

90-10 CONSTRUCTION WARRANTY.

a. In addition to all other warranties or remedies, express or implied, available to the Department under this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work. If the Department takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Department takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work.

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Department real or personal property, when that damage is the result of:

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The Engineer will notify the Contractor, in writing, within seven (7) days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, or longer timeframe approved by the Engineer, the Department shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Department, as directed by the Engineer, and (3) Enforce all warranties for the benefit of the Department.

h. The provisions of this section shall not limit the Department's rights with respect to latent defects, gross mistakes, or fraud.

90-11 PROJECT CLOSEOUT. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the Engineer approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations;

b. Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors;

c. Complete final cleanup in accordance with Subsection 40-07, Cleanup;

d. Complete all punch list items identified during the Final Inspection;

e. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the DBE subcontractors and/or suppliers associated with the project;

f. When applicable per state requirements, return copies of sales tax completion forms;

g. Provide manufacturer's certifications for all items listed in the MCL;

h. All required record drawings, as-built drawings or as-constructed drawings;

i. Project Operation and Maintenance (O&M) Manual;

j. Security for Construction Warranty, when required;

k. Equipment commissioning documentation submitted, if required.

SECTION 100
CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)

100-01 GENERAL. The Contractor shall assure that all materials and completed construction conform to contract Plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. The Contractor shall establish, provide, and maintain an effective Contractor Quality Control Program (CQCP) that details the methods and procedures that will be used. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The Contractor shall establish a CQCP that will:

a. Provide qualified personnel to develop and implement the CQCP.

b. Adequately provide for the production of acceptable quality materials.

c. Provide sufficient information to assure that the specification requirements can be met.

d. Document the CQCP process.

The Contractor shall be prepared to discuss and present, at the preconstruction conference, their understanding of the quality control requirements. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the CQCP has been reviewed and accepted by the Engineer. No partial payment will be made for materials subject to specific quality control (QC) requirements until the CQCP has been reviewed and accepted.

The QC requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the acceptance testing requirements. Acceptance testing requirements are the responsibility of the Engineer.

A Quality Control (QC)/Acceptance Testing workshop with the Engineer, Contractor, subcontractors, and testing laboratories shall be held prior to start of construction. The workshop shall address QC and acceptance testing requirements of the project specifications. The Contractor shall coordinate with the Engineer on time and location of the QC/Acceptance Testing workshop.

100-02 DESCRIPTION OF PROGRAM.

a. General Description. The Contractor shall establish a CQCP to perform inspection and testing of each item of work for which it is required by the technical specifications, including those performed by subcontractors. This CQCP shall ensure conformance to applicable specifications and Plans with respect to materials, workmanship, construction, finish, and functional performance. The CQCP shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of QC.

b. Contractor Quality Control Program (CQCP). The Contractor shall describe the CQCP in a written document. The written CQCP and plan for QC testing laboratory shall be submitted to the Engineer for review at least 5 calendar days before the preconstruction conference. The Contractor's CQCP and QC testing laboratory must be accepted by the Engineer prior to the start of any production, construction, or off-site fabrication.

The CQCP shall be organized to address, as a minimum, the following items:

a. QC organization.

b. Project progress schedule;

c. Submittals schedule;

d. Inspection requirements;

e. QC testing plan;

f. Documentation of QC activities and distribution of QC reports;

g. Requirements for corrective action when QC and/or acceptance criteria are not met; and

h. Material quality and construction means and methods. Address all elements applicable to the project that affect the quality of the pavement structure including subgrade, subbase, base, and surface course. Some elements that must be addressed include, but is not limited to mix design, aggregate grading, stockpile management, mixing and transporting, placing and finishing, quality control testing and inspection, smoothness, laydown plan, equipment, and temperature management plan.

The Contractor shall add any additional elements to the CQCP that are necessary to adequately control all production and/or construction processes required by this contract.

100-03 QUALITY CONTROL ORGANIZATION. The Contractor's CQCP shall be implemented by the establishment of a separate QC organization. An organizational chart shall be developed to show all QC personnel and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all QC staff by name and function, and shall indicate the total staff required to implement all elements of the CQCP, including inspection and testing for each item of work. If necessary, different technicians can be utilized for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the CQCP, the personnel assigned shall be subject to the qualification requirements of Subsections 100-03.a. and 100-03.b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The QC organization shall consist of the following minimum personnel:

a. Program Administrator. The Contractor Quality Control Program Administrator (CQCPA) shall be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The CQCPA shall have a minimum of 5 years of experience in QC pavement construction with prior QC experience on a project of comparable size and scope as the contract.

Included in the 5 years of paving/QC experience, the CQCPA shall meet at least one of the following requirements:

(1) Professional engineer with 1 year of airport paving experience acceptable to the Engineer.

(2) Engineer-in-training with 2 years of airport paving experience acceptable to the Engineer.

(3) National Institute for Certification in Engineering Technologies (NICET) Civil Engineering Technology Level IV with 3 years of airport paving experience.

(4) An individual with 4 years of airport paving experience acceptable to the Engineer, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

The CQCPA shall have full authority to institute any and all actions necessary for the successful implementation of the CQCP to ensure compliance with the contract Plans and technical

specifications. The CQCPA authority shall include the ability to immediately stop production until materials and/or processes are in compliance with contract specifications. The CQCPA shall report directly to a responsible officer of the construction firm. The CQCPA may supervise the CQCP on more than one project provided that person can be at the job site within 2 hours after being notified of a problem.

b. QC Technicians. A sufficient number of QC technicians necessary to adequately implement the CQCP shall be provided. These personnel shall be either engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II in Civil Engineering Technology or higher, and shall have a minimum of 2 years of experience in their area of expertise.

The QC technicians shall report directly to the CQCPA and shall perform the following functions:

(1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by paragraph100-06, and.

(2) Performance of all QC tests as required by the technical specifications and Subsection 100-07.

Certification at an equivalent level of qualification and experience, by a state or nationally recognized organization will be acceptable in lieu of NICET certification, including WAQTC qualification in any modules for which testing will be performed.

c. Staffing Levels. The Contractor shall provide sufficient qualified QC personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The CQCP shall state where different technicians will be required for different work elements.

100-04 PROJECT PROGRESS SCHEDULE. Critical QC activities shall be shown on the project schedule as required by Section 80, paragraph 80-03, *Prosecution and Progress*.

100-05 SUBMITTALS SCHEDULE. The Contractor shall submit a detailed listing of all submittals (e.g., mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include as a minimum:

a. Pay item number;

b. Item description;

c. Description of submittal;

d. Specification Subsection requiring submittal; and

e. Scheduled date of submittal.

100-06 INSPECTION REQUIREMENTS. QC inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by paragraph 100-09.

Inspections shall be performed as needed to ensure continuing compliance with contract requirements until completion of the particular feature of work. Inspections shall include the following minimum requirements:

a. During plant operation for material production, QC test results and periodic inspections shall be utilized to ensure the quality of aggregates and other mix components, and to adjust and control

mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment utilized in proportioning and mixing shall be inspected to ensure its proper operating condition. The CQCP shall detail how these and other QC functions will be accomplished and utilized.

b. During field operations, QC test results and periodic inspections shall be utilized to ensure the quality of all materials and workmanship. All equipment utilized in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The CQCP shall document how these and other QC functions will be accomplished and utilized.

100-07 CONTRACTOR QC TESTING FACILITY.

a. For projects that include Item P-401, meet paragraph 401-3.2 Job Mix Design (JMD) Laboratory.

b. For projects that include Item P-501, meet paragraph 501-3.2 Concrete Mix Laboratory.

100-08 QC TESTING PLAN. As a part of the overall CQCP, the Contractor shall implement a QC testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by the technical specification for the Pay Item, as well as any additional QC tests that the Contractor deems necessary to adequately control production and/or construction processes.

The QC testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

a. Pay item number (e.g., P401.010.0010);

b. Item description (e.g., Hot Mix Asphalt, Type I, Class A);

c. Test type (e.g., gradation, grade, asphalt content);

d. Test standard (e.g., ASTM or AASHTO test number, as applicable);

e. Test frequency (e.g., as required by technical specifications or Material Sampling and Testing Frequency table when requirements are not stated);

f. Responsibility (e.g., plant technician); and

g. Control requirements (e.g., target, permissible deviations).

The QC testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples according to ASTM D3665. The Engineer shall be provided the opportunity to witness QC sampling and testing.

All QC test results shall be documented by the Contractor as required by paragraph 100-09.

100-09 DOCUMENTATION. The Contractor shall maintain current QC records of all inspections and tests performed. These records shall include factual evidence that the required QC inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the Engineer daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the CQCPA.

Contractor QC records required for the contract shall include, but are not necessarily limited to, the following records:

a. Daily Inspection Reports. Each Contractor QC technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations on a form acceptable to the Engineer. These technician's daily reports shall provide factual evidence that continuous QC inspections have been performed and shall, as a minimum, include the following:

(1) Pay item number and description;

(2) Compliance with approved submittals;

(3) Proper storage of materials and equipment;

(4) Proper operation of all equipment;

(5) Adherence to Plans and technical specifications;

(6) Summary of any necessary corrective actions; and

(7) Safety inspection.

The daily inspection reports shall identify all QC inspections and QC tests conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible QC technician and the CQCPA. The Engineer shall be provided at least one copy of each daily inspection report on the work day following the day of record. When QC inspection and test results are recorded and transmitted electronically, the results shall be archived.

b. Daily Test Reports. The Contractor shall be responsible for establishing a system which will record all QC test results. Daily test reports shall document the following information:

(1) Pay item number and description;

(2) Test designation;

(3) Location;

(4) Date of test;

(5) Control requirements;

(6) Test results;

(7) Causes for rejection;

(8) Recommended remedial actions; and

(9) Retests.

Test results from each day's work period shall be submitted to the Engineer prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical QC charts. When QC daily test results are recorded and transmitted electronically the results shall be archived.

100-10 CORRECTIVE ACTION REQUIREMENTS. The CQCP shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action

will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the CQCP as a whole, and for individual items of work contained in the technical specifications.

The CQCP shall detail how the results of QC inspections and tests will be used for determining the need for corrective action and shall contain clear rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and utilize statistical QC charts for individual QC tests. The requirements for corrective action shall be linked to the control charts.

100-11 INSPECTION BY THE ENGINEER. All items of material and equipment shall be subject to inspection by the Engineer at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate QC system in conformance with the requirements detailed herein and the applicable technical specifications and Plans. In addition, all items of materials, equipment and work in place shall be subject to inspection by the Engineer at the site for the same purpose.

Inspection by the Engineer does not relieve the Contractor of performing QC inspections of either on-site or off-site Contractor's or subcontractor's work.

100-12 NONCOMPLIANCE.

a. The Engineer will notify the Contractor in writing of any noncompliance with the CQCP. The Contractor shall, after receipt of such notice, take corrective action.

b. When QC activities do not comply with either the CQCP or the contract provisions, or when the Contractor fails to properly operate and maintain an effective CQCP, and no effective corrective actions have been taken after notification of non-compliance, the Engineer may:

(1) Order the Contractor to replace ineffective or unqualified QC personnel or subcontractors, and /or.

(2) Order the Contractor to stop operations until appropriate corrective action is taken.

SECTION 110
METHOD OF ESTIMATING
PERCENTAGE OF MATERIAL WITHIN SPECIFICATION LIMITS (PWL)

110-01 GENERAL. All statistical Quality Level Analysis (QLA) is computed using the Engineer's Price Adjustment program. The program calculates all intermediate values to 16 decimal places. Pay factors are rounded to the nearest 0.001. The basis of payment for production lots of selected pay items is adjusted using statistical analysis of acceptance test results.

Analysis is based on an Acceptable Quality Level (AQL) of 90 percent. The AQL is the minimum Percent Within Limits (PWL) at which the material is considered fully acceptable and receives a 1.000 pay factor.

As an incentive to produce quality material, a pay factor greater than 1.000 is possible. The maximum pay factor obtainable is 1.050.

110-02 METHOD FOR COMPUTING PWL. The computational sequence for computing PWL is as follows:

The procedure for estimating the PWL uses the number (*n*), the arithmetic mean ($\bar{X}$) and the sample standard deviation (*s*), of acceptance test results as shown below. If the sample standard deviation is less than 0.001, then it is set at 0.001.

a. The arithmetic mean is computed:

$$\bar{X} = \frac{\sum_{i=1}^{n} X_i}{n}$$

Where: X_i = test result for sublot i.

$\sum_{i=1}^{n}$ = sum of values from sublot 1 to n.

b. The sample standard deviation is computed:

$$s = \sqrt{\frac{\sum_{i=1}^{n} (X_i - \bar{X})^2}{(n-1)}}$$

The upper specification limit (USL) and lower specification limit (LSL) are equal to the Target Value (TV) plus and minus the allowable tolerances as defined in the pay item specification.

Quality Indexes are computed as shown below. The maximum Quality Index obtainable is 10.000.

c. The Upper Quality Index (Q_U) is computed:

$$Q_U = \frac{USL - \bar{X}}{s}$$

d. The Lower Quality Index (Q_L) is computed:

$$Q_L = \frac{\bar{X} - LSL}{s}$$

The computed Q_U and Q_L are used with AASHTO R 9 to determine the Percent Within Upper Limits (PWL_U) and Percent Within Lower Limits (PWL_L).

e. The PWL used in pay factor determination is:

$$PWL = (PWL_U + PWL_L) - 100$$

When material requirements are one-sided, with only an upper or lower limit, then the PWL is equal to the percent within the side that has a limit. For example, if a material only has an upper specification (maximum) limit, then PWL= PWL_U. Also, two-sided specification limits with one side that cannot be exceeded (like 100% passing) will be analyzed as if they are one-sided.

f. The pay factor (PF) is:

$$PF = 0.55 + \frac{PWL_o}{200}$$

Where: PWL varies from 50.000 to 100.000.

When PWL is less than 50.000, pay factor (PF) = zero.

ITEM D-701 PIPE FOR STORM DRAINS AND CULVERTS

DESCRIPTION

701-1.1 This item shall consist of the construction of pipe culverts and storm drains, including temporary culverts, according to these Specifications and in reasonably close conformity with the lines and grades shown on the Plans. Removals of pipe culverts, if required, will be paid under Item P-165, Removal of Structures.

MATERIALS

701-2.1 Materials shall meet the requirements shown on the Plans and specified below.

701-2.2 PIPE. The pipe shall be of the type called for on the Plans and shall be according to the following appropriate requirements.

Metallic Coated Corrugated Steel Pipe (Type I, IR or II)	AASHTO M 36
Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains	ASTM A760
Galvanized Steel Corrugated Structural Plates and Fasteners for Pipe, Pipe-Arches, and Arches	ASTM A761
Polymer Precoated Corrugated Steel Pipe for Sewers and Drains Post-Coated and Lined (Bituminous or Concrete)	ASTM A762
Corrugated Steel Sewer and Drainage Pipe	ASTM A849
Corrugated Aluminum Alloy Culvert Pipe	ASTM B745
Non-Reinforced Concrete Pipe	ASTM C14
Reinforced Concrete Pipe	ASTM C76
Reinforced Concrete D-Load Pipe	ASTM C655
Reinforced Concrete Arch Pipe	ASTM C506
Reinforced Concrete Elliptical Pipe	ASTM C507
Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers	ASTM C1433
Corrugated Polyethylene (PE) Pipe and Fittings	ASTM F667
Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter	ASTM F714
Poly (Vinyl Chloride) Ribbed Drain Pipe & Fittings Based on Controlled Inside Diameter	ASTM F794
Polyethylene (PE) Large Diameter profile Wall Sewer and Drain Pipe	ASTM F894
Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe With a Smooth Interior and Fittings	ASTM F949
Steel Reinforced Polyethylene (PE) Corrugated Pipe	ASTM F2435
Steel Reinforced Thermoplastic Ribbed Pipe and Fittings for Non-Pressure Drainage and Sewerage	ASTM F2562
Polypropylene (PP) Corrugated Single Wall Pipe and Double Wall Pipe	ASTM F2736
Polypropylene (PP) Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications	ASTM F2764
Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications.	ASTM F2881
Bituminous-Coated Corrugated Metal Pipe and Pipe Arches	AASHTO M 190
Bituminous-Coated Corrugated Aluminum Alloy Culvert Pipe	AASHTO M 190 and M 196
Bituminous-Coated Structural Plate Pipe, Pipe Arch, and Arches	AASHTO M 167 and M 243
Aluminum Alloy Structural Plate for Pipe, Pipe Arch, and Arches	AASHTO M 219
Polyvinyl Chloride (PVC) Pipe	ASTM D3034
Corrugated Polyethylene Drainage Tubing	AASHTO M 252

Corrugated Polyethylene Pipe, 300 mm to 1500 mm Diameter	AASHTO M 294
Poly (Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter	AASHTO M 304

701-2.3 CONCRETE. Concrete for pipe cradles shall have a minimum compressive strength of 2,000 pounds per square inch (psi) at 28 days and conform to the requirements of AASHTO M 157.

701-2.4 RUBBER GASKETS. Rubber gaskets for rigid pipe shall conform to the requirements of ASTM C443. Rubber gaskets for PVC pipe and polyethylene pipe shall conform to the requirements of ASTM F477. Rubber gaskets for zinc-coated steel pipe and precoated galvanized pipe shall conform to the requirements of ASTM D1056, for the ``RE'' closed cell grades. Rubber gaskets for steel reinforced thermoplastic ribbed pipe shall conform to the requirements of ASTM F477.

701-2.5 JOINT MORTAR. Pipe joint mortar shall consist of one part by volume of portland cement and two parts sand. The portland cement shall conform to the requirements of AASHTO M 85, Type I. The sand shall conform to the requirements of AASHTO M 45.

701-2.6 JOINT FILLERS. Poured filler for joints shall conform to the requirements of AASHTO M 324.

701-2.7 PLASTIC GASKETS. Plastic gaskets shall conform to the requirements of AASHTO M 198(Type B).

701-2.8. CONTROLLED LOW-STRENGTH MATERIAL (CLSM). Controlled low-strength material shall conform to the requirements of Item P-153. When CLSM is used all joints shall have gaskets.

701-2.9 CULVERT MARKER POSTS. Provide posts made of durable glass fiber and resin reinforced material flexible to -40°F, resistant to impact and ultraviolet light. “T” in cross section, 3.75 inch wide x 72 inches long, and color blue. Provide Carsonite CUM-375 utility marker or approved equal.

701-2.10 CLASS B BEDDING. Use one of the following materials:

- **a.** Suitable material as defined in specification subsection P-152-2.3, except that 100% of the material will pass a 1 inch sieve.
- **b.** P-299 Aggregate Surface Course (when included in this contract).
- **c.** P-209 Crushed Aggregate Base Course (when included in this contract).

701-2.11 END SECTIONS. End sections for metal pipe must be of the same material as the pipe.

CONSTRUCTION METHODS

701-3.1 EXCAVATION. The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but it shall not be less than the external diameter of the pipe plus 18 inches on each side. The trench walls shall be approximately vertical.

Where rock, hardpan, or other unyielding material is encountered, the Contractor shall remove it from below the foundation grade for a depth of at least 8 inches or 1/2 inch for each foot of fill over the top of the pipe (whichever is greater) but for no more than 75% of the nominal diameter of the pipe. The width of the excavation shall be at least 1 foot greater than the horizontal outside diameter of the pipe. The excavation below grade shall be backfilled with selected fine compressible material, such as silty clay or loam, and lightly compacted in layers not over 6 inches in uncompacted depth to form a uniform but yielding foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved Class B bedding material for the full

trench width. The Engineer shall determine the depth of removal necessary. The Class B bedding material shall be compacted to provide adequate support for the pipe.

The excavation for pipes that are placed in embankment fill shall not be made until the embankment has been completed to a height above the top of the pipe as shown on the Plans.

701-3.2 BEDDING. The pipe bedding shall conform to the class specified on the Plans. When no bedding class is specified or detailed on the Plans, the requirements for Class B bedding shall apply. Compact all bedding to 95% of the maximum density determined by ATM 207 or ATM 212.

a. Rigid Pipe. Class A bedding shall consist of a continuous concrete cradle conforming to the plan details.

Class B bedding shall consist of a bed of granular material having a thickness of at least 6 inches below the bottom of the pipe and extending up around the pipe for a depth of not less than 30% of the pipe's vertical outside diameter. The layer of bedding material shall be shaped to fit the pipe for at least 10% of the pipe's vertical diameter and shall have recesses shaped to receive the bell of bell and spigot pipe.

Class C bedding shall consist of bedding the pipe in its natural foundation material to a depth of not less than 10% of the pipe’s vertical diameter. The bed shall be shaped to fit the pipe and shall have recesses shaped to receive the bell of bell and spigot pipe.

b. Flexible Pipe. For flexible pipe, the bed shall be roughly shaped to fit the pipe, and a bedding blanket of sand or fine granular material shall be provided as follows:

Pipe Corrugation Depth, in.	Minimum Bedding Depth, in.
1/2	1
1	2
2	3
2-1/2	3-1/2

c. PVC and Polyethylene Pipe. For PVC and polyethylene pipe, the bedding material shall consist of Class B bedding. The bedding shall have a thickness of at least 6 inches below the bottom of the pipe and extend up around the pipe for a depth of not less than 50% of the pipe's vertical outside diameter.

701-3.3 LAYING PIPE. The pipe laying shall begin at the lowest point of the trench and proceed upgrade. The lower segment of the pipe shall be in contact with the bedding throughout its full length. Bell or groove ends of rigid pipes and outside circumferential laps of flexible pipes shall be placed facing upgrade.

Paved or partially lined pipe shall be placed so that the longitudinal center line of the paved segment coincides with the flow line.

Elliptical and elliptically reinforced concrete pipes shall be placed with the manufacturer's reference lines designating the top of pipe within five degrees of a vertical plane through the longitudinal axis of the pipe.

701-3.4 JOINING PIPE. Joints shall be made with (1) portland cement mortar, (2) portland cement grout, (3) rubber gaskets, (4) plastic gaskets, or (5) coupling bands.

Mortar joints shall be made with an excess of mortar to form a continuous bead around the outside of the pipe and shall be finished smooth on the inside. Molds or runners shall be used for grouted joints in order to retain the poured grout. Rubber ring gaskets shall be installed to form a flexible watertight seal.

a. Concrete Pipe. Concrete pipe may be either bell and spigot or tongue and groove. The method of joining pipe sections shall be such that the ends are fully entered and the inner surfaces are reasonably flush and even. Joints shall be thoroughly wetted before mortar or grout is applied.

b. Metal Pipe. Metal pipe shall be firmly joined by form fitting bands conforming to the requirements of ASTM A760 for steel pipe and AASHTO M 36 for aluminum pipe.

c. PVC, Polypropylene, and Polyethylene Pipe. Joints for PVC, polypropylene, and polyethylene pipe shall conform to the requirements of ASTM D3212 when water tight joints are required. Joints for PVC and polyethlyene pipe shall conform to the requirements of AASHTO M 304 when soil tight joints are required. Fittings for polyethylene pipe shall conform to the requirements of AASHTO M 252 or M 294. Fittings for polypropylene pipe shall conform to the requirements of ASTM F2881, ASTM F2736, or ASTM F2764.

701-3.5 BACKFILLING. Pipes shall be inspected before any backfill is placed; any pipes found to be out of alignment, unduly settled, or damaged shall be removed and relaid or replaced at the Contractor's expense.

Use backfill that is suitable material as defined in subsection P-152-2.3 except that:

a. 100% of the material placed within 1 foot of the pipe will pass a 3 inch sieve.

b. If the pipe is placed in or under the structural section, construct the backfill according to the material and construction requirements of the specifications for the applicable lift of material (P-154, P-299, P-209).

When the top of the pipe is even with or below the top of the trench, the backfill shall be compacted in layers not exceeding 6 inches on both sides of the pipe and shall be brought up 1 foot above the top of the pipe or to natural ground level, whichever is greater. Care shall be exercised to thoroughly compact the backfill material under the haunches of the pipe without displacing the pipe. Material shall be brought up evenly on both sides of the pipe for the full length of the pipe.

When the top of the pipe is above the top of the trench, the backfill shall be compacted in layers not exceeding 6 inches and shall be brought up evenly on both sides of the pipe to 1 foot above the top of the pipe. The width of backfill on each side of the pipe for the portion above the top of the trench shall be equal to twice the pipe's diameter or 12 feet, whichever is less.

For PVC, polypropylene, and polyethylene pipe, the backfill shall be placed in two stages; first to the top of the pipe and then at least 12 inches over the top of the pipe. The backfill material shall meet the requirements of Subsection 701-3.2c.

All backfill shall be compacted to the density required under Item P-152.

It shall be the Contractor’s responsibility to protect installed pipes and culverts from damage due to construction equipment operations. The Contractor shall be responsible for installation of any extra strutting or backfill required to protect pipes from the construction equipment.

701-3.6 CULVERT MARKER POSTS. Install culvert marker posts at each culvert inlet and outlet. Drive posts to 18 inches minimum embedment.

METHOD OF MEASUREMENT

701-4.1 PIPE. The length of pipe will be measured in linear feet of pipe in place, completed, and approved. It will be measured along the centerline of the pipe from end or inside face of structure to the end or inside face of structure, whichever is applicable. The several classes, types and size will be measured separately. All fittings and end sections will be included in the length of the pipe being measured. All trench excavation and backfill associated with pipe installation is subsidiary.

701-4.2 CONCRETE. The volume of concrete for pipe cradles to be paid for will be the number of cubic yards of concrete which is completed in place and accepted.

701-4.3 ROCK. The volume of rock to be paid for will be the number of cubic yards of rock excavated. No payment will be made for the cushion material placed for the bed of the pipe.

701-4.4 CULVERT MARKER POSTS. Culvert marker posts will not be measured for payment.

BASIS OF PAYMENT

701-5.1 Payment will be made at the contract unit price per linear foot for each kind of pipe of the type and size designated; at the contract unit price per cubic yard of concrete for pipe cradles; and at the contract unit price per cubic yard for rock excavation. Culvert marker posts will not be paid for directly, but will be subsidiary to pipe items.

Payment will be made under:

Item D701.010.0024 CS Pipe, 24-inch – per linear foot

REFERENCES

AASHTO M 36	Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains
AASHTO M 45	Aggregate for Masonry Mortar
AASHTO M 85	Portland Cement
AASHTO M 157	Ready-Mixed Concrete
AASHTO M 190	Bituminous-Coated Corrugated Metal Culvert Pipe and Pipe Arches
AASHTO M 196	Corrugated Aluminum Alloy Culverts and Underdrains
AASHTO M 198	Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets
AASHTO M 219	Aluminum Alloy Structural Plate for Pipe, Pipe-Arches, and Arches
AASHTO M 243	Field Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches
AASHTO M 252	Corrugated Polyethylene Drainage Tubing
AASHTO M 294	Corrugated Polyethylene Pipe, 300 to 1500 mm Diameter
AASHTO M 304	Poly (Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter
AASHTO M 324	Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
ASTM A760	Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains
ASTM A761	Steel Galvanized, Corrugated Structural Plates and Fasteners for Pipe, Pipe-Arches, and Arches
ASTM A762	Precoated (Polymeric) Galvanized Steel Sewer and Drainage Pipe
ASTM A849	Post-Coated and Lined (Bituminous or Concrete) Corrugated Steel Sewer and Drainage Pipe
ASTM B745	Corrugated Aluminum Alloy Culvert Pipe
ASTM C14	Concrete Sewer, Storm Drain, and Culvert Pipe
ASTM C1433	Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers, 3 – 24 in
ASTM C76	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

ASTM C443	Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
ASTM C506	Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe
ASTM C507	Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe
ASTM C655	Reinforced Concrete D-Load Culvert, Storm Drain and Sewer Pipe
ASTM C700	Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated
ASTM D1056	Flexible Cellular Materials--Sponge or Expanded Rubber
ASTM D3034	Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM D3212	Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM F477	Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F667	Corrugated Polyethylene Pipe and Fittings
ASTM F714	Polyethylene (PE) Plastic Pipe (DR PR) Based on Outside Diameter
ASTM F794	Poly (Vinyl Chloride) Ribbed Drain Pipe & Fittings Based on Controlled Inside Diameter
ASTM F894	Polyethylene (PE) Large Diameter profile Wall Sewer and Drain Pipe
ASTM F949	Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe With a Smooth Interior and Fittings
ASTM F2435	Steel Reinforced Polyethylene (PE) Corrugated Pipe
ASTM F2562	Steel Reinforced Thermoplastic Ribbed Pipe and Fittings for Non-Pressure Drainage and Sewerage
ASTM F2736	Polypropylene (PP) Corrugated Singe Wall Pipe and Double Wall Pipe
ASTM F2764	Polypropylene (PP) Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications
ASTM F2881	Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications

ITEM D-760 THAW PIPE AND THAW WIRES

DESCRIPTION

760-1.1 Furnish, fabricate, and install thaw pipes or electric thaw wire.

MATERIALS

760-2.1 THAW PIPE. Use materials that conform to the following:

Pipe	ASTM A53, galvanized per AASHTO M 111
Fittings	ASTM A234, galvanized according to AASHTO M 111
Pipe Hangers	ASTM A47, galvanized per AASHTO M 111
Braces for Standpipe	ASTM A36, galvanized per AASHTO M 111
Bolts and Nuts	ASTM A307, galvanized per AASHTO M 232

760-2.2 THAW WIRE. Provide materials, devices, fittings, and hardware meeting NEMA standards and bearing the approval of a third party certification, meeting ANSI Z 34.1.

Deliver all warranties and guarantees provided by the manufacturer to the Engineer before acceptance of this work.

a. Conduit and Fittings.

(1) Use conduit, couplings, elbows, and nipples that are rigid, hot-dip galvanized steel meeting ANSI C80.1. Install them as indicated on the applicable drawings. Use threaded type couplings, elbows, and nipples.

(2) Use fittings and miscellaneous conduit hardware that are vapor-proof, galvanized cast iron or steel meeting ANSI/NEMA FB-1 and are compatible with the rigid conduit furnished and installed. Use threaded type fittings.

b. Heat Cable. Use heat cable that meets the following standards:

(1) Parallel-circuit, 120, 208, or 240 Volts of Alternating Current (VAC,), 16 American Wire Gauge (AWG) minimum copper bus wire, with self-limiting conductive core.

(2) Modified polyolefin inner jacket, tinned copper or nickel-clad metallic braid, and fluoropolymer overjacket.

(3) Rated in conduit at the Watts per foot (W/ft) output as specified on the drawings. If heat trace cable output is not specified, use 8 W/ft. at 50 °F.

(4) Underwriters Laboratories (UL) Listed or Factory Mutual (FM) approved specifically as a culvert deicing system in conduit.

All connection components shall be rated for the areas in which they are installed. Use power connections and seals specifically designed for use with the particular type and size of heat cable.

c. Controls.

(1) Use a thermostat that is heavy duty, single stage, line voltage type. Operating temperature range: 25 to +125 °F. Provide capillary bulb for remote sensing.

(2) Use a contactor that is electrically held, 30 Amperes rated, lighting type.

(3) Use a switch that is heavy duty hand-off-auto type with a gloved hand selector switch knob.

(4) Components listed in this section shall be provided in enclosures of the types specified on the drawings. If enclosure types are not specified on the drawings, provide enclosures rated for the areas in which the components are to be installed. Reference NEMA enclosure types and NEC Table 110.28.

d. Conductors. Use copper conductors with insulation rated for 300 Volt minimum where the impressed voltage is 100 Volts or less and 600 Volt where the impressed voltage is between 100 and 600 Volts. 75°C -rated conductor insulation shall be used if indicated on the drawings.

(1) Service and Feeder Cables. Use No. 8 AWG, or larger, with type USE, THWN, THHN, or XHHW insulation.

(2) Underground Wire. Use No. 6 AWG with type XHHW or USE insulation where buried in conduit.

(3) Branch Circuit Wire. Use No. 12 AWG with type USE or XHHW insulation.

(4) Control Wire. Use No. 16 AWG with stranded conductor with type SIS insulation within control panels.

(5) Splices for Copper Conductors. Use solderless, preinsulated, compression set type only with heat-shrink tubing jacket. When making splices between power leads and heat cable cold leads, use splicing kits designed specifically for that purpose.

(6) Terminations. Use compression set or bolted type.

e. Device, Junction, and Pull Boxes.

(1) Boxes Installed Above Grade. Use boxes that are hot dipped galvanized cast iron or corrosion resistant alloy complete with conduit hubs. Use boxes designed for damp or wet locations.

(2) Boxes Installed below Grade (exposed to earth). Use concrete boxes as required or shown in the drawings. Provide covers constructed of ribbed cast metal alloy.

(3) Cast Thermoplastic or Fiberglass Boxes. Use where indicated in the drawings.

f. Receptacles, Remote Power. Use remote power receptacles that are 2-pole, 3-wire grounding, male, 30 Amperes, 120 or 240 VAC, NEMA L6-30.

g. Circuit Breakers. Provide 1- or 2-pole circuit breakers as scheduled in the drawings. Multiple breakers must operate all poles simultaneously. Use circuit breakers that operate manually for normal ON-OFF switching and automatically for overload and short-circuit conditions. Ensure that the operating mechanism will not prevent trip action when held in the ON position. Provide 10,000-Ampere symmetrical interrupting capacity minimum. Provide breakers with higher symmetrical interrupting capacity ratings if indicated on the drawings. Provide bolt-in type with a molded case.

Use Ground Fault Interrupter (GFI) circuit breakers that sense ground fault current, that trip at 30±1 milliamperes within 2 cycles, and that have the following:

(1) Internal circuitry to prevent nuisance tripping caused by voltage spikes, radio frequency interference, and electromagnetic interference.

(2) A 'TEST' button that provides approximately 30 milliamperes of simulated ground fault current to verify the operation of the sensing and tripping devices. The button must reset the trip unit within the circuit breaker.

(3) Type b auxiliary contacts to close when the circuit breaker is tripped or shutoff.

h. Grounding.

(1) Electrodes. Use electrodes that are copper-clad steel rods with a minimum diameter of 5/8 inch Increase diameter as required to drive to the necessary depth without being damaged.

(2) Splices and Connections. Use an exothermic weld for all connections and joints in inaccessible locations. Use standard clamps and connectors in accessible locations.

i. Terminal Posts. Use terminal posts that are 6-inch by 8-inch treated wood posts 8 feet long.

j. Branch Circuit Panelboard. Use panelboards that meet the following:

(1) Sized and rated according to the panel schedules in the drawings

(2) Have multiple lugs (as required), a neutral terminal bar, and a ground terminal bar if ground conductors are terminated in the panelboard

(3) Use panelboards that are braced for 10,000 Root-Mean-Square (RMS) Amperes minimum, or higher if specified on the drawings.

(4) With copper or aluminum bus bars

CONSTRUCTION REQUIREMENTS

760-3.1 THAW PIPE.

a. Pipe Hangers. Drill or field punch the bolt holes and then ream them. Ensure that the diameter of the hole does not exceed the diameter of the bolt by more than 1/8 inch. Draw the bolt heads and nuts tightly against the pipe.

b. Pipe Jointing. Remove all scale from the pipe. After cutting, ream all pipe. Assemble all pipe and fittings using an application of pipe compound.

c. Installation. Prevent dirt or other foreign matter from entering the pipe. After the thaw pipe is fully assembled and installed, flush it thoroughly with water.

Repair damage to galvanized coatings per AASHTO M 36.

760-3.2 THAW WIRE. Meet all applicable requirements and recommendations of the NEC and the NESC.

Furnish the Engineer with circuit and wiring diagrams.

When required on the plans, install a post and meter combination for each individual thaw wire or a single post and meter combination for any group of thaw wires as specified and paid for under Item L-160.

a. Conduit and Fittings.

(1) Use Galvanized Rigid Steel (GRS) conduit for direct burial at depths required by NEC Articles 300 and 426, unless noted otherwise. Repair damage to galvanized coatings per AASHTO M 36. Unless otherwise specified on the drawings, route power conductors to each heat trace circuit in minimum 2-inch conduit.

(2) Provide bituminous asphalt coating for all ferrous conduit installed directly in earth. Apply 2 coats after conduit is completely assembled. Use conduit with factory-applied protective coating in lieu of asphalt if suitable touch-up materials are used to seal couplings and repair injuries to the factory-applied coat.

(3) Cut and ream all conduit squarely at the ends. Make fittings tight.

(4) Route concealed conduit in a direct path with a minimum number of bends. Use bends of long radii where possible.

(5) Keep all bends free from dents or flattening.

(6) Install conduit mechanically and electrically continuous from termination to termination. Connect securely to cabinets, junction boxes, and device boxes using a locknut on the outside and a grounding bushing on the inside. Bushings and locknuts are not required where conduits are screwed into threaded connections.

(7) Before the installation of conductors, use caps or corks to keep foreign material out of open conduits.

b. Heat Cable. Install per manufacturer's instructions and as indicated on the electrical plans. Install in GRS conduit as indicated on the electrical plans. Use conduit size as specified on the drawings. If size is not specified, use a minimum of 3/4 inch and a maximum of 1-1/2 inches, ensuring conduit fill does not exceed the fill allowed by the NEC. Do not splice heat cable. Do not exceed the manufacturer's published maximum heat trace cable length per circuit.

c. Controls. Install the controls in the load center along with the panelboard as indicated on the electrical plans. Refer to the detail drawings.

d. Conductors.

(1) Install all conductors in conduit.

(2) Clean all conduit before installing conductors.

(3) Install conductors continuously from box to box. Splice only at device or junction boxes.

(4) Circuit all feeder and branch circuits as shown in the drawings.

(5) Install all conductors in a single raceway at one time so that conductors do not cross one another while being pulled into place. Leave sufficient conductor length at all fittings and boxes.

(6) Stay within the pulling tensions specified by the manufacturer or as noted elsewhere in this division.

(7) Maintain bending radii in excess of those allowed by the manufacturer.

(8) Use lubricants according to UL, the conductor, and raceway manufacturers' requirements.

(9) Neatly bundle and form conductors to fan into terminals at regular intervals inside panels.

(10) Coordinate conductor insulation temperature rating and ampacity rating with the temperature and ampacity rating of the circuit protection devices.

(11) Unless otherwise specified on the drawings, the heat trace power conductors shall be sized to limit the voltage drop on the branch circuit conductors to no more than 3%, or to limit the total voltage drop on the feeder and branch circuit conductors to no more than 5%.

e. Color Coding.

(1) Color all conductors #6 AWG and smaller continuously. Conductors larger than #6 may be either continuously colored or marked at each end and at every accessible point with appropriately colored paint, tape, or adhesive labels.

(2) Mark or color grounding conductors according to the NEC.

(3) Mark or color grounded conductors according to paragraph d. and according to the NEC.

(4) Mark or color ungrounded conductors according to the following convention:

Nominal Voltage/Phase	Grounded	Ungrounded
120 or 208-Volt, single phase, 2 wire	White	Black
120/240-Volt, single phase 3 wire	White	Black/Red

f. Device, Junction, and Pull Boxes.

(1) Anchor device boxes to structural members so there is no apparent movement when the device is operated.

(2) Install junction and pull boxes in permanently accessible locations only. Size boxes according to NEC, Article 314.

(3) Mount all boxes square and plumb.

g. Grounding.

(1) General. Create an equipotential ground plane for the installation as shown on the drawing and as required at the service meter/disconnect cabinet. Connect the following items to the service entrance ground bar:

(a) The grounded neutral conductor for the utility service.

(b) Ground electrode(s).

(c) All non-current-carrying electrical equipment, conduit, and enclosures.

(d) Metal culvert and/or end sections.

(e) Heat cable metal sheath.

(2) Resistance. Ensure that the resistance between the service entrance ground electrode and earth ground, as measured using a multiple ground rod method and a ground resistance tester, is as close to zero as possible with the design shown in the drawings. Give the resistance measurement to the Engineer in writing. Include the environmental conditions during testing. Ground resistance testing shall be performed per IEEE 81, Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System.

(3) Conductors. Size conductors according to the drawings or, if not shown on drawings, as required by NEC Article 250. Grounding electrode conductors shall be sized per Table 250.66 and equipment grounding conductors shall be sized per Table 250.122. Protect conductors from physical damage.

(4) Electrodes. The grounding electrode system installation shall comply with NEC Article 250.50. Drive ground rods at least 8 feet deep.

h. Controls. Install the controls in the load center along with the panelboard as indicated on the electrical plans. Refer to the detail drawings.

i. Branch Circuit Panelboard.

(1) Mounting. Mount panelboard interiors inside load center cabinet after the enclosure has been installed as shown on the plans and as described under Item L-160.

(2) Circuit Breakers. Install circuit breakers in the order specified in the drawing panelboard schedules. Type the circuit directory with circuit descriptions as they are shown in the drawing panelboard schedules. Make the directory configuration identical to the circuit breaker configuration.

METHOD OF MEASUREMENT

760-4.1 The length of thaw pipe to be paid for will be the number of linear feet of thaw pipe in place, completed and approved; measured along the line and grade of the pipe, or by each complete and approved unit.

760-4.2 The length of thaw wire installation to be paid for will be the number of linear feet of heated sections in place, completed and approved, or by each complete and approved unit.

BASIS OF PAYMENT

760-5.1 All fittings, including standpipes, are subsidiary.

Payment will be made under:

Item D760.010.0010 Thaw Pipe, 0.5 inch – per linear foot

MATERIAL REQUIREMENTS

AASHTO M 36	Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains
AASHTO M 111	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
AASHTO M 232	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A36	Carbon Structural Steel
ASTM A47	Ferritic Malleable Iron
ASTM A53	Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A234	Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service
ASTM A307	Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength
ANSI C80.1	Rigid Steel Conduit, Zinc Coated (GRC)
ANSI Z 34.1	Third-Party Certification Programs for Products, Processes, and Services
ANSI/NEMA FB-1	Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable

ITEM F-162 CHAIN-LINK FENCE

DESCRIPTION

162-1.1 This item shall consist of removing existing fence and gates and furnishing and erecting replacement~~a~~ chain-link fence sections and gates, and temporary fence according to these specifications and the details shown on the Plans.

MATERIALS

162-2.1 FABRIC. Chain-link fabric shall meet AASHTO M 181, 9-gage thickness, Type I (zinc-coated steel), Class D coating, and 2-inch mesh.

162-2.2 BARBED WIRE. Barbed wire shall meet AASHTO M 280, Design Number 12-4-5-14R, Standard Grade, Coating Type Z, and Coating Class 3.

162-2.3 POSTS, RAILS AND BRACES. Line posts, rails, and braces shall be galvanized steel pipe, or equivalent galvanized roll-formed sections, and meet AASHTO M 181, Type I, Grade 1 or Grade 2.

The dimensions of the posts, rails, and braces shall be as shown on the Plans or as directed by the Engineer to match existing fence and/or to replace sections removed.

162-2.4 GATES. Gate frames shall consist of galvanized steel pipe, or equivalent galvanized roll-formed sections, and shall meet AASHTO M 181, Type I, Grade 1 or Grade 2. The fabric shall be of the same type material as used in the fence.

162-2.5 WIRE TIES AND TENSION WIRES. Wire ties for use in conjunction with a given type of fabric shall be of the same material and coating weight identified with the fabric type. Tension wire shall meet AASHTO M 181, Type I, Class 3 coating.

162-2.6 MISCELLANEOUS FITTINGS AND HARDWARE. Miscellaneous steel fittings and hardware shall meet AASHTO M 181, Type I, Grade 1 Barbed wire support arms shall withstand a load of 250 pounds applied vertically to the outermost end of the arm.

162-2.7 CONCRETE. Concrete shall be of a commercial grade with a minimum 28-day compressive strength of 2,500 pounds per square inch (psi) or an approved, pre-mixed, sacked concrete.

162-2.8 MARKING. Each roll of fabric shall carry a tag showing the kind of base metal, kind of coating, the gage of the wire, the length of fencing in the roll, and the name of the manufacturer. Posts, wire, and other fittings shall be identified as to manufacturer, kind of base metal, and kind of coating.

162-2.9 GATE LOCKS. Gate locks shall be provided for each gate and shall be brass, restricted keyway padlocks with a shackle that is 3/8 inch in diameter having a closed clearance of 2-1/4 inches. The locks shall have control key removable cores and each lock shall have a separate replacement core. All cores shall be keyed differently. The Contractor shall provide 4 keys per lock, and 2 core-removal keys.

162-2.10 KEYLESS LOCKS. When specified, a changeable combination lock shall be furnished with pedestrian gates. The keyless lock shall have a 4- or 5-digit mechanism and shall be an Ilco Unican Model 1011 or approved equal. A sign, 12 inches by 12 inches, shall be securely mounted on the inside of the gate. The sign shall be shielded from view from outside of the gate by means of a hinged 12-inch by 12-inch cover or other means approved by the Engineer. The cover shall have the legend “LIFT AND RECORD COMBINATION FOR REENTRY”. The sign shall be aluminum sheet with white reflective coating. Letters shall be black and a minimum of 3/4 inch tall.

CONSTRUCTION METHODS

162-3.1 GENERAL. The fence, both temporary and permanent, shall be constructed according to the details on the Plans and as specified herein using new materials, as required. The Contractor shall be responsible for establishing the fence alignment as shown on the Plans or as directed by the Engineer. After the fence line has been staked and prior to fence installation, the Contractor shall review the alignment with the Engineer and make required adjustments to avoid conflicts.

The Contractor shall arrange the work so that construction of the new fence will immediately follow the relocation of all aircraft back to Aprons A, B, and E~~removal of existing fences. The length of unfenced section at any time shall not exceed 300 feet or such length that the stock can be kept in the proper field. The work shall progress in this manner and at the close of the working day the newly constructed fence shall be tied to the existing fence.~~

162-3.2 CLEARING FENCE LINE. All trees, brush, stumps, logs, and other debris which would interfere with the proper construction of the fence in the required location shall be removed a minimum width of 10 feet on each side of the fence centerline before starting fencing operations.

162-3.3 INSTALLING POSTS. All end posts, corner posts and pull posts shall be set in concrete at the required dimensions and depths and at the spacing shown on the Plans. Line posts may be either set in concrete as shown on the Plans or driven a minimum of 5 feet embedment. Pull posts shall have a maximum spacing of 250 feet. Where shown on the Plans, temporary fence may be installed without embedded posts.

Posts shall be spaced as shown on the Plans, or as directed by the Engineer, but in no case shall spacing be more than 10 feet. The post holes shall be in proper alignment so that there is a minimum of 3 inches of concrete on all sides of the posts. The concrete shall be thoroughly compacted around the posts by tamping or vibrating and shall have a smooth finish slightly higher than the ground and sloped to drain away from the posts. All posts shall be set plumb and to the required grade and alignment. No materials shall be installed on the posts, nor shall the posts be disturbed in any manner within 7 days after the individual post footing is completed.

Should rock be encountered at a depth less than the planned embedment depth, a hole 2 inches larger than the greatest dimension of the posts shall be drilled to a depth of 12 inches. After the posts are set, the remainder of the drilled hole shall be filled with grout, composed of one part Portland cement and two parts mortar sand. Any remaining space above the rock shall be filled with concrete in the manner described above.

In lieu of drilling, the rock may be excavated to the required embedment depth.

162-3.4 INSTALLING TOP RAILS. The top rail shall be continuous and shall pass through the post tops. The coupling used to join the top rail lengths shall allow for expansion.

162-3.5 INSTALLING BRACES. Horizontal brace rails, with diagonal truss rods and turnbuckles, shall be installed at all terminal posts.

162-3.6 INSTALLING FABRIC. The wire fabric shall be firmly attached to the posts and braced in the manner shown on the Plans. All wire shall be stretched taut and shall be installed to the required elevations. The fence shall generally follow the contour of the ground, with the bottom of the fence fabric no less than 1 inch or more than 4 inches from the ground surface. Grading shall be performed where necessary to provide a neat appearance.

At locations of small natural swales or drainage ditches and where it is not practical to have the fence conform to the general contour of the ground surface, longer posts may be used and multiple strands of barbed wire stretched thereon to span the opening below the fence. The vertical clearance between strands of barbed wire shall be 6 inches or less.

162-3.7 ELECTRICAL GROUNDS. Electrical grounds shall be installed along the fence between gate openings and at intervals not exceeding 500 feet. Electrical grounds shall also be installed where a power line passes over the fence. The ground shall be accomplished with a copper clad rod 8 feet long and a minimum of 5/8 inch diameter driven vertically until the top is 6 inches below the ground surface. A No. 6 solid copper conductor shall be clamped to the rod and to the fence in such a manner that each element of the fence is grounded. The Contractor shall comply with FAA-STD-019, Lightning and Surge Protection, Grounding, Bonding and Shielding Requirements for Facilities and Electronic Equipment, Paragraph 4.2.3.8, Lightning Protection for Fences and Gates, when fencing is adjacent to FAA facilities.

162-3.8 CLEANING UP. The Contractor shall remove from the vicinity of the completed work all tools, buildings, equipment, etc., used during construction. Components of fence and gate removal that are not salvageable shall be disposed of in a suitable facility off airport property. Coordinate with the Engineer to determine if removed components are salvageable, and if so, if the Airport Manager or Maintenance Facilities Manager would like to take possession of those components. The Contractor shall deliver airport-salvaged components as directed. Components of temporary fence will become the property of Contractor upon removal.

METHOD OF MEASUREMENT

162-4.1 Chain-link fence, temporary and permanent, will be measured along the top of the fence from center to center of end posts, excluding the length occupied by gate openings.

Fence removal will be measured along the top of fence from center to center of end posts. Removal of temporary fence will not be measured for payment but is subsidiary to F162.080.0000 Temporary Fence.

162-4.2 Gates will be measured as complete units.

162-4.3 Reinstall Double Swing Gate will not be measured for separate payment but is subsidiary to F162.170.0000 Remove Gate.

162-4.4 Reinstall Fence will not be measured for separate payment but is subsidiary to F162.190.000 Remove Fence.

Gate removal will be measured as complete units.

BASIS OF PAYMENT

162-5.1 Payment will be made at the contract unit price per linear foot for fence and per each for gates.

Work and materials involved in clearing and disposal of material along the fence line, rock excavation, and ground rod installation are subsidiary.

Payment will be made under:

Item F162.080.0000	Temporary Fence – per linear foot
Item F162.170.0000	Remove Gate – per each
Item F162.190.0000	Remove Fence – per linear foot

MATERIAL REQUIREMENTS

AASHTO M 181	Chain-Link Fence
AASHTO M 280	Metallic-Coated (Carbon) Steel Barbed Wire
ASTM A121	Standard Specification for Metallic-Coated Carbon Steel Barbed Wire
ASTM A123	Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153	Zinc Coating (Hot-Dip) on Iron and Steel Hardware

ASTM A392	Zinc-Coated Steel Chain-Link Fence Fabric
ASTM A491	Aluminum-Coated Steel Chain-Link Fence Fabric
ASTM A572	High-Strength Low-Alloy Columbium-Vanadium Structural Steel
ASTM A653	Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A824	Metallic-Coated Steel Marcelled Tension Wire for Use With Chain Link Fence
ASTM A1011	Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High Strength Low Alloy with Improved Formability, and Ultra High Strength
ASTM B117	Operating Salt Spray (Fog) Apparatus
ASTM B221	Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire, Profiles and Tubes
ASTM B429	Aluminum-Alloy Extruded Structural Pipe and Tube
ASTM F668	Polyvinyl Chloride(PVC) and Other Organic Polymer Coated Steel Chain-Link Fence Fabric
ASTM F1043	Strength and Protective Coatings on Steel Industrial Fence Framework
ASTM F1083	Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
ASTM F1183	Aluminum Alloy Chain Link Fence Fabric
ASTM F1345	Zinc 5% Aluminum-Mischmetal Alloy Coated Steel Chain-Link Fence Fabric
ASTM G152	Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials
ASTM G153	Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials
ASTM G154	Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials
ASTM G155	Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
FAA-STD-019	Lighting and Surge Protection, Grounding, Bonding and Shielding Requirements for Facilities and Electronic Equipment

ITEM F-175 BLAST FENCE

DESCRIPTION

175-1.1 Fabricate and erect temporary blast fence (jet blast deflector) complete with concrete foundation or other portable concrete base for temporary blast fence as shown on the plans. This item includes temporary removal and reinstallation of existing blast fence as shown on the plans.

DESIGN

175-2.1 GENERAL. Provide a 14-foot nominal height, concave, non-perforated, galvanized, corrugated type blast fence with corrugations running in a horizontal direction and with all components designed to meet the material requirements of this specification. Design the fence to be capable of withstanding loadings of 50 PSF or jet blast velocities of at least 140 mph and capable of deflecting the entire blast envelope upwards at a minimum angle of 60 degrees under no wind conditions. Usage criteria are a B 747 series aircraft, taxi and breakaway power, and tail 35 feet or more distant (outboard engine nozzles 144 feet or more distant) from the leading edge of the deflector. Select an experienced manufacturer that has regularly and continuously designed and manufactured jet blast fences for a period of not less than 3 years. Provide Lynnco, Type G-14NB-6 as manufactured by Blast Deflectors, Inc., 5595 Equity Ave., Reno, Nevada, 89502, Telephone: 775/856-1928, or approved equal.

175-2.2 WORKING DRAWINGS, ENGINEERING CALCULATIONS/DESIGN ANAYLSIS, AND MANUFACTURER'S CERTIFICATIONS. Submit working drawings in accordance with the general contract requirements. Include installation details and design computations. Indicate identification marks, location of units and the work, elevations, fabrication details, connections, dimensions, interspace with adjacent members anchor bolt layout and special handling instructions to cover manufacture, handling and erection.

Prior to purchasing the blast fence, submit manufacturer's certification and design analysis demonstrating that the blast fence meets the requirements of this specification. Submit design analysis showing load and stresses in structural members, deflecting surface and bolted joints, using the maximum anticipated pressures under the conditions previously stated as the average pressure for load calculations.

Should a type of blast fence other than that noted as standard for this work be used, provide the following information and data. Submit for approval a tabulation of results of full scale instrumented field test witnessed and certified by an accredited testing laboratory. Subject the blast fence to the jet blast conditions previously stated. Show tabulation of the maximum pressure in psi, temperature in degrees F., vibration frequency in CPS, vibration amplitude in inches, taken at the centerline of the blast impingement on deflector. Results of all such readings may not be greater than the reading submitted for the blast deflector fencing listed as the standard for this work, for each corresponding item. Submit results of smoke-pot tests behind the deflector, demonstrating that smoke and gases are deflected in a vertical direction, with no evidence of smoke dispersal behind the deflector. Because of thermal shock and cavitation effects that can cause cracking and spalling, concrete deflectors may not be used as an alternate.

175-2.3 WARRANTY. Prior to purchasing the blast fence, provide a 1-year written guarantee from the manufacturer and the Contractor jointly, warranting the blast fence against any defects in the structural integrity, performance, and installation including but not limited to the structural foundation, the anchor bolts, the steel framing, and the corrugated sheets.

175-2.4 EVIDENCE OF SATISFACTORY OPERATION. Prior to purchasing the blast fence, submit evidence of satisfactory operation for at least 3 years in actual field service for continued testing of similar aircraft and jet engines.

MATERIALS

175-3.1 DEFLECTOR SURFACE. Provide deflecting surface of galvanized corrugated steel with minimum 2 oz. per square foot zinc coating per Fed. Spec. WW-P-00405. Provide sheets with a section modulus of not less than 0.0163 inch cubed per inch. Deflecting surfaces with perforations, holes, or other openings are unacceptable.

175-3.2 FRAMING. Fabricate framing members from ASTM A36 steel hot dipped galvanized after fabrication. Provide structural framing shapes, rolled, punched and prefabricated for bolting together at the site. Hot dip galvanize all structural members, parts, and corrugated metal with a minimum coating of 2.0 oz. zinc per square foot of surface.

175-3.3 CONCRETE. Meet the requirements of item P-610.

175-3.4 ANCHOR BOLTS. Use "L" type hot dipped galvanized anchor bolt assemblies for setting in newly placed concrete, tapped oversize, with a fixed square nut.

175-3.5 ASSEMBLY BOLTS. Provide mechanically galvanized bolts, nuts, and washers except where otherwise specified. Provide bolts and cap screws that meet the requirements of ASTM A449. Use all-steel self-locking nuts except on anchor bolts. Provide heat-treated SAE 1038 steel bolts where subject to blast temperatures.

CONSTRUCTION REQUIREMENTS

175-4.1 CONCRETE FOUNDATION. Install concrete foundations according to the dimensions shown on the plans or install a portable concrete base recommended by manufacturers and approved by the Engineer for temporary blast fence. Place anchor bolts in accordance with the approved working drawings. Tolerance between anchor bolt centers is non-cumulative and must be accurately held in order to prevent assembly difficulty. Use wooden or steel gig in setting of anchor bolts. Do not set anchor bolts freehand. Run anchor bolt nuts tight on threads to locate the grade line. Ground the blast fence by welding one anchor bolt every 20' apart to the vertical reinforcing bars in the foundation slab.

175-4.2 BLAST FENCE. Assemble all components by bolting together with flat washers under bolt heads and half oval washers between nuts and corrugated sheets. Welding, brazing or burning of holes is not permitted. Tighten all nuts and bolts to the torque specified by the manufacturer. Tighten all vane bolts against half oval washer until washer snugs to corrugation. Assemble in accordance with manufacturer installation instructions and approved working drawings. Tighten anchor bolts to the manufacturer's prescribed torque, against an external spline lock washer at final assembly.

175-4.3 FINISH. Painting of galvanized surfaces is not required. White rust or mill markings on galvanized surfaces are not cause for rejection but retouch or regalvanize surfaces showing iron stain, rust, scratches, or marring. Make repairs to damaged galvanizing in conformance with ASTM A780 (standard practice for repair of damaged and undercoated areas of hot dip galvanized coatings) at no additional cost to the Department.

METHOD OF MEASUREMENT

175-5.1 SECTION 90. Measured in place from outside to outside of end posts or corner posts and for the length of temporary blast fence actually constructed. Removal and subsequent reinstallation of existing blast fence will not be measured for payment.

BASIS OF PAYMENT

175-5.2 At the contract unit price for each furnished, installed, and accepted item. Work and materials associated with construction of the portable concrete blast fence foundation, excavation, backfill, and grade preparation and subsequent removal of temporary blast fence is subsidiary to Blast Fence. The lump sum contract price for Relocate Blast Fence includes temporary removal of existing blast fence, storage of components, and reinstallation of existing blast fence.

Payment will be made under:

Item F175.010.0000	Blast Fence – per linear foot
Item F175.020.0000	Relocate Blast Fence – per lump sum

ITEM G-100 MOBILIZATION AND DEMOBILIZATION

DESCRIPTION

100-1.1 This item consists of preparatory work and operations, including but not limited to operations necessary to move personnel, equipment, and supplies to the project site; to establish offices, buildings and other facilities, except as provided under Section G-130; to perform all other work and operations, including costs incurred, before beginning work on the project; and to complete similar demobilization activities, including submittals such as as-builts, certificates, payrolls, civil rights reports, equipment warranties, etc.

All equipment, materials, supplies, and incidentals shall be demobilized and removed from the project site within 45 days of the Final Inspection, unless otherwise directed by the Engineer in writing. The Contractor shall notify the Engineer in writing when all materials, supplies, and incidentals have been demobilized and removed from the project site.

METHOD OF MEASUREMENT

100-4.1 Payment for mobilization and demobilization will be made in partial payments as follows:

- **a.** When equipment and supplies are landed in serviceable condition at the project site and other necessary preparation have been completed so that work can commence on other pay items, ~~60~~40% of the pay item.
- **b.** When 25% or more of the original contract is earned, an additional ~~20~~40%.
- **c.** With Final Payment, the remaining 20%.

The Department reserves the right to require submittal of invoices, receipted bills, payrolls, and other appropriate documents to justify any or all payments under this item.

BASIS OF PAYMENT

100-5.1 Payment will be made at the contract lump sum price for mobilization and demobilization. This price and payment shall be full compensation for all costs associated with this item.

Payment will be made under:

Item G100.010.0000 Mobilization and Demobilization – per lump sum

ITEM G-120 DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM

120-1.1 DESCRIPTION. Provide Disadvantaged Business Enterprises (DBEs), as defined in Title 49 CFR Part 26, the opportunity to participate fairly with other contractors in the performance of contracts financed with federal funds. The Contractor and subcontractors shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor will carry out applicable requirements of 49 CFR Part 26 in the award and administration of U.S. DOT assisted contracts.

The Department, in coordination with the Federal Aviation Administration (FAA), adopted a Race-Neutral DBE Program with a DBE Utilization Goal of 10.56% for Alaska's FAA Federal-Aid program. Although the Race-Neutral program does not establish or require individual project DBE Utilization Goals, 49 CFR establishes the Bidder is responsible to make a portion of the work available to DBEs and to select those portions of the work or material needs consistent with the available DBEs to facilitate DBE participation.

If the Department, in collaboration with our contractors, does not meet the overall program DBE Utilization Goal and cannot demonstrate good faith effort to meet the program goal, the program may be modified to Race-Conscious, with individual DBE Utilization Goals established for each Federal-Aid project. The Department and FAA will use the data collected under Item G-120 to evaluate the program for compliance with Item G-120 and with 49 CFR Part 26.

120-1.2 INTERPRETATION. This section implements the requirements of 49 CFR Part 26, and the Department's federally approved DBE Program.

120-1.3 ESSENTIAL CONTRACT PROVISION. Failure to comply with the provisions of this section is a material breach of contract, which may result in cancelation of intent to award, contract termination, or other remedy as DOT&PF deems appropriate. Failure to comply with this section is justification for debarment action as provided in AS 36.30.640(4).

120-1.4 DEFINITIONS AND TERMS.

a. **Civil Rights Office.** The Department's Civil Rights Office. (CRO)

b. **Commercially Useful Function.** Action within the scope of the Contract where a Disadvantaged Business Enterprise (DBE) is responsible for execution of the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.

c. **Contract Compliance Officer.** Individual within the Department's CRO with the authority to administer the Department's compliance programs.

d. **Disadvantage Business Enterprise (DBE).** A commercial entity which is a for-profit small business certified in accordance with 49 CFR Part 26 and listed in the Alaska DBE Directory.

e. **DBE Broker.** A DBE certified for the delivery of creditable materials, supplies, equipment, transportation/hauling, insurance, bonding, etc., within its certified category, that is necessary to complete the project. A DBE Broker of materials certified in a supply category must be responsible for scheduling the delivery of materials and ensuring that the materials meet specifications before credit will be given.

f. **DBE Key Employee.** Employee of the DBE who is identified by the DBE owner in the DBE's certification file at the CRO.

g. **DBE Manufacturer.** A DBE certified in a supply category that changes the shape, form, or composition of original material in some way. The DBE Manufacturer must provide that altered material to the general public or the construction industry at large on a regular basis.

h. DBE On-Site Representative. On-site representatives approved by the DBE owner and the CRO to represent a DBE owner. These representatives must have technical knowledge and the ability to answer questions regarding the work being performed on a project.

i. DBE Regular Dealer. A DBE certified in a supply category who operates in a manner consistent with industry practice and who:

(1) maintains an in-house inventory on a regular basis of the particular product provided to this project; and

(2) keeps an inventory in an amount appropriate for the type of work using that product; and

(3) offers that inventory for sale to the general public or construction industry at large (private and public sectors), not just supplied as needed on a project by project basis during the construction season, except where the product requires special or heavy equipment for delivery and the DBE possesses and operates this equipment on a regular basis throughout the construction season in order to deliver the product to the general public or construction industry at large. If the distribution equipment is rented or leased, it must be on a repetitive, seasonal basis; and may additionally fabricate (assemble large components) for use on a construction project, consistent with standard industry practice, for delivery to the project.

A person may be a DBE Regular Dealer in bulk items such as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business, if the person both owns and operates distribution equipment for the products. Any supplementing of DBE Regular Dealers' own distribution equipment shall be by a long-term lease agreement and **not on an ad hoc or contract-by-contract basis.**

j. DBE Utilization Goal. The percent of work to be performed by certified DBEs.

k. DBE Officer. Individual designated in writing as a representative of the Contractor concerning DBE issues.

l. Good Faith Effort (GFE). Bidder's actions, performed prior to bid opening and demonstrated through detailed and comprehensive documentation, to take all necessary and reasonable steps to achieve DBE participation. Lower case "good faith effort", refers to the Department's and all or contractors' collaborative efforts to meet the overall program DBE Utilization Goal.

m. Plan Holder Self-Registration List (PHSRL). The Department's online portal that allows contractors, DBEs and non-DBEs to self-register as an interested contractor to bid.

n. Race-Conscious Participation. DBE participation used to meet an individual project specific DBE Utilization Goal.

o. Race-Neutral DBE Participation. DBE participation when no DBE Utilization Goal is specified in the Contract and DBE participation that exceeds the goal amount when an individual project specific DBE Utilization Goal is specified in the Contract.

120-2.1 RESERVED.

120-3.1 DETERMINATION OF COMPLIANCE.

a. Phase I - Bid. All Bidders' GFEs must be completed prior to bid opening.

b. Phase II - Award. The apparent low bidder shall submit evidence of DBE commitment(s) within 5 working days after receipt of written notification by the Department of the successful low bid. The apparent low bidder may not supplement its DBE efforts after opening, nor offer new or additional DBE participation after submitting the DBE Utilization Report (Form 25A-325C).

(1) Written DBE Commitment. Complete Form 25A-326 for each DBE to be used on the project.

(2) DBE Utilization Report. Submit a completed DBE Utilization Report Form 25A-325C. All listed DBEs must be certified in the appropriate work categories prior to bid opening to be used to meet the DBE contract goal.

(3) GFE Documentation. Submit a completed Summary of GFE Documentation Form 25A-332A (with attachments) and Contact Report Form 25A-321A.

120-3.2 GOOD FAITH EFFORT (GFE). Although evaluation of GFE for sufficiency is not a condition of award, documenting GFE is required and is necessary for the Department's and FAA's determination of compliance with 49 CFR Part 26.

a. GFE Criteria. If the Department does not meet the overall program DBE Utilization Goal, the Department and FAA will use the following criteria to judge whether the Department, in collaboration with our contractors, demonstrated good faith effort to meet the overall program DBE Utilization Goal.

(1) Consider All Subcontractable Items. Before bid opening, seek DBE participation by considering those portions of the work or material needs consistent with the available DBEs to facilitate DBE participation.

(2) Initial DBE Notification. Contact DBEs listed in the Department's Plan Holders Self-Registration List for the particular project being bid at least 7 calendar days prior to bid opening to solicit their interest. Log each contact with a DBE firm on a Contact Report, Form 25A-321A.

Give DBEs at least 7 calendar days to quote. The bidder may reject DBE quotes received after the deadline. Responsive DBE quotes should be accepted unless they are determined non-competitive. Consistently apply deadlines for quote submission and responsiveness determinations for DBEs and non-DBEs.

Methods of initial and follow up notification are:

(a) By fax with a confirmation receipt of successful transmission to the DBE's fax number listed in the DBE Directory. A fax transmission without receipt of successful transmission is unsatisfactory.

(b) By email to the DBE's email address listed in the DBE Directory, with confirmation of successful receipt. Email without confirmation of successful receipt is unsatisfactory.

(c) By telephone solicitation made to the DBE's telephone number listed in the DBE Directory, with a record of the date and time of the telephone contact. Telephone solicitation without a record of date and time is unsatisfactory.

(d) By publication, with the names and dates of each advertisement in which a request for DBE participation was placed. Attach copies of advertisements or proof of publication.

(3) Non-Acceptance of DBE Quotes.

When a DBE quote is not accepted, the work must be performed by the non-DBE subcontractor whose quote was used to provide the basis of the determination or by your own forces if your forces were the basis of the determination. Include evidence in support of the determination not to use the DBE subcontractor.

Payments received by a non-DBE subcontractor during the execution of the Contract shall be consistent with the accepted quote. This does not preclude increases due to change documents issued by the Department.

(4) Assistance to DBEs. Provide DBEs with:

(a) Information about bonding or insurance required by the bidder.

(b) Information about securing equipment, supplies, materials, or business development related assistance or services.

(c) Adequate information about the requirements of the contract regarding the specific item of work or service sought from the DBE.

(d) Document all efforts to provide assistance to DBEs on Federal-Aid projects.

(5) Follow-up DBE Notifications. If there is no response from the initial DBE notification, contact the DBEs again to determine if they will be quoting.

Failure to submit a quote by the deadline is evidence of the DBE's lack of interest in bidding. Log follow-up contacts on the Contact Report Form 25A-321A.

(6) GFE Evaluation. The Department will review the GFE documentation for content but will not evaluate sufficiency. Failure to provide GFE documentation may result in cancellation of the notice of intent to award and forfeiture of the bid security according to Subsection 30-03.

b. Reserved.

120-3.3 DBE CREDITABLE AND NON CREDITABLE WORK.

a. DBE Creditable Work. The Commercially Useful Function work items and creditable dollar amounts shown on the DBE Utilization Report, Form 25A-325C, shall be included in any subcontract, purchase order or service agreement with that DBE.

b. DBE Decertification.

(1) If a DBE performing a Commercially Useful Function loses its DBE certification at any time prior to execution of a subcontract, purchase order or service agreement, as the result of a determination of ineligibility pursuant to 49 CFR Part 26.87, the work of that firm will not be credited toward the DBE Utilization Goal and the Contractor must either:

(a) meet the contract goal by subcontracting with an eligible DBE firm or demonstrate a GFE to do so; or

(b) continue with the decertified DBE and find other work not already committed to DBEs in an amount that meets or exceeds the DBE Utilization Goal.

(2) If a DBE performing a Commercially Useful Function loses its DBE certification after execution of a subcontract, purchase order or service agreement, as the result of a determination of ineligibility pursuant to 49 CFR Part 26.87, the de-certified DBE may continue to perform, and the work may be credited toward the DBE Utilization Goal.

(3) If a DBE goes out of business and cannot perform the work, the Contractor must meet the contract goal by subcontracting with an eligible DBE Firm or demonstrate a GFE to do so.

The provisions of 120-3.03(3) Termination of a DBE and 120-3.03(4) DBE Replacement or Substitution do not apply to this section.

A Contractor must notify the CRO within one business day if they become aware of any change in a DBE's circumstances that might lead to a DBE's decertification.

c. Termination of a DBE.

(1) In accordance with 49 CFR 26.53(f)(1) the Contractor shall not terminate a DBE without good cause and the prior written consent of the Engineer. For purposes of this paragraph, good cause includes the following circumstances:

(a) DBE defaults on their obligation for any reason;

(b) The DBE fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE to perform its work on the subcontract results from the bad faith or discriminatory action of the Contractor.

(c) The DBE fails or refuses to meet the Contractor's reasonable, nondiscriminatory bond requirements;

(d) The DBE becomes bankrupt, insolvent, or exhibits credit unworthiness;

(e) The DBE is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215, and 1,200 or applicable state law;

(f) The Engineer determines the DBE is not a responsible contractor.

(g) The DBE voluntarily withdraws from the project and provides a written notice of its withdrawal;

(h) The DBE is ineligible to receive DBE credit for the type of work required;

(i) A DBE owner dies or becomes disabled with the result that the DBE is unable to complete its work; or

(j) Other documented good cause that the Engineer determines, compels the termination of the DBE, provided that good cause does not exist if the Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the Contractor can self-perform the work for which the DBE was engaged or so that the Contractor can substitute another DBE or non-DBE after contract award.

(2) The Contractor must give written notice to the DBE of its intent to request to terminate and/or substitute, and the reason for the request. The request to terminate and/or substitute must be submitted to the Engineer.

(3) The Contractor must give the DBE 5 working days to respond to the written notice. Any response from the DBE must be submitted to the Engineer.

d. DBE Replacement or Substitution.

(1) The Contractor shall submit to the Engineer a written request to replace or substitute a DBE who fails or refuses to execute a written subcontract or who is terminated under 120-3.03(3).

(2) If the Contractor cannot obtain replacement DBE participation, the DBE Utilization Goal will not be adjusted. However, the Engineer may consider the following criteria as satisfying that portion of DBE participation that cannot be replaced:

(a) The Contractor was not at fault or negligent and that the circumstances surrounding the replacement or substitution were beyond the control of the Contractor; and

(b) The Contractor is unable to find replacement DBE participation at the same level of DBE commitment and has adequately performed and documented the GFE expended in accordance with Subsection 120-3.02; or

(c) It is too late in the project to provide any real subcontracting opportunities for DBEs.

If the Engineer agrees that additional DBE participation is not available, the DBE may be replaced or substituted with a non-DBE or the Contractor may self-perform the work.

120-3.4 COMMERCIALLY USEFUL FUNCTION (CUF).

a. Creditable Work. Measuring the DBE Utilization Goal will be based upon the actual dollars paid to the DBEs for creditable CUF work on this project. This is determined by the Engineer in accordance with this section. CUFs are limited to:

(1) Prime Contractors;

(2) Subcontractors;

(3) Manufacturers;

(4) Regular Dealers;

(5) Brokers; or

(6) Joint Ventures

b. Determination of CUF. In order for the CUF work of the DBE to be credited toward the goal, the Contractor will ensure that the DBE is certified in the appropriate category at the time of the submittal of the subcontract, or the issuance of a purchase order or service agreement. Subcontracts, purchase orders and service agreements shall be consistent with the written DBE commitment.

(1) The CUF performed by a DBE certified in a supply category will be evaluated by the Engineer to determine whether the DBE performed as either a broker, regular dealer, or manufacturer of the product provided to this project.

(2) The following factors will be used in determining whether a DBE trucking company is performing a CUF:

(a) The DBE must be responsible for the management and supervision of the entire trucking operation for which it is performing on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

(b) The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

(c) The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

(3) The Contractor will receive credit for the CUF performed by DBEs as provided in this Section. Contractors are encouraged to contact the Engineer in advance of the execution of the DBE's work or provision of goods or services regarding CUF and potential DBE credit.

(4) The DBE may perform work in categories for which it is not certified, but only work performed in the DBE's certified category meeting the CUF criteria may be credited toward the DBE Utilization Goal.

(5) DBE work shall conform to the following requirements to be a CUF:

(a) It will be necessary and useful work required for the execution of the Contract.

(b) The scope of work will be distinct and identifiable with specific contract items of work, bonding, or insurance requirement.

(c) It will be performed, controlled, managed, and supervised by employees normally employed by and under the control of the certified DBE. The work will be performed with the DBE's own equipment. Either the DBE owner or DBE On-Site Representative will be at the work site and responsible for the work. Leased equipment may also be used provided the DBE has exclusive use of the equipment and it is operated by a driver the DBE employs. In remote locations or rare situations, a DBE may use equipment and/or personnel from the Contractor or its affiliates. Should this situation arise, a prior arrangement must be in place. The duration of the arrangement must be short term and prior written approval from the Engineer must be obtained.

(d) The manner in which the work is sublet or performed will conform to standard industry practice within Alaska, as determined by the Department. The work or provision of goods or services will have a market outside of the DBE program (and must also be performed by non-DBE firms within the Alaskan construction industry). Otherwise, the work or service will be deemed an unnecessary step in the contracting or purchasing process and no DBE credit will be allowed.

There will be no DBE credit for lower-tier non-DBE subcontract work.

(e) The cost of the goods and services will be reasonable and competitive with the cost of goods and services outside the DBE program within Alaska. Materials or supplies needed as a regular course of the Contractor's operations such as fuel, maintenance, office facilities, portable bathrooms, etc. are not creditable.

The cost of materials actually incorporated into the project by a DBE subcontractor is creditable toward the DBE goal only if the DBE is responsible for ordering and scheduling their delivery and fully responsible for ensuring that they meet specifications. The cost of materials purchased from the contractor or its affiliates is not creditable.

(f) Subcontract work, with the exception of truck hauling, shall be sublet by the same unit of measure as is contained in the Bid Schedule unless approved in advance by the Engineer.

(g) The DBE will control all business administration, accounting, billing and payment transactions. The Contractor cannot perform these functions for the DBE.

In accordance with AS 36.30.420(b), the Engineer may inspect the offices of the DBE and audit their records to assure compliance.

c. Rebuttal of a Finding of No CUF. Consistent with the provisions of 49 CFR Part 26.55(c)(4)&(5), before the Engineer makes a final finding that no CUF has been performed by a DBE, the Engineer will coordinate transmittal of the presumptive finding to the Contractor, who will in-turn, notify the DBE. The Contractor will provide the DBE the opportunity to provide rebuttal information. The Contractor shall present the information to the Engineer.

The Engineer will make a final determination on whether the DBE is performing a CUF. Under no circumstances will the Contractor take any action with respect to the DBE until the final determination is made. The Engineer's decisions on CUF matters are subject to review by the Department, but are not administratively appealable to the U.S. DOT.

d. Monthly Required Reporting. On a monthly basis, the Contractor shall submit the Monthly Summary of DBE Participation, Form 25A-336, to the Engineer. Reports are due by the 15th of the following month. Also attach copies of canceled checks or bank statements that identify payer, payee, and amount of transfer to verify payment information shown on the form.

120-4.1 DETERMINING DBE CREDIT. The Contractor is entitled to count toward the DBE Utilization Goal, monies actually paid to certified DBEs for CUF work performed by the DBE as determined by the Engineer. The Contractor will receive credit toward the DBE Utilization Goal, as follows:

a. Credit for the Commercially Useful Function of a DBE prime contractor is 100 percent of the monies actually paid to the DBE under the contract for creditable work and materials in accordance with 49 CFR Part 26.55.

b. Credit for the CUF of a subcontractor is 100 percent of the monies actually paid to the DBE under the subcontract for creditable work and materials.

c. Credit for the CUF of a subcontractor performing hauling/transportation is 100 percent of the monies actually paid to the DBE under the subcontract for creditable work for those firms certified in the 100 percent category. Credit for the CUF of a subcontractor performing hauling/transportation is 5 percent of the monies actually paid to the DBE under the subcontract for creditable work for those firms certified in the 5 percent credit category.

d. Credit for the CUF of a manufacturer is 100 percent of the monies paid to the DBE for the creditable materials manufactured.

e. Credit for the CUF of a regular dealer of a creditable material, product, or supply is 60 percent of its value. The value is the actual cost paid to the DBE not to exceed the bid price for such item.

f. Credit for the CUF of a broker performed by a DBE certified in a supply category for providing a creditable material, product or supply is limited to a reasonable brokerage fee. The brokerage fee will not exceed 5 percent of the cost of the procurement contract for the creditable item.

g. Credit for the CUF of a broker performed by a DBE certified in a bonding or insurance category is limited to a reasonable brokerage fee, not to exceed 5 percent of the premium cost.

h. Credit for the CUF of a joint venture (JV) either as the prime contractor or as a subcontractor may not exceed the percent of the DBE's participation in the JV agreement, as certified by the CRO. The DBE joint venture partner will be responsible for performing all of the work as delineated in the certified JV agreement.

120-5.1 ACHIEVEMENT OF DBE GOALS. Work under this item is subsidiary to other contract items and no payment will be made for meeting or exceeding the DBE Utilization Goal.

If the Contractor fails to utilize the DBEs listed on Form 25A-325C as scheduled or fails to submit proof of payment, requested documentation, or otherwise cooperate with a DBE review or investigation, the Department will consider this to be unsatisfactory work. If the Contractor fails to utilize GFE to replace or substitute a DBE, regardless of fault (except for Subsection 120-3.03(4)(b)(3)), the Department will also consider this unsatisfactory work. Unsatisfactory work may result in disqualification of the Contractor from future bidding under Subsection 20-13 and withholding or progress payments consistent with Subsection 90-06.

ITEM G-135 CONSTRUCTION SURVEYING AND MONUMENTS

DESCRIPTION

135-1.1 GENERAL. Perform surveying and staking essential for the completion of the project. Work includes a preconstruction survey of existing features, appurtenances, and markings as indicated in the Plans. This information will be used to reinstall components and apply markings where indicated and to reestablish original conditions in staging areas and temporary parking areas that are subsequently removed. Perform the necessary calculations required to accomplish the work in conformance with the Plans and Specifications, AS 34.65.040, and the Alaska Society of Professional Land Surveyors' *Standards of Practice Manual*.

135-1.2 DEFINITIONS.

a. Monument: A fixed physical object marking a point on the surface of the earth; used to commence or control a survey; mark the boundaries of a parcel of land; or the centerline of a right-of-way corridor. Monuments will be Primary or Secondary, as shown on the Plans.

b. Point: An identified spot located on the surface of the earth. For purposes of this definition, a point can be a PK nail, wooden hub, rebar, large nail or other structure capable of being utilized as a marker.

c. Reference Monument: A material mark or point placed at a known distance and direction from a property corner or other survey point, usually not on a property or survey line. A reference monument is employed to perpetuate a corner/point that cannot be monumented at its true location or where the corner monument is subject to destruction.

d. Surveyor: The Contractor's Professional Land Surveyor, currently registered in the State of Alaska.

e. Witness Corner: A material mark or point usually placed on a property or survey line, at a known distance from a property corner or other survey point. A witness corner is employed to witness the location of a corner/point that cannot be monumented at its true location.

MATERIALS

135-2.1 MONUMENT CASES. Use castings meeting AASHTO M 105, Class 30A. Coat with a bituminous damp-proof coating. Use bolting tops.

135-2.2 PRIMARY MONUMENT. A minimum 2-inch diameter nonferrous pipe at least 30 inches long, with a minimum 4-inch flange at the bottom and having magnets attached at the top and bottom. Permanently attach a minimum 2-1/2-inch diameter nonferrous metal cap to the top. Mark the cap around the outside edge with the words "STATE OF ALASKA DOT&PF". Permanently stamp every primary monument with the Surveyor's registration number, the year set, and the point/corner identification. Orient cap so that the data may be read facing up-station.

135-2.3 SECONDARY MONUMENT. A minimum 5/8-inch by 30-inch rebar with a 2-inch aluminum cap attached to the top. Permanently stamp every secondary monument with the Surveyor's registration number and the year set.

135-2.4 SURVEY POINT MATERIALS. Listed sizes are a minimum. Use only stakes with planed sides.

TABLE 135-1
SURVEY POINT MATERIAL REQUIREMENTS

	2" x 2" x 8" hub w/ whiskers	2" x 2" x 12" hub	48" lath	tack
Benchmarks**				
Blue tops*	X			
Centerline P.C., P.T., P.O.T.		X	X	
Centerline reference points		X	X	
Centerline station			X	
Clearing & Grubbing			X	
Culvert stake		X	X	
Curb & gutter		X	X	X
Guardrail			X	
Grade stakes		X	X	
Red tops*	X			
Riprap			X	
Signs			X	
Slope stake			X	
Slope stake references		X	X	
Structures		X	X	X
Under drains & sewers		X	X	

*Use blue tops for top of base course. Use red tops for the bottom of base course.
**Set benchmarks on a permanent, stable object, not subject to vertical or horizontal movement.

CONSTRUCTION REQUIREMENTS

135-3.1 GENERAL. Perform work classified as Land Surveying under AS 08.48, and work involving the location, control, and monumentation of construction centerline and right-of-way, by or under the responsible charge of a Professional Land Surveyor. The Department will provide sufficient centerline or reference thereto, and at least one benchmark to enable the establishment of planned elevations and centerline.

Schedule a mandatory Pre-Survey Conference with the Engineer, Contractor, Surveyor, and all personnel who are to be involved in the survey work, two weeks prior to beginning survey work. The purpose of this meeting will be to discuss methods and practices of accomplishing the required survey work. A preconstruction survey is to be provided to the Engineer prior to work commencing.

Furnish field survey notes. Keep field survey notes in an approved format, written in a clear, orderly, and neat manner. Make field survey notes available for inspection by the Engineer at any time. Furnish all computer-generated data in a file format and medium that is compatible with Department software.

As soon as practical after completion of the work, and in no case later than acceptance of the project, deliver to the Engineer: field survey notes; PNEZD files; DTMs; machine control surfaces; and computer output data used in the calculation of measured quantities. This data becomes the property of the Department.

Perform the following by the Surveyor, or personnel under the responsible charge of the Surveyor:

a. Reduce, check, and adjust survey data.

b. Measurement of pay quantities that require measurement. Submit a proposed method of measuring and computing volumes to the Engineer in writing for approval before performing any work on pay items measured by volume. Provide supporting survey data and interim calculations for measured items to the Engineer prior to progress payments for each specific item. Prior to final payment, provide calculations that are completed, checked, and signed by the Surveyor.

c. Staking, referencing and other actions required to preserve or restore land monuments and property corners.

d. Staking of project control and benchmarks.

e. Slope staking.

f. Staking of signs, culverts, minor drainage structures and other appurtenances, including the necessary checking to establish the proper location and grade to best fit the conditions on site.

g. Staking or hubbing all layers of material shown in the typical sections, including the bottom of excavation, top of borrow, top of base course, and top of surcharge. The Engineer may waive the requirement to stake and hub all layers after a successful demonstration of the machine control system to build to the required tolerances.

h. As-built surveying as required under 135-3.9. Tie as-built measurements and locations to project horizontal and vertical survey control.

i. Other surveying and staking necessary to complete the project, including survey of existing signs, painted markings and other appurtenances that will be removed and replaced under the project.

Perform the following:

~~**a.**~~ **j.** Staking necessary to delineate clearing and/or grubbing limits.

~~**b.**~~ **k.** Stake Environmental Permit boundaries.

~~**c.** Slope staking.~~

~~**d.** Staking of signs, culverts, minor drainage structures and other appurtenances, including the necessary checking to establish the proper location and grade to best fit the conditions on site.~~

~~**e.** Staking or hubbing all layers of material shown in the typical sections, including the bottom of excavation, top of borrow, top of base course, and top of surcharge. The Engineer may waive the~~

~~requirement to stake and hub all layers after a successful demonstration of the machine control system to build to the required tolerances.~~

~~f.~~**l.** Staking material source limits where staking is called for in the Contract.

~~g.~~**m.** Staking of right-of-way where staking is called for on the Plans.

~~h. As-built surveying as required under 135-3.9. Tie as-built measurements and locations to project horizontal and vertical survey control.~~

~~i.~~**n.** If machine controls are used, develop the machine control models.

~~j. Other surveying and staking necessary to complete the project.~~

Notify the Engineer immediately if a Department-established reference point is discovered to be in error or a reset point is not in relationship to the adjacent control points.

Maintain the position and identifying marks of slope stakes and reference points until used for their intended purpose. Provide copies of temporary bench mark elevations and grade sheets or electronic surfaces to the Engineer 48 hours before beginning work on unclassified excavation or embankment. Before beginning clearing, grubbing, or excavation within an area submit the survey field notes relating to monument referencing for the area.

The Engineer may randomly spot check the Contractor's surveys, staking, and computations. After the survey or staking has been completed, provide the Engineer with a minimum of 72 hours notice before performing work, and furnish the appropriate data, to allow for random spot checking. The Department assumes no responsibility for the accuracy of the work.

Provide item quantities, including computations and plots to the Engineer prior to payment for each specific item. The Department will review and accept or modify the quantities provided.

~~**135-3.2 CROSS-SECTION SURVEYS.** Provide plotted cross-sections, on stations according to Table 135-3, with elevations, offsets and computed end areas in square feet for each section prior to final payment for each item measured by volume. Provide these cross-sections and associated data for the entire area of earthwork computations along with any terrain model. Take cross sections after clearing and grubbing has been completed.~~

~~**135-3.3 MONUMENTS.** Install primary and secondary monuments where called for in the Plans.~~

~~Prior to the start of construction, reference monuments, to include property markers/corners and accessories, that may be disturbed or buried during construction. In addition, reference monuments designated for referencing on the Plans. Prepare and record Monument Record Forms in the appropriate Recorder's Office before disturbing monuments. Monument Record Forms may be obtained from the Engineer. Re-establish monuments in their original position before completion of the project. Prepare and file a Monument Record Form for each reestablished monument.~~

~~Keep records and report to the Engineer evidence that a monument has been disturbed and is no longer reliable or cannot be located and is presumed to be missing. Establish a minimum of two in-line reference points, or three swing-tie reference points in situations where in-line referencing is not desirable. Set reference points outside of the construction limits. Measure distances from the monument to the nearest 0.01 foot. Record referencing of monuments in a separate field book sealed and signed by the Surveyor.~~

~~Replace existing monuments disturbed by construction with Primary or Secondary Monuments meeting the requirements of subsections 135-2.1 through 3. When it is impractical to establish a monument in its original position, install a witness corner (WC). Place the WC to a property corner on the property line when the other property corner that defines said line is existing or there has been sufficient retracement to define said line. In other cases, place a reference monument (RM) perpendicular to the centerline at the station of the original position and at a distance from the original position measured in whole feet.~~

~~Those monuments found that are not shown on the Plans will be recognized by the Engineer when the following is provided by the Surveyor: Field notes identifying type and location of the monument, and a description of the point the monument marks, with the reason to preserve its location.~~

~~The Surveyor shall complete a State of Alaska Land Survey Monument Record form for each primary and secondary monument referenced, removed, installed, relocated or replaced. Provide the required survey information on the form according to statutory requirements, including section, township and range. Meet requirements for recording at the District Recorder's Office in which the project is located for each monument record. Provide copies of the Record forms to the Engineer for approval before submitting them to the District Recorder's Office. Deliver conforming copies of the recorded forms to the Engineer before monument removal or disturbance, and after setting any final monuments requiring monument records.~~

~~Set each monument and monument case accurately to lines established at the required location and in a manner as to ensure being held firmly in place. Set existing monuments and monument cases to be adjusted to new elevations in the manner and at the elevations directed.~~

~~Primary Airport Control (PAC) and Secondary Airport Control (SAC) monuments are present in the project area as shown on the Plans. This control is important and if disturbed, must be reestablished by the Contracting Agency. For this reason, the Contractor is required to employ all reasonable measures to preserve the existing control monuments in an undisturbed condition. If a PAC or SAC is disturbed by the Contractor's actions, the Contractor shall reimburse the State of Alaska for the cost of replacing monuments, performing geodetic surveys and related data processing, and filing the completed survey with the National Geodetic Surveys office.~~

135-3.4 CONTRACTOR FURNISHED ENGINEERING TOOLS. When item G135.050.0000 appears in the bid schedule, furnish and maintain Engineering Tools as required in the Directive authorizing the work. The Contractor shall insure and indemnify the Department against normal wear and tear, damage, theft, and all other events that may cause a loss of function of the furnished tools. The equipment will be returned to the Contractor upon completion of the project, or when services are terminated by the Engineer. Furnish training for the Engineer's staff, as directed by the Engineer.

135-3.5 SURVEY ACCURACY REQUIREMENTS. Keep daily notes on instrument checks and accuracy checks and make them available to the Engineer upon request. Perform surveying within the following accuracy requirements:

TABLE 135-2
SURVEY ACCURACY REQUIREMENTS
(Measurements in Feet)

	Stationing	Horizontal Position	Horizontal Angle	Distance To Centerline	Elevation
Additional cross sections	1.0	0.04	**	0.1	0.1
Benchmark		0.02			0.01
Blue tops	1.0	0.04		0.1	0.02
Bridges	0.02	0.02			0.01
Centerline	*		*		
Clearing & Grubbing	1.0			1.0	
Culverts	1.0	0.04	**	0.1	0.1
Curb & gutter	1.0	0.02		0.1	0.02
Grade stakes	1.0			0.1	0.1
Guardrail	1.0			0.1	
Monuments	*		*		

Other Structures	1.0	0.02		0.1	0.02
Red tops	1.0	0.04		0.1	0.05
Riprap	1.0	0.04		1.0	0.1
Signs	1.0			0.1	0.02***
Slope stakes & RP's	1.0	0.04	**	0.1	0.1
Under drains & sewer	1.0	0.02		0.1	0.02

* Third order survey or 0.07 ft (21mm) local accuracy
** Right angle from center line.
***For signs set in concrete.

135-3.6 SURVEY FREQUENCY REQUIREMENTS. Take survey information and install staking and hubbing at the following frequencies:

TABLE 135-3
SURVEY FREQUENCY REQUIREMENTS
(Measurements in Feet)

	Tangents	Curves	Interchange Ramps	Stake Each Per Plan
Additional cross sections	*	*	*	
Bench marks				
Blue tops	100	100**	25	
Blue tops within 100 feet both sidesof railroad track crossings and bridge approaches	25	25	25	
Center line	100	100**	25	
Clearing & Grubbing	100	100**	25	
Culverts				X
Curb & gutter	25	25	25	
Grade stakes	100	100**	50	
Guardrail	25	25	25	
Monuments				X
Red tops	100	100**	25	
Riprap	50	50	50	
Signs				X
Slope stake / cross sections	100	100**	25	
Structures				X
Under drains & sewers	50	25	25	

*Establish additional cross sections and slope stakes at all breaks in topography and where structures begin and end.
**Stake curves on 50-foot stations if the curve is greater than six degrees.

Establish all benchmarks and take the centerline profile before doing any staking involving elevations. Do not set benchmarks in utility poles. Recheck benchmarks after each major freeze/thaw cycle and any environmental event that may change the benchmark elevation.

Place reference points at each slope stake beyond the slope stake in a location they will not be disturbed.

In areas where slides or overbreak are anticipated, extend cross sections beyond the construction limits. Cross section on the frequency of the slope stakes. Final re-cross sections are required where there are overbreaks, undercuts, or similar changed features.

At a minimum, show the following information on slope stakes:

a. Where to begin the cut or fill.
b. Slope ratio.
c. Depth of cut or height of fill.
d. Station.

At a minimum, show the following information on culvert stakes:

a. Station.
b. Size.
c. Length.
d. Type of Pipe (e.g. CMP).
e. Cut or fill from top of hub to inlet & outlet.
f. Skew angle.
g. Horizontal distance from hub to end of pipe.
h. Gradient of pipe.
i. Drop of pipe.

At a minimum show the following information on other stakes:
a. An identifier/name for the stake.
b. Station
c. Offset
d. Elevation (if applicable)

Place red/blue tops at each break in typical section and on centerline. Evenly space red/blue tops at and between crown section break points with a maximum spacing of 25 feet between red/blue tops. Place red/blue tops at curve superelevation transitions.

135-3.7 FINAL VERIFICATION OF MONUMENTS. Within 30 days after the Engineer receives a letter stating that construction activities that may disturb the monuments have ceased, the Surveyor shall verify the positional accuracy of installed survey monuments. Verify the primary and secondary monuments placed or replaced compared to undisturbed Department-provided control points. The Surveyor shall sign and stamp a letter that lists each monument and its coordinates. The letter shall certify that the monuments are each located within 0.1-foot of their proposed position based on the project survey control points provided by the Department. Deliver the certification letter and field notes for this work to the Engineer.

135-3.8 *[EXTRA THREE PERSON SURVEY PARTY ~~or EXTRA SURVEYING BY THE CONTRACTOR~~]*. This pay item is for extra, additional, or unanticipated work made necessary by changes in the project. Monuments not shown on the Plans will be considered additional work. Work under pay item *[G135.020.0000 ~~or G135.040.0000~~]* may include field work, office engineering, or any work described under the construction requirements of Item G-135.

135-3.9 AS-BUILT SURVEYS. Upon completion of each phase of the work, the Contractor shall furnish the Engineer with all necessary measurements for completion of the as-built drawings. The Contractor shall include identification and location of project features where actual locations differ from locations shown on the Plans. Document the final locations of paved surfaces, topographic surfaces, structures, and utilities constructed by the project.

135-3.10 OFFICE ENGINEERING. RESERVED.

METHOD OF MEASUREMENT

135-4.1 The work will be measured according to GCP Section 90, and as follows:

a. Hour. By the number of hours, as directed by the Engineer and as recorded by certified payrolls.

b. Contingent Sum. As specified by the Engineer in the Directive authorizing the work.

BASIS OF PAYMENT

135-5.1 Pay Item G135.020.0000 Extra Three Person Survey Party. Work accomplished by a three person survey party will be paid at 100% of the contract unit price, by a two person survey party at 75% of the contract unit price, or by a one person survey party at 50% of the contract unit price, for Pay Item G135.020.0000.

~~Pay Item G135.040.0000 Extra Surveying by the Contractor. Payment will be made as specified in the Directive authorizing the work.~~

~~Pay Item G135.050.0000 Contractor Furnished Engineering Tools. Payment will be made as specified in the Directive authorizing the work.~~

The Engineer will deduct the Department's cost of replacing PAC and SAC monuments under 135-3.3 from the amount due the Contractor.

Payment will be made under:

Item G135.010.0000	Construction Surveying by the Contractor – per lump sum
Item G135.020.0000	Extra Three Person Survey Party – per hour

ITEM G-300 CRITICAL PATH METHOD SCHEDULING

DESCRIPTION

300-1.1 Provide and maintain a Critical Path Method (CPM) progress schedule for the project. Use the schedule in coordinating and monitoring of all work under the Contract including activity of subcontractors, manufacturers, suppliers, and utility companies, and reviews by the Department. Schedule shall incorporate off-site work activities including: Department activities, product manufacturing, submittal preparation, shipping etc. Additionally, include work by others that may have an effect on work of this Contract. Consider activities by other Contractors under contract with the Department, Department activities, TSAIA requirements and Airport Tenant activities. Department activities include but are not limited to: Department reviews and approvals, permitting requirements, inspections, utility tie-ins, and Department furnished products or equipment. Update the CPM schedule, as required.

Provide work plans, daily construction reports, and recovery plans.

300-1.2 DEFINITIONS

a. **Project Schedule.** The schedule prepared or updated by the Contractor to the requirements specified. The project schedule shall be used to measure the progress of the work and aid in the evaluation of time impacts to the project.

b. **Critical Path.** The sequence of activities that determine the earliest possible completion date for the project or project phase.

c. **CPM Schedule.** The schedule prepared by the Contractor defining the planned work of the contract.

d. **Schedule Updates.** Progress updates performed by the Contractor to the accepted CPM baseline schedule, as described in Section 300-4.1.b. The most recently updated schedules shall be provided and submitted with pay applications. The schedule updates shall reflect actual progress of the work and shall have a direct correlation to progress payments.

e. **Time Impact Evaluation (TIE).** Forward looking schedule analysis technique that adds a modeled delay to an accepted contract schedule to determine the possible impact of that delay to the project completion.

f. **Fragnet.** A sequence of new activities that are proposed to be added to the project schedule to demonstrate the influence of the delay or impact to the project's schedule that immediately preceded the delay.

g. **Activity Float.** Activity Float is the length of time that an activity can be delayed without causing a delay to the "end project" (contract completion date) finish milestone.

h. **Project Float.** Project Float is the length of time between the Contractors's projected early finish and the Contract Completion Date.

~~**300-2.1 SUBMITTAL OF SCHEDULE.** Submit a detailed initial CPM Schedule at the pre-construction conference for the Engineer's acceptance as set forth below.~~

~~The construction schedule, for the entire project, may not exceed the specified contract time.~~

~~Allow the Engineer 14 days to review the initial CPM Schedule. If revisions are required, make them promptly. The finalized CPM Schedule must be completed and accepted prior to commencement of any work on the project.~~

SUBMITTAL REQUIREMENTS

300-2.1 General

a. **Initial submittal.** Submit a detailed initial CPM schedule within two weeks of receiving Notice To Proceed (or partial NTP covering scheduling work) from the Department. Make any required changes and submit the modified CPM schedule at the pre-construction conference for the Engineer's acceptance as set forth below. The construction schedule may not exceed the specified contract time.

b. **Review and acceptance.** Allow the Engineer 14 days to review the initial CPM Schedule. If revisions are required, make them within 2 working days of their receipt and submit a modified CPM schedule incorporating the revisions. No other work on the project may be commenced until the CPM Schedule is accepted by the Engineer.

The accepted CPM schedule becomes the baseline CPM schedule to which all subsequent updates are made by the Contractor.

The accepted CPM schedule, including the most recent accepted periodic schedule update, shall be the basis for the two week look-ahead schedule presentation at weekly progress meetings.

c. **Required weekly submittals.** After acceptance of the initial CPM and once work commences, submit the following in accordance with Section G-300-4.1:

On a weekly basis:

(1) Revised CPM Schedule (G-300-3.1)

(2) Look Ahead Plan (G-300-4.1.c)

(3) Narrative Report (G-300-2.1.d)

On a daily basis:

(1) Daily Construction Report (G-300-4.1.d)

d. **Submittal format.** Provide schedules and schedule updates electronically in original software and in PDF format. Provide a narrative report including the following elements:

(1) Project number, project name, date, data date

(2) Standard workday settings for each calendar.

(3) Critical path. Show all activities on the critical path

(4) Added activities, Deleted activities, duration changes, calendar changes, logic changes.

(5) Current and anticipated delays. Include a description of current and anticipated problem areas or delaying factors and their impacts, and an explanation of corrective actions taken or required to be taken.

~~**300-3.1 REQUIREMENTS AND USE OF SCHEDULE**~~

~~**a. Schedule Requirements.** Prepare the CPM schedule as a Precedence Diagram Network developed in the activity-on-node format which includes:~~

~~**(1)** Activity description~~

~~**(2)** Activity duration~~

~~**(3)** Resources required for each of the project activities, including:~~

~~**(a)** Labor (showing work days per week, holidays, shifts per day, and hours per shift)~~

~~**(b)** Equipment (including the number of units of each type of equipment)~~

~~**(c)** Materials.~~

~~Show on the activity-on-node diagram the sequence and interdependence of all activities required for complete performance of all items of work under this Contract, including shop drawing submittals and reviews and fabrication and delivery activities.~~

~~No activity duration may be longer than 15 work days without the Engineer's approval.~~

~~The Engineer reserves the right to limit the number of activities on the schedule.~~

~~Consider that schedule float time is shared equally with the Department.~~

~~The contract completion time will be adjusted only for causes specified in this Contract.~~

~~**b. Schedule Updates.** Hold job site progress meetings with the Engineer for the purpose of updating the CPM Schedule. Meet with the Engineer monthly, or as deemed necessary by the Engineer. Review progress and verify finish dates of completed activities, remaining duration of uncompleted activities, and any proposed logic and/or time estimate revisions. Submit a revised CPM schedule within 5 working days after this meeting showing the finish dates of completed activities and updated times for the remaining work, including any addition, deletion, or revision of activities required by Contract modification.~~

~~**c. Work Plans.** In addition to the CPM schedule, submit a work plan every 2 weeks during construction, detailing your proposed operations for the forthcoming two weeks. Include:~~

~~**(1)** Work activities~~

~~**(2)** Manpower involved by trade~~

~~**(3)** Work hours~~

~~**(4)** Equipment involved~~

~~**(5)** Location of the work to be performed~~

SCHEDULE UPDATES

300-3.1 Provide updates as described in Section G-300-4.1.b.

Lack of an approved schedule update will result in the inability of the Department to evaluate the progress of the work for the purposes of payment. Failure of the Contractor to provide all of the required information or to meet the requirements of this specification will result in the disapproval of the initial, finalized, and periodic schedule updates. If the Contractor fails to submit any schedule within time prescribed or in the event revisions are directed by the Engineer and those revisions have not been included in subsequent project schedule revisions or updates, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.

REQUIREMENTS AND USE OF SCHEDULE

300-4.1 General

a. Schedule Requirements.

(1) Prepare the CPM schedule as a Precedence Diagram Network developed in the activity-on- node format which includes:

(a) Activity ID.

(b) Activity description

(c) Activity duration – original and remaining. Duration and units shall be fixed.

(d) Activity dates – start, late start, finish, late finish.

(e) Activity percent complete

(f) Activity total float

(g) Resources required for each of the project activities, including:

- Labor (showing work days per week, holidays, shifts per day, and hours per shift)
- Equipment (including the number of units of each type of equipment)
- Materials.

(2) Department approval activities shall be on a 7 day calendar with an original duration of 30 days.

(3) Show on the activity-on-node diagram the sequence and interdependence of all activities required for complete performance of all items of work under this Contract, including shop drawing submittals and reviews and fabrication and delivery activities.

(4) No activity duration may be longer than 15 work days without the Engineer's approval.

(5) The Engineer reserves the right to limit the number of activities on the schedule.

(6) Consider that schedule float time is shared equally with the Department.

(7) Float that is available in the schedule, at any time, shall not be considered for the exclusive use of neither the Department, nor the Contractor. This includes activity float and project float.

(8) The contract completion time will be adjusted only for causes specified in this Contract.

(9) As determined by CPM analysis, only delays in activities which affect the critical path will be considered for a time extension.

(10) Procurement activities (submittals, shop drawings, manufacturing and shipping) shall be logically tied to the submission, approval, and construction installation activity.

(11) There shall be only two open ended activities; the first activity “Start project: NTP” shall not have a predecessor and the last activity “Final Completion” shall have no successor logic. All other activities shall be logically linked and shall have a predecessor and a successor.

(12) Constraints. The Contractor shall not have any constrained dates other than those specified herein. Additional constraints may be approved by the Engineer on a case by case basis. The use of artificial float constraints is prohibited. Additionally, mandatory start, mandatory finish, finish on, and as late as possible constraints are prohibited.

(a) Project Start Constraint is the first activity in in the project schedule and shall have a Start On constraint equal to the date that the NTP was acknowledged.

(b) Substantial Completion Constraint. The Substantial Completion activities shall have a Finish On or Before constraint equal to the contractual Substantial Completion date.

(13) Calendars. Activities shall be assigned a project specific calendar to which the activity logically belongs. Calendars should be developed to accommodate any contract defined work period such as a 7-day no holiday and a '5-day with holidays' project specific calendar. For projects that include activities that are affected by adverse weather, an additional project specific calendar that includes weekends and holidays as applicable should be developed that blocks out the winter shut down period as non-work days.

(14) Out of Sequence logic. Activities that have progressed before all preceding logic has been satisfied are not allowed. Logic must be corrected so that the error log is clear of out of sequence logic.

(15) Original Duration. Activity Original Durations (OD) changes are prohibited unless approved by the Engineer. Remaining duration shall be used to make activity duration changes, after an activity has started, when progressing the project schedule.

(16) Negative lags and Start to Finish (SF) Relationships. Lag durations contained in the project schedule shall not have a negative value under any circumstances. Start to Finish (SF) relationships are prohibited.

(17) Retained Logic. Schedule calculations shall retain the logic between predecessors and successors ('retained logic' mode) even when the successor activity has started and the predecessor activity has not yet finished (out of sequence logic). Software features that in effect sever the tie between predecessor and successor activities when the successor has started and the predecessor logic is not satisfied ("Progress Override") is not allowed.

b. Schedule Updates. Hold job site progress meetings with the Engineer for the purpose of updating the CPM Schedule. Meet with the Engineer weekly, or as deemed necessary by the Engineer. Review progress and verify finish dates of completed activities, remaining duration of uncompleted activities, and any proposed logic and/or time estimate revisions. Submit a revised CPM schedule within 2 working days after this meeting showing the finish dates of completed activities and updated times for the remaining work, including any addition, deletion, or revision of activities required by Contract modification.

c. Look Ahead Plans. In addition to the CPM schedule, submit a Look Ahead Plan during construction, detailing proposed operations for the forthcoming two weeks. Update the Look Ahead Plan at the weekly construction progress meeting and ensure that it correlates to the CPM schedule. Include the following:

(1) Work activities

(2) Manpower involved by trade

(3) Work hours

(4) Equipment involved

(5) Location of the work to be performed

d. Daily Construction Reports. The Contractor shall, on a daily basis, submit a daily task report to the Engineer for each working day, including weekends, and holidays, when worked. The Contractor shall develop the daily construction report on computer-generated databases capable of sorting daily Work, manpower, and labor hours by the Contractor, SubContractor, area, and change order. The report shall be provided electronically and shall include the following items:

(1) Project Name and Project

(2) NumberContractor's name and address

(3) Weather, temperature, and site conditions

(4) Brief description and location of the day's scheduled activities and any special problems/accidents. Include work by others.

(5) Activities started today. Activities completed today.

(6) Worker quantities for prime and subContractors – any tier.

(7) Equipment, other than hand tools, utilized by Contractor and subContractors. Include equipment identification, number of hours in service, and number of hours idle. Include any equipment inspections and equipment maintenance performed.

e. Recovery Plan. Should the Contractor's progress fall behind the approved project schedule for reasons other than those that are excusable within the terms of the contract, the Engineer may require the Contractor to provide a written recovery plan to the Engineer for approval. The plans shall detail how progress will be made-up to include which activities will be accelerated by adding additional crews, longer work hours, extra work days etc.

The Contractor shall not artificially improve progress by simply revising the schedule logic, modifying or adding constraints, shortening activity durations, or changing calendars in the project schedule. The Contractor shall indicate assumptions made and the basis for any logic, constraint, and calendar changes used in the creation of the recovery plan. Any additional resources, manpower, or daily and weekly work hour changes proposed in the recovery plan must be evident at the work site and documented in the Contractor's daily report.

f. Request for Time Extensions. The Contractor shall provide a justification of delay for the Engineer in accordance with the Section 80-06. The Contractor shall also prepare a Time Impact Evaluation (TIE) for each Department request for proposal (RFP) to justify time extensions.

(1) Justification of Delay – The Contractor shall provide a description of the event(s) that caused the delay and/or impact to the Contractor's work. As part of the description, the Contractor shall identify the schedule activities that were impacted. The Contractor shall show the event that caused the delay/impact was the responsibility of the Department. The Contractor shall also provide a TIE that demonstrates the effects of the delay or impact on the project completion date or interim completion date(s). Multiple impacts shall be evaluated chronologically; each with its own justification of delay. The sum of all delays shall be cumulative. A time extension and the schedule fragnet shall become part of the project schedule and all further schedule updates upon approval of the Engineer.

(2) Time Impact Evaluation (TIE) - The Contractor shall prepare a time impact evaluation for approval by the Engineer. The Contractor shall utilize a copy of the last approved schedule prior to the first day of the impact or delay for the time impact analysis.

Pending change orders shall not be incorporated into the schedule unless the TIE has been approved by the Department.

(3) Fragmentary Network (fragnet) - The Contractor shall prepare a proposed fragnet for its time impact evaluation. The proposed fragnet shall consist of a sequence of new activities that are proposed to be added to the project schedule to demonstrate the influence of the delay or impact other project's contractual dates. The Contractor shall clearly show how the proposed fragnet is to be tied into the project schedule including all processors and successors to the fragnet activities. The proposed fragnet shall be approved by the Engineer prior to incorporation into the project schedule.

(4) Time Extension – The Engineer must approve the Contractor's justification for delay including TIE before a time extension will be granted. The time extension shall be given in calendar days.

(5) The Contractor shall be responsible for all costs associated with the preparation of TIE(s) and the process of incorporating them into the current schedule update.

METHOD OF MEASUREMENT

300-4~~5~~.1 CPM Scheduling will not be measured for payment. Refer to GCP Section 90.

BASIS OF PAYMENT

300-~~5~~6.1 At the lump sum price for CPM Scheduling.

Payment will be made under:

Item G300.010.0000 CPM Scheduling – per lump sum

ITEM G-310 PUBLIC UPDATES

DESCRIPTION

310-1.1 This item consists of providing updated construction information via email and advertisements throughout the project and administering weekly meetings with stakeholders and the public during active work. A specific focus will be to update aircraft owners affected by the project and proposed aircraft relocations required during the project. It also consists of a separate weekly meeting with the Engineer, Airport Manager, and ~~his~~ their invitees (who may attend via teleconference) to discuss progress and scheduling. Provide meeting locations and teleconference services for all meetings, prepare and transmit weekly email updates with informational graphics, and place radio and newspaper advertisements as specified.

SUBMITTAL SCHEDULE

310-2.1 Submit draft advertisements and weekly email layout at the preconstruction conference for Engineer review and acceptance. Allow two weeks for initial review. Make any required revisions promptly. Ensure that the advance notice deadlines specified in section 310-3.1 are met by allowing sufficient time for both initial review and any resubmittal reviews.

REQUIREMENTS

310-3.1 LOCAL ADVERTISEMENT. Place advertisements in the local newspaper and on local radio. Place advertisements to publish or broadcast 60, 30, and 15 days prior to beginning construction activity for each season and 30 and 15 days prior to closing an entire runway.

The advertisement in the local newspaper shall be minimum 5 inches by 6 inches in size. It shall include the date that construction is expected to begin, and list and describe milestones for the season and anticipated impacts to the traveling public. Include the Department's and Contractor's point-of-contact names and telephone numbers for additional information and requests to be added to the weekly email update address list. Transmit the newspaper advertisement graphic in .pdf format to all persons listed in section 310-3.2 and on the current stakeholders list.

The advertisement to be broadcast on [designer to insert number] local radio stations, shall state the date that construction will begin and list and describe milestones for the season and anticipated impacts to the traveling public. Have the advertisement broadcast at least once for each station between noon and 1:00pm on the required days.

If the stated dates, milestones or impacts change or are expected to change as the season progresses, the Contractor shall place additional advertisements with updated information to keep the public informed. Submit to the Engineer for acceptance prior to placing any additional advertisement and allow a minimum of 3 business days for review.

310-3.2 WEEKLY EMAILS. Transmit weekly email updates and invitations to attend the weekly public meeting to representatives of the following, with a carbon copy (cc) to the Engineer:

- DOT&PF Airport Manager
- DOT&PF Airport Management
- DOT&PF Airport Rescue and Firefighting (ARFF)
- DOT&PF Regional Maintenance and Operations, Director
- DOT&PF Regional Airports Maintenance
- Designer(s) of Record
- DOT&PF Regional Public Information Officer
- FAA local maintenance and operations
- FAA Flight Service Station (FSS)
- All parties listed in the CSPP document

- Any party from the airport stakeholder list provided by the Engineer that expresses interest or that requests to be added to the list during the project

Each email update shall include a graphic (attached in .pdf format) that shows the active work area(s) including active haul routes, the parts of the airport that are currently closed, area(s) where work is intended during the next week, including the intended haul route and the resultant impacts that the intended work is expected to have upon airport operations, tenants, users and Air Carriers including movement routes for aircraft and ground traffic. Include the location, time and toll-free teleconference call-in number (and any required instructions) for the weekly public meeting. Include the Department's and Contractor's point-of-contact information. The Contractor shall ensure that each email size does not exceed 500 KB.

The email update shall be transmitted one weekday before the weekly meetings. Weekly email updates shall only be transmitted during the active construction season.

310-3.3 WEEKLY MEETINGS. The Contractor shall provide locations with toll-free teleconference services (so that people may attend telephonically) for the purpose of holding two separate weekly meetings as follows:

Weekly Progress Meetings with the Engineer. Meet with the Engineer and his invitees (who may attend via teleconference) at the time(s) and location(s) acceptable to the Engineer. Keep airport safety, security and short term construction schedules as a standing agenda item for each weekly progress meeting. The Contractor shall be prepared to discuss questions, any items the Contractor needs clarification on and the upcoming coordination through the Engineer efforts, especially if coordination is required through the Engineer with a stakeholder(s). Any concerns or possible construction changes shall also be discussed. Weekly progress meetings with the Engineer are only required during the construction season.

Weekly Public Meetings with Stakeholders and the Public. Administer and hold meetings with stakeholders and the public at the time and place agreed to at the preconstruction conference. Keep all stakeholders informed of the next week's status of airport operational areas in relation to aircraft and ground traffic. Provide hardcopies of the detail graphics provided with that week's email update. Provide updated detail graphics as required. Reserve meeting topics with the Engineer in advance. The Contractor shall only share or discuss information that is pertinent to stakeholders and the travelling public attending or teleconferencing the weekly public meetings.

METHOD OF MEASUREMENT

310-4.1 This item will not be measured for payment.

BASIS OF PAYMENT

310-5.1 Payment will be made at the contract lump sum price as follows:

a. A percentage of the lump sum amount, to be determined by the Engineer, will be paid as full compensation for providing accepted meeting locations and facilities with functional toll-free teleconferencing.

b. The balance of the lump sum amount will be prorated over the anticipated active construction period for performance of the work as required. If anticipated construction period changes, the final increment will be held until final payment.

The lump sum amount shall be full compensation for all advertising and all necessary personnel, equipment, transportation, facilities and supplies required to perform the work as required. There shall be no additional compensation for additional advertisements or weekly meetings made necessary by Contractor's schedule changes.

Payment will be made under:

Item G310.010.0000 Public Updates – per lump sum

ITEM G-700 TRAFFIC CONTROL FOR AIRPORTS

DESCRIPTION

700-1.1 Provide suitably equipped airport flagger(s) with no other assigned duties to monitor and control the Contractor's personnel and equipment crossing or occupying any portion of the Air Operations Area of the airport, as required under Section 80-04 Limitation of Operations. The airport flagger shall have no other assigned duties.

REQUIREMENTS

700-2.1 Furnish airport flaggers and all necessary equipment. Equip each airport flagger assigned to an aircraft operations area with a two-way radio that broadcasts and receives on the Ted Stevens Anchorage International Airport (ANC) Tower and Ground Control frequencies (118.3 MHz and 121.9 MHz) and on LHD designated Common Traffic Advisory Frequency (CTAF) for the project airport as found in the Alaska Supplement of the United States Government Flight Information Publication (126.8 MHz). Provide each airport flagger with a two-way radio to contact construction equipment and other airport flaggers on the project. Equip each airport flagger for vehicular traffic control with a flagging paddle that conforms to the requirements of the Alaska Traffic Manual.

Locate each airport flagger at a position as shown on the Plans or as described in the ~~Safety Plan~~ Construction Safety and Phasing Plans, or at an alternate location as directed by the Engineer. Ensure that each airport flagger maintains their assigned post at all times. Airport flagger positions will be adjusted as conditions warrant. Provide a daily log of Airport Flagger hours including the flagger name, date, and time worked for approval by the Engineer at the end of each work shift.

Airport flaggers and pilot cars will be approved by the Engineer before deployment. The Engineer may direct deployment at their discretion.

Furnish Airport Pilot Cars operated by Airport Flaggers with escort authorization within the airport security area (within the fenced area of the airport). Airport Pilot Cars shall have a company logo prominently displayed on both sides. Equip the Airport Pilot Car with a yellow rotational flashing beacon and a two-way radio for contact with other Airport Flaggers and Airport Pilot Cars as specified in GCP subsection 80-04. In addition, ensure the two-way radio broadcasts and receives on the ANC tower and ground control frequencies. Mount a G20-4 sign (Pilot Car Follow Me) on the rear of the vehicle at least five (5) feet above the driving surface. Provide a daily log of Airport Pilot Car use including operator name, date, and time of pilot car operation for approval by the Engineer at the end of each work shift. Do not include time for transportation to and from the worksite. Airport Pilot cars shall be used to escort not more than three (3) vehicles at a time. Vehicles operated by drivers that do not have airport security badges must be escorted at all times within the Airport Operations Area per airport security policies. Airport Pilot Cars shall be approved by the Engineer before deployment, and the Engineer may direct deployment at his/her discretion. Airport Pilot Cars shall be used for the purposes of escorting vehicles or equipment, and shall not be used to replace the function of an Airport Flagger.

METHOD OF MEASUREMENT

700-4.1 ~~Airport flagger~~ Traffic Control for Airports will be measured by the~~ hour for the actual number of hours that each airport flagger performed as directed by the Engineer~~ Pay Units shown in the Airport Traffic Control Rate Schedule, Table 700-1. Work measured per hour shall be supported by certified payroll and approved daily logs.

BASIS OF PAYMENT

700-5.1 ~~Payment will be made at the contract unit price for each Airport Flagger per hour. The hourly rate for Airport Flagger is set at $69.00 per hour for this contract. The Engineer does not require a change order/directive for this pay item.~~

a. **Item G700.040.0000 Traffic Control for Airports.** Payment under this Item includes all resources required to provide Airport Pilot Car(s) and/or Airport Flagger(s). Payment will be made per the Unit Rates listed in Airport Traffic Control Rate Schedule, Table 700-1. The Engineer does not require a change order/directive for this pay Item. The cost of the pilot car operator is included in the Airport Pilot Car unit rate and no additional payment will be made.

TABLE 700-1. AIRPORT TRAFFIC CONTROL RATE SCHEDULE

Traffic Control Rate Schedule	Pay Unit	Unit Rate
Airport Pilot Car (with operator)	Per Hour	$128.00
Airport Flagger	Per Hour	$82.00

Payment will be made under:

Item G700.040.0000 Traffic Control for Airports – per contingent sum

ITEM G-710 TRAFFIC CONTROL FOR ROADS, STREETS, AND HIGHWAYS

710-1.1 DESCRIPTION. Protect and control traffic during the contract. Furnish, erect, maintain, replace, clean, move and remove the highway traffic control devices required to ensure the public's safety. Perform all administrative responsibilities necessary to implement this work.

Maintain all public corridors affected by the work in a smooth and passable condition. Construct and maintain approaches, crossings, intersections, and other necessary features throughout the project for the life of the contract.

710-1.2 ACRONYMNS AND DEFINITIONS.

ATM. When used in this section, ATM stands for the *Alaska Traffic Manual*, which is the MUTCD with the *Alaska Traffic Manual Supplement*.

HIGHWAY. A main direct road. Used throughout this section for the sake of brevity, the word "highway" also applies to roads and streets.

HIGHWAY TRAFFIC CONTROL ZONE. A portion of a construction project, haul route, utility work, or similar operation that affects traffic and requires highway traffic control to safely guide and protect motorists, pedestrians, bicyclists, or workers, outside of the AOA.

HIGHWAY TRAFFIC CONTROL PLAN (TCP). A drawing or drawings indicating the method or scheme for safety guiding and protecting motorists, pedestrians, bicyclists, and workers in a highway traffic control zone. The TCP depicts the highway traffic control devices and their placement and times of use.

TRAFFIC. The movement of vehicles, ATV's, equipment, pedestrians, and bicyclists through public corridors, construction areas, utility work, or similar operations.

710-1.3 HIGHWAY TRAFFIC CONTROL PLAN. Design and implement an approved TCP before beginning work within a highway traffic control zone.

The TCP includes, but is not limited to, signs, barricades, traffic cones, plastic safety fence, sequential arrow panels, portable changeable message board signs, special signs, warning lights, portable concrete barriers, crash cushions, highway flaggers, pilot cars, interim pavement markings, temporary lighting, temporary roadways and all other items required to direct traffic through or around the highway traffic control zone according to these Specifications and the ATM. Address in the TCPs, placement of highway traffic control devices, including location, spacing, size, mounting height and type. Include code designation, size, and legend per the ATM and the ASDS. Include longitudinal buffer space for the posted speed limit, according to Table 6C-2 of the ATM unless project conditions or geometric features prohibit including all or a portion of the buffer length.

When a TCP is included in the Plans, use it, modify it, or design an alternative TCP. All TCPs must include the following information:

- **a.** Project name and number.
- **b.** A designated TCP number and name on each page.
- **c.** For TCPs more than one page, each page must be numbered.
- **d.** The posted speed limit for each roadway.
- **e.** Existing striping width, lane width, and road surfacing.
- **f.** Construction lane widths, striping layout, and temporary pavement marker layout.
- **g.** Provisions for Pedestrian, Bicycle, and ADA travel through the work zone.

h. Dates and times the TCP will be in effect and why it is being used.

i. The Worksite Traffic Supervisor's signature certifying that all TCPs conform with the ATM and the Contract.

j. The Project Superintendent's signature confirming the TCP is compatible with the work plan.

k. The name(s) of the Worksite Traffic Supervisor, his/her alternate and their 24 hour telephone number(s).

l. Signs to be used and the ASDS designation number and size.

m. Location and spacing of all devices and signs.

n. A plan to address any possible slopes, drop offs, paving joints, or similar temporary features that may occur during use of the TCP.

o. For TCPs proposed to be used at night, note how the requirements will be met for the required lighting and retroreflective material.

TCPs submitted for approval without all the required information will be rejected. Allow 7 days for review of each TCP submittal. All required modifications to a TCP require a new submission and an additional 7 days for review.

A minor revision to a previously approved TCP during construction requires 48 hours for review and approval by the Engineer.

The TCPs, Plans, and Alaska Standard Plans show the minimum required number of highway traffic control devices. If unsafe conditions occur, the Engineer may require additional highway traffic control devices.

Use of oversize and overweight equipment in a highway traffic control zone must conform to an approved TCP, including all highway traffic control devices these operations require.

710-1.4 WORKSITE TRAFFIC SUPERVISOR. Provide a Worksite Traffic Supervisor responsible for maintaining 24-hour traffic operations.

a. Qualifications. ~~The~~ Provide a Worksite Traffic Supervisor ~~shall be~~ knowledgeable and experienced regarding the requirements of the ATM and the implementation of those requirements. ~~The~~ Provide a Worksite Traffic Supervisor ~~shall be~~ familiar with the Plans, the Specifications, proposed operations, and is certified as one of the following:

(1) Traffic Control Supervisor, American Traffic Safety Services Association (ATSSA).

~~**(1)**~~**(2)** Traffic Control Supervisor, Laborers' International Union of North America (LIUNA)

~~**(2)**~~**(3)** Work Zone Temporary Traffic Control Technician~~, or Work Zone Safety Specialist~~, International Municipal Signal Association (IMSA). After December 31, 2026 IMSA certification will not be accepted.

Certify according to Form 25D-124 that the Worksite Traffic Supervisor has a minimum 4,000 hours of temporary traffic control work experience, is competent and capable, and has the authority to perform the duties and responsibilities in accordance with this section.

- Temporary traffic control work experience shall demonstrate an understanding of concepts, techniques, and practices in the installation and maintenance of traffic control devices, and skill in reading, interpreting, implementing, and modifying TCPs.

- Temporary traffic control work experience includes: flagging; installing traffic control devices in accordance with TCPs; monitoring traffic control devices and TCPs for correction.

- Temporary traffic control work experience is gained while serving as a Worksite Traffic Supervisor-in-training, temporary traffic control support personnel, and Flagger.

- Four thousand (4,000) hours of experience serving solely as a flagger does not satisfy these requirements.

Worksite Traffic Supervisors shall maintain current certification and be able to show their certification anytime they are on the project.

b. Duties.

(1) Prepare the TCPs and public notices and coordinate highway traffic control operations between the Project Superintendent and the Engineer.

(2) Physically inspect the condition and position of all highway traffic control devices used on the project at least twice each day and at approximately 12 hour intervals. Ensure that highway traffic control devices work properly, are clean and visible, and conform to the approved TCP. Complete and sign a detailed written report of each inspection within 24 hours. Use Traffic Control Daily Review Form 25D-104.

(3) Supervise the repair or replacement of damaged or missing highway traffic control devices.

(4) Review and anticipate highway traffic control needs. Make available proper highway traffic control devices necessary for safe and efficient traffic movement.

(5) Review work areas, equipment storage, and traffic-safety material handling and storage.

(6) Hold traffic safety meetings with superintendents, foremen, subcontractors, and others as appropriate before beginning construction, prior to implementing a new TCP, and as directed. Invite the Engineer to these meetings. Conduct monthly open house public meetings to discuss the TCP and construction phasing.

(7) Supervise all highway traffic control workers, highway flaggers, and pilot car drivers.

(8) Certify that all highway flaggers are certified as required by subsection 710-3.4d. Submit a copy of all highway flagger certifications to the Engineer.

c. Authority. The Worksite Traffic Supervisor shall have the Contractor's authority to stop work and implement immediate corrective action to unsafe traffic control, in locations where unsafe traffic control is present.

MATERIALS

710-2.1 Provide highway traffic control devices meeting the following requirements:

a. Signs. Use signs, including sign supports that conform to Section P-661, the ATM, the ASDS, and ASTM D4956. Use Type VIII or Type IX fluorescent orange reflective background sheeting at any time.

(1) Construction Signs: Regulatory, guide, or construction warning signs designated in the ASDS.

(2) Permanent Construction Signs: As designated on the Plans or an approved TCP.

(3) Special Construction Signs: All other signs are Special Construction Signs. Neatly mark the size of each sign on its back in 3-inch black numerals.

b. Portable Sign Supports. Use wind-resistant sign supports with no external ballasting. Use sign supports that can vertically support a 48 X 48 inch highway traffic control sign at the height above the adjacent roadway surface required by the ATM.

c. Barricades and Vertical Panels. Use barricades and vertical panel supports that conform to the ATM. Use Type III Barricades at least 8 feet long. Use retroreflective sheeting that meets ASTM D4956 Type II or III.

d. Portable Concrete Barriers. Use portable concrete barriers that conform to the Contract. For each direction of highway traffic, equip each 12.5-foot section of barrier with at least two side-mounted retroreflective tabs placed approximately 6 to 8 feet apart, or a continuous 4-inch wide horizontal retroreflective stripe mounted 6 inches below the top of the barrier. Use yellow tabs or stripe when barriers are placed at centerline. Use white tabs or stripe when barriers are placed on the roadway shoulder. Use retroreflective sheeting that meets ASTM D4956 Type III, IV or V.

e. Warning Lights. Use Type A (low intensity flashing), Type B (high intensity flashing) or Type C (steady burn) warning lights that conform to the ATM.

f. Drums. Use plastic drums that conform to the requirements of the ATM. Use reflective sheeting that meets ASTM D4956 Type II or III.

g. Traffic Cones and Tubular Markers. Use reflectorized traffic cones and tubular markers that conform to the requirements of the ATM. Use traffic cones and tubular markers at least 28 inches high. Use reflective sheeting that meets ASTM D4956 Type II or III.

h. Plastic Safety Fence. Use 4 foot high construction orange fence manufactured by one of the following companies, or an approved equal:

(1) “Safety Fence” by Services and Materials Company, Inc., 2200 South “J” Street, Elwood, Indiana, 46036. Phone (800) 428-8185.

(2) “Flexible Safety Fencing” by Carsonite, 1301 Hot Springs Road, Carson City, Nevada, 89706. Phone (800) 648-7974.

(3) “Warning Barrier Fence” by Plastic Safety Systems, Inc. P.O. Box 20140, Cleveland, Ohio, 44120. Phone (800) 662-6338.

i. Flagger Paddles. Use flagger paddles with 24 inches wide by 24 inches high sign panels, 8 inch Series C lettering (see ASDS for definition of Series C), and otherwise conform to the ATM. Use reflective sheeting that meets ASTM D4956 Type VIII or IX. Use background colors of fluorescent orange on one side and red on the other side.

710-2.2 CRASHWORTHINESS. Submit documentation that all highway traffic control devices conform to the requirements of National Cooperative Highway Research Program (NCHRP) Report 350 (Test Level 3) or Manual for Assessing Safety Hardware MASH 2016 (Test Level 3).

Temporary work zone devices manufactured after December 31, 2019 must have been successfully tested to the 2016 edition of MASH. Such devices manufactured on or before this date, and successfully tested to NCHRP 350 or the 2009 edition of MASH, may continue to be used throughout their normal service lives.

CONSTRUCTION METHODS

710-3.1 GENERAL CONSTRUCTION REQUIREMENTS. Keep the work, and portions of the project affected by the work, in good condition to accommodate traffic safely. Provide and maintain highway traffic control devices and services inside and outside the project limits, day and night, to guide traffic safely.

Unless otherwise provided in this Section, keep all roadways, business accesses, and pedestrian facilities within the project limits open to traffic. Obtain the Engineer's approval before temporarily closing residential, commercial, or street approaches. Provide access through the project for emergency vehicles and school and transit buses. Properly sign and/or flag all locations where the traveling public must be redirected or stopped. Organize construction operations so the total of all construction related stoppages experienced by a vehicle traveling through the project does not exceed 20 minutes except when indicated otherwise in the Contract.

Stop equipment at all points of intersection with the traveling public unless an approved TCP shows otherwise.

Operate flood lighting at night according to the ATM. Adjust flood lighting so that it does not shine into oncoming traffic.

Provide and maintain safe routes for pedestrians and bicyclists through or around highway traffic control zones at all times, except when regulations prohibit pedestrians or bicyclists.

Immediately notify the Engineer ~~of any traffic related accident that occurs within the project limits~~ as soon as an employee, or a subcontractor becomes aware of ~~the accident~~any traffic related crarsh that occurs within the project limits, between construction warning signs, along a detour route, or involving a traffic in a queue back up from project work. Within three days fill out the information on Form 25D-123 Work Zone Crash Report and submit a copy to the Engineer.

710-3.2 ROADWAY CHARACTERISTICS DURING CONSTRUCTION. Obtain an approved TCP before starting construction. Maintain a clear area with at least 2 feet between the edge of traveled way and the work area. Use barricades, traffic cones, or drums to delineate this area. Place highway traffic control devices on the work side of the clear area. Space them according to the ATM.

If maintaining traffic on an unpaved surface, provide a smooth and even surface that public traffic can use at all times. Properly crown the roadbed surface for drainage. Before beginning other grading operations, place sufficient fill at culverts and bridges to permit traffic to cross smoothly and unimpeded. Use part-width construction techniques when routing traffic through roadway cuts or over embankments under construction. Excavate the material or place it in layers. Alternate construction activities from one side to the other. Route traffic over the side opposite the one under construction.

Detour traffic when the Plans or an approved TCP allows it. Maintain detour routes so that traffic can proceed safely. When detours are no longer required, obliterate the detour. Topsoil and seed appropriate areas.

If two-way traffic can't be maintained on the existing roadway or detour, use half-width construction or a road closure if it is shown on an approved TCP. Make sure the TCP indicates closure duration and conditions. Schedule roadway closures to avoid delay school buses and peak-hour traffic. For road closures, post closure-start and road-reopen times at the closure site, within view of waiting traffic.

710-3.3 PUBLIC NOTICE. Give notice of major changes, delays, lane restrictions, or road closures to local officials and transportation organizations, including but not necessarily limited to:

a. Alaska Trucking Association

b. Alaska State Troopers

c. Division of Measurement Standards

d. Local Police Department

e. Local Fire Department

f. Local Government Traffic Engineer

g. School and Transit Authorities

h. Local Emergency Medical Services

i. Local Media (newspapers, radio, television)

j. Railroads (where applicable)

k. U.S. Postal Service

l. Major Tour Operators

710-3.4 HIGHWAY TRAFFIC CONTROL DEVICES. Before starting construction, erect permanent and temporary highway traffic control devices required by the approved TCPs. The Engineer will determine advisory speeds when necessary.

For lane closures on multilane roadways, use sequential arrow panels. During hours of darkness when required by the approved TCP use flashing warning lights to mark obstructions or hazards and steady-burn lights for channelization.

Use only one type of highway traffic control device in a continuous line of delineating devices, unless otherwise noted on an approved TCP. Use drums or Type II barricades for lane drop tapers.

During non-working hours and after completing a particular construction operation, remove all unnecessary highway traffic control devices. Store all unused highway traffic control devices in a designated storage area, which does not present a nuisance or visual distraction to traffic. If sign panels are post mounted and cannot be readily removed, cover them entirely with either metal or plywood sheeting. Completely cover signal heads with durable material that fully blocks the view of signal head and will not be damaged or removed by weather.

Keep signs, drums, barricades, and other devices clean at all times.

Use only highway traffic control devices that meet the requirements of the “Acceptable” category in ATSSA “Quality Guidelines for Temporary Traffic Control Devices” and meet crashworthiness requirements per Section 710-2.2.

Immediately replace any devices provided under this Section that are lost, stolen, destroyed, inoperable or deemed unacceptable while used on the project. Stock repair parts for each Temporary Crash Cushion used on the project. Repair damaged crash cushions within 24 hours.

Maintain pre-existing roadside safety hardware at an equivalent or better level than existed prior to project implementation until the progress of construction necessitates removing the hardware. All existing hazards that are currently protected with roadside safety hardware or new hazards which result from project improvements shall be protected or delineated as required in the plans, specifications, and approved TCPs until permanent roadside safety hardware is installed.

All items paid under this Section remain the property of the contractor, unless noted otherwise in the contract. Remove them after completing the project.

a. Embankments. Install portable concrete or steel barrier, plastic drums, barricades, tubular markers, plastic safety fence, and cones as specified on the Plans or TCPs to delineate open trenches, ditches, other excavations and hazardous areas when they exist along the roadway for more than one continuous work shift.

b. Adjacent Travel Lane Paving. When paving lifts are 2 inches or greater and adjacent travel lanes or paved shoulders are not paved to the same elevation before the end of the shift, install W8-11 (Uneven Lanes), W8-9 (Low Shoulder), W8-17 (Shoulder Drop-Off), W14-3 (No Passing Zone),

R4-1 (Do Not Pass), R4-2 (Pass with Care), and W8-1 (Bump) signs as appropriate. Place additional signs every 1500 feet if the section is longer than ½ mile.

c. Fixed Objects and Construction Vehicles and Equipment Working On Or Next to the Traveled Way. Do not park equipment in medians. Locate fixed objects at least 30 feet from the edge of traveled way. Fixed objects that exist prior to construction activity are not subject to this requirement unless the proposed temporary traffic routing moves the edge of traveled way closer to the pre-existing fixed object. Vehicles and other objects within parking lots in urban environments are considered preexisting fixed objects regardless of whether they are or are not present continuously throughout the day.

When worksite restrictions, land features, right of way limitations, environmental restrictions, construction phasing, or other construction conditions allow no practicable location meeting the preceding requirements, the Engineer may approve alternate locations for fixed objects. Alternate locations shall be as far as practicable from the edge of traveled way, the Engineer may verbally approve the alternate location. When the alternate location provides less than 15 feet separation, written approval is required.

When the Engineer determines a fixed object or fixed objects present unacceptable hazard, use drums or Type II barricades with flashing warning lights, or use portable concrete or steel barriers, or temporary crash cushion to delineate or shield the hazard, as approved by the Engineer.

d. Flagging. Furnish trained and competent highway flaggers and all necessary equipment, including lighting of the highway flagger position during nighttime operations, to control traffic through the highway traffic control zone. The Engineer will approve each highway flagging operation before it begins and direct adjustments as conditions change.

Flaggers must be certified by one of the following:

~~**(1)** Flagging Level I Certification by IMSA~~

~~**(2)**~~**(1)** Flagger Certification by ATSSA

~~**(3)** Traffic Control Supervisor, ATSSA~~

~~**(4)** Work Zone Safety Specialist, IMSA~~

(2) ATSSA Flagging Instructor

(3) Flagger by LIUNA

(4) Traffic Control Technician, LIUNA

(5) Temporary Traffic Control Technician, IMSA

After December 31, 2026 IMSA certification will not be accepted.

Flaggers shall maintain current flagger certification. Flaggers must be able to show their flagger certification anytime they are on the project.

Highway flaggers must maintain their assigned flagging location at all times, unless another qualified highway flagger relieves them, or the approved TCP terminates the flagging requirements. Remove, fully cover, or lay down flagger signs when no highway flagger is present. Keep the highway flaggers' area free of encumbrances. Keep the flagger's vehicle well off the roadway and away from the flagging location so the flagger can be easily seen.

Provide approved equipment for two-way radio communications between highway flaggers when they are not in plain, unobstructed view of each other.

Obtain the Engineer's written approval before flagging signalized intersections. When flagging a signalized intersection, either turn off and cover the traffic signal or place it in the All-Red Flash mode. Coordinate changing traffic signal modes and turning off or turning on traffic signals with the agency responsible for signal maintenance and operation and the Engineer. Get their written approval in advance. Only uniformed police officers are permitted to direct traffic in an intersection with an operating traffic signal.

e. Watering. Furnish, haul, and place water for dust control and pavement flushing, as directed. Use water trucks that can provide a high pressure water stream to flush the pavement and a light-water spray to control dust. If the flushing operations contaminate or fill adjacent catch basins, clean and restore them to their original condition. This requirement includes sections of roadway off the project where flushing is required. The Engineer will control water application.

When taking water from a lake, stream, or other natural water body, first obtain a water removal permit from the Alaska Department of Natural Resources. Comply with the Alaska Department of Fish and Game screening requirements for all water removal operations.

710-3.5 AUTHORITY OF THE ENGINEER. The Engineer will provide written notice when conditions may adversely affect the traveling public's safety and/or convenience The notice will state the defect(s), the corrective action(s) required, and the time required to complete such action(s). If corrective action(s) are not taken within the specified time, the Engineer will immediately close down the offending operations until the defect(s) are corrected. The Engineer may require outside forces to correct unsafe conditions. The cost of work by outside forces will be deducted from any monies due under the terms of this Contract.

710-3.6 HIGHWAY TRAFFIC PRICE ADJUSTMENT. A Highway Traffic Price Adjustment, under Item G-710c, will be assessed for unauthorized lane closures or reductions. Unauthorized lane reductions will be assessed as one full lane closure for each lane reduced without authorization.

Authorized lane closures and/or lane reductions are those shown in the Contract, an approved TCP, or authorized in writing.

Unauthorized lane reductions include unacceptable roadway, pedestrian walkway or route, and bicycle route or pathway surfaces, such as severe bumps, ruts, washboarding, potholes, excessive dust or mud, and non-conforming, or out of place highway traffic control devices. Failure to install temporary crash cushions or barriers, when required according to the contract or TCP, is also considered an unauthorized lane reduction. The Engineer will make the sole determination as to whether unauthorized lane reductions or closures are present.

Adjustment Rates are listed in Table 710-1. These rates are liquidated damages which represent highway user costs, based on Average Daily Traffic (ADT). The Engineer will use the rate shown for the current ADT for this project, as published in the Regional Traffic Volume Report prepared by the Department's Planning Section. Adjustment rates for unauthorized reduction or closure of each lane of pedestrian walkways or route, and bicycle route or pathway, are the same as for one full lane closure.

TABLE 710-1
ADJUSTMENT RATES

Published ADT	Dollars/Minute of Unauthorized Lane Reduction or Closure
Less than 1.000	$2.00
1,000 – 4,999	$10.00
5,000 – 9,999	$30.00
10,000+	$40.00

710-3.7 MAINTENANCE OF TRAFFIC DURING SUSPENSION OF WORK. Approximately one month before work is suspended for the season, schedule a preliminary meeting with the Engineer and Maintenance and Operations to outline the work expected to be completed before shutdown. Schedule a

field review with the Department for winter maintenance acceptance. At the field review the Engineer will prepare a punch list for implementation before acceptance.

To be relieved of winter maintenance responsibility, leave all roads with a smooth and even surface for public use at all times. Properly crown the roadbed surface for drainage and install adequate safety facilities. Make sure illumination and signals, including vehicle detectors, are in good working order.

After the project is accepted for winter maintenance and until ordered to resume construction operations, the Department is responsible for maintaining the facility. The Department will accept maintenance responsibility only for portions of the work that are open to the public, as determined by the Engineer. The Department will not accept maintenance responsibility for incomplete work adjacent to accepted roads. The contractor is responsible for maintaining all other portions of the work. The Engineer will issue a letter of "Acceptance for Winter Maintenance" that lists all portions of the work that the Department will maintain during a seasonal work suspension. The Contractor retains all contractually required maintenance responsibilities until receipt of this letter.

If the contractor suspends work due to unfavorable weather (other than seasonal) or due to failure to correct unsafe conditions, carry out Contract provisions, or carry out the Engineer's orders. All costs for highway traffic maintenance during the suspended period will be borne by the contractor.

When work is resumed, replace or renew any work or materials lost or damaged during temporary use. If the Department caused damage during winter suspension, payment will be made for repairs by unit pay item or in accord with GCP Subsection 90-05, Compensation for Extra Work. When the Engineer directs, remove any work or materials used in the temporary maintenance. Complete the project as though work has been continuous.

710-3.8 CONSTRUCTION SEQUENCING. The construction sequencing is detailed in these provisions, the Special Provisions, and the Plans. You may propose alternative construction sequencing.

Throughout the project, maintain the existing roadway configuration (such as the number of lanes and their respective widths) except for restrictions to traffic allowed in the Special Provisions or on the Plans, and addressed through approved TCPs. A restriction to traffic is any roadway surface condition, work operation, or highway traffic control that reduces the number of lanes or impedes traffic. Obtain an approved TCP before restricting traffic.

Obtain the local school bus schedule and coordinate your work to ensure the school buses are not delayed through the highway traffic control zone. Submit this plan, as a TCP, to the Engineer for approval before implementation.

710-3.9 INTERIM PAVEMENT MARKINGS – RESERVED.

710-3.10 LIGHTING OF NIGHT WORK – RESERVED.

710-3.11 HIGH VISIBILITY GARMENTS. Ensure all workers within project limits wear outer garments that are highly visible and comply with the following requirements:

- **a. Standards.** Use high visibility garments conforming to the requirements of ANSI/ISEA 107-2004, Class 2 for tops or Class E for bottoms, and Level 2 retroreflective material.

- **b. Labeling.** Use garments labeled in conformance with Section 11.2 of ANSI/ISEA 107-2004 or ANSI/ISEA 107-2010.

- **c. Tops.** Wear high visibility vests, jackets, or coverall tops at all times.

- **d. Bottoms.** Wear high visibility pants or coverall bottoms during nighttime work (sunset to sunrise). Worksite Traffic Supervisors, employees assigned to highway traffic control duties, and flaggers wear high visibility pants or coverall bottom at all times.

e. Outer Raingear. Wear raingear tops and bottoms conforming to the requirements of this Subsection 710-3.11.

f. Exceptions. When workers are inside an enclosed compartment of a vehicle, they are not required to wear high visibility garments.

g. Condition. Furnish and maintain all vests, jackets, coveralls, rain gear, hard hats, and other apparel in a neat, clean, and presentable condition. Maintain retroreflective material to Level 2 standards.

h. Subsidiary. Payment for high visibility garments for workers is subsidiary to other highway traffic contract items.

710-3.12 OVERSIZE AND OVERWEIGHT VEHICLES. Comply with the legal size and weight regulations of 17 AAC 25 and all restrictions of the *Administrative Permit Manual*, except when the Department waives the requirements.

The Engineer may waive the permit requirements of regulation 17 AAC 25 regarding oversize and overweight vehicles within the project limits when the contractor submits and follows an approved Highway TCP.

Permits shall be obtained from the Department's Division of Measurement Standards & Commercial Vehicle Enforcement, for movements of oversize and overweight equipment outside of the project limits, except when the Department waives the permit requirements outside of the project limits. Retain this permit for your records and submit a copy to the Engineer.

Submit a highway TCP for hauling operations from the material site(s) to the project. Include all the highway traffic control devices required for these operations in the highway TCP. Indicate the type, number and frequency of oversize and overweight hauling equipment.

The following items are required of oversize or overweight vehicles or equipment:

a. Truck and equipment headlights must be on at all times during vehicle use;

b. A roof mounted flashing or rotating amber beacon, visible from 360 degrees, must be on during vehicle use;

c. For overweight street legal vehicles, mount clearly visible oversize signs on front and rear of vehicle; and

d. For oversize equipment and/or overweight non-street legal equipment, mount 16" X 16" clean red/orange flags on the outboard points, in addition to clearly visible oversize signs on front and rear of equipment.

When oversize or overweight vehicles are used, add the following to the highway TCP:

a. Install and maintain orange plastic safety fence that separates the haul route from any adjacent school, business, residence, community center or public gathering place;

b. Furnish highway flaggers as specified by the highway TCP, and at additional locations where necessary, to control the haul route during all hauling operations. Coordinate their placement with the Engineer. Haul route highway flaggers will be in addition to airport flaggers required by FAA Advisory Circular 150/5370-2, and the CSPP;

c. Limit haul unit speed to 10 mph when passing through any developed area or significant hazard. The Engineer is sole judge of what constitutes a developed area or significant hazard;

d. Obey bridge load restrictions and all height restrictions on haul route;

e. Maintain the haul route in a smooth and dust free condition. Remove all haul debris from the roadway and the surroundings;

f. When overweight loads are hauled over existing pavement, remove the existing pavement and replace with new pavement of similar material and equal thickness to old pavement, as a subsidiary cost, after the haul is finished;

g. Hauler is responsible for the costs of repair for damage to the highway structures, including but not limited to the bridge railings, guardrail, light poles, signs, signal, highway traffic control devices, utilities, and mailboxes on the roadways;

h. Immediately reinstall all signs, signals, guardrail and other safety features that were removed for the haul; and

i. If mailboxes were removed for the haul, reinstall mailboxes by the next day after the haul.

j. Maintain a minimum 12 foot lateral separation between the nonstreet legal vehicles and the motoring public. Specify the highway traffic control devices required for these operations in the highway TCP.

METHOD OF MEASUREMENT

710-4.1 See Section 90 and as follows. Quantities will not be measured during winter suspension of work.

a. Highway Traffic Control Device Items. By the number of units in the Highway Traffic Control Rate Schedule, under item G-710d Highway Traffic Control that are installed, accepted, and operational. Incomplete or unsatisfactory devices will not be measured. Special Construction Signs are measured by the total area of legend-bearing sign panel, as determined under subsection P-661-4.1. Items measured by the day are for each item per 24-hour period.

b. Highway Flagger. By the number of approved hours, supported by certified payroll.

c. Watering. By the 1,000 gallons (M-Gallon) of water applied. The Engineer may specify measurement by weight or volume. If by weight, convert to gallons at 8.34 pounds per gallon. If by volume, convert to gallons at 7.48 gallons per cubic foot.

d. Highway Traffic Price Adjustment. By each minute of unauthorized lane closure or lane reduction, per lane, measured to the nearest minute. The Engineer will determine whether the roadway is opened to full unimpeded use by the traveling public.

e. Highway Traffic Control. By the units specified.

f. Plastic Safety Fence. By the linear foot, as placed, to protect or channelize pedestrian traffic as shown on an approved TCP. Any adjustments in configuration of the fence at the same location that does not result in an increased amount of fence is not measured. Opening and closing the fence to gain access to and from the worksite is not measured.

g. Temporary Guardrail. By the linear foot, including end treatments, as shown on an approved TCP.

BASIS OF PAYMENT

710-5.1 When no pay items for Highway Traffic Control appear in the Bid Schedule, payment will be made under Item G-700.040.0000, Traffic Control for Airports.

Otherwise, ~~Use~~ use the following table for unit rates of pay for Contingent Sum:

HIGHWAY TRAFFIC CONTROL RATE SCHEDULE

Traffic Control Rate Schedule (~~03/2019~~04/2023)	Pay Unit	Unit Rate
Construction Signs	Each/Day	$6.50
Special Construction Signs	Sq Ft.	$31.00
Type II Barricade	Each/Day	$3.30
Type III Barricade	Each/Day	$11.00
Traffic Cone or Tubular Marker	Each/Day	$1.10
Drums	Each/Day	$3.30
Temporary Guardrail	Lineal Foot	$25.00
Portable Concrete or Steel F Shape Barrier (12.5 foot standard length or $8/foot)	Each	$100.00
Temporary Crash Cushion / non-redirective gated water barrier (all required per end)	Each	$2,500.00
Temporary Crash Cushion / Water filled Barrels (all required per end)	Each	$3,285.00
Temporary Crash Cushion / Sand filled Barrels or Barrier (all required per end)	Each	$4,325.00
Temporary Crash Cushion / Redirective	Each	$9,230.00
Plastic Safety Fence	Foot	$1.00
Temporary Sidewalk Surfacing	Sq Ft	$2.00
Flexible Markers (Flat Whip, Reflective)	Each	$60.00
Electronic Boards, Panels, and Signals		
Sequential Arrow Panel	Each/Day	$40.00
Portable Changeable Message Board Sign	Calendar Day	$130.00
Portable Traffic Signals (two)	Each /Day	361.00
Cars and Trucks w/driver		
Pilot Car (4x2 ½ ton truck, or any car)	Hour	$~~77~~83.00
Watering – up to 4900 gallon	M-Gallon	$28.00
Watering Truck - more than 4900 gallon	M-Gallon	$21.00
Street Sweeping (Regenerative Sweeper, Vacuum Sweeper, Mechanical or Power Broom with vacuum)	Hour	$214.00
40,000 GVW Truck with Crash Attenuator	Hour	$162.00
Interim Pavement Markings		
Painted Markings	Lineal Foot	$0.30
Preformed Pavement Marking Tape (removable or non-removable)	Lineal Foot	$1.75
Temporary Raised Pavement Markings	Each	$1.00
Word or Symbol Markings	Each	$55.00
Temporary Cover Markings	Lineal Foot	$4.00
Removal of Pavement Markings	Lineal Foot	1.25

a. Highway Traffic Maintenance. The contract price includes all resources required to provide the Worksite Traffic Supervisor, all required TCPs and public notices, monthly open house meetings, the CSPP, and the maintenance of all roadways, approaches, crossings, intersections and pedestrian and bicycle facilities, as required. This item also includes any Highway Traffic Control Devices required but not shown on the bid schedule.

Items required by the Contract that are not listed on the bid schedule or not included in other items are subsidiary to Item G-710.010.0000 Highway Traffic Maintenance, except Highway Traffic Price Adjustment.

b. Highway Traffic Control Device Items. The contract price in the Highway Traffic Control Rate Schedule includes all resources required to provide, install, maintain, move, and remove the specified devices. Warning lights, vertical panels, and sign supports required for highway traffic control devices are subsidiary.

c. Highway Flagger. The contract price includes all required labor, radios, flagger paddles, and transportation to and from the worksite. The Engineer will pay for item G710.020.000 Highway Flagger at the contract unit price for each Highway Flagger per hour. The hourly rate for Highway Flagger is set at $82.00 per hour for this contract. The Engineer does not require a change order/directive for this pay item.

d. Watering. The contract price in the Highway Traffic Control Rate Schedule includes all resources required to provide watering, as directed.

e. Highway Traffic Price Adjustment. If Item G-710.030.0000, Highway Traffic Price Adjustment, is shown on the bid schedule, the total value of this contract will be adjusted, for unauthorized lane closures or lane reductions at the rate stated as a pay deduction.

f. Highway Traffic Control. Payment for Item G-710.040.0000 Highway Traffic Control will be made at the unit rate value contained in the Highway Traffic Control Rate Schedule for the accepted units of highway traffic control devices. The Engineer does not require a change order/directive for this pay item.

g. Plastic Safety Fence. The contract price in the Highway Traffic Control Rate Schedule includes all resources required to install, maintain, and remove the fence.

h. Temporary Sidewalk Surfacing. The contract price in the Highway Traffic Control Rate Schedule includes all resources required to construct, maintain, and remove the surfacing.

i. Temporary Guardrail. The contract price in the Highway Traffic Control Rate Schedule includes all resources required to construct, maintain, and remove the guardrail.

Payment will be made under:

Item G710.010.0000	Highway Traffic Maintenance – per lump sum
Item G710.020.0000	Highway Flagger – per contingent sum
Item G710.030.0000	Highway Traffic Price Adjustment – per contingent sum
Item G710.040.0000	Highway Traffic Control – per contingent sum

ITEM P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

DESCRIPTION

152-1.1 This item consists of excavation, hauling, embankment (or waste disposal), placement, grading and compaction of all materials required to construct runway safety areas, taxiway safety areas, runways, taxiways, aprons, drainage, buildings, roadways, parking, and other work. Construct according to the specifications, and conform to the dimensions and typical sections shown on the Plans.

MATERIALS

152-2.1 MATERIAL DEFINITIONS. The Contract will designate material to be removed from within the project lines and grades as classified excavation (common, rock or muck) or as unclassified excavation. Material obtained from outside the project lines and grades is borrow.

All material shall be described as defined below, but no quantity of material shall be defined or paid in more than one category:

a. Unclassified Excavation. All material, regardless of its nature, which is not paid for under another contract item. May include common, rock or muck.

b. Common Excavation. Suitable material such as silt, sand, gravel, and granular material that does not require blasting or ripping. Not rock or muck.

c. Rock Excavation. Rock that cannot be excavated without blasting or ripping, and boulders containing a volume of more than 0.5 cubic yard.

d. Muck Excavation. Soil, organic matter, and other material not suitable for embankment or foundation material, including material that will decay or produce subsidence in the embankment such as stumps, roots, logs, humus, or peat.

e. Drainage Excavation. Excavation made for the primary purpose of controlling drainage including: intercepting, inlet or outlet ditches; temporary levee construction; or any other type as shown on the Plans.

f. Borrow. Suitable material that is required for the construction of embankment or for other portions of the work. Borrow material shall be obtained from sources within the limits of the airport property but outside the project lines and grades, or from sources outside the airport property.

g. Foundation Soil. In-situ soil or undisturbed ground.

h. Ditch Lining. Use crushed or naturally occurring stones that are sound and durable, are not larger than 8 inches in greatest dimension, and containing not more than 50% by weight passing a 3-inch sieve and not more than 5% by weight passing the 1-in sieve as determined by ATM 304, or as accepted by the Engineer.

152-2.2 UNSUITABLE MATERIAL. Material that does not meet the testing requirement for suitable material. Material containing vegetable or organic matter, such as muck, peat, organic silt, or sod is considered unsuitable for use in embankment construction. Material that is contaminated by hazardous substances, including fuel or oil, in greater quantity than state and federal standards allow is considered unsuitable for use.

152-2.3 SUITABLE MATERIAL. Suitable material may be obtained from classified excavation, unclassified excavation, or borrow. The Engineer will approve material as “suitable” for use in embankment when the material meets the following criteria:

a. Sand, rock, gravel, silt, concrete, asphalt pavement, and other inorganic material; and

b. Gradation of 100% by weight passing 6 inch screen.~~; and~~

c. ~~Meets definition of Non-Frost Susceptible in GCP Subsection 10-03, except delete "6%" and replace with "10%" (passing No. 200 screen).~~ Compactible under the provisions of subsection 152-3.6.

The Engineer may, in their discretion, approve oversize material as "suitable" for use in embankment when the material meets the following criteria:

a. Sand, rock, gravel, silt, concrete, asphalt pavement, and other inorganic material;

b. Gradation of 100% by weight passing 24 inch screen;

c. Compactible under the provisions of subsection 152-3.6~~Meets definition of Non-Frost Susceptible in GCP Subsection 10-03, except delete "6%" and replace with "10%" (passing No. 200 screen)~~; and

d. Rock is well graded with an even distribution of rock sizes, and can be compacted with a minimal amount of voids.

CONSTRUCTION METHODS

152-3.1 GENERAL. Perform all necessary clearing and grubbing in accordance with Item P-151, and construction surveying in accordance with Item G-135, including staking of lines and grades, prior to beginning excavation, grading, and embankment operations in any area.

The suitability of material to be placed in embankments shall be subject to approval by the Engineer. Material with organics, when approved by the Engineer as suitable to support vegetation, may be used on top of the embankment slope.

Unsuitable material shall be disposed of in waste areas shown on the Plans or in locations acceptable to the Engineer. Material contaminated by hazardous substances shall require special handling and disposal, performed according to GCP Subsection 70-11.f. and using methods acceptable to the Engineer.

a. Waste Areas. All waste areas shall be graded to allow positive drainage of the area and of adjacent areas. The surface elevation of waste areas shall not extend above the surface elevation of adjacent usable areas of the airport, unless specified on the Plans or approved by the Engineer. Unsuitable material shall not be left in windrows or piles, and shall not extend into the Obstacle-Free Zone as shown on the plans.

All waste areas shall be protected from erosion according to the SWPPP. Areas where seeding is called for, in which the top layer of soil material has become compacted, by hauling or other activities of the Contractor shall be scarified and disked to a depth of 4 inches, in order to loosen and pulverize the soil.

The Contractor shall obtain all permits required for placing waste in areas they choose, and which are not covered by Department obtained permits. When the Contractor is required to locate a disposal area outside the airport property limits at his/her own expense, he shall obtain and file with the Engineer, permission in writing from the property owner for the use of private property for this purpose.

b. Utility Work. Utility work shall be performed, and compensation claims for utility work made, according to GCP Subsection 50-06. If it is necessary to work thorough or around existing utilities or associated structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve the utilities or provide temporary services. When utilities not shown on the Plans are encountered, the Contractor shall immediately notify the Engineer, and the Engineer will determine the disposition of the utility. The Contractor shall, at no additional cost to the Department,

satisfactorily repair or pay the cost of all damage to utilities or associated structures which may result from any of the Contractor's operations.

152-3.2 EXCAVATION. No excavation shall be started until the Contractor has construction surveyed the work, including staking the lines and grades, and the Engineer has reviewed stakes, elevations and measurements of the ground surface. As required in GCP Subsection 40-04, all Useable Excavation of suitable material shall be used in the formation of embankment or for other purposes shown on the Plans. All unsuitable material shall be disposed of in waste areas as shown on the Plans or as directed by the Engineer.

When the volume of the Useable Excavation exceeds that required to construct the embankments to the grades indicated, the excess material shall be used to grade the areas of ultimate development or disposed of as directed. When the volume of Useable Excavation is not sufficient for constructing the fill to the grades indicated, borrow shall be used to make up the deficiency.

The grade shall be maintained so that the surface is well drained at all times. When necessary, temporary drains and drainage ditches shall be installed to intercept or divert surface water that may affect the work. All temporary drains and drainage ditches shall be constructed and maintained according to the SWPPP.

In cuts, all loose or protruding rocks on the back slopes shall be scaled or otherwise removed to line of finished grade of slope. All cut-and-fill slopes shall be uniformly dressed to the slope, cross section, and alignment shown on the Plans or as directed by the Engineer.

a. Selective Grading. When selective grading is required, the more suitable material as designated by the Engineer shall be used in constructing the upper layers of the embankment or pavement structure. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas.

b. Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for runways, taxiways, safety areas, subgrades, roads, shoulders, or any areas intended for turfing shall be excavated to a minimum depth of 12 inches below the subgrade, or to the depth directed by the Engineer. Muck, peat, matted roots, or other yielding material that is unsatisfactory for foundation soil compaction, shall be removed to the depth specified. Unsuitable materials shall be disposed of at locations shown on the Plans. The excavated area shall be backfilled with suitable material, obtained from the grading operations or borrow areas and thoroughly compacted as specified. Where rock cuts are made and backfilled with suitable material. Any pockets created in the rock surface shall be drained according to the details shown on the Plans. The material removed will be paid as Unclassified Excavation.

c. Overbreak. Overbreak, including slides, is that portion of any material displaced or loosened beyond the finished work, as planned or authorized by the Engineer. All overbreak shall be graded or removed by the Contractor and disposed of as directed by the Engineer. Payment will not be made for the removal and disposal of overbreak which the Engineer determines as avoidable. Unavoidable overbreak will be paid as Unclassified Excavation.

d. Removal of Structures and Utilities. The Contractor shall accomplish the removal of existing structures and utilities that are specified to be removed or demolished, except when another entity is identified in the Contract to accomplish the work. All existing structural foundations shall be excavated and removed to a depth at least 2 feet below the top of subgrade or as indicated on the Plans, and the material disposed of as directed. Holes left after removing foundations shall be backfilled with suitable material and compacted as specified. The material will be paid as Unclassified Excavation.

e. Foundation Soil Compaction Requirements. In areas of excavation**,** the top 6 inches of foundation soil under areas serving aircraft or vehicle traffic loadings shall be compacted to a density of not less than 95% of the maximum density as determined by ATM 207, ATM 212, or

ATM 309. The in-place field density and moisture content shall be determined according to ATM 213.

Compaction of the foundation soil is a subsidiary cost to excavation.

The Engineer may direct the Contractor to over excavate foundation soil that is soft or compresses excessively, and to backfill excavation with compacted suitable material. The material will be paid as Unclassified Excavation.

~~**f. Blasting.** Blasting will be permitted only when proper precautions are taken for the safety of all persons, the work, and the property. The Contractor is responsible for blasting operations including the requirements of GCP Subsection 70-10. All damage done to the work or property shall be repaired at the Contractor's expense. All operations of the Contractor in connection with the transportation, storage, and use of explosives shall conform to all federal, state, local regulations, explosive manufacturers' instructions, and approved permits.~~

~~The Contractor shall submit a Safety Plan that includes descriptions of road and runway closures, warning signals; and plans for notification of affected local, state, and federal agencies, the airport manager, and other interested parties. Discuss in the Safety Plan methods for protection of life and health, public and private property, new work or existing work on the project, nearby structures, wetlands, waters and wildlife. When working within airport property include an emergency response contingency to clear runways of debris, to repair damaged navigational or visual aids; and get a NOTAMs before blasting. Hold a safety meeting prior to commencement of blasting operations to address safety issues.~~

~~In each distinct blasting area the Contractor shall submit a blasting plan, prepared by a qualified blaster, to the Engineer. This plan must consist of hole size, depth, spacing, burden, type of explosives, type of delay sequence, maximum amount of explosive on any one delay period, depth of rock, and depth of overburden if any. The maximum explosive charge weights per delay included in the plan shall not be increased without submitting a revised blasting plan to the Engineer.~~

~~When blasting, the Safety Plan and the Blasting Plan shall conform to FAA Order 7400.2 *Procedures for Handling Airspace Matters*, Chapter 27, and AC 150/5370-2 *Operational Safety on Airports During Construction*.~~

~~The Contractor shall keep a record of each blast fired, its date, time, and location; the amount of explosives used, maximum explosive charge weight per delay period, and, where necessary, seismograph records identified by instrument number and location. These records shall be made available daily to the Engineer.~~

~~The Engineer will keep the submitted plans and records, and has authority to review and reject plans.~~

152-3.3 BORROW SOURCES. Borrow sources within the airport property if available will be identified on the Plans. Excavation of borrow on airport property shall be made only at these identified locations and within the lines and grades staked.

Borrow sources outside of airport property may be identified in the Contract according to GCP Subsection 60-02. The Contractor shall furnish additional borrow sources if necessary.

Removal of overburden and waste material, permit costs, mineral royalties, and other costs of material source development are subsidiary and shall be included in the unit price for borrow.

152-3.4 DRAINAGE EXCAVATION. Drainage excavation for intercepting, inlet or outlet drains; for temporary levee construction; or for any other type as designed or as shown on the Plans. The work shall be performed in the proper sequence with the other construction and according to the SWPPP. All suitable material shall be placed in embankment fills; unsuitable material shall be placed in waste areas or as

directed by the Engineer. Intercepting ditches shall be constructed prior to starting adjacent excavation operations. All necessary work shall be performed to secure a finish true to line, elevation, and cross section.

The Contractor shall maintain ditches constructed on the project to the required cross section and shall keep them free of debris or obstructions until the project is accepted.

Place and spread ditch lining materials so that the finished face is uniform and conforms with the lines and slope shown on the Plans or as directed.

152-3.5 PREPARATION OF EMBANKMENT AREA. In areas of Clearing and Grubbing, completely break up the subgrade by plowing or scarifying to a minimum depth of 6 inches. Where an embankment is to be constructed to a height of 4 feet or less, or where the embankment supports asphalt or concrete paving, compact the subgrade as indicated in Subsection 152-3.2.e. Where the height of fill is greater than 4 feet and the embankment does not support asphalt or concrete paving, compact the subgrade to the density of the surrounding ground before construction of embankment.

When new embankment is placed on slopes steeper than 4:1, the existing ground shall be continuously benched over the areas as the work is brought up in layers. Benching shall be of sufficient width to permit placing of material and compacting operations. Each horizontal cut shall begin at the intersection of the original ground and the vertical side of the previous bench. Material thus cut out and deemed suitable shall be blended and incorporated into the new embankment.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

152-3.6 FORMATION OF EMBANKMENTS. Embankments shall be formed in successive horizontal layers of not more than 8 inches in loose depth for the full width of the cross section, unless otherwise approved by the Engineer.

The grading and compaction operations shall be conducted, and the various soil strata shall be placed, to produce an embankment as shown on the typical cross section or as directed by the Engineer. Materials such as brush, hedge, roots, stumps, grass and other unsuitable material, shall not be incorporated or buried in the embankment.

a. Suspension of Operations. Operations on earthwork shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing, moisture content or other unsatisfactory conditions of the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide proper surface drainage.

b. Soft Foundations. When embankments are to be constructed across wet or swampy ground, which will not support the weight of heavy hauling and spreading equipment, the Contractor shall use methods of embankment construction, and use hauling and spreading equipment, that will least disturb the soft foundation (defined as having a California Bearing Ratio less than 3). When soft foundations are encountered, and when approved by the Engineer, the lower part of the fill may be constructed by dumping and spreading successive vehicle loads in a uniformly distributed layer of a thickness not greater than that necessary to support the vehicle while placing subsequent layers, after which the remainder of the embankment shall be constructed in layers and compacted as specified. The Contractor shall not be required to compact the soft foundation, and at the Engineer's option, may not be required to clear and grub.

c. Moisture. The material in the layer being placed shall be within ±2% of optimum moisture content before rolling to obtain the prescribed compaction. In order to achieve a uniform moisture content throughout the layer, wetting or drying of the material and manipulation shall be performed when necessary. Should the material be too wet to permit proper compaction or rolling, all work on all of

the affected portions of the embankment shall be delayed until the material has dried to the required moisture content. Watering of dry material to obtain the proper moisture content shall be done with approved equipment that will sufficiently distribute the water. Sufficient equipment to furnish the required water shall be available at all times.

d. Compaction. Rolling operations shall be continued until the embankment is compacted to not less than 95% of maximum density as determined by ATM 207 or ATM 212. Under all areas serving aircraft or vehicle traffic loadings, the embankment shall be compacted to a density of not less than 98% of the maximum density as determined by ATM 207 or ATM 212. The in-place field density and moisture content shall be determined according ATM 202.

Keep dumping and rolling areas separate. Do not cover any layer by another until the proper density is obtained.

During construction of the embankment, the Contractor shall route their equipment at all times, both when loaded and when empty, over the layers as they are placed and shall distribute the travel evenly over the entire width of the embankment. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay, or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of embankments, layer placement shall begin in the deepest portion of the fill and progress in layers approximately parallel to the finished pavement grade line. Stones or fragmentary rock larger than 3 inches in their greatest dimensions will not be allowed in the top 6 inches of the embankment.

e. Oversize Material. At the Engineer's discretion and direction, the Contractor may use oversize material or rockfill, as defined in Subsection 152-2.3, in the embankment. Place material in layers up to 2 feet thick. Fill voids with finer material. Level and smooth each layer with suitable leveling equipment. Use compaction equipment and construction methods that can form a dense, well-compacted embankment. Do not use oversize material within 4 feet of the top of finished subgrade.

Rock or boulders larger than 2 feet in thickness shall either be disposed of outside the excavation or embankment areas, in places and in the manner designated by the Engineer; or they may be crushed to less than 2 feet thickness and used in the embankment.

f. Subsidiary Costs. Excavation and embankment is a single pay item; there will be no separate measurement or payment. The costs for material source development, blasting, excavation, hauling, placing in layers, compacting, disking, watering, mixing, sloping, grading, and other necessary operations for construction of embankments, are subsidiary and shall be included in the contract unit prices for excavation, borrow, or other pay items.

g. Frozen Material. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material, unless this construction method is identified in the special provisions, or is part of a Contractor's Progress Schedule that the Engineer has approved.

152-3.7 FINISHING AND PROTECTION OF SUBGRADE. After the subgrade has been substantially completed, the full width shall be conditioned by removing any soft or other unstable material that will not compact properly. The resulting areas and all other low areas, holes or depressions shall be brought to finish subgrade elevation with suitable material. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade, whose top is shaped to the lines and grades shown on the Plans.

Grading of the top of subgrade shall be performed so that it will drain readily. The Contractor shall take all precautions necessary to protect the subgrade from damage. The Contractor shall limit hauling over the finished subgrade to that which is essential for construction purposes.

All ruts, ponds or rough places that develop in a completed subgrade shall be repaired, smoothed and recompacted before another layer is placed on top of the subgrade.

No subbase, or surface course shall be placed on the subgrade until the subgrade has been approved by the Engineer. Erosion and sediment control shall be done according to the SWPPP. Work described in this subsection is subsidiary and shall be included in the contract unit prices.

152-3.8 TOLERANCES. In those areas upon which a subbase or base course is to be placed, the top of the subgrade shall be of such smoothness that, when tested with a 12-foot straightedge applied parallel and at right angles to the centerline, it shall not show any deviation in excess of 1/2 inch, or shall not be more than 0.05 foot from true grade as established by grade hubs or pins. Any deviation in excess of these amounts shall be corrected by loosening, adding, or removing materials; reshaping; and recompacting by watering and rolling.

On Runway Safety Areas, intermediate and other designated areas, the surface shall be of such smoothness that it will not vary more than 0.10 foot from true grade as established by grade hubs. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-3.9 TOPSOIL. When topsoil is specified or required as shown on the plans or under Item T-905, it may be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. The material may be stockpiled at approved locations in conformance with the CSPP.

Upon completion of grading operations, topsoil shall be handled and placed as directed, or as required in Item T-905. No direct payment will be made for topsoil under Item P-152.

METHOD OF MEASUREMENT

152-4.1 The quantity of unclassified excavation, common excavation, rock excavation, and muck excavation, will be measured in cubic yards of excavated material, measured in its original position. Pay quantities will be computed to the neat lines staked, by the method of average end areas of materials acceptably excavated. Measurement will not include the quantity of materials excavated without authorization beyond project lines and grades, or the quantity of material used for purposes other than those directed or approved by the Engineer.

With the Engineer's written approval, excavation may be measured by any method described in Subsection 152-4.2.

152-4.2 The quantity of Borrow material to be paid will be by calculated by one of the following methods of measurement, as described in the Bid Schedule.

If Borrow is paid by source volume, the quantity will be measured in cubic yards of material, measured in its original position at the borrow source, after stripping of overburden and waste. Pay quantities will be computed by the method of average end areas from cross sections taken before and after borrow excavation. No shrink or swell factor will be used.

If Borrow is paid by design volume, the quantity will be measured in cubic yards of material, measured in its final compacted position. Pay quantities will be computed by the method of average end areas, as determined from original ground cross sections before placement (after clearing and grubbing) and to the neat lines staked and verified by the Engineer after placement. No allowance will be made for subsidence of the subgrade or for material placed outside the staked neat line limits. The quantity to be paid for will be the cubic yards of material placed and accepted in the completed embankment. No shrink or swell factor will be used.

If Borrow is paid by weight, the quantity will be measured in tons.

152-4.3 Ditch Lining will be weighed by the ton or measured by the cubic yard in final position. Excavation required below normal ditch grade is subsidiary.

BASIS OF PAYMENT

152-5.1 Excavation and embankment (or waste disposal) is a single pay item. The costs for material source development, blasting, excavation, hauling, placing in layers, compacting, disking, watering, mixing, sloping, grading, and other necessary operations for construction of embankments, or waste disposal, are subsidiary and shall be included in the contract unit prices.

a. Pay Item 152.010.0000 Unclassified Excavation. For “Unclassified Excavation” payment will be made at the contract unit price per cubic yard.

b. For “Common Excavation” payment will be made at the contract unit price per cubic yard.

c. For “Rock Excavation” payment will be made at the contract unit price per cubic yard.

d. For “Muck Excavation” payment will be made at the contract unit price per cubic yard.

e. For “Drainage Excavation” payment will be made at the contract unit price per cubic yard.

f. For “Borrow” payment will be made at the contract unit price per cubic yard. If by weight, payment will be made at the contract unit price per ton.

Payment will be made under:

Item P152.010.0000	Unclassified Excavation – per cubic yard

REFERENCES

ATM 202	WAQTC FOP for AASHTO T 255/T 265 Moisture Content of Aggregate and Soils
ATM 207	WAQTC FOP for AASHTO T 99/ T 180 Moisture-Density Relations of Soils
ATM 212	Determining the Standard Density of Coarse Granular Materials using the Vibratory Compactor
ATM 213	WAQTC FOP for AASHTO T 310 In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ATM 304	WAQTC FOP for AASHTO T 27/T 11 Sieve Analysis of Fine and Coarse Aggregates
ATM 309	Relative Standard Density of Soils by the Control Strip Method

ITEM P-154 SUBBASE COURSE

DESCRIPTION

154-1.1 This item shall consist of a subbase course composed of granular materials constructed on a prepared subgrade or underlying course according to these Specifications, and in conformity with the dimensions and typical cross section shown on the Plans.

MATERIALS

154-2.1 MATERIALS. The subbase material shall consist of hard durable particles or fragments of granular aggregates. This material will be mixed or blended with fine sand, clay, stone dust, or other similar binding or filler materials produced from approved sources. This mixture must be uniform and shall comply with the requirements of these Specifications as to gradation, soil constants, and shall be capable of being compacted into a dense and stable subbase. The material shall be free from vegetable matter, lumps or excessive amounts of clay, and other objectionable or foreign substances. Pit-run material may be used, provided the material meets the requirements specified.

Aggregate gradation shall meet the requirements of Table 1, determined according to ATM 304.

TABLE 1
AGGREGATE GRADATION REQUIREMENTS

Sieve designation (Square opening)	Percentage by weight passing sieves
3 inch	90-100
No. 4	20-55
No. 200	0-6

The percent passing the No. 200 sieve will be determined on minus 3-inch material.

The portion of the material passing the No. 40 sieve shall have a liquid limit of not more than 25 and a plasticity index of not more than 6 when tested according to ATM 204 and ATM 205.

The gradations shall be well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieves, or vice versa.

CONSTRUCTION METHODS

154-3.1 GENERAL. The subbase course shall be placed where designated on the Plans or as directed by the Engineer. The material shall be shaped and thoroughly compacted within the tolerances specified.

Granular subbases which, due to grain sizes or shapes, are not sufficiently stable to support the movement of construction equipment, shall be mechanically stabilized to the depth necessary to provide such stability as directed by the Engineer. The mechanical stabilization shall principally include the addition of a fine-grained medium to bind the particles of the subbase material sufficiently to furnish a bearing strength, so that the course will not deform under the traffic of the construction equipment. The addition of the binding medium to the subbase material shall not increase the soil constants of that material above the limits specified.

154-3.2 PREPARING UNDERLYING COURSE. Before any subbase material is placed, the underlying course shall be prepared and conditioned as specified. The course shall be checked and accepted by the Engineer before placing and spreading operations are started.
To protect the subgrade and to ensure proper drainage, the spreading of the subbase shall begin along the centerline of the pavement on a crowned section or on the high side of pavements with a one-way slope.

154-3.3 MATERIALS ACCEPTANCE IN EXISTING CONDITION. When the entire subbase material is secured in a uniform and satisfactory condition, such approved material may be moved directly to the spreading equipment for placing. The material may be obtained from gravel pits, stockpiles, or may be produced from a crushing and screening plant with the proper blending. The materials from these sources shall meet the requirements for gradation, quality, and consistency. The moisture content of the material shall be approximately that required to obtain maximum density. The final operation shall be blading or dragging, if necessary, to obtain a smooth uniform surface true to line and grade.

154-3.4 GENERAL METHODS FOR PLACING. When materials from several sources are to be blended and mixed, the subbase material, together with any blended material, shall be thoroughly mixed prior to placing on grade.

The subbase course shall be constructed in layers. Any layer shall be not less than 3 inches nor more than 8 inches of compacted thickness. The material, as spread, shall be of uniform gradation with no pockets of fine or coarse materials. No material shall be placed in snow or on a soft, muddy, or frozen course.

When more than one layer is required, the construction procedure described herein shall apply similarly to each layer.

During the placing and spreading, sufficient caution shall be exercised to prevent the incorporation of subgrade, shoulder, or foreign material in the subbase course mixture.

154-3.5 FINISHING AND COMPACTING. After spreading or mixing, the subbase material shall be thoroughly compacted. Sufficient compactors shall be furnished to adequately handle the rate of placing and spreading of the subbase course. The moisture content of the material shall be approximately that required to obtain maximum density.

The field density of the compacted material shall be not less than 98% of the maximum density, as determined according to ATM 207 or ATM 212. The in-place field density and moisture content shall be determined according to ATM 213.

The course shall not be rolled when the underlying course is soft or yielding or when the rolling causes undulation in the subbase. When the rolling develops irregularities that exceed 1/2 inch when tested with a 12-foot straightedge, the irregular surface shall be loosened and then refilled with the same kind of material as that used in constructing the course and again rolled as required above.

Along places inaccessible to rollers, the subbase material shall be tamped thoroughly with mechanical or hand tampers.

Watering during rolling, if necessary, shall be in the amount and by equipment approved by the Engineer. Water shall not be added in such a manner or quantity that free water will reach the underlying layer and cause it to become soft.

154-3.6 SURFACE TEST. After the course is completely compacted, the surface shall be tested for smoothness and accuracy of grade and crown; any portion found to lack the required smoothness or to fail in accuracy of grade or crown shall be scarified, reshaped, recompacted, and otherwise manipulated as the Engineer may direct until the required smoothness and accuracy is obtained. The finished surface shall not vary more than 1/2 inch when tested with a 12-foot straightedge applied parallel with, and at right angles to, the centerline.

154-3.7 PROTECTION. Work on subbase course shall not be conducted during freezing temperature nor when the subgrade is wet. When the subbase material contains frozen material or when the underlying course is frozen, the construction shall be stopped.

154-3.8 MAINTENANCE. Following the final shaping of the material, the subbase shall be maintained throughout its entire length by the use of standard motor graders and rollers until, in the judgment of the Engineer, the subbase meets all requirements and is acceptable for the construction of the next course.

METHOD OF MEASUREMENT

154-4.1 Subbase Course will be weighed by the ton or measured by the cubic yard in final position according to GCP Subsection 90-02.

Subbase materials will not be included in any other excavation quantities.

BASIS OF PAYMENT

154-5.1 Subbase Course will be paid for at the contract price, per unit of measurement, accepted in place.

Hauling and placing of these materials is subsidiary.

Payment will be made under:

Item P154.010.0000	Subbase Course – per cubic yard
Item P154.020.0000	Subbase Course – per ton

TESTING REQUIREMENTS

ATM 212	Determining the Standard Density of Coarse Granular Materials using the Vibratory Compactor
ATM 304	WAQTC FOP for AASHTO T 27/T 11 Sieve Analysis of Fine and Coarse Aggregates * .
ATM 204	WAQTC FOP for AASHTO T 89 Determining the Liquid Limit of Soils ..
ATM 205	WAQTC FOP for AASHTO T 90 Determining the Plastic Limit and Plasticity Index of Soils
ATM 207	WAQTC FOP for AASHTO T 99/ T 180 Moisture-Density Relations of Soils*
ATM 213	WAQTC FOP for AASHTO T 310 In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)*

ITEM P-160 EXCAVATION OF PAVEMENT

DESCRIPTION

160-1.1 Excavate, haul, and dispose of existing asphalt cement concrete (AC) pavement and portland cement concrete (PCC) pavement.

CONSTRUCTION REQUIREMENTS

160-2.1 Perform the work for this item according to the following instructions.

a. **Excavation.** Excavate to the minimum depth necessary for removal of existing pavement where shown on the Plans. Saw cut where shown on the Plans.

b. **Disposal.** Excavated pavement material becomes the property of the Contractor. Remove excavated material to an approved disposal site off of airport property in accordance with applicable Federal and State regulations.

c. **Drainage.** Maintain drainage at all times. Install temporary drains and drainage ditches to intercept or divert surface water that may affect the prosecution or condition of the work.

METHOD OF MEASUREMENT

160-4.1 Section 90. Where portland cement concrete pavement is overlain by asphalt concrete pavement, the asphalt concrete pavement will not be measured separately and will be considered portland cement concrete pavement for payment purposes.

BASIS OF PAYMENT

160-5.1 At the contract unit price for excavation and disposal of pavement materials for either AC or PCC pavement.

Payment will be made under:

Item P160.010.0000 Excavation of Pavement, AC – per square yard

ITEM P-161 RECYCLED ASPHALT PAVEMENT

DESCRIPTION

161-1.1 ~~Excavate and process existing asphalt cement concrete (AC) pavement for use as Recycled Asphalt Pavement (RAP).~~ Haul and place RAP from ANC stockpiles to construct a temporary access between Apron E and the temporary aircraft parking area north of Lake Hood Drive, as shown on the Plans. ~~on a prepared foundation,~~ Construct to the lines, grades, and depths shown on the plans or as directed by the Engineer.

MATERIAL AND CONSTRUCTION REQUIREMENTS

161-2.1 PROCESSING. No additional processing should be required when using material from the ANC RAP stockpiles. ~~Crush or pulverize existing pavement to meet the requirements of Table 161-1 for use as Recycled Asphalt Pavement (RAP). Process RAP to provide an asphalt content of 2.5 – 5.5 percent by weight.~~

~~Saw cut and process the full depth of existing pavement in areas shown on the plans or as directed by the Engineer. Excavate to the minimum depth necessary for removal of all existing pavement. Up to one inch of underlying base course material may be excavated along with the AC pavement.~~

TABLE 161-1
RAP GRADATION REQUIREMENTS

Sieve Size	Percent Passing
2 in.	100
1 in.	90-100

161-2.2 PLACEMENT AND SPREADING. Place RAP in 4-inch thick maximum lifts on the approved surface as required to achieve the depth shown on the plans after compaction.

~~Excess RAP is the property of the State. Place excess RAP in stockpiles located and shaped as shown on the plans, or as directed by the Engineer.~~

161-2.3 COMPACTION. Thoroughly compact the RAP layer by rolling. Density acceptance will be based on the use of a control strip in accordance with ATM 412 to determine a density standard. Compact to a density not less than 98% of the density standard. After rolling and with the RAP thoroughly set, reduce interstitial spaces to a minimum. Blade and roll alternately as required or directed to obtain a smooth, even and uniformly compacted surface. Do not roll the RAP course when the underlying course is soft or yielding or when the rolling causes undulation of the surface. In areas inaccessible to rollers, tamp RAP material thoroughly with hand held mechanical tampers.

161-2.4 RAP PROTECTION. Do not perform work on the RAP course during freezing temperatures, when the subgrade is wet, or when rain is expected. Hauling equipment may be routed over the finished RAP course, provided no damage results and provided that equipment is routed over the full width of the RAP surface to avoid rutting or uneven compaction. The Engineer has authority to stop all hauling over completed or partially completed RAP when, in his opinion, such hauling is causing damage. Repair at your expense, any damage to the RAP course resulting from the routing of equipment over RAP surfaces.

161-2.5 PROTECTION OF EXISTING STRUCTURES. Take all precautions necessary to ensure that existing structures within pavement removal areas are not damaged. If damage to any structure occurs, repair the damage at no cost to the Department.

161-2.6 DRAINAGE. Maintain drainage at all times. Install temporary drains and drainage ditches, when directed, to intercept or divert surface water that may affect the prosecution or condition of the work.

METHOD OF MEASUREMENT

161-4.1 Section 90. If RAP by unit area appears in the bid schedule, the item will be measured in original position before excavation. If RAP by unit volume appears in the bid schedule, the item will be measured in final position after ~~processing and~~ placement. ~~Underlying base course material excavated along with the AC pavement will not be included in the measurement for payment of RAP measured by unit volume.~~

BASIS OF PAYMENT

161-5.1 At the contract unit price for recycled asphalt pavement accepted in place.

Payment will be made under:

Item P161.020.0000 Recycled Asphalt Pavement – per cubic yard

TESTING REQUIREMENTS

ATM 412 Relative Standard Density of Treated Mixes by the Control Strip Method

ITEM P-162 PAVEMENT COLD PLANING

DESCRIPTION

162-1.1 Cold plane existing asphalt cement concrete (AC) pavement. Clean pavement surfaces after planing~~. Place and shape the material produced by cold planing (millings) on a prepared foundation, to the lines, grades, and depths shown on the plans.~~

~~Excess m~~Millings are the property of the State. Place ~~excess~~ millings in stockpiles located and shaped as shown on the plans or as directed by the Engineer.

EQUIPMENT

162-2.1 COLD PLANING MACHINE. Use a self-propelled specialized cold planing machine with the following capabilities:

- **a.** Removes the millings or cuttings from the pavement surface and loads them into a truck for disposal.
- **b.** Mills the pavement to the required depth and smoothness.
- **c.** Prevents damage to any part of the remaining pavement structure.
- **d.** Establishes grade control, by string line or laser.
- **e.** Controls transverse slope.
- **f.** Mills a minimum 3-foot width of pavement per pass.
- **g.** Effectively controls dust produced during planing operations.

162-2.2 POWER BROOM. Use a self-propelled or towed power broom capable of removing all loose material resulting from the cold planing operation.

CONSTRUCTION REQUIREMENTS

162-3.1 PLANING. Furnish all materials and survey control to accomplish this work. Mill the designated areas of pavement to the depths shown on the plans. Establish any controls required to maintain the specified depth of cut or grade. Establish a finished cold-planed surface that when checked with a four-foot straight edge, does not deviate more than 3/8-inch in either the transverse or longitudinal direction.

Ensure that the cold planing operation does not adversely affect the paving schedule due to breakdowns.

162-3.2 PROTECTION OF EXISTING PAVEMENT AND STRUCTURES. Repair or replace at your expense, any pavement that is torn, cracked, gouged, broken, or undercut as directed by the Engineer. Take all precautions necessary to ensure that existing structures within pavement planing areas are not damaged. If damage to any structure occurs, repair the damage at no cost to the Department.

162-3.3 FINAL CLEANING OF COLD-PLANED SURFACES. After cold planning is complete, use a power broom to remove all loose material from the planed surface.

METHOD OF MEASUREMENT

162-4.1 Section 90. By the area of pavement in original position regardless of depth of cut, milled to the required tolerances. ~~Placement and shaping of millings and t~~The clean up and disposal of ~~surplus material~~ millings is subsidiary to the item.

BASIS OF PAYMENT

162-5.1 Payment will be made at the contract unit price for acceptably completed quantities.

Payment will be made under:

Item P162.010.0000 Pavement Cold Planing – per square yard

ITEM P-165 REMOVAL OF STRUCTURES

DESCRIPTION

165-1.1 Remove and dispose of or salvage existing structures as specified. Backfill the resulting holes and pits as required.

CONSTRUCTION REQUIREMENTS

165-3.1 GENERAL. Obtain utility locates in the vicinity of the designated items if work includes removals below ground surface. Work around and preserve any facilities within the work limits. Backfill all excavations with approved embankment or excavated materials and compact in accordance with item P-152, if required.

a. Removed Structures Designated for Disposal. Removed structures designated for disposal become your property. Excavate, load, and haul structures to an approved disposal site off ~~of~~ airport property in accordance with applicable Federal and State regulations~~.~~:

a. ~~c~~Curb and gutter, as shown on the plans

b. T~~t~~emporary pipe culvert.

c. Pipe culvert

b. Removed Structures Designated for Salvage. Removed structures designated for salvage remain the property of the State.

a. Remove and reinstall Light Pole, Foundation to remain

b. Remove and reinstall power posts and underground circuits to remain

METHOD OF MEASUREMENT

165-4.1 This item will not be measured for payment. The Engineer's acceptance constitutes measurement.

BASIS OF PAYMENT

165-5.1 Payment will be made at the contract price for work acceptably completed. No separate payment will be made for hauling or transportation. All work associated with removal of specified items, including but not limited to labor, equipment, tools, hauling, transportation, and incidentals will be included in the contract price for removal of structures.

Payment will be made under:

Item P165.010.0000	Removal of Structures – lump sum
Item P165.030.0000	Removal of Curb and Gutter – per linear foot

ITEM P-209 CRUSHED AGGREGATE BASE COURSE

DESCRIPTION

209-1.1 This item consists of a base course composed of crushed aggregate, sourced from project pavement removal areas, constructed on a prepared course in accordance with these Specifications and to the dimensions and typical cross-sections shown on the Plans.

MATERIALS

209-2.1 CRUSHED AGGREGATE BASE. Crushed aggregate shall consist of clean, sound, durable particles of crushed stone or crushed gravel and shall be free from excess coatings of clay, silt, organic material, clay lumps or balls or other deleterious materials. The method used to produce the crushed gravel shall result in the fractured particles in the finished product as consistent and uniform as practicable. Fine aggregate passing the No. 4 sieve shall consist of fines from the coarse aggregate crushing operation. If necessary, fine aggregate may be added to produce the correct gradation. The fine aggregate shall be produced by crushing stone and gravel that meet the coarse aggregate requirements for wear and soundness. Aggregate base material requirements are listed in Table 209-1, however, the Engineer shall visually identify the crushed aggregate base course material from excavation for stockpiling and reuse in the new asphalt pavement section (see plans). This information provided in subsections 209-2.1, 2.2, and 2.3 is for reference only.

TABLE 209-1
CRUSHED AGGREGATE BASE MATERIAL REQUIREMENTS

Material Test	Requirement	Standard
Coarse Aggregate		
Resistance to Degradation	Loss: 45% maximum	AASHTO T 96
Soundness of Aggregates by Use of Sodium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate	AASHTO T 104
Percentage of Fractured Particles	Minimum 90% by weight of particles with at least two fractured faces and 100% with at least one fractured face[1]	ATM 305
Flat Particles, Elongated Particles, or Flat and Elongated Particles	10% maximum, by weight, of flat, elongated, or flat and elongated particles [2]	ATM 306
Micro-Deval	~~25~~15% maximum	AASHTO T 327
Fine Aggregate		
Liquid limit	Less than or equal to 25	ATM 204
Plasticity Index	Not more than six (6)	ATM 205

[1] The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

209-2.2 GRADATION REQUIREMENTS. The gradation of the final aggregate base material shall meet the requirements of the gradation given in Table 209-2 when tested per ATM 304. The gradation shall be well graded from coarse to fine and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa. Use Gradation D-1 unless specified otherwise.

TABLE 209-2
REQUIREMENTS FOR GRADATION OF AGGREGATE

Sieve Size	Design Range Percentage by Weight passing		Contractor's Final Gradation	Job Control Grading Band Tolerances[1] (Percent)
	C-1	D-1		
1-1/2 inch	100			0
1 inch	70-100	100		±5
3/4 inch	60-90	70-100		±8
3/8 inch	45-75	50-80		±8
No. 4	30-60	35-65		±8
No. 8	22-52	20-50		±8
No. 50[2]	6-30	6-30		±5
No. 200[2]	0-5	0-5		±3

[1] The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

[2] The fraction of material passing the No. 200 sieve shall not exceed two-thirds the fraction passing the No. 50 sieve.

209-2.3 SAMPLING AND TESTING.

a. Aggregate base materials. The Contractor shall take samples of the aggregate base in accordance with ATM 301 to verify initial aggregate base requirements and gradation. Material shall meet the requirements in Subsection 209-2.1. This sampling and testing will be the basis for approval of the aggregate base quality requirements.

b. Gradation requirements. The Contractor shall take at least two aggregate base samples per day in the presence of the Engineer to check the final gradation. Sampling shall be per ATM 301. Material shall meet the requirements in Subsection 209-2.2. The samples shall be taken from the in-place, un-compacted material at sampling points and intervals designated by the Engineer.

209-2.4 SEPARATION GEOTEXTILE. Not Used.

CONSTRUCTION METHODS

209-3.1 CONTROL STRIP. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the Engineer, that the materials, equipment, and construction processes meet the requirements of the Specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined.

Control strips that do not meet Specification requirements shall be reworked, re-compacted or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the Engineer. The Contractor shall use the same equipment, materials, construction methods, and sequence and manner of rolling for the remainder of base course construction, unless adjustments made by the Contractor are approved by the Engineer.

209-3.2 PREPARING UNDERLYING COURSE. The underlying subgrade and/or subbase shall be checked and accepted, in writing, by the Engineer before base course placing and spreading operations begin. Any ruts or soft, yielding areas shall be corrected and compacted to the required density before the

base course is placed. To ensure proper drainage, the spreading of the base shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope, or as directed by the Engineer.

209-3.3 PRODUCTION. The aggregate shall be uniformly blended and, when at a satisfactory moisture content according to Subsection 209-3.5, the approved material may be transported directly to the spreading equipment. The plant shall blend and mix the materials to meet the Specifications.

209-3.4 PLACEMENT.

The crushed aggregate base material shall be placed on the approved subgrade in uniform, equal-depth layers, each not exceeding 6 inches of compacted depth. The aggregate shall meet gradation and moisture requirements prior to compaction. . Crushed aggregate base course shall not be placed on frozen material.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the Specifications at the Contractor's expense.

209-3.5 COMPACTION. Immediately after completion of the spreading operations, and within the same day that the aggregate is placed, compact each layer of the base course to the required density.

The field density of each compacted lift of material shall be at least 98% of the maximum density of laboratory specimens prepared from samples of the crushed aggregate base material delivered to the jobsite. The laboratory specimens shall be compacted and tested in accordance with ATM 207 or ATM 212. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ATM 207 or ATM 212. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

209-3.6 WEATHER LIMITATIONS. Material shall not be placed unless the ambient air temperature is at least 40°F and rising. Work on base course shall not be conducted when the subgrade or subbase is wet or frozen or the base material contains frozen material.

209-3.7 MAINTENANCE. The base course shall be maintained in a condition that will meet all Specification requirements until the work is accepted. Equipment may be routed over completed sections of base course, provided that no damage results and the equipment is routed over the full width of the completed base course to avoid rutting or uneven compaction. Any damage resulting to the base course from routing equipment over the base course shall be repaired by the Contractor at the Contractor's expense.

209-3.8 SURFACE TOLERANCES. After the course has been compacted, the surface will be tested by the Engineer for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and recompacted to grade until the required smoothness and accuracy are obtained and approved by the Engineer. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. **Smoothness.** The finished surface shall not vary more than 3/8-inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. **Grade.** The grade and crown shall be measured on a 50-foot grid and shall be within +0 and -1/2 inch of the specified grade.

209-3.9 ACCEPTANCE SAMPLING AND TESTING. Crushed aggregate base course shall be accepted for density and thickness on an area basis. Two tests shall be made for density and thickness for each 1200 square yards. Sampling locations will be determined on a random basis according to ATM SP 4.

a. Density. The Engineer will perform all density tests. Base course will be accepted for density when the field density is not less than 98% of the maximum density, as determined according to ATM 207 or ATM 212. The in-place field density and moisture content will be determined according to ATM 213. If the specified density is not attained, the material shall be reworked and/or recompacted until the specified density is reached.

b. Thickness. The thickness of the finished base course will be determined by the Engineer by taking before and after elevation measurements, or by depth tests, at random locations. The completed thickness of the base course shall be within 1/2 inch of the design thickness. Where the thickness is deficient by more than 1/2 inch, the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches, adding new material of proper gradation, and the material shall be blended and recompacted to grade. The Contractor shall replace, at his expense, base material where depth tests have been taken.

METHOD OF MEASUREMENT

209-4.1 The quantity of crushed aggregate base course will be determined by the ton or measured by the cubic yard of material in final position according to Subsection 90-02.

BASIS OF PAYMENT

209-5.1 Payment shall be made at the contract unit price per unit of measurement, accepted in place. If the following pay items are absent from the bid schedule, no payment will be made and payment will be subsidiary to pay item ~~F162.060.0120~~P-161.020.0000.

REFERENCES

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

AASHTO T 96	Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
AASHTO T 104	Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
AASHTO T 327	Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus
ATM 204	WAQTC FOP for AASHTO T 89 Determining the Liquid Limit of Soils
ATM 205	WAQTC FOP for AASHTO T 90 Determining the Plastic Limit and Plasticity Index of Soils
ATM 207	WAQTC FOP for AASHTO T 99/ T 180 Moisture-Density Relations of Soils
ATM 212	Determining the Standard Density of Coarse Granular Materials Using the Vibratory Compactor
ATM 213	WAQTC FOP for AASHTO T 310 In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)*
ATM 301	WAQTC FOP for AASHTO T 2 Sampling of Aggregates

ATM 304	WAQTC FOP for AASHTO T 27/T 11 Sieve Analysis of Fine and Coarse Aggregates *
ATM 305	WAQTC FOP for AASHTO T 335 Determining the Percentage of Fracture in Coarse Aggregate*
ATM 306	Determining the Percentage of Flat and Elongated Particles in Coarse Aggregate
ATM SP 4	Random Sampling

ITEM P-401 ASPHALT MIX PAVEMENT

DESCRIPTION

401-1.1 ASPHALT MIX PAVEMENT. Hot Mix Asphalt (HMA) shall consist of pavement courses composed of mineral aggregate and asphalt binder mixed in a central mixing plant and placed on a prepared base or stabilized course in accordance with these Specifications and shall conform to the lines, grades, thicknesses, and typical cross-sections shown on the Plans. Each course shall be constructed to the depth, typical section, and elevation required by the Plans and shall be rolled, finished, and approved before the placement of the next course.

MATERIALS

401-2.1 AGGREGATE. Aggregates shall consist of crushed stone, crushed gravel, crushed slag, screenings, natural sand, and mineral filler, as required. The aggregates should have no known history of detrimental pavement staining due to ferrous sulfides, such as pyrite. Coarse aggregate is the material retained on the No. 4 sieve. Fine aggregate is the material passing the No. 4 sieve.

Use a minimum of three stockpiles of crushed aggregate of different gradations. Place blend material, if any, in a fourth pile.

a. Coarse Aggregate. Coarse aggregate shall consist of sound, tough, durable particles, free from films of matter that would prevent thorough coating and bonding with the bituminous material and be free from organic matter and other deleterious substances. Coarse aggregate material shall conform to Table 401-1 Coarse Aggregate Material Requirements.

TABLE 401-1. COARSE AGGREGATE MATERIAL REQUIREMENTS

Material Test	Requirement	Standard
Resistance to Degradation	Loss: 40% maximum	AASHTO T 96
Soundness of Aggregates by Use of Sodium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate	AASHTO T 104
Clay lumps and friable particles	1.0% maximum	AASHTO T 112
Micro-Deval	18% maximum	AASHTO T 327
Percentage of Fractured Particles	~~For pavements designed for aircraft gross weights of 60,000 pounds or more:~~ ~~Minimum 90% by weight of particles with at least two fractured faces, except Type V shall have a minimum of 98% by weight with at least two fractured faces~~	ATM 305
	For pavements designed for aircraft gross weights less than 60,000 pounds (27200 kg): Minimum 50% by weight of particles with at least two fractured faces and 65% with at least one fractured face[1]	
Flat, Elongated, or Flat and Elongated Particles	8% maximum, by weight, of flat, elongated, or flat and elongated particles at 5:1 [2]	ATM 306

1. The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.
2. A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

b. Fine Aggregate. Fine aggregate shall consist of clean, sound, tough, durable, angular shaped particles produced by crushing stone, slag, or gravel and shall be free from coatings of clay, silt, or other objectionable matter, and conform to Table 401-2 Fine Aggregate Material Requirements.

Natural (non-manufactured) sand may be used to obtain the gradation of the fine aggregate blend or to improve the workability of the mix. The amount of sand to be added will be adjusted to produce mixtures conforming to requirements of these Specifications.

TABLE 401-2. FINE AGGREGATE MATERIAL REQUIREMENTS

Material Test	Requirement	Standard
Liquid limit	25 maximum	ATM 204
Plasticity Index	4 maximum	ATM 205
Soundness of Aggregates by Use of Sodium Sulfate	Loss after 5 cycles: 10% maximum using Sodium sulfate	AASHTO T 104
Clay Lumps and Friable Particles	1.0% maximum	AASHTO T 112
Sand Equivalent	45 minimum	ATM 307
Natural Sand	15% maximum by weight of total aggregate	ASTM D1073
Uncompacted Void Content [1]	45% minimum	AASHTO T 304, Method A

[1.] Applies to Type V mix designs.

c. Sampling. The Engineer will sample according to ATM 301 for coarse and fine aggregate and according to ASTM D242 for mineral filler.

401-2.2 MINERAL FILLER. Mineral filler (baghouse fines) may be added in addition to material naturally present in the aggregate. Mineral filler shall meet the requirements of AASHTO M 17 and Table 401-3.

TABLE 401-3. MINERAL FILLER REQUIREMENTS

Material Test	Requirement	Standard
Plasticity Index	4 maximum	ATM 205

401-2.3 ASPHALT BINDER. Provide the asphalt binder performance grade as indicated on the Plans. Asphalt binder shall conform to AASHTO M 320 or M 332 for the specified Performance Grade, except as indicated in Table 401-4 Exceptions to Performance-Graded Asphalt Binder Specification.

TABLE 401-4. EXCEPTIONS TO PERFORMANCE-GRADED ASPHALT BINDER SPECIFICATION

Performance Grade	AASHTO Spec.	Viscosity AASHTO T 316	MSCR, AASHTO T 350			PAV, Dynamic Shear AASHTO T 315	Direct Tension AASHTO T 314
			$J_{NR3.2}$ kPa^{-1}	J_{NR} Diff	% $Rec_{3.2}$		
PG 52-28	M320	None	---	---	---	None	Delete
PG 52-40	M320	None	---	---	---	None	Delete
PG 52-40V	M332	None	0.50 max.	Delete	75 min.	None	Delete
PG 58-34E	M332	None	0.25 max.	Delete	85 min.	None	Delete
PG 64-40E	M332	1.0 PaS max.	0.10 max.	Delete	95 min.	5000 max @ 4°C	Delete

The Contractor shall furnish vendor's certificate of compliance and certified test reports for each lot of asphalt binder shipped to the project. The vendor's certified test report for the asphalt binder can be used for acceptance or tested independently by the Engineer.

The following documents shall be furnished at delivery:

a. Manufacturer’s certificate of compliance

b. Certified test reports for the lot.

c. Lot number, storage tanks, and shipping containers (if applicable) used.

d. Date and time of load out for delivery.

e. Type, grade, temperature, and quality of asphalt binder loaded.

f. Type and percent of anti-stripping agent added.

All excess asphalt binder shall remain the property of the Contractor. Removal of excess asphalt binder from the project area shall be incidental to the contract and no separate payment will be made.

401-2.4 ANTI-STRIPPING AGENT. Any anti-stripping agent or additive (anti-strip) shall be heat stable and shall not change the asphalt binder grade beyond Specifications. Anti-strip shall be approved by the Engineer.

401-2.5 PRELIMINARY MATERIAL ACCEPTANCE. Prior to delivery of materials to the job site, the Contractor shall submit certified test reports to the Engineer for the following materials:

a. Coarse Aggregate.

(1) Percent of wear

(2) Soundness

(3) Degradation

(4) Percent of fracture

(5) Percent of flat and elongated particles

(6) Clay lumps and friable particles

b. Fine Aggregate.

(1) Liquid limit.

(2) Plasticity index

(3) Sand equivalent

(4) Un-compacted void content for HMA Type V

(5) Clay lumps and friable particles

(6) Soundness

(7) Percent Natural Sand

c. Mineral Filler.

(1) Gradation

(2) Plasticity Index

(3) Organic content

d. Asphalt Binder. The certification(s) shall show the appropriate test(s) for each material, the test results, and a statement that the material meets the specification requirement. Include temperature/viscosity charts and note recommended mixing and compaction temperatures.

401-2.6 JOINT ADHESIVE. The joint adhesive shall conform to Table 401-5 Joint Adhesive Material Requirements.

TABLE 401-5. JOINT ADHESIVE MATERIAL REQUIREMENTS

PROPERTY	SPECIFICATION	TEST METHOD
Brookfield Viscosity, 400°F	4,000 – 11,000 cP	ASTM D2669
Core Penetration, 77°F Flow, 140°F Resilience, 77°F Tensile Adhesion, 77°F Asphalt Compatibility	60 – 100 0.2-inch, max. 30%, min. 500%, min. Pass	ASTM D5329
Ductility, 77°F Ductility, 39.2°F	1-foot, min. 1-foot, min.	ASTM D113
Softening Point	170°F	AASHTO T 53

401-2.7 JOINT SEALANT. The joint shall be sealed with GSB 88 (manufactured by Asphalt Systems Inc.), Optipave (manufactured by SealMaster), or meet the following:

a. Emulsion concentrate, in the undiluted state, shall have the following properties:

(1) Saybolt furol viscosity at 77°F, ASTM D244, seconds 20-100

(2) Residue by distillation or evaporation, ASTM D244, % .....57 min

(3) Sieve test, ASTM D244, % .....0.2 max

(4) 5 day Settlement test, ASTM D244, %.....5.0 max

(5) Particle charge (refer to 401-2.7d), ASTM D244.....Positive

b. Ready to Apply:

(1) Emulsion concentrate diluted in the proportion of one part emulsion to one part hot water by volume, shall have the following properties:

(a) Saybolt furol viscosity at 77°F, ASTM D244, seconds.....10-50

(b) Residue by distillation or evaporation, ASTM D244, % .....28.5 min

(c) Pumping stability test, (refer to 401-2.7e) .....Pass

(2) Emulsion concentrate diluted in the proportion of two parts emulsion to one part hot water by volume, shall have the following properties:

(a) Saybolt furol viscosity at 77°F, ASTM D244, seconds.....10-50

(b) Residue by distillation or evaporation, ASTM D244, % ..... 37.5 min

(c) Pumping stability test, (refer to 401-2.7e) ..... Pass

c. Tests on residue from distillation or evaporation shall have the following properties:

(1) Viscosity at 275°F, ASTM D4402, cubic feet per second (cts)..... 1,750 max

(2) Solubility in 1,1,1 Trichloroethylene, ASTM D2042, %..... 97.5 min

(3) Penetration ASTM D5, dmm..... 50 max

(4) Asphaltenes, ASTM D2007,%..... 15 min

(5) Saturates, ASTM D2007, % ..... 15 max

(6) Polar Compounds, ASTM D2007, %..... 25 min

(7) Aromatics, ASTM D2007, %..... 15 min

d. pH may be used in lieu of the particle charge test, which is sometimes inconclusive in slow setting, bituminous emulsions.

e. Pumping stability test is tested by pumping one pint of sealer material diluted one part concentrate to one part water, at 77°F, through a 1/4-inch gear pump operating 1,750 revolutions per minute (rpm) for 10 minutes with no significant separation or coagulation.

The bituminous base residue shall contain not less than 20% gilsonite, and shall not contain any tall oil pitch. Curing time, under recommended application conditions, shall not exceed four hours. The Contractor shall furnish and submit to the Engineer, manufacturer's certification that the material is the type, grade, and quality specified for each load of bituminous material delivered. The certification shall show the shipment number, refinery, consignee, destination, contract number, and date of shipment. The Contractor shall submit to the Engineer, two 1-quart samples of ready-to-apply bituminous material for each batch applied and two 1-quart samples of concentrate for each load delivered. The Contractor shall submit any additional samples requested by the Engineer.

The Engineer may request samples for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable Specifications.

COMPOSITION

401-3.1 COMPOSITION OF MIXTURE(S). The HMA shall be composed of a mixture of well-graded aggregates, filler, if required, and asphalt binder. The aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix design (JMD).

401-3.2 JOB MIX DESIGN (JMD) LABORATORY. The laboratory used to develop the JMD shall possess a current certificate of accreditation, listing ASTM D3666 from a national accrediting authority, and all test methods required for developing the JMD; and be listed on the accrediting authority's website. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Department prior to start of construction.

401-3.3 JOB MIX DESIGN (JMD). No HMA for payment shall be placed until an acceptable JMD has been approved by the Engineer. The Class A and B HMA shall be designed using procedures contained in ATM 417, and shall meet the requirements of Tables 401-6 and 401-8.

The HMA, Type V, Class S will be designed using procedures contained in AASHTO R 35 and shall meet the requirements of Table 401-7 and Table 401-8. Upon completion of the JMD, determine the Marshall

stability and Marshall air voids at the design asphalt binder content using a 75-Blow Marshall from procedures contained in ATM 417. The Department will furnish all JMDs for HMA, Type V.

The JMD and subsequent production targets should be based on a stability greater than shown in Table 401-6 and 401-7, and the flow and air voids should be targeted close to the mid-range of the criteria in order meet the acceptance requirements.

Anti-stripping agent shall be added to the asphalt binder in the amount determined by ATM 414. A minimum of 0.30% anti-stripping agent by weight of asphalt binder is required.

At the discretion of the Engineer, the JMD may be designed by the Department. The Department designed JMDs will be based on the Contractor's submitted target gradation. The Contractor shall submit material samples to the Engineer, upon request, for JMD. The Department will bear the cost of the initial JMD evaluation for each Type and Class of HMA specified. If subsequent evaluations are required, the Engineer will assess a fee of $5,000.00 under Hot Mix Asphalt Price Adjustment, for each additional evaluation.

a. DEPARTMENT FURNISHED JMD. Submit the following, or as directed, in writing to the Engineer at least 30 calendar days prior to the start of paving operations and shall include as a minimum:

(1) Manufacturer's Certificate of Analysis (COA) for the asphalt binder used in the JMD according to subsection 401-2.3. Certificate of asphalt Performance Grade must include added modifier, if used, and also indicate compliance of asphalt binder with AASHTO M 320 or AASHTO M 332. Furnish five (5) separate 1-gallon samples of the asphalt binder proposed for use in the HMA, and Safety Data Sheet.

(2) Manufacturer's Certificate of Analysis (COA) for the anti-stripping agent if used in the JMD according to subsection 401-2.4.

(3) Certified material test reports for the course and fine aggregate and mineral filler according to subsection 401-2.1.

(4) Percent natural sand.

(5) Percent fractured faces.

(6) Percent by weight of flat particles, elongated particles, and flat and elongated particles (and criteria).

(7) Laboratory mixing and compaction temperatures.

(8) Supplier-recommended field mixing and compaction temperatures.

(9) Plot of the combined gradation on a 0.45 power gradation curve. Provide curve and testing results for each aggregate type proposed for use.

(10) Type and amount of anti-strip agent when used. Furnish a minimum of 1/2-pint of the proposed anti-strip additive, if anti-strip is not incorporated into asphalt binder by the manufacturer.

(11) Temperature-viscosity relationship of the asphalt binder.

(12) Uncompacted void content for HMA Type V.

(13) Percentage and properties (asphalt content, asphalt binder properties, and aggregate properties) of RAP in accordance with subsection 401-3.4. Furnish 200-pound, minimum, sample of proposed RAP.

b. CONTRACTOR FURNISHED JMD. When the Contractor is directed to prepare the JMD for approval, the Contractor must submit the JMD sealed by the responsible Professional Engineer of the laboratory.

In addition to the items listed in subsection 401-3.3a, submit the following, or as directed, in writing to the Engineer at least 15 calendar days prior to the start of paving operations:

(1) Date the JMD was developed. Mix designs that are not dated or which are from a prior construction season will not be accepted.

(2) Percent passing each sieve size for individual gradation of each aggregate cold feed and/or hot bin; percent by weight of each cold feed and/or hot bin used; and the total combined gradation in the JMD. Furnish representative samples totaling 500 pounds of aggregate material in proportional amounts to the proposed JMD.

(3) A letter stating the location, size, and type of mixing plant. The letter shall include gradations for individual stockpiles, and the blend ratio of each aggregate stockpile.

(4) Specific Gravity and absorption of each coarse and fine aggregate.

(5) Percent of asphalt.

(6) Number of blows or gyrations.

(7) Asphalt Pavement Analyzer (APA), or Hamburg test results; or stability and flow test results, as appropriate for the mix design method.

(8) Sand Equivalent value for fine aggregate.

(9) Theoretical Maximum Specific Gravity at the optimum asphalt binder content.

All Contractor furnished JMDs must be sealed by a professional Engineer registered in the State of Alaska. The Professional Engineer must certify that the JMD was performed according to the specified procedures, and meets these Specifications.

The Engineer has authority to review and reject submitted JMDs that do not meet these Specifications. The Contractor shall submit samples to the Engineer, upon request, for JMD verification testing.

The JMD for each mixture shall be in effect until modified in writing by the Engineer. Should a change in sources of materials be made, a new JMD must be approved by the Engineer before the new material is used.

TABLE 401-6. MARSHALL MIX DESIGN REQUIREMENTS

Test Property	Class A: Pavements Designed for Aircraft Gross Weights of 60,000 lbs or More or Tire Pressures of 100 psi or More	Class B: Pavements Designed for Aircraft Gross Weight Less Than 60,000 lbs or Tire Pressure Less Than 100 psi
Number of blows	75	50
Stability, pounds	2150	1350
Flow, 0.01 inch[1]	10-16	10-18
Air voids % (design target 3.5%)	2.8 – 4.2	2.8 – 4.2
Voids in mineral aggregate, %, min.	See Table 401-8	See Table 401-8

Test Property	Class A: Pavements Designed for Aircraft Gross Weights of 60,000 lbs or More or Tire Pressures of 100 psi or More	Class B: Pavements Designed for Aircraft Gross Weight Less Than 60,000 lbs or Tire Pressure Less Than 100 psi
Asphalt Binder Content, %, min.	5.0	5.0
Antistrip Requirement,% coverage, min[2]	70	70
Asphalt Pavement Analyzer (APA)[3]	Less than 10mm @ 4,000 passes	N/A

[1.] The flow requirement is not applicable for Polymer Modified Asphalts.
[2.] ATM 414 [3]. ATM 419 at 250 psi hose pressure at 64°C test temperature

TABLE 401-7. GYRATORY HOT MIX ASPHALT TYPE V MIX DESIGN REQUIREMENTS

Mix Design Class S Pavements for gross aircraft weights of 60,000 lbs or more.	
Test Property	**Design Criteria ¾" Nominal Maximum Aggregate Size**
Initial Number of Gyrations (N_{ini})	7
Design Number of Gyrations (N_{des})	75
Maximum Number of Gyrations (N_{max})	115
Air voids @ N_{des} (Design Target 3.5), %	2.8-4.2
Voids in Mineral Aggregate @ N_{des}, %	Table 401-8
Voids filled with Asphalt @ N_{des}, %	65-78
Dust to effective asphalt ratio	0.6 -1.2
Uncompacted Void Content	45 min.
% G_{mm} @ N_{ini}	≤ 90.50
% G_{mm} @ N_{max}	≤ 98.00
Asphalt Binder Content, %, min.	5.0
Antistrip Requirement, %, min.[1]	70
Marshall Stability 75 blow (average of 3 specimens)	Report
Marshall Air Voids – 75 blow (average of 3 specimens)	Report
Rut Index, Max., mm, ATM 419 [2]	Less than 10 mm @ 4,000 passes

[1.] ATM 414
[2.] ATM 419 at 250 psi hose pressure at 64°C test temperature

The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the gradation or gradations specified in Table 401-8 Aggregate-Asphalt Pavements when tested according to ATM 304. The maximum size aggregate used shall not be more than one-fourth of the thickness of the course being constructed.

The gradations in Table 401-8 represent the limits that shall determine the suitability of aggregate for use from the sources of supply. The aggregate, as selected (and used in the JMD), shall have a gradation within the limits designated in Table 401-8 and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa, but shall be well graded from coarse to fine when tested according to ATM 304.

The aggregate gradations shown are based on aggregates of uniform specific gravity. The percentages passing the various sieves shall be corrected when aggregates of varying specific gravities are used, as indicated in the Asphalt Institute MS-2 Mix Design Manual, 7th Edition.

TABLE 401-8. AGGREGATE – ASPHALT PAVEMENTS

Sieve Size	Percentage by Weight Passing Sieves			
	Type I	Type II	Type III[1]	Type V
1 inch	100	--	--	--
3/4 inch	90-100	100	--	100
1/2 inch	68-88	90-100	100	65-90
3/8 inch	60-82	72-88	90-100	55-80
No. 4	45-67	53-73	58-78	40-60
No. 8	32-54	38-60	40-60	≤ 45
No. 16	22-44	26-48	28-48	≤ 35
No. 30	15-35	18-38	18-38	≤ 25
No. 50	9-25	11-27	11-27	≤ 20
No. 100	6-18	6-18	6-18	≤ 12
No. 200	3-6	3-6	3-6	4-7
Minimum Voids in Mineral Aggregate (VMA)	13	14	15	14
Asphalt percent by total weight of mixture:				
Stone or gravel	4.5-7.0	5.0-7.5	5.5-8.0	5.0 – 7.5
Recommended Minimum Construction Lift Thickness	3 inches	2 inches	1-1/2 inches	2 inches

[1.] Type III gradation is intended for leveling courses.

401-3.4 RECYCLED HOT MIX ASPHALT PAVEMENT. RAP will not be used for hot mix asphalt on this project. ~~Recycled HMA shall consist of reclaimed asphalt pavement (RAP), coarse aggregate, fine aggregate, mineral filler, asphalt binder, and recycling agent, if necessary. The RAP shall be of a consistent gradation and asphalt content and properties. When RAP is fed into the plant, the maximum RAP size shall not exceed one inch. The recycled HMA shall be designed using procedures contained in the Asphalt Institute MS-2 Mix Design Manual, 7th Edition, in conjunction with ATM 417. The percentage of asphalt in the RAP shall be established for the mixt design according to ASTM D2172 using the appropriate dust correction procedure. The JMD shall meet the requirements subsection 401-3.3. Recycled HMA shall only be used for shoulder surface course mixes and for any intermediate courses. The amount of RAP shall be limited to 20 percent. In addition to the requirements of subsection 401-3.3, the JMD shall indicate the percent of RAP, the percent and grade of new asphalt binder, the percent and grade of hot mix recycling agent (if used), and the properties (including viscosity and penetration) of the asphalt blend. The resulting composite mixture of RAP and virgin components shall meet all requirements specified for mixes without RAP. No RAP shall be used in Type V, Class S HMA.~~

~~RAP containing Coal Tar shall not be used. Coal Tar surface treatments must be removed prior to recycling underlying asphalt material. Recycled asphalt shingles (RAS) shall not be used.~~

~~All new aggregates used in the recycled mix shall meet the requirements of subsection 401-2.1. New asphalt binder shall meet the requirements of subsection 401-2.3. Recycling agents shall meet the requirements of ASTM D4552. The Contractor shall submit documentation to the Engineer, indicating that the mixing equipment proposed for use is adequate to mix the percent of RAP shown in the JMD.~~

401-3.5 CONTROL STRIP. Full production shall not begin until an acceptable control strip has been constructed and accepted in writing by the Engineer. The Contractor shall prepare and place a quantity of

asphalt according to the JMD. The underlying grade or pavement structure upon which the control strip is to be constructed shall be the same as the remainder of the course represented by the control strip.

The Contractor will not be allowed to place the control strip until the Contractor Quality Control Program (CQCP), showing conformance with the requirements of subsection 401-5.1, has been accepted, in writing, by the Engineer.

The control strip will consist of at least 250 tons. The control strip shall be placed in two lanes of the same width and depth to be used in production with a longitudinal cold joint. The cold joint must be cut back in accordance with subsection 401-4.14 using the same procedure that will be used during production. The cold joint for the control strip will be an exposed construction joint at least four (4) hours old or when the mat has cooled to less than 160°F. The equipment used in construction of the control strip shall be the same type, configuration, and weight, to be used on the project.

The control strip shall be evaluated for acceptance as a single lot in accordance with the acceptance criteria in subsection 401-6.1 for aggregate gradation and asphalt binder content. The control strip shall be divided into three separate equal sub-lots. If the Composite Pay Factor is less than 1.000, the control strip is unacceptable.

Three 6-inch diameter core samples shall be cut from the finished hot mix asphalt by the Contractor, at the locations marked by the Engineer. The core samples will be tested by the Department for density according to subsection 401-5.1. The Target Value for mat density is 94.0% of the theoretical maximum specific gravity (MSG) of the JMD. The three samples will be evaluated according to subsection 401-8.1.a. If the Density Pay Factor is less than 1.000, the control strip is unacceptable.

Three longitudinal joint cores centered on the longitudinal joint shall be cut by the Contractor, at the locations marked by the Engineer. The core samples will be tested by the Department according to subsection 401-5.1. The Target Value for joint density is 92.0% of the JMD MSG. If the average density of the three joint cores is below 91.0%, the control strip is unacceptable.

After completion of control strip compaction, the Department will accept or reject the control strip within 48 hours.

If the control strip is unacceptable, necessary adjustments to the JMD, plant operation, placing procedures, and/or rolling procedures shall be made and another control strip shall be placed. Unacceptable control strips shall be removed at the Contractor's expense. For small projects, less than 3,000 tons, a control strip is not required.

401-3.6 PRE-PAVING CONFERENCE. Meet with the Engineer for a pre-paving meeting in the presence of project superintendent and paving foreman at least five working days before beginning paving operations. Submit a paving plan and pavement inspection plan per 401-3.7, 24 hours before the pre-paving conference.

Include the following elements in the paving plan and address these elements at the meeting:

- **a.** Safety Plan procedures to be implemented prior to and during paving.
- **b.** Sequence of operations and Laydown Plan per subsection 401-4.11.
- **c.** List of equipment that will be used for production, transport, pick-up (if applicable), laydown, and compaction.
- **d.** Summary of plant modifications (if applicable) for production of HMA.
- **e.** Procedures to produce consistent HMA.
- **f.** Procedures to minimize material and thermal segregation.

g. Procedures to minimize premature cooling.

h. Procedures to achieve HMA density.

i. Procedures for joint construction including corrective action for joints that do not meet surface tolerance requirements.

j. Quality control sampling and testing methods, frequencies and sample locations for gradation, asphalt binder content, and density.

k. Any other information or procedures necessary to provide completed HMA construction that meets the contract requirements.

Include the following elements in the pavement inspection plan and address these elements at the meeting:

l. Process for daily inspections

m. Means and methods to remove and dispose of project materials

401-3.7 PROJECT MAINTENANCE. Inspect daily according to pavement inspection plan. Remove, and dispose of project materials incorrectly deposited on existing and new pavement surfaces(s) inside and outside the project area including haul routes.

The Contractor is responsible for damage caused by not removing these materials and any damage to the roadway from the removal method(s).

Repair damage to the existing paved surfaces that results from fugitive materials or their removal.

CONSTRUCTION METHODS

401-4.1 WEATHER LIMITATIONS. The HMA shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 401-9. The temperature requirements may be waived by the Engineer, if requested; however, all other requirements including compaction shall be met.

Table 401-9. Surface Temperature Limitations of Underlying Course

Mat Thickness	Base Temperature (°F Minimum)
3 inches or greater	40
Greater than 2 inches but less than 3 inches	45

401-4.2 ASPHALT MIXING PLANT. Meet American Association of State Highway and Transportation Officials (AASHTO) M 156. Use an HMA plant capable of producing at least 250 tons of HMA per hour noted on posted DEC air quality permit, designed to dry aggregates, maintain consistent and accurate temperature control, and accurately proportion asphalt binder and aggregates. HMA plant capacity to support echelon paving shall be a minimum of 400 tons per hour produced by a maximum of 2 plants. Both plants shall produce the same mix design. Calibrate the HMA plant and furnish copies of the calibration data to the Engineer at least 24 hours before HMA production.

Provide a scalping screen at the asphalt plant to prevent oversize material or debris from being incorporated into the HMA.

Provide a tap on the asphalt binder supply line just before it enters the plant (after the 3-way valve) for sampling asphalt binder. Provide aggregate and asphalt binder sampling locations meeting OSHA safety requirements.

Plants may not be placed on Airport property unless a specific location is noted on the Plans. Requirements for all plants include:

a. Inspection of Plant. The Engineer, or Engineer's authorized representative, shall have access, at all times, to all areas of the plant for checking adequacy of equipment; inspecting operation of the plant: verifying weights, proportions, and material properties; and checking the temperatures maintained in the preparation of the mixtures.

b. Storage Bins and Surge Bins. Use of surge bins or storage bins for temporary storage of HMA will be permitted as follows:

(1) The HMA may be stored in surge bins for not longer than 3 hours.

(2) The HMA may be stored in insulated storage bins for not longer than 8 hours.

The bins shall be such that mix drawn from them meets the same requirements as mix loaded directly into trucks.

If the Engineer determines that there is an excessive amount of heat loss, segregation or oxidation of the mixture due to temporary storage, no temporary storage will be allowed.

401-4.3 AGGREGATE STOCKPILE MANAGEMENT. Aggregate stockpiles shall be constructed in a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed and batched separately at the asphalt batch plant. Aggregates that have become segregated or mixed with earth or foreign material shall not be used. A continuous supply of materials shall be provided to the work to ensure continuous placement.

401-4.4 HAULING EQUIPMENT. Trucks used for hauling HMA shall have tight, clean, and smooth metal beds. To prevent the mixture from sticking to the truck beds, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other material approved by the RPR. Petroleum products shall not be used for coating truck beds. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary, to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.

401-4.4.1 MATERIAL TRANSFER VEHICLE (MTV). MTVs are not required. ~~used to transfer the material from the hauling equipment to the paver shall be self-propelled, with a swing conveyor that can deliver material to the paver without making contact with the paver. The MTV shall be able to move back and forth between the hauling equipment and the paver providing material transfer to the paver, while allowing the paver to operate at a constant speed. The MTV will have remixing and storage capability of at least 15 tons to prevent physical and thermal segregation.~~

401-4.5 ASPHALT PAVERS. HMA pavers shall be self-propelled with an activated heated screed, capable of spreading and finishing courses of bituminous plant mix material that will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment without adversely affecting the finished surface. The asphalt paver shall be equipped with a control system capable of automatically maintaining the specified screed grade and elevation.

If the spreading and finishing equipment in use leaves tracks or indented areas, or produces other blemishes in the pavement that are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued.

The paver shall be capable of paving to a minimum width specified in subsection 401-4.12. Place auger extensions within 20 inches of the screed extensions or per written manufacturer’s recommendations.

401-4.6 ROLLERS. The number, type, and weight of rollers shall be sufficient to compact the asphalt to the required density while it is still in a workable condition without crushing of the aggregate, depressions or other damage to the pavement surface. Rollers shall be in good condition, clean, and capable of operating at slow speeds to avoid displacement of the asphalt. All rollers shall be specifically designed and suitable for compacting asphalt concrete and shall be properly used. Rollers that impair the stability of any layer of a pavement structure or underlying soils shall not be used.

401-4.7 DENSITY DEVICE. The Contractor shall have on site a density gauge during all paving operations in order to assist in the determination of the optimum rolling pattern, type of roller and frequencies, as well as to monitor the effect of the rolling operations during production paving. The Contractor shall supply a qualified technician during all paving operations to calibrate the gauge and obtain accurate density readings for all new asphalt. These densities shall be supplied to the Engineer upon request at any time during construction. No separate payment will be made for supplying the density gauge and technician.

401-4.8 PREPARATION OF ASPHALT BINDER. The asphalt binder shall be heated in a manner that will avoid local overheating and provide a continuous supply of the asphalt binder to the mixer at a uniform temperature. The temperature of unmodified asphalt binder delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles, but shall not exceed 325°F when added to the aggregate. The temperature of modified asphalt binder shall be no more than 350°F when added to the aggregate.

401-4.9 PREPARATION OF MINERAL AGGREGATE. The aggregate for the HMA shall be heated and dried. The maximum temperature and rate of heating shall be such that no damage occurs to the aggregates. The temperature of the aggregate and mineral filler shall not exceed 350°F when the asphalt binder is added. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

401-4.10 PREPARATION OF HMA. The aggregates and the asphalt binder shall be weighed or metered and mixed in the amount specified by the JMD.

The combined materials shall be mixed until the aggregate obtains a uniform coating of asphalt binder and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but not less than 25 seconds for batch plants.

The wet mixing time for all plants shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in AASHTO T 195, for each individual plant and for each type of aggregate used. The wet mixing time will be set to achieve 95% of coated particles.

For continuous mix plants, the minimum mixing time shall be determined by dividing the weight of its contents at operating level by the weight of the mixture delivered per second by the mixer.

The moisture content of all HMA upon discharge shall not exceed 0.5% of the total weight of mix, as determined by ATM 407.

401-4.11 APPLICATION OF PRIME AND TACK COAT. Immediately before placing the HMA, the underlying course shall be cleaned of all dust and debris.

If required, a prime coat in accordance with Item P-602 Emulsified Asphalt Prime Coat shall be applied to aggregate base prior to placing HMA.

A tack coat shall be applied in accordance with Item P-603 Emulsified Asphalt Tack Coat to all vertical and horizontal asphalt and concrete surfaces prior to placement of the first and each subsequent lift of HMA.

401-4.12 LAYDOWN PLAN, TRANSPORTING, PLACING, AND FINISHING. Prior to the placement of the HMA, the Contractor shall prepare a laydown plan with the sequence of paving lanes and width to minimize the number of cold joints; the location of any temporary ramps; laydown temperature; and estimated time

of completion for each portion of the work (milling, paving, rolling, cooling, etc.). The laydown plan and any modifications shall be approved by the Engineer.

~~The Contractor shall use an MTV conforming to the requirements of subsection 401-4.4.1 to deliver mix to the paver.~~

Deliveries shall be scheduled so that placing and compacting of asphalt is uniform with minimum stopping and starting of the paver. ~~Supply echelon paving operations with hot mix asphalt at a minimum rate of 400 tons per hour.~~ Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to approximately ambient temperature. The Contractor, at their expense, shall be responsible for repair of any damage to the pavement caused by hauling operations.

Contractor shall survey each lift of HMA surface course and certify to the Engineer that every lot of each lift meets the grade tolerances of subsection 401-6.2f before the next lift can be placed.

Edges of existing asphalt pavement abutting the new work shall be saw cut and the cut off material and laitance removed. Apply a tack coat in accordance with P-603 before new asphalt material is placed against it.

The speed of the paver shall be regulated to eliminate pulling and tearing of the asphalt mat. Placement of the HMA shall begin along the centerline of a crowned section or on the high side of areas with a one way slope unless shown otherwise on the laydown plan as accepted by the Engineer. The HMA shall be placed in consecutive adjacent lanes having a minimum width of 20 feet except where edge lanes require less width to complete the area. Additional screed sections attached to widen the paver to meet the minimum lane width requirements must include additional auger sections to move the HMA uniformly along the screed extension.

The longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least one foot; however, the joint in the surface top course shall be at the centerline of crowned pavements. Transverse joints in one course shall be offset by at least 10 feet from transverse joints in the previous course. Transverse joints in adjacent lanes shall be offset a minimum of 10 feet. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the asphalt may be spread and luted by hand tools.

The Engineer may at any time, reject any batch of asphalt, on the truck or placed in the mat, which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or overheated HMA. Such rejection may be based on only visual inspection or temperature measurements. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the Engineer, and if it can be demonstrated in the Department's laboratory, in the presence of the Engineer, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

Areas of segregation in the surface course, as determined by the Engineer, shall be removed and replaced at the Contractor's expense. The area shall be removed by saw cutting and milling a minimum of the construction lift thickness for the approved mix design. The area to be removed and replaced shall be a minimum width of the paver and a minimum of 10 feet long.

~~Echelon paving shall be used for the final lift of HMA pavement. Pave the final lift of HMA with two pavers operating in echelon in adjacent lanes with a breakdown roller behind each paver operating with intelligent compaction equipment. The pavers shall be spaced no more than 50 feet apart. The distance between the pavers shall be reduced as required to ensure the HMA placed by the lead paver is greater than 230°F when the second paver places material against it. Two paving crews are required.~~

401-4.13 COMPACTION OF HMA. After placing, the HMA shall be thoroughly and uniformly compacted by self-propelled rollers. The surface shall be compacted as soon as possible when the asphalt has attained sufficient stability so that the rolling does not cause undue displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor. The speed of

the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture and be effective in compaction. Any surface defects and/or displacement occurring as a result of the roller, or from any other cause, shall be corrected at the Contractor's expense.

Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until the surface is of uniform texture, true to grade and cross-section, and the required field density is obtained. To prevent adhesion of the asphalt to the roller, the wheels shall be equipped with a scraper and kept moistened with water as necessary.

In areas not accessible to the roller, the mixture shall be thoroughly compacted with power tampers approved by the Engineer.

Any mixture that becomes loose and broken, mixed with dirt, contains check-cracking, or in any way defective shall be removed and replaced with fresh hot mixture and immediately compacted to conform to the surrounding pavement. This work shall be done at the Contractor's expense. Skin patching shall not be allowed.

401-4.14 JOINTS. The formation of all joints shall be made to ensure a continuous bond between the courses and obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

The roller shall not pass over the unprotected end of the freshly laid asphalt except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing the adjacent lane. Any longitudinal joint should also have the use of a bulkhead for any traffic that may also cause a rolled edge. In both methods, all contact surfaces shall have a tack coat or joint adhesive applied, dependent on top/bottom asphalt lift, before placing any fresh mix against the joint.

Longitudinal joints shall be formed in such a manner that the joint meets density requirements of subsection 401-6.2c. Longitudinal joints which have been left exposed for more than four (4) hours; the surface temperature has cooled to less than 175°F; or are irregular, damaged, uncompacted or otherwise defective shall be cut back with a cutting wheel or pavement saw a minimum of 3 inches and a maximum of 6 inches to expose a clean, sound, uniform vertical surface for the full depth of the course. All cutback material and any laitance produced from cutting joints shall be removed from the project. Asphalt tack coat in accordance with P-603 shall be applied to the clean, dry joint prior to placing any additional fresh asphalt against the joint. The cost of this work shall be considered incidental to the cost of the asphalt.

For all joints below the top lift, uniformly coat joint surfaces with tack coat material meeting P-603.

Joint adhesive shall be used on all top lift joints.

When joint adhesive is required, follow joint adhesive manufacturer's recommendations for temperatures and application method. Otherwise, use tack coat material meeting Item P-603. Remove joint adhesive applied to the top of pavement surface. When forming a longitudinal joint in the final lift, apply a 1/8 inch thick band joint adhesive to the full height of the joint surface prior to placing any fresh hot mix asphalt against the joint. Joint edge preparation, and joint adhesive application temperature, thickness, and method shall be per the manufacturer's recommendations. Joint adhesive is not required between mats placed while echelon paving.

Joint sealant shall be applied in a 12-inch wide strip centered over joints in the final lift layer of HMA while the asphalt is still clean, free of moisture, and before striping. Joint sealant shall be applied over joints in the final lift formed by two panels of HMA composed of different type or class of mix; or of new against existing HMA pavement. Joint surface preparation, and joint sealant application temperature, thickness, and method shall be per the manufacturer's recommendations.

Joints between existing and new HMA shall be saw cut. Cut a neat, straight line along the existing HMA to expose the full depth of the layer where new HMA is to be placed against existing asphalt. Use a power saw or other method approved by the Engineer.

Cut back of all cold joints is required as specified above.

The Contractor may provide additional joint density quality control by use of joint heaters at the Contractor's expense. The heaters shall be operated so they do not produce excessive heat when the units pass over new or previously paved material. When used, heaters will be required to be in operation at all times.

Electrically powered infrared heating equipment should consist of one or more low-level radiant energy heaters to uniformly heat and soften the pavement joints. The heaters should be configured to uniformly heat an area up to 18 inches in width and 3 inches in depth. Infrared equipment shall be thermostatically controlled to provide a uniform, consistent temperature increase throughout the layer being heated up to a maximum temperature range of 200°F to 300°F.

Propane powered infrared heating equipment shall be attached to the paving machine and the output of infrared energy shall be in the one to six-micron range. Converters shall be arranged end to end directly over the joint to be heated in sufficient numbers to continuously produce, when in operation, a minimum of 240,000 BTU per hour. The joint heater shall be positioned not more than one inch above the pavement to be heated and in front of the paver screed and shall be fully adjustable.

401-4.15 SAW-CUT GROOVING. If shown on the Plans, saw-cut grooves shall be provided as specified in Item P-621 Saw Cut Grooves. Do not perform saw-cut grooving until smoothness testing has been performed, as described in subsection 401-5.3.

401-4.16 DIAMOND GRINDING. Diamond grinding shall be completed prior to pavement grooving. Diamond grinding shall be accomplished by sawing with saw blades impregnated with industrial diamond abrasive.

Diamond grinding shall be performed with a machine designed specifically for diamond grinding capable of cutting a path at least 3 feet wide. The saw blades shall be 1/8-inch wide with a sufficient number of blades to create grooves between 0.090 and 0.130 inches wide; and peaks and ridges approximately 1/32-inch higher than the bottom of the grinding cut. The actual number of blades will be determined by the Contractor and depend on the hardness of the aggregate.

Equipment or grinding procedures that cause ravels, aggregate fractures, spalls or disturbance to the pavement will not be permitted. The Contractor shall demonstrate to the Engineer that the grinding equipment will produce satisfactory results prior to making corrections to surfaces. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The slurry resulting from the grinding operation shall be continuously removed and the pavement left in a clean condition. The Contractor shall apply a surface treatment per Item P-608 Emulsified Asphalt Seal Coat to all areas that have been subject to grinding.

401-4.17 NIGHTTIME PAVING REQUIREMENTS. Paving during nighttime construction shall require the following:

a. All paving machines, rollers, distribution trucks and other vehicles required by the Contractor for his operations shall be equipped with artificial illumination sufficient to safely complete the work.

b. Minimum illumination level shall be twenty horizontal foot-candles and maintained in the following areas:

(1) An area of 30 feet wide by 30 feet long immediately behind the paving machines during the operations of the machines.

(2) An area 15 feet wide by 30 feet long immediately in front and back of all rolling equipment, during operation of the equipment.

(3) An area 15 feet wide by 15 feet long at any point where an area is being tack coated prior to the placement of pavement.

c. As partial fulfillment of the above requirements, the Contractor shall furnish and use, complete artificial lighting units with a minimum capacity of 3,000 watt electric beam lights, affixed to all equipment in such a way to direct illumination on the area under construction.

d. A lighting plan must be submitted by the Contractor and approved by the Engineer prior to the start of any nighttime work.

Lighting for nighttime construction is required for work occurring between end civil twilight and begin civil twilight as posted the United States Naval Observatory on all days except the "No Lighting Required" period shown in Table 401-10.

TABLE 401-10. NIGHTTIME ILLUMINATION EXCLUSIONS

Latitude	**No Lighting Required**		**Nearby**
(degrees)	**Start**	**End**	**Cities**
South of 61	Lighting Required All Year		Everything South of Hope
61	June 11	July 1	Anchorage, Valdez, Girdwood
62	June 2	July 13	Wasilla, Palmer, Glennallen, Talkeetna
63	May 27	July 17	Cantwell, Paxson, McGrath
64	May 22	July 21	Tok, Delta, Nome
65	May 18	July 25	Fairbanks
66	May 14	July 29	Circle City
67	May 10	August 2	Coldfoot, Kotzebue
68	May 7	August 6	Galbraith Lake
69	May 3	August 9	Happy Valley
70	April 30	August 12	Deadhorse
71	April 27	August 15	Utqiagvik (Barrow)
72	April 24	August 19	

CONTRACTOR QUALITY CONTROL (CQC)

401-5.1 GENERAL. The Contractor shall develop a CQC Program (CQCP) according to the GCP Section 100. No partial payment will be made for materials that are subject to specific QC requirements without an approved CQCP.

401-5.2 CONTRACTOR QUALITY CONTROL (QC) FACILITIES. The Contractor shall provide or contract for testing facilities in accordance with GCP Section 100. The Engineer shall be permitted unrestricted access to inspect the Contractor's QC facilities and witness QC activities. The Engineer will advise the Contractor in writing of any noted deficiencies concerning the QC facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

401-5.3 QUALITY CONTROL (QC) TESTING. The Contractor shall perform all QC tests necessary to control the production and construction processes applicable to these Specifications, and as set forth in the approved CQCP. The testing program shall include, but not necessarily be limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, field compaction, and surface smoothness. A QC Testing Plan shall be developed as part of the CQCP.

a. Asphalt Content. A minimum of two tests shall be performed per day in accordance with ATM 405 or ATM 406, by total weight of mix for determination of asphalt content. When using ATM 406, the correction factor shall be determined as part of the first test performed at the beginning of plant production; and as part of every tenth test performed thereafter. The asphalt content for the day will be determined by averaging the test results.

b. Gradation. Aggregate gradations shall be determined a minimum of twice per lot from mechanical analysis of extracted aggregate in accordance with ATM 304 and ATM 408.

c. Moisture Content of Aggregate. The moisture content of aggregate used for production shall be determined a minimum of once per day in accordance with ATM 202.

d. Moisture Content of Asphalt. The moisture content shall be determined once per day in accordance with ATM 407.

e. Temperatures. Temperatures shall be checked, at least four times per day, at necessary locations to determine the temperatures of the dryer, the asphalt binder in the storage tank, the asphalt at the plant, and the asphalt at the job site.

f. In-place Density Monitoring. The Contractor shall conduct any necessary testing to ensure that the specified density is being achieved. A nuclear gauge may be used to monitor the pavement density in accordance with ATM 411.

g. Smoothness for Contractor Quality Control. The Contractor shall perform smoothness testing in transverse and longitudinal directions daily to verify that the construction processes are producing pavement with variances less than 1/4-inch in 12 feet, identifying areas that may pond water which could lead to hydroplaning of aircraft. If the smoothness criteria is not met, appropriate changes and corrections to the construction process shall be made by the Contractor before construction continues.

The Contractor may use a 12-foot straightedge, a rolling inclinometer meeting the requirements of ASTM E2133, or rolling external reference device that can simulate a 12-foot straightedge approved by the Engineer. Straight-edge testing shall start with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement.

Testing shall be continuous across all joints. The surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between the two high points. If the rolling inclinometer or external reference device is used, the data may be evaluated using the FAA profile program, ProFAA, or FHWA ProVal, using the 12-foot straightedge simulation function.

Smoothness readings shall not be made across grade changes or cross slope transitions. The transition between new and existing pavement shall be evaluated separately for conformance with the Plans.

(1) Transverse Measurements. Transverse measurements shall be taken for each day's production placed. Transverse measurements shall be taken perpendicular to the pavement centerline each 50 feet or more often as determined by the Engineer. The joint between lanes shall be tested separately to facilitate smoothness between lanes.

(2) Longitudinal Measurements. Longitudinal measurements shall be taken for each day's production placed. Longitudinal tests shall be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet; and at the third points of paving lanes when widths of paving lanes are 20 feet or greater. When placement abuts

previously placed material the first measurement shall start with one half the length of the straight edge on the previously placed material.

Deviations on the final surface course in either the transverse or longitudinal direction that will trap water greater than 1/4-inch shall be corrected with diamond grinding per subsection 401-4.16 or by removing and replacing the surface course to full depth. Grinding shall be tapered in all directions to provide smooth transitions to areas not requiring grinding.

All areas in which diamond grinding has been performed shall be subject to the final pavement thickness tolerances specified in subsection 401-6.2d. Areas that have been ground shall be sealed with a surface treatment in accordance with Item P-608. To avoid the surface treatment creating any conflict with runway or taxiway markings, it may be necessary to seal a larger area.

Control charts shall be kept to show area of each day's placement and the percentage of corrective grinding required. Corrections to production and placement shall be initiated when corrective grinding is required. If the Contractor's machines and/or methods produce significant areas that need corrective actions in excess of 10 percent of a day's production, production shall be stopped until corrective measures are implemented by the Contractor.

h. Grade. Grade shall be evaluated daily to allow adjustments to paving operations when grade measurements do not meet Specifications. As a minimum, grade shall be evaluated prior to and after the placement of the first lift and after placement of the surface lift.

Measurements will be taken at appropriate gradelines (as a minimum at center and edges of paving lane) and longitudinal spacing as shown on cross-sections and Plans. The final surface of the pavement will not vary from the grade line elevations and cross-sections shown on the Plans by more than 1/2-inch vertically and 0.1 feet laterally. The documentation will be provided by the Contractor to the Engineer within 24 hours.

Areas with humps or depressions that exceed grade or smoothness criteria and that retain water on the surface must be ground off provided the course thickness after grinding is not more than 1/2-inch less than the thickness specified on the Plans. Grinding shall be in accordance with subsection 401-4.16.

The Contractor shall repair low areas or areas that cannot be corrected by grinding by removal of deficient areas to the depth of the final course plus 1/2-inch and replacing with new material. Skin patching is not allowed.

401-5.4 SAMPLING. When directed by the Engineer, the Contractor shall sample and test any material that appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced or deficiencies corrected by the Contractor. All sampling shall be in accordance with standard procedures specified.

401-5.5 CONTROL CHARTS. The Contractor shall maintain linear control charts for both individual measurements and range (i.e. difference between highest and lowest measurements) for aggregate gradation, asphalt binder content, and density.

Control charts shall be posted in a location satisfactory to the Engineer and kept current. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and Suspension Limits applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a problem and the Contractor is not taking satisfactory corrective action, the Engineer may suspend production or acceptance of the material.

a. Individual Measurements. Control charts for individual measurements shall be established to maintain process control within tolerance for aggregate gradation, asphalt binder content, and

density. The control charts shall use the JMD target values as indicators of central tendency for the test parameters with associated Action and Suspension Limits in Table 401-11.

Table 401-11. CONTROL CHART LIMITS FOR INDIVIDUAL MEASUREMENTS

Sieve	Action Limit	Suspension Limit
3/4-inch	±6%	±9%
1/2-inch	±6%	±9%
3/8-inch	±6%	±9%
No. 4	±6%	±9%
No. 16	±5%	±7.5%
No. 50	±3%	±4.5%
No. 200	±2%	±3%
Asphalt Binder Content	±0.45%	±0.70%
Minimum VMA	-0.5%	-1.0%

b. Range. Control charts for range shall be established to control process variability for the test parameters and Suspension Limits listed in Table 401-12. The range shall be computed for each lot as the difference between the two test results for each control parameter. The Suspension Limits specified below are based on a sample size of n = 2. Should the Contractor elect to perform more than two tests per lot, the Suspension Limits shall be adjusted by multiplying the Suspension Limit by 1.18 for n = 3 and by 1.27 for n = 4.

Table 401-12. CONTROL CHART LIMITS BASED ON RANGE (n = 2)

Sieve	Suspension Limit
1/2-inch	11%
3/8-inch	11%
No. 4	11%
No. 16	9%
No. 50	6%
No. 200	3.5%
Asphalt Content	0.8%

c. Corrective Action. The CQCP shall indicate that appropriate action shall be taken when the process is believed to be out of tolerance. The Plan shall contain rules to gauge when a process is out of control and detail what action will be taken to bring the process into control. As a minimum, a process shall be deemed out of control and production stopped and corrective action taken, if:

(1) One point falls outside the Suspension Limit line for individual measurements or range; or

(2) Two points in a row fall outside the Action Limit line for individual measurements.

401-5.6 QUALITY CONTROL (QC) REPORTS. The Contractor shall maintain records and shall submit reports of QC activities daily, in accordance with the CQCP described in GCP Section 100.

MATERIAL ACCEPTANCE

401-6.1 ACCEPTANCE SAMPLING AND TESTING. All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section will be performed by the Engineer at no cost to the Contractor except that coring as required in this section shall be completed and paid for by the Contractor. Selection of sampling and testing methods used for Acceptance are at the discretion of the Engineer.

a. Lot size.

(1) Hot Mix Asphalt Lots. The bid quantity of each type of HMA produced and placed will be divided into lots and the lots evaluated individually for acceptance. The Department has the exclusive right and responsibility for determining the acceptability of all materials incorporated into the project. The results of the acceptance testing performed by the Engineer will be made available to the Contractor.

Where more than one plant is simultaneously producing asphalt for the job, the lot sizes will apply separately for each plant

(2) 5,000 Ton Lot Size. A lot will normally be 5,000 tons. The lot will be divided into sub-lots of 500 tons, each randomly sampled and tested for asphalt binder content, density and gradation according to this subsection. The lot is evaluated for price adjustment according to subsection 401-6.2. Seasonal startup or a new JMD requires starting a new lot.

If the project has more than one lot and if less than eight sub-lots have been sampled at the time a lot is terminated, the material in the shortened lot will be included as part of the prior lot and the price adjustment computed for the prior lot will include the samples from the shortened lot. Density test results from material in the shortened lot will be based on the MSG of the shortened lot. If there is no prior lot, and there are at least three sub-lots, the material in the shortened lot will be considered as a lot and the price adjustment will be based on the actual number of test results in the shortened lot. If there are less than three sub-lots, the HMA will be accepted for payment based on the Engineer’s approval of the JMD, and placement and compaction of the HMA to the specified depth, finished surface requirements and tolerances. The Engineer reserves the right to perform any testing required in order to determine acceptance.

If eight or nine sub-lots have been placed at the time a lot is terminated, they will be considered as a lot and the price adjustment will be based on the actual number of test results in the shortened lot.

(3) 1,500 to 4,999 Ton Lot Size. If the total contract bid quantity is between 1,500 tons and 4,999 tons, the total project quantity will be considered one lot. The lot will be divided into sub-lots of 500 tons and randomly sampled for asphalt binder content, density and gradation according to this subsection. The lot will be evaluated for price adjustment according to subsection 401-6.2 except as noted.

(4) Under 1,500 Ton Lot Size. If the total contract bid quantity is less than 1,500 tons, asphalt concrete pavement will be accepted for payment based on the Engineer's approval of a Job Mix design and the placement and compaction of the HMA to the specified depth and finished surface requirements and tolerances, and material testing. The Engineer reserves the right to perform any testing required in order to determine acceptance.

Any area of finished surfacing that is segregated, fails to meet surface tolerance requirements, cools to below 175°F prior to completing compaction, or is any other way defective shall be removed and replaced with new asphalt concrete pavement. Removal and replacement of defective pavement shall be at no additional cost to the Department.

(5) Joint Density Lot Size. Longitudinal joints include joints internal to a lot and joints created when paving adjacent to previously placed lots. Joints constructed by echelon paving will not be evaluated for density, unless required by the Engineer.

(6) Asphalt Binder Grade Lot Size. The lot size for asphalt binder is 200 tons of the same grade asphalt binder. If a project has more than one lot and the remaining asphalt binder quantity of the same grade is less than 150 tons, it is added to the previous lot and that total quantity will be evaluated as one lot. If the remaining asphalt binder quantity is 150 tons or greater, it is sampled, tested and evaluated as a separate lot.

If the bid quantity of asphalt binder is between 85 and 200 tons, the contract quantity is considered as one lot and sampled, tested, and evaluated according to this subsection. Quantities of asphalt binder less than 85 tons will be accepted based on manufacturer's certified test reports and certification of compliance.

b. Sampling.

(1) Asphalt Binder Content. Samples taken for the determination of asphalt binder content will be taken from behind the screed prior to initial compaction, or from the windrow, according to ATM 402 and ATM 403.

If sampling is from behind the screed prior to initial compaction, then provide a WAQTC certified technician and equipment to take plate samples. Sample in locations determined by the Engineer. Sample in the presence of the Engineer and immediately transfer possession of the sample to the Engineer.

Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable.

(2) Gradation. Samples taken for the determination of aggregate gradation will be from the same location as specified for the determination of asphalt binder content. Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable.

(3) Mat Density. The location(s) for taking core samples is determined using a set of random numbers (independent of asphalt binder and aggregate sampling set of random numbers) and the Engineer's judgment. The Contractor shall cut full depth core samples with a diameter of 6 inches from each sub-lot, within 24 hours of final rolling for density acceptance testing. The samples shall be neatly cut by a core drill at the randomly selected location designated by the Engineer according to the procedures contained in ATM 413.

All voids left by sampling shall be backfilled with new asphalt concrete material and compacted within 24 hours of sampling. All core holes on final lift will be sealed with GSB-88, after being backfilled and compacted, or have Craftco Joint adhesive applied prior to backfill and compaction.

Cores for mat density shall not be taken closer than one foot from a transverse or longitudinal joint.

(4) Joint Density. Longitudinal joint density cores shall be taken directly on the joint, at locations adjacent to cores taken from the mat completing the joint. Cores shall be taken by the Contractor in the presence of the Engineer. The Engineer will take immediate possession of the samples.

(5) Asphalt Binder Grade. Sample asphalt binder at the plant from the supply line in the presence of the Engineer according to ATM 401. The Engineer will take immediate possession of the samples. Take three samples from each lot, one for acceptance testing, one for Contractor requested retesting, and one held in reserve for referee testing if requested.

c. Testing.

(1) Asphalt Binder Content. Asphalt binder content will be determined by ATM 405 or ATM 406, by total weight of mix.

(2) Gradation. Cold feed or dry batched aggregate gradations will be tested according to ATM 304 and evaluated for acceptance according to subsection 401-6.2. Asphalt concrete mix and core sample gradations will be determined according to ATM 408 from extracted aggregate, or aggregate remaining after the ignition oven ATM 406 has burned off the asphalt binder.

(3) Density. Mat density will be based on theoretical maximum specific gravity (MSG) as determined by ATM 409. For the first lot of HMA, the MSG will be determined by the JMD. For additional lots, the MSG will be determined from the randomly selected sample from the first sub-lot.

For the top lift longitudinal joint density, use the MSG of the panel completing the joint. No adjustment will be made to the MSG or any other material property, due to application of joint adhesive, in evaluating joint density.

Core samples will be tested according to ATM 410, and evaluated for acceptance according to subsection 401-6.2.

(4) Asphalt Binder Grade. Asphalt binder will be tested for conformance to the requirements specified in subsection 401-2.3 and evaluated for acceptance according to subsection 401-6.2.

401-6.2 ACCEPTANCE CRITERIA.

a. General. Acceptance will be based on the following characteristics of the HMA and completed pavement as well as the implementation of the Contractor's Quality Control Plan (CQCP) and test results:

(1) Aggregate Gradation

(2) Asphalt Binder Content

(3) Mat Density

(4) Joint Density

(5) Thickness

(6) Smoothness

(7) Grade

(8) Asphalt Binder Quality

The Engineer may at any time reject and require the Contractor to dispose of any batch of HMA which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or improper mix temperature. Such rejection may be based on only visual inspection or temperature measurements. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the Engineer, and, if it can be demonstrated in a certified laboratory, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

b. Mat Density, Aggregate Gradation, and Asphalt Binder Content. Evaluation for acceptance of each lot of plant-produced material for mat density, aggregate gradation, and asphalt binder content

will be based on percentage of material within specification limits (PWL). Acceptance and payment for the lot will be according to subsection 401-8.1.

(1) Percentage of Material within Specification Limits (PWL). Acceptance of test results for HMA asphalt binder content, gradation and mat density are used in HMA price adjustment. These test results for a lot are analyzed collectively and statistically by the Quality Level Analysis (QLA) method as specified in GCP Section 110 to determine the total estimated percentage of the lot that is within specification limits.

HMA pay factors are computed as follows:

(a) All statistical Quality Level Analysis (QLA) is computed using the Engineer's Price Adjustment programs.

(b) The USL and LSL are equal to the Target Value (TV) plus and minus the allowable tolerances. The specification tolerance limits (L) and (U) are contained in Table 401-13. The values for percent passing the No. 200 sieve, asphalt binder content and density test results are reported to the nearest 0.1%. All other sieves used in QLA are reported to the nearest whole number. The TV is the specification value shown on the approved JMD.

TABLE 401-13. LOWER SPECIFICATION TOLERANCE LIMIT (L) AND UPPER SPECIFICATION TOLERANCE LIMIT (U)

Measured Characteristics	L	U
3/4 in.	99	100
1/2 in.	TV -6	TV +6
3/8 in.	TV -6	TV +6
No. 4	TV -6	TV +6
No. 8	TV -6	TV +6
No. 16	TV -5	TV +5
No. 30	TV -4	TV +4
No. 50	TV -4	TV +4
No. 100	TV -3	TV +3
No. 200 *	TV -2.0 *	TV +2.0
Asphalt %	TV -0.4	TV +0.4
Mat Density	93.0%	100.0%

TV (Target Value) = Job Mix Design value for gradation and asphalt binder content
* L for the No. 200 sieve is restricted by the broadband limits Table 401-8.

c. Longitudinal Joint Density. The minimum density for top lift longitudinal joint density is 92.0% of the MSG of the panel completing the joint. MSG will be determined according to ATM 409. Top lift longitudinal joints will be evaluated for acceptance according to 401-8.1b.

For a joint core that is less than 92.0% of the MSG perform corrective action on the sublot containing the joint core. Perform Corrective Action by heating the longitudinal joint to compaction temperatures with an infrared heater and compact to at least 92.0% of the MSG. Do not exceed mixing temperatures as indicated on the mix design. Material may be added to the joint to meet surface tolerances, but do not skin patch. Perform corrective action prior to grooving or striping. After corrective action is performed and joint is acceptable, seal the joints in the sub-lot per 401-4.14.

d. Thickness. Thickness of each lift will be evaluated by the Engineer to the requirements shown on the Plans. Measurements of thickness will be made by the Engineer using the cores extracted from

the mat for each sub-lot for density measurement. The maximum allowable deficiency at any point will not be more than 1/4-inch less than the thickness indicated for the lift. Average thickness of lift, or combined lifts, will not be less than the indicated thickness. Where the thickness tolerances are not met, the lot or sub-lot shall be corrected by the Contractor at his expense by removing the deficient area and replacing with new pavement. The Contractor, at his expense, may take additional cores as approved by the Engineer to circumscribe the deficient area.

e. Smoothness.

(1) Non-runway HMA. The finished surfaces of the HMA shall not vary more than 1/4 inch for the surface layer when tested with a 12-foot straightedge. Straightedge testing will be performed in accordance with subsection 401-6.2e(2)(a).

(2) Runway HMA. The final surface shall be free from roller marks and will be subject to the following smoothness testing.

(a) Straight Edge Testing. After the final rolling, the surface of each lot shall be tested in both transverse and longitudinal directions for smoothness. The finished surface course of the pavement shall not vary more than 1/4-inch when evaluated with a 12-foot straightedge. Measurements will include joints.

1. **Transverse Measurements.** Transverse measurements will be taken for each lot placed. Transverse measurements will be taken perpendicular to the pavement centerline every 50 feet or more often as determined by the Engineer.

2. **Longitudinal Measurements.** Longitudinal measurements will be taken for each lot placed. Longitudinal tests will be parallel to the centerline of paving; at the center.

(b) Profilograph Smoothness for QA Acceptance. Not used. ~~The final profilograph shall be the full length of the project to facilitate testing of roughness between lots. The Engineer will perform a profilograph roughness test on the completed project with a profilograph meeting the requirements of ASTM E1274 or a Class I inertial profiler meeting ASTM E950. Data and results shall be provided within 48 hours of profilograph roughness tests.~~

~~The pavement shall have an average profile index less than 15 inches per mile per 1/10-mile. The equipment shall utilize electronic recording and automatic computerized reduction of data to indicate "must grind" bumps and the Profile Index for the pavement using a 0.2-inch blanking band. The bump template must span one inch with an offset of 0.4 inches. The profilograph must be calibrated prior to use and operated by a factory or Department approved, trained operator.~~

~~Profilograms shall be recorded on a longitudinal scale of one inch equals 25 feet and a vertical scale of one inch equals one inch. Profilograph shall be performed one foot right and left of project centerline and 15 feet right and left of project centerline.~~

(c) Corrective Action. Areas of unacceptable smoothness on final surface course shall be corrected with diamond grinding per subsection 401-4.16 or by removing and replacing full depth of surface course.

~~Where corrections are necessary, a second profilograph run shall be performed to verify that the corrections produced an average profile index of 15 inches per mile per 1/10-mile or less.~~

f. Grade. Grade shall be evaluated after the first day of placement and then as a minimum, prior to the placement of the surface lift and after the placement of the surface lift to allow adjustments to paving operations if measurements do not meet specification requirements. The Contractor shall provide the survey data/results to the Engineer by the following day after the measurements have

been taken. Measurements shall be taken at appropriate gradelines (as a minimum at center and edges of paving lane) and 50-foot longitudinal spacing on cross sections verifying that the surface is in conformance with project Plans and cross sections. Data shall include the difference between the measured surface and plan grades.

The finished surface of the pavement shall not vary from the gradeline elevations and cross sections shown on the Plans by more than 0.05-foot. The finished grade of each lot will be determined by running levels at intervals of 50 feet or less longitudinally and transversely to determine the elevation of the completed pavement. The lot size will be 2,000 square yards. When more than 15% of all the measurements within a lot are outside the specified tolerance, the Contractor shall remove the deficient area and replace with new material. Removal depth shall be a minimum of 2 inches. Skin patching for correcting low areas will not be permitted. High points may be ground off.

g. Asphalt Binder Quality. Acceptance and payment for the lot shall be determined according to subsection 401-8.1c. If three consecutive samples are out of specification, stop HMA production immediately and submit a corrective action plan to the Engineer for approval.

401-6.3 RETESTS.

a. General. When test results have failed to meet specification tolerance limits, retest of acceptance test results for asphalt binder content, gradation, and density may be requested provided the quality control requirements of subsection 401-6.3 are met. Deliver this request in writing to the Engineer within seven days of receipt of the final test of the lot.

The Engineer will mark the sample location for the density retest within a 2-foot radius of the original core. The original test results are discarded and the retest result is used in the price adjustment calculation regardless of whether the retest result gives a higher or lower pay factor.

Only one retest per sample is allowed. Except for the first lot, when gradation and asphalt binder content are determined from the same sample, retesting for gradation or asphalt binder from the first sub-lot of a lot will include retesting for the MSG; when separate samples are used, retesting for asphalt binder content will include retesting for MSG.

When gradation and asphalt binder content are determined from the same sample, a request for a retest of either gradation or asphalt binder content results in a retest of both. Both gradation and asphalt binder content retest results are used in the price adjustment calculation. Retesting will be performed by a department laboratory.

(1) A redefined PWL will be calculated for the lot.

(2) The cost for resampling shall be borne by the Contractor.

(3) Asphalt Binder Grade Retest. Retest of acceptance test results may be requested provided the quality control requirements of subsection 401-6.3 are met.

The assigned test value (ATV) will be determined using ASTM D3244. Testing will be by AASHTO accredited independent laboratories. Each test will be completed by a different laboratory.

Submit a written request, for a retest, no more than seven days from receiving notice of the failed acceptance test. In the request, identify the retest laboratory. The Engineer will send the second sample (retest sample) to the laboratory. Provide the retest results to the Engineer. Contractor pays for the retest costs.

If the average of the combined test results ([acceptance + retest]/2) passes the specification requirement, the average value becomes the ATV. If this ATV fails the specification

requirement, the Engineer or Contractor may request the third sample (referee sample) be tested.

The Engineer will send the third sample (referee sample) to an agreed upon laboratory. The average of the combined test results ([acceptance + retest + referee]/3) equals the ATV. If the ATV fails to meet Specifications, the Contractor pays for the referee test.

b. Payment for Resampled Lots. The redefined PWL for a resampled lot will be used to calculate the payment for that lot according to GCP Section 110.

401-6.4 RESAMPLING PAVEMENT FOR MAT DENSITY. (Subsection Not Used)

401-6.5 LEVELING COURSE. The leveling course is the first variable thickness lift placed to correct surface irregularities prior to placement of subsequent courses. The leveling course shall meet the aggregate gradation in Table 401-8, subsection 401-3.3. The leveling course shall meet the requirements of subsection 401-3.3 and 401-6.2, but shall not be subject to the mat density or joint density requirements. The leveling course shall be compacted with the same effort used to achieve density of the control strip. The leveling course shall not exceed the lift thickness associated with each gradation in Table 401-8, subsection 401-3.3.

METHOD OF MEASUREMENT

401-7.1 MEASUREMENT. HMA will be measured by the number of tons used in the accepted work, based on recorded truck scale weights. No deduction will be made for the weight of asphalt binder in the mixture.

Asphalt binder will be measured by the number of tons of asphalt binder used in the accepted pavement determined as follows:

The method of measurement to be used will be based on one of the following procedures listed in subsections a, b, and c.

a. Supplier's invoices minus waste, diversion and excess left over. This method may be used on projects where deliveries are made in sealed tankers and the plant is producing material for one project only. Method b. will be used to compute left over. Waste and diversion will be computed in a manner to be determined by the Engineer.

b. Volume measure (tank stickings) of actual daily uses. It is the Contractor's responsibility to notify the Engineer whenever material is to be added to the calibrated volume measure or whenever material from the volume measure is to be used for work other than that specified in this contract.

c. Percent of asphalt binder content for each sub-lot as determined by ATM 405 or ATM 406 multiplied by the weight represented by that sub-lot.

Method c. will be used for determining asphalt binder quantity unless otherwise directed in writing by the Engineer. Whichever method is used must be used for the duration of the project. Another method may be used and computed as a check, but only one method will be used for payment computation.

Longitudinal Joint Density Price Adjustment will be measured by the linear foot of top lift longitudinal joint under subsection 401-8.1(b).

Joint Adhesive will not be measured for payment and is subsidiary to P401 Pay Items.~~be measured by the linear foot of longitudinal and transverse joint.~~

401-7.2 ASPHALT MATERIAL PRICE ADJUSTMENT. Asphalt Material Price Adjustment. This subsection provides a price adjustment for asphalt material by: (1) additional compensation to the Contractor or (2) a deduction from the contract amount.

a. This provision shall apply:

(1) To asphalt binder material meeting the criteria of section P-401-2.3, and is included in items listed in the bid schedule of section P-602, P-603, P-609, and P-626.

(2) When there is more than 500 tons of asphalt material in the bid schedule of section described in 401-7.2.a(1).

(3) To cost changes in asphalt material that occur between the date of bid and the date on the certified bill of lading from the asphalt material refiner/producer.

(4) When there is more than a seven and one half percent (7.5%) increase or decrease in the Alaska Asphalt Material Price Index (AAMPI) from the date of bid opening to the date on the certified bill of lading from the asphalt refiner/producer.

b. Provide the certified bill of lading from the asphalt material refiner/producer.

c. The AAMPI is calculated bimonthly on the first and third Friday of each month, and will remain in effect from the day of calculation until the next bimonthly calculation. The AAMPI is posted on the Department's Statewide Materials website at and calculated according to the formula posted there. http://www.dot.state.ak.us/stwddes/desmaterials/aprice_index.shtml

d. Price adjustment will be cumulative and calculated with each progress payment. Use the AAMPI in effect in the date of the certified bill of lading from the asphalt material refiner/producer, to calculate the price adjustment for asphalt material. The Department will increase or decrease payment under this contract by the amount determined with the following asphalt material price adjustment formula:

(1) For an increase exceeding 7.5 percent, additional compensation = [(IPP - IB) – (0.075 x IB)] x Q

(2) For a decrease exceeding 7.5 percent, deduction from contract = [(IB – IPP) – (0.075 x IB)] x Q

Where:

Q = Quantity of asphalt material incorporated into the project during the pay period, in tons as measured by the Engineer

IB = Index at Bid: The bimonthly AAMPI in effect on the date of bid, in dollars per ton

IPP = Index at Pay Period: the bimonthly AAMPI in effect on the date shown on the certified bill of lading from the asphalt refiner/producer, in dollars per ton

e. Method of measurement for determining Q (quantity) is the weight of asphalt material that meets criteria of this subsection and is incorporated into the project. The quantity does not include aggregate, mineral filler, blotter material, thinning agents added after material qualification, or water for emulsified asphalt. The quantity for emulsified asphalts will be based on the asphalt residue material only and will be calculated using the percent residue from testing, or if not tested, from the manufacturers certificate of compliance.

BASIS OF PAYMENT

401-8.1 PAYMENT. Payment for an accepted lot of HMA will be made at the contract unit price per ton for HMA and asphalt binder adjusted according to subsection 401-8.1a. The quantity of hot mix asphalt paid for will not exceed 105 percent of the weight determined on the basis of average core density, the specified neat line thickness, and the completed area of hot mix asphalt.The price shall be compensation for furnishing all materials, for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

a. HMA Price Adjustment. The HMA price adjustment will be the sum of the HMA price adjustments for each lot. Acceptance test results for HMA asphalt binder content, gradation, and mat density are used in the HMA price adjustment. These tests results for a lot are analyzed collectively and statistically by the Quality Level Analysis (QLA) method as specified in GCP subsection 110-01 to determine the total estimated percentage of the lot that is within specification limits.

The price adjustment will be based on the Composite Pay Factor (CPF) for asphalt binder content and aggregate gradation or the Density Pay Factor (DPF) whichever is the lowest value. Table 401-14 is used to determine the weight factor (f) for each sieve size and asphalt binder content. The HMA Composite Pay Factor (CPF) is computed for asphalt binder content and all sieves using the following formula:

$$CPF = \frac{[f3/4in\ (PF3/4in) + f1/2in(PF1/2in) + \ldots\ldots fac\ (PFac)]}{\Sigma f}$$

TABLE 401-14. WEIGHT FACTORS

	Type I Factor "f"	Type II and V Factor "f"	Type III Factor "f"
1 in	4	-	-
3/4 in.	4	4	-
1/2 in.	4	5	4
3/8 in.	4	5	5
No. 4	4	4	5
No. 8	4	4	5
No. 16	4	4	5
No. 30	4	5	6
No. 50	4	5	6
No. 100	4	4	4
No. 200	20	20	20
Asphalt %	40	40	40

The Density Pay Factor (DPF) is computed using HMA mat core compaction acceptance test results.

The CPF and DPF are rounded to the nearest 0.001. The price adjustment for each individual lot is calculated as follows:

HMA Price Adjustment = [(CPF or DPF)*-1] x (tons in lot) x (PAB)

PAB = Price Adjustment Base per ton (for mix including asphalt binder)

*Composite Pay Factor (CPF) or Density Pay Factor (DPF) whichever is lower value.

Price Adjustment Base shall be the lessor of:

(1) Dollars per ton as follows:

PAB = [$115.00] per ton Hot Mix Asphalt [Type V], [Class S].~~;~~

~~or,~~

~~**(2)** The value in dollars per ton calculated as follows: [Contractor's Bid/ton for Hot Mix Asphalt [Type ___], [Class ___]] +~~

~~[Contractor's Bid/ton for Asphalt Binder, PG [___] x (% JMD Optimum Oil Content / 100)]~~

A lot containing material with less than a 1.000 pay factor is accepted at an adjusted price, provided that pay factor is at least 0.800 and there are no isolated defects identified by the Engineer. A lot containing material that fails to obtain the minimum pay factor is considered unacceptable and rejected under GCP Section 110.

Hot Mix Asphalt Price Adjustment also includes fees assessed for additional JMDs as identified in 401-3.2.

b. Longitudinal Joint Density Price Adjustment. The longitudinal joint density price adjustment will be based on top lift cold joint densities greater than 93.0%. Add $1.50 per lineal foot for one-half the distance to each prior and subsequent passing joint density greater than 93.0%.

c. Asphalt Binder Price Adjustment. A lot quantity of asphalt binder, with a quality pay factor less than 1.000 is accepted or rejected according to Table 401-15, Asphalt Binder Quality Pay Factors.

Table 401-15. ASPHALT BINDER QUALITY PAY FACTORS

Pay Factor			**1.01**	**1.00**	**0.95**	**0.90**	**0.75**	**Reject**
RTFO (Rolling Thin Film Oven)								
DSR(1)	All Grades	G*/Sinδ, kPa^{-1}	≥2.69	2.68-2.20	2.19-1.96	1.95-1.43	1.42-1.10	< 1.10
MSCR(2)	PG 52-40V	$J_{NR\ 3.2}$	≤ 0.39	0.40-0.50	0.51-0.59	0.60-0.69	0.70-1.00	> 1.00
		% $Rec_{3.2}$	≥ 86	85-75	74-68	67-60	59-55	< 55
	PG 58-34E	$J_{NR\ 3.2}$	≤0.19	0.20-0.25	0.26-0.29	0.30-0.39	0.40-0.50	> 0.50
		% $Rec_{3.2}$	≥90	89-85	84-80	79-75	74-70	< 70
	PG 64-40E	$J_{NR\ 3.2}$	≤ 0.05	0.05-0.10	0.11-0.15	0.16-0.20	0.21-0.25	> 0.25
		% $Rec_{3.2}$	≥97	96-95	94-91	90-85	84-80	< 80
PAV (Pressure Aging Vessel)								
DSR(3)	PG 64-40E And all other Grades	G*Sinδ, kPa	≤4711	4712 - 5000	5001-5289	5290-5578	5579-5867	> 5867
	PG 52-40V, PG 58-34E	G*Sinδ, kPa	≤5700	5701-6000	6001-6300	6301-6600	6601-7000	> 7000
CS(4,5)	All Grades(4)	BBR, "S" MPa	≤247	248-300	301-338	339-388	389-449	≥ 450
	All Grades(5)	BBR, "M"	≥0.320	0.319-0.300	0.299-0.294	0.293-0.278	0.277-0.261	<0.261

Creep Stiffness (CS) Dynamic Shear Rheometer (DSR) Multiple Stress Creep Recovery (MSCR)

Asphalt Binder Price Adjustment = (Lowest Pay Factor – 1.00) x (Binder Quantity) x PAB x 5

Select the lowest pay factor from:

RTFO (test at Performance Grade Temperature)

(1) DSR, All Grades, G*/Sinδ, kPa-1

(2) MSCR: PG, Select the highest pay factor, either JNR 3.2 or % Rec3.2

PAV

(3) Intermediate DSR, PG, G*Sinδ, kPa

(4) CS, All Grades, BBR, S MPa

(5) CS, All Grades, BBR, M

If Pay Item P401.130.0000 HMA Combined Price Adjustment is in the Bid Schedule, the Price Adjustment Pay Items (P401.080.0000 Hot Mix Asphalt Price Adjustment, Method 1, P401.110.0000 Longitudinal Joint Density Price Adjustment, and P401.120.0000 Asphalt Binder Quality Price Adjustment) will be paid under P401.130.0000 HMA Combined Price Adjustment.

Payment will be made under:

Item P401.010.0030	Hot Mix Asphalt Type II, Class A - per ton
Item P401.040.5834	Asphalt Binder, PG 58-34E - per ton
Item P401.080.0000	Hot Mix Asphalt Price Adjustment – per contingent sum
Item P401.090.0000	Asphalt Material Price Adjustment – per contingent sum
Item P401.110.0000	Longitudinal Joint Density Price Adjustment – per contingent sum
Item P401.120.0000	Asphalt Binder Quality Price Adjustment – per contingent sum

REFERENCES

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

Alaska Test Methods (ATM) Manual

ATM 202	Moisture Content of Aggregate and Soils
ATM 204	Liquid Limit of Soils
ATM 205	Plastic Limit and Plasticity Index of Soils
ATM 301	Sampling Aggregates
ATM 304	Sieve Analysis of Aggregate and Soils
ATM 305	Determining the Percentage of Fracture in Coarse Aggregate.
ATM 306	Flat and Elongated
ATM 307	Sand Equivalent
ATM 401	Sampling Bituminous Materials
ATM 402	Sampling Bituminous Mixes
ATM 403	Sampling Hot Mix Asphalt
ATM 405	Asphalt Binder Content of Asphalt Concrete Mixtures by the Nuclear Method
ATM 406	Asphalt Binder Content of Bituminous Mixes by Ignition Method
ATM 407	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method
ATM 408	Mechanical Analysis of Extracted Aggregate
ATM 409	Maximum Specific Gravity of Bituminous Mixes
ATM 410	Bulk Specific Gravity and Percent Compaction of Bituminous Mixes

ATM 411 In-Place Density of Asphalt Mixtures by Nuclear Method

ATM 413 Sampling Hot Mix Asphalt (HMA) after Compaction (Obtaining Cores)

ATM 414 Anti-Strip Requirements of Hot Mix Asphalt

ATM 417 Hot Mix Asphalt Design by the Marshall Method

ATM 419 Rutting Susceptibility using an Asphalt Pavement Analyzer

ASTM International (ASTM)

ASTM D5 Penetration of Bituminous Materials

ASTM D113 Ductility of Asphalt Materials

ASTM D242 Mineral Filler for Bituminous Paving Mixtures

ASTM D244 Practices for Emulsified Asphalts

ASTM D1073 Fine Aggregate for Asphalt Paving Mixtures

ASTM D2007 Characteristic Groups in Rubber Extender and Processing Oils and Other Petroleum-Derived Oils by the Clay-Gel Absorption Chromatographic Method

ASTM D2042 Solubility of Asphalt Materials in Trichloroethylene

ASTM D2172 Quantitative Extraction of Bitumen from Asphalt Paving Mixtures

ASTM D2669 Apparent Viscosity of Petroleum Waxes Compounded with Additives (Hot Melts)

ASTM D3244 Utilization of Test Data to Determine Conformance with Specifications

ASTM D3666 Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

ASTM D4402 Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer

ASTM D4552 Classifying Hot-Mix Recycling Agents

ASTM D5329 Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphalt Pavements and Portland Concrete Pavements

ASTM E1274 Measuring Pavement Roughness Using a Profilograph

ASTM E950 Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference

ASTM E2133 Using a Rolling Inclinometer to Measure Longitudinal and Transverse Profiles of a Traveled Surface

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M 17 Mineral Filler for Bituminous Paving Mixtures

AASHTO M 156 Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures

AASHTO M 320 Performance-Graded Asphalt Binder

AASHTO M 332 Performance-Graded Asphalt Binder Using Multiple Stress Creep Recovery (MSCR) Test

AASHTO R 35 Superpave Volumetric Design for Asphalt Mixtures

AASHTO T 96 Resistance to Degradation of Small-size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

AASHTO T 104 Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate

AASHTO T 195 Determining Degree of Particle Coating of Bituminous-Aggregate Mixtures

AASHTO T 304 Uncompacted Void Content of Fine Aggregate

AASHTO T 314 Determining the Fracture Properties of Asphalt Binder in Direct Tension (DT)

AASHTO T 315 Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)

AASHTO T 316 Viscosity Determination of Asphalt Binder Using Rotational Viscometer

AASHTO T 327 Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus

AASHTO T 350 Multiple Stress Creep Recovery (MSCR) Test of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)

Asphalt Institute (AI)

Asphalt Institute MS-2 Mix Design Manual, 7th Edition

ITEM P-608-R RAPID CURE SEAL COAT

DESCRIPTION

608-R-1.1 This item shall consist of the application of an asphalt surface treatment composed of natural and refined asphalt materials, additives, and light oils, for taxiways and runways with the application of a suitable aggregate to maintain adequate surface friction; and airfield secondary and tertiary pavements including aprons, shoulders, overruns, roads, parking areas, and other general applications with or without aggregate applied as designated on the Plans.

The terms seal coat, asphalt sealer, and asphalt material are interchangeable throughout this specification. The term asphalt means natural and refined asphalt materials in this specification.

MATERIALS

608-R-2.1 AGGREGATE. The fine-aggregate material shall be a dry, clean, sound, durable, angular shaped, with highly textured surfaces, manufactured specialty abrasive aggregate. It shall have 100% fractured faces, SiO2 content of 55% minimum, CaO of 3% max, with a sand equivalent greater than 85 and a Mohs hardness of 7 or greater. Additional characteristics as outlined in Table 608-R-1. The Contractor shall submit specialty aggregate manufacturer's technical data and the specialty aggregate manufacturer's certification indicating that the specialty aggregate meets the requirements of the specification to the Engineer prior to start of construction. The aggregate must be approved for use by the Engineer and shall meet the gradation limits in Table 608-R-2 when tested in accordance with ASTM C136:

TABLE 608-R-1
AGGREGATE CHARACTERISTICS

Test	Standard	Range
Micro-Deval	ASTM D7428	15% max
Magnesium Sulfate Soundness	ASTM C88	2% max
Aggregate Angularity	ASTM C1252 – Test Method A	45% min
Moisture Content (%)	ASTM C566	2% max
Bulk Dry Specific Gravity	ASTM C128	2.6 – 3.0
Absorption (%)	ASTM D2216	3% max
Mohs Hardness	Mohs Scale	7 min

TABLE 608-R-2
AGGREGATE GRADATION REQUIREMENTS

Sieve	Percent Passing by Weight
No. 8	100
No. 14	98 - 100
No. 16	85 - 100
No. 30	15- 45
No. 50	0 – 8
No. 70	0 - 2

The Contractor shall provide a certification of analysis (COA) showing analysis and properties of the material delivered for use on the project. The Contractor's certification may be subject to verification by testing the material delivered for use on the project.

608-R-2.2 ASPHALT MATERIAL. The asphalt material base residue shall contain not less than 40% gilsonite, or uintaite, and shall not contain any tall oil pitch or coal tar material. The material shall be compatible with asphalt pavement, and have a 5-year minimum proven aviation performance record at airports with similar climatic conditions.

The solvent-based rapid cure material shall meet the following properties:

Kinematic Viscosity at 140°F, ASTM D4402, cSt.	10-30
Percent Residue by Distillation, ASTM D402, or Evaporation	30-45%

The residue from distillation shall have the following properties:

Penetration at 77°F, ASTM D5, dmm	2-12
Softening Point, ASTM D36	180-200
Solubility in 1,1,1 Trichloroethylene, ASTM D2042	99% min.

The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the asphalt sealer delivered to the project. If the asphalt sealer is diluted at other than the manufacturer's facility, the Contractor shall provide a supplemental COA from an independent laboratory verifying the asphalt sealer properties. The COA shall be provided to and approved by the Engineer before the asphalt material is applied. The furnishing of the vendor's certified test report for the asphalt material shall not be interpreted as a basis for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

The asphalt sealing material must be applied in an undiluted form. The material may be stored at ambient temperature for long periods of time if necessary. Storage will follow industry standard recommendations due to the flammability of the material; avoid sparks and open flames to come into contact with the material or any gasses that might be escaping the storage vessel.

Contractor shall provide a list of airport pavement projects, exposed to similar climate conditions, where this product has been successfully applied within at least 5 years of the project.

608-R-2.3 SEAL COAT WITH AGGREGATE. The Contractor shall submit friction test data from at least two (2) airport projects identified under subsection 608-R-2.2. The test data must be from the same project and include technical details on application rates, aggregate rates, and point of contact at the airport to confirm use and success of sealer with aggregate.

Friction test data in accordance with the Federal Aviation Administration (FAA) Advisory Circular *(AC) 150/5320-12, Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces*, at 40 or 60 miles per hour (mph) wet, must include as a minimum; the friction value prior to sealant application; two values, between 24 and 96 hours after application, with a minimum of 24 hours between tests; and one value between 180 days and 360 days after the application. The results of the tests between 24 and 96 hours shall indicate friction is increasing at a rate to obtain similar friction value of the pavement surface prior to application, and the long-term test shall indicate no apparent adverse effect with time relative to friction values and existing pavement surface.

Seal coat material submittal without required friction performance will not be approved. Friction tests performed on this project cannot be used as a substitute of this requirement.

COMPOSITION AND APPLICATION RATE

608-R-3.1 APPLICATION RATE. The approximate amounts of materials per square yard (square meter) for the asphalt surface treatment shall be as provided in the table for the treatment area(s) at the specified rate(s) as noted on the plans. The actual application rates will vary within the range specified to suit field conditions and will be recommended by the manufacturer's representative for control strip evaluations, and approved by the Engineer from the test area/sections evaluation.

TABLE 608-R-3
APPLICATION RATE

Dilution Rate	Quantity of Sealer gal/yd^2	Quantity of Aggregate lb/yd^2
N/A	0.08-0.15	0.40-0.50

608-R-3.2 CONTROL AREAS AND CONTROL STRIPS. A qualified manufacturer's representative shall be present in the field to assist the Contractor in applying control areas and/or control strips to determine the appropriate application rate of both sealer and aggregate to be evaluated and approved by the Engineer.

A test area and/or section shall be applied for each differing asphalt pavement surface identified in the project. The control area(s) and/or control strip(s) shall be used to determine the material application rate(s) of both sealer and aggregate prior to full production. The same equipment and method of operation shall be utilized on the control area(s) and/or control strip(s) as will be utilized on the remainder of the work.

a. **For Taxiway, Taxilane and Apron Surfaces.** Prior to full application, the Contractor shall place test areas at varying application rates as recommended by the Contractor's manufacturer's representative to determine appropriate application rate(s). The test areas will be located on representative section(s) of the pavement to receive the asphalt surface treatment designated by the Engineer.

b. **For Runway and High-Speed Exit Taxiway Surfaces.** Prior to full application, the Contractor shall place a series of control strips a minimum of 300 feet long by 12 feet wide, or width of anticipated application, whichever is greater, at varying application rates as recommended by the manufacturer's representative and acceptable to the Engineer to determine appropriate application rate(s). The control strips should be separated by a minimum of 200 feet between control strips. The area to be tested will be located on a representative section of the pavement to receive the asphalt surface treatment designated by the Engineer. The control strips should be placed under similar field conditions as anticipated for the actual application. Before beginning the control strip(s), the skid resistance of the existing pavement shall be determined for each control strip with a continuous friction measuring equipment (CFME). The skid resistance of existing pavement can be immediately adjacent to the control strip or at the same location as the control strip if testing prior to application.

   The Contractor may begin testing the skid resistance of runway and high-speed exit taxiway control strips after application of the asphalt surface treatment has fully cured. If seal coat is to be applied when atmospheric and pavement surface temperatures are below 55°F and rising, consult with the manufacturer's representative regarding time for seal coat to fully cure. Aircraft shall not be permitted on the runway or high-speed exit taxiway control strips until such time as the Contractor validates that its surface friction meets the maintenance planning friction levels in AC 150/5320-12, Table 3-2 when tested at speeds of 40 and 60 mph wet with approved CFME.

   Prior to full application on runway and high speed exit taxiway surfaces, submit to the Engineer written documentation of skid resistance of the control area/control strip measured according to AC 150/5320-12.

c. **Control Strip.** If the control strip should prove to be unsatisfactory, necessary adjustments to the application rate, placement operations, and equipment shall be made. Additional control strips shall be placed and additional skid resistance tests performed and evaluated. Full production shall not begin without the Engineer's approval of an appropriate application rate(s). Acceptable control strips shall be paid for in accordance with subsection 608-R-8.1.

CONSTRUCTION METHODS

608-R-4.1 WORKER SAFETY. The Contractor shall obtain a Safety Data Sheet (SDS) for both the asphalt sealer product and aggregate and require workmen to follow the manufacturer's recommended safety precautions. All additional industry standard safety precautions regarding the storage and applications of solvent based asphalts should be understood and followed by the Contractor.

608-R-4.2 WEATHER LIMITATIONS. The asphalt sealer shall be applied only when the existing pavement surface is dry and when the weather is not foggy, rainy, or when the wind velocity will prevent the uniform application of the material. No material shall be applied when dust or aggregate is blowing or when rain is anticipated within 4 hours of application completion. The atmospheric temperature and the pavement surface temperature shall both be at, or above 40°F and rising. If seal coat is to be applied when atmospheric and pavement surface temperatures are below 55°F and rising, consult with the manufacturer's representative regarding time for seal coat to fully cure. The sealer shall not be applied when pavement temperatures are expected to exceed 160°F within the subsequent 72 hours, if traffic will be opened on pavement within those 72 hours. During application, account for wind drift. Cover existing buildings, structures, runway edge lights, taxiway edge lights, informational signs, retro-reflective marking and in-pavement duct markers as necessary to protect against overspray before applying the sealer. Should sealer get on any light or marker fixture, promptly clean the fixture. If cleaning is not satisfactory to the Engineer, the Contractor shall replace any light, sign or marker with equivalent equipment at no cost to the Department.

Contractor shall submit an overspray shielding plan to the Engineer for approval prior to beginning surface treatment. Shielding shall be used when working near parked aircraft, in windy conditions, or as directed by the Engineer.

608-R-4.3 EQUIPMENT AND TOOLS. The Contractor shall furnish all equipment, tools, and machinery necessary for the performance of the work.

a. Pressure Distributor. The sealer shall be applied with a manufacturer-approved computer rate-controlled asphalt distributor. The equipment shall be in good working order and contain no contaminants or diluents in the tank. Spray bar tips must be clean, free of burrs, and of a size to maintain an even distribution of the sealer. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process with application speeds under 8 mph or 700 feet per minute (fpm).

The Contractor will provide verification of truck set-up (via a test-shot area), including but not limited to, nozzle tip size appropriate for application per nozzle manufacturer, spray-bar height and pressure and pump speed appropriate for the viscosity and temperature of sealer material, evidence of triple-overlap spray pattern, lack of leaks, and any other factors relevant to ensure the truck is in good working order before use. The distributor truck shall be equipped with a 12-foot, minimum, spray bar with individual nozzle control. The distributor truck shall be capable of specific application rates in the range of 0.05 to 0.25 gallons per square yard.

These rates shall be computer-controlled rather than mechanical. The distributor truck shall have an easily accessible thermometer that constantly monitors the temperature of the sealer, and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy.

The distributor truck shall effectively mix the material prior to application.

The distributor shall be equipped with a hand sprayer to spray the sealer in areas not accessible to the distributor truck.

b. Aggregate Spreader. The asphalt distributor truck will be equipped with an aggregate spreader mounted to the distributor truck that can apply aggregate to the sealer in a single pass operation without driving through wet sealer. The aggregate spreader shall be equipped with a variable

control system capable of uniformly distributing the aggregate at the specified rate at varying application widths and speeds.

The aggregate spreader must be adjusted to produce an even and accurate application of specified aggregate. Prior to any seal coat application, the aggregate spreader will be calibrated onsite to ensure acceptable uniformity of spread. The Engineer will observe the calibration and verify the results. The aggregate spreader will be re-calibrated each time the aggregate rate is changed either during the application of test strips or production. The Contractor may consult the seal coat manufacturer representative for procedure and guidance. The aggregate spreader shall have a minimum hopper capacity of 3,000 pounds of aggregate. Push-type hand spreaders will be allowed for use around lights, signs and other obstructions, if necessary.

c. **Power Broom/Blower.** A power broom and/or blower shall be provided for removing loose material from the surface to be treated.

d. **Equipment Calibration.** Asphalt distributors must be calibrated within the same construction season in accordance with ASTM D2995. The Contractor must furnish a current calibration certification for the asphalt distributor truck from any State or other agency as approved by the Engineer.

608-R-4.4 PREPARATION OF ASPHALT PAVEMENT SURFACES. Clean pavement surface immediately prior to placing the seal coat so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film. Remove oil or grease from the asphalt pavement by scrubbing with a detergent, washing thoroughly with clean water, and treating these areas with the oil spot primer. Patch or prepare asphalt pavement surfaces, and remove markings for seal coat as follows:

a. **Patching and Repair.** Patch asphalt pavement surfaces that have been softened by petroleum derivatives or have failed due to any other cause. Remove damaged pavement to the full depth of the damage and replace with new asphalt pavement similar to that of the existing pavement. Materials and methods of construction shall comply with the applicable sections of these Specifications.

b. **Crack Sealing and Preparation.** Remove all vegetation and debris from cracks to a minimum depth of 1-inch. If extensive vegetation exists, treat the specific area with a concentrated solution of a water-based herbicide approved by the Engineer. Fill all cracks wider than 1/4-inch with a crack sealant meeting ASTM D6690, Type IV. The crack sealant, preparation, and application shall be compatible with the surface treatment/overlay to be used. To minimize contamination of the asphalt with the crack sealant, underfill the crack sealant a minimum of 1/8-inch, not to exceed 1/4-inch. Any excess joint or crack sealant shall be removed from the pavement surface.

c. **Painted Marking Removal.** All painted stripes or markings identified on the Plans for removal from the surface to be treated shall be removed according to subsection P-620-3.3.

d. **New Asphalt Pavement Surfaces.** Allow new asphalt pavement surfaces to cure so that there is no concentration of oils on the surface. A period of at least 30 days at 70°F daytime temperatures should elapse between the placement of a hot mixed asphalt concrete surface course and the application of the surface treatment.

Perform a water-break-free test to confirm that the surface oils have degraded and dissipated. Cast approximately one gallon of clean water out over the surface. The water should sheet out and wet the surface uniformly without crawling or showing oil rings. If signs of crawling or oil rings are apparent on the pavement surface, additional time must be allowed for additional curing and retesting of the pavement surface prior to treatment.

Existing construction or transverse joints shall receive an initial application of seal coat 18 inches wide, centered on the joint.

608-R-4.5 APPLICATION OF ASPHALT SEALER. The asphalt sealer shall be applied using a pressure distributor upon the properly prepared, clean and dry surface at the application rate recommended by the manufacturer's representative and approved by the Engineer from the test area/sections evaluation for each designated treatment area. Recommended material temperature for application is 70°F to 90°F, but depending on the application equipment used, good material dispersion and pavement coverage may be achieved at lower material temperatures. The material should not be heated above 100°F.

Pavement surfaces which have excessive runoff of seal coat due to excessive amount of material being applied or excessive surface grade shall be treated in two or more applications, if feasible, to the specified application rate at no additional cost to the Owner. Each additional application shall be performed after the prior application of material has penetrated into the pavement.

If low spots and depressions greater than 1/2-inch in depth in the pavement surface cause ponding or puddling of the applied materials, the pavement surface shall be lightly broomed with a broom or brush type squeegee. Brooming shall continue until the pavement surface is free of any pools of excess material. Ponding and/or puddling shall not cause excessive pavement tackiness and/or additional distress.

During all applications, the surfaces of adjacent structures shall be protected to prevent their being spattered or marred. Asphalt materials shall not be discharged into borrow pits or gutters or on the airport area.

608-R-4.6 APPLICATION OF AGGREGATE MATERIAL. Immediately following the application of the asphalt sealer, aggregate at the rate recommended by the manufacturer's representative and approved by the Engineer from the test area/sections evaluation for each designated application area, shall be spread uniformly over the asphalt sealer in a single-pass operation simultaneous with the sealer application. The sealer material and aggregate shall be applied simultaneously in a single pass operation, so as to not drive through the applied fresh sealer. The aggregate shall be spread to the same width of application as the asphalt material and shall not be applied in such thickness as to cause blanketing.

Sprinkling of additional aggregate material, and spraying additional asphalt material over areas that show up having insufficient cover or bitumen, shall be done by hand whenever necessary. In areas where hand work is necessitated, the aggregate shall be applied before the sealant begins to break.

Minimize aggregate from being broadcast and accumulating on the untreated pavement adjacent to an application pass. Prior to the next application pass, the Contractor shall clean areas of excess or loose aggregate and remove from project site.

QUALITY CONTROL (QC)

608-R-5.1 MANUFACTURER'S REPRESENTATION. The manufacturer's representative knowledgeable of the material, procedures, and equipment described in the specification is responsible to assist the Contractor and Engineer in determining the appropriate application rates of the emulsion and aggregate, as well as recommendations for proper preparation and start-up of seal coat application. Documentation of the manufacturer representative's experience and knowledge for applying the seal coat product shall be furnished to the Engineer a minimum of 10 work days prior to placement of the control strips. The cost of the manufacturer's representative shall be included in the Contractor's bid price.

608-R-5.2 CONTRACTOR'S QUALIFICATIONS. The Contractor shall provide the Engineer with the seal coat Contractor's qualifications for applicators, personnel and equipment. The Contractor shall also provide documentation that the seal coat Contractor is qualified to apply the seal coat and has made at least 3 applications similar to this project in the past 2 years.

MATERIAL ACCEPTANCE

608-R-6.1 APPLICATION RATE. The rate of application of the asphalt emulsion shall be verified at least twice per day.

608-R-6.2 FRICTION TESTS. Friction tests in accordance with AC 150/5320-12 shall be accomplished on all runway and high-speed taxiways that have received a seal coat. Friction testing shall not be performed until seal coat is fully cured. Each test includes performing friction tests at 40 mph and 60 mph both wet, 15 feet to each side of runway centerline. The Contractor shall coordinate testing with the Engineer and provide the Engineer a written report of friction test results. The Engineer shall be present for testing.

METHOD OF MEASUREMENT

608-R-7.1 The quantity of asphalt surface treatment shall be measured according to GCP Section 90, and by the square yards of material applied in accordance with the Plans and specifications and accepted by the Engineer.

The Contractor must furnish the Engineer with the certified weigh bills when materials are received for the asphalt material used under this contract. The Contractor must not remove material from the tank car or storage tank until initial amounts and temperature measurements have been verified.

Initial application of seal coat to longitudinal and transverse joints shall be subsidiary to Pay Item P608.210.0000 Asphalt Surface Treatment, Rapid Cure.

BASIS OF PAYMENT

608-R-8.1 Payment shall be made at the contract unit price per square yard for the asphalt surface treatment applied and accepted by the Engineer. This price shall be full compensation for all surface preparation, furnishing all materials, delivery and application of these materials, for all labor, equipment, tools, and incidentals necessary to complete the item, including the friction testing and all work required to meet AC 150/5320-12, initial joint application, and any costs associated with furnishing a qualified manufacturer's representative to assist with control strips.

Payment will be made under:

Item P608.210.0000	Asphalt Surface Treatment, Rapid Cure – per square yard

TESTING REQUIREMENTS

ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C128	Standard Test Method for Relative Density (Specific Gravity) and Absorption of Fine Aggregate
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
ASTM C1252	Standard Test Methods for Uncompacted Void Content of Fine Aggregate
ASTM D5	Standard Test Method for Penetration of Asphalt Materials
ASTM D36	Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)
ASTM D402	Standard Test Method for Distillation of Cutback Asphalt
ASTM D2042	Standard Test Method for Solubility of Asphalt Materials in Trichloroethylene

ASTM D2216	Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2995	Standard Practice for Estimating Application Rate of Bituminous Distributors
ASTM D4402	Standard Test Method for Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer
ASTM D6690	Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
ASTM D7428	Standard Test Method for Resistance of Fine Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus

ITEM P-610 CONCRETE FOR MISCELLANEOUS STRUCTURES

DESCRIPTION

610-1.1 This item shall consist of concrete and reinforcement, as shown on the plans, prepared and constructed in accordance with these Specifications. This specification shall be used for all concrete other than airfield pavement which are cast-in-place (i.e. gate post foundations, bollard foundations, electrical panel post foundations, light pole foundation, metal decking foundation on ditch slope).

MATERIALS

610-2.1 GENERAL. Only approved materials, conforming to the requirements of these Specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Engineer before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

a. Reactivity. Fine aggregate and coarse aggregates to be used in all concrete shall have been tested separately within six months of the project in accordance with ASTM C1260. Test results shall be submitted to the Engineer. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.08% at 14 days (16 days from casting). If the expansion either or both test specimen is greater than 0.08% at 14 days, but less than 0.20%, a minimum of 25% of Type F fly ash, or between 40% and 55% of slag cement shall be used in the concrete mix.

If the expansion is greater than 0.20%, the aggregates shall not be used, and test results for other aggregates must be submitted for evaluation; or aggregates that meet P-501 reactivity test requirements may be utilized.

610-2.2 COARSE AGGREGATE. The coarse aggregate for concrete shall meet the requirements of AASHTO M 80, Class A.

Coarse aggregate shall be well graded from coarse to fine, and shall meet AASHTO M 43, Number 57 or 67, when tested according to ATM 304.

610-2.2.1 COARSE AGGREGATE SUSCEPTIBILITY TO DURABILITY (D) CRACKING. Not Used.

610-2.3 FINE AGGREGATE. The fine aggregate for concrete shall meet all fine aggregate requirements of AASHTO M 6, Class A.

610-2.4 CEMENT. Cement shall conform to the requirements of AASHTO M 85.

610-2.5 CEMENTITIOUS MATERIALS.

a. Fly ash. Fly ash shall meet the requirements of AASHTO M 295, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total available alkali content less than 3% per AASHTO M 295. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive AASHTO M 295 reports for each source of fly ash proposed

in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the Engineer.

b. **Slag cement (ground granulated blast furnace (GGBF)).** Slag cement shall conform to AASHTO M 302, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

610-2.6 WATER. Water used in mixing or curing shall be from potable water sources. Water from 'Community' or 'Non-Transient Non-Community' sources regulated by the Alaska Department of Environmental Conservation Division of Environmental Health Drinking Water Program, or equivalent in other states, do not require testing under ASTM C1602. Other sources shall be tested in accordance with ASTM C1602 prior to use.

610-2.7 ADMIXTURES. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the Engineer may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the Engineer from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. **Air-entraining admixtures**. Air-entraining admixtures shall meet the requirements of AASHTO M 154 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. **Water-reducing admixtures**. Water-reducing admixture shall meet the requirements of AASHTO M 194, Type A, B, or D. AASHTO M 194, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used. Water-reducing admixtures shall be added at the mixer separately from air-entraining admixtures according to the manufacturer's printed instructions.

c. **Other chemical admixtures**. The use of set retarding, and set-accelerating admixtures shall be approved by the Engineer. Retarding shall meet the requirements of AASHTO M 194, Type A, B, or D and set-accelerating shall meet the requirements of AASHTO M 194, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

610-2.8 PREMOLDED JOINT MATERIAL. Premolded joint material for expansion joints shall meet the requirements of AASHTO M 213.

610-2.9 JOINT FILLER. The filler for joints shall meet the requirements of Item P-605.

610-2.10 STEEL REINFORCEMENT. Reinforcing shall consist of Deformed and Plain Carbon-Steel Bars conforming to the requirements of ASTM A615, Welded Steel Wire Fabric conforming to the requirements of ASTM A1064, Welded Deformed Steel Fabric conforming to the requirements of ASTM A1064, or Bar Mats conforming to the requirements of ASTM A184, as shown on the Plans.

610-2.11 MATERIALS FOR CURING CONCRETE. Curing materials shall conform to Table 610-1:

TABLE 610-1. MATERIALS FOR CURING CONCRETE

CURING MATERIAL	SPECIFICATION
Burlap Cloth made from Jute or Kenaf and Cotton Mats	AASHTO M 182, Class 4
Sheet Materials for Curing Concrete	ASTM C171
Liquid Membrane – Forming Compounds for Curing Concrete	ASTM C309, Type 1-D Class B, except do not use compounds containing linseed oil.

610-2.12 SURFACE SEALER. Provide a liquid applied, water soluble hydrophobic pore lining impregnate that is specifically formulated to protect concrete from the detrimental effects of the moisture intrusion, freeze-thaw cycles, chloride ion penetration, and deicing chemicals. Provide an Engineer approved product containing at least 40 percent silane and meeting AASHTO T 259, ASTM C 642, and ASTM C672.

610-2.13 GROUT. Non-shrink cementitious grout shall be a flowable, pre-packaged, cement-based grout requiring only the addition of potable water. The grout shall not contain metallic aggregate, expansive cement, or gas generating additives such as aluminum powder. Meet performance requirements of ASTM C1107-02, Grades A, B and C, ASTM C1107/C1107M-20.

CONSTRUCTION METHODS

610-3.1 GENERAL. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the Engineer.

610-3.2 CONCRETE MIXTURE. The concrete shall develop a minimum compressive strength of 4,000 psi in 28 days as determined by test cylinders made according to ATM 506 and tested according to AASHTO T 22. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard. The concrete shall contain 5.0% of entrained air, plus or minus 1.2%, as determined by ATM 505. Slump, as determined by ATM 503, shall match the mix design target value plus or minus 1 inch.

610-3.3 MIXING. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of AASHTO M 157.

The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F without the Engineer's approval. If approval is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F nor more than 100°F. The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material is not permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.4 FORMS. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the Engineer. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the Plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so that no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface.

610-3.5 PLACING REINFORCEMENT. All reinforcement shall be accurately placed, as shown on the Plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

Reinforcing bars shall be bent cold and shall conform accurately to the shape and dimensions shown on the diagram. In no case shall the radius of any bend be less than 4 times the diameter of the bar.

Place reinforcement as indicated on the Plans or as hereinafter specified. Rigidly block and wire in place, using metal or plastic supports or concrete blocks and securely tie at each intersection with annealed iron wire of at least 1/8 inch.

Do not splice bars at points not indicated on the Plans except with the consent of the Engineer. Such splices shall be at the points of minimum tensile stress and the lap shall be not less than 36 bar diameters.

Verify the quantity, size, and shape of the reinforcement against the structure drawings and make necessary corrections to the bar lists and bending schedules before ordering. Errors in the bar lists and/or bending schedules shall not be cause for adjustment of the contract prices.

If reinforcing bars are to be welded, follow AWS D12.1.

610-3.6 EMBEDDED ITEMS. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.7 CONCRETE CONSISTENCY. The Contractor shall monitor the consistency of the concrete delivered to the project site; collect each batch ticket; check temperature; and perform slump tests on each truck at the project site in accordance with ATM 503.

610-3.8 PLACING CONCRETE. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the Engineer. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet. Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

610-3.9 VIBRATION. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309R, Guide for Consolidation of Concrete.

610-3.10 JOINTS. Joints shall be constructed as indicated on the plans.

610-3.11 FINISHING. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated.

610-3.12 CURING AND PROTECTION. All concrete shall be properly cured in accordance with the recommendations in American Concrete Institute (ACI) 308R, Guide to External Curing of Concrete. The concrete shall be protected from damage until project acceptance.

610-3.13 COLD WEATHER PLACING. When concrete is placed at temperatures below 40°F, follow the cold weather concreting recommendations found in ACI 306R, Cold Weather Concreting.

610-3.14 HOT WEATHER PLACING. When concrete is placed at temperatures greater than 85ºF, follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

610-3.15 SURFACE SEALER. Apply over the surface of the concrete after completing the seal manufacturer's recommended curing period. Comply with the sealer manufacturer's recommendations for concrete surface preparation, sealer application temperature, rate, and method.

610-3.16 GROUT. Mix grout per manufacturer's instructions and apply on a prepared base. Comply with manufacturer's recommendations for placement and curing.

ACCEPTANCE TESTING

610-4.1 ACCEPTANCE SAMPLING AND TESTING. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in Subsection 610-3.2. The Engineer will sample the concrete in accordance with ATM 501; test the slump in accordance with ATM 503; test air content in accordance with ATM 505; make and cure compressive strength specimens in accordance with ATM 506; and test in accordance with AASHTO T 22. The Acceptance Testing laboratory will meet the requirements of ASTM C1077.

The Contractor shall provide adequate facilities for the initial curing of cylinders.

610-4.2 DEFECTIVE WORK. Any defective work that cannot be satisfactorily repaired as determined by the Engineer, shall be removed and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT

610-5.1 Concrete will be measured by the number of cubic yards based on the dimensions shown on the plans of concrete complete in place and accepted, and according to GCP Section 90. When the pay items shown below are absent from the bid schedule, no measurement for payment will be made.

610-5.2 Steel reinforcement will be measured by the calculated theoretical number of pounds placed, as shown on the Plans, complete in place and accepted. The unit weight used for deformed bars will be the weight of plain square or round bars of equal nominal size. If so indicated on the Plans, the weight to be paid for will include the weight of metal pipes and drains, metal conduits and ducts, or similar materials indicated and included. When the pay items shown below are absent from the bid schedule, no measurement for payment will be made.

BASIS OF PAYMENT

610-6.1 Payment will be made at the contract unit price per cubic yard for structural portland cement concrete and per pound for reinforcing steel.

Payment will be made under:

Item P610.030.0000	Standard Curb & Gutter – per linear foot

References

ATM 304	WAQTC FOP for AASHTO T 27/T 11 Sieve Analysis of Fine and Coarse Aggregates
ATM 501	FOP for WAQTC TM 2 Sampling Freshly Mixed Concrete
ATM 503	WAQTC FOP for AASHTO T 119 Slump of Hydraulic-Cement Concrete
ATM 505	WAQTC FOP for AASHTO T 152 Air Content of Freshly Mixed Concrete by the Pressure Method

ATM 506	WAQTC FOP for AASHTO T 23 Making and Curing Concrete Test Specimens in the Field
AASHTO M 6	Fine Aggregate for Portland Cement Concrete
AASHTO M 43	Sizes of Aggregate for Road and Bridge Construction
AASHTO M 80	Coarse Aggregate for Portland Cement Concrete
AASHTO M 85	Portland Cement
AASHTO M 154	Air-Entraining Admixtures for Concrete
AASHTO M 157	Ready-Mixed Concrete
AASHTO M 182	Burlap Cloth made from Jute or Kenaf and Cotton Mats
AASHTO M 194	Chemical Admixture for Concrete
AASHTO M 213	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
AASHTO M 295	Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete
AASHTO M 302	Slag Cement for Use in Concrete and Mortars
AASHTO T 22	Compressive Strength of Cylindrical Concrete Specimens
ASTM A184	Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A1064	Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C171	Sheet Materials for Curing Concrete
ASTM C309	Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C311	Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete
ASTM C1017	Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1077	Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1107	Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
ASTM C1260	Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1602	Mixing Water Used in the Production of Hydraulic Cement Concrete
AWS D12.1	Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction
ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 308R	Guide to External Curing of Concrete
ACI 309R	Guide for Consolidation of Concrete

Meet performance requirements of ASTM C1107-02, Grades A, B and C, ASTM C1107/C1107M-20.

ITEM P-620 RUNWAY AND TAXIWAY MARKING

DESCRIPTION

620-1.1 This item consists of the preparation and painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, in accordance with these specifications and at the locations shown on the plans, or as directed by the Engineer. The terms “paint” and “marking material” as well as “painting” and “application of markings” are interchangeable throughout this specification. This item includes removal of existing painted markings from pavement surfaces as shown on the plans or as designated by the Engineer. Complete this work within the limitations of the project Construction Safety and Phasing Plan.

MATERIALS

620-2.1 MATERIALS ACCEPTANCE. The Contractor shall furnish manufacturer’s certified test reports, for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. This certification along with a copy of the paint manufacturer’s surface preparation; marking materials, including adhesion, flow promoting and/or floatation additive, and application requirements must be submitted and approved by the Engineer prior to the initial application of markings. The reports can be used for material acceptance or the Engineer may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the Engineer upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers that are easily quantifiable for inspection by the Engineer. Provide manufacturer certification (Material Safety Data Sheet) showing that each product does not contain mercury, lead, hexavalent chromium, halogenated solvents, nor any carcinogen as defined in 29 CFR 1910.1200 in amounts exceeding permissible limits as specified in relevant Federal Regulations.

620-2.2 MARKING MATERIALS. Paint shall be waterborne or solvent-base. Paint colors shall comply with Federal Standard No. 595, and Table 620-1. Use black paint to outline a border at least 6 inch wide around markings on all light colored pavements.

TABLE 620-1. MARKING MATERIALS

Paint[1]				Glass Beads[2]	
Type	**Color**	**Fed Std. 595 Number**	**Application Rate Maximum**	**Type**	**Application Rate Minimum**
II	White	37925	115 ft²/gal	Type I, Gradation A	7 lb/gal)
II	Red	31136	115 ft²/gal	Type I, Gradation A	5 lb/gal
II	Yellow	33538 or 33655	115 ft²/gal	Type I, Gradation A	7 lb/gal
II	Black	37038	115 ft²/gal	Not used	Not Used
II	Pink	1 part 31136 to 2 parts 37925	115 ft²/gal	Type I, Gradation A	5 lb/gal
II	Green	34108	115 ft²/gal	Not Used	Not Used

[1] See subsection 620-2.2a
[2] See subsection 620-2.2b

a. Paint

(1) Waterborne. Paint shall meet the requirements of Federal Specification TT-P-1952F, Type II. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis.

(2) Solvent-Base. Paint shall meet the requirements of Commercial Item Description A-A-2886B Type II.

b. Reflective media. Glass beads shall meet the requirements for Federal Specification TT-B-1325D Type I, Gradation A.

Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

Glass beads shall not be used in black and green paint.

Glass beads shall comply with Table 620-1.

CONSTRUCTION METHODS

620-3.1 WEATHER LIMITATIONS. Painting shall only be performed when the surface is dry, and the ambient temperature and the pavement surface temperature meet the manufacturer's recommendations in accordance with subsection 620-2.1. Discontinue painting when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns. Do not apply markings when weather conditions are forecasted to not be within the manufacturers' recommendations for application and dry time.

620-3.2 EQUIPMENT. Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless type marking machine with automatic glass bead dispensers suitable for application of traffic paint. It shall produce an even and uniform film thickness and appearance of both paint and glass beads at the required coverage and shall apply markings of uniform cross sections and clear-cut edges without running or spattering and without over spray. Marking equipment for both paint and glass beads shall be calibrated daily.

620-3.3 PREPARATION OF SURFACES. Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other contaminates that would reduce the bond between the paint and the pavement.

a. PREPARATION OF NEW PAVEMENT SURFACES. The area to be painted shall be cleaned by broom, blower, ~~water~~ sand blasting, or by other methods approved by the Engineer to remove all contaminants, including PCC curing compounds, minimizing damage to the pavement surface. Areas which cannot be satisfactorily cleaned by brooming and blowing shall be scrubbed as directed with a 10% solution of tri-sodium phosphate or an equally suitable solution. After scrubbing, the solution shall be rinsed off and the surface dried prior to painting.

b. PREPARATION OF PAVEMENT TO REMOVE EXISTING MARKINGS. Where indicated on the plans, use ~~high pressure water~~ Engineer-approved method(s) to remove all visible indications of existing painted markings from pavement surfaces. Do not paint over existing markings. Remove pavement markings to the fullest extent possible without materially damaging the pavement surface, color, or texture. Group adjacent markings together into a larger rectangular removal area in conformance with FAA AC 150/5340-1, paragraph 1.3.f. and Figure 1-1, Figure 1-2, Figure 1-3 and Figure 1-4. Collect and dispose of all loose or waste material as needed to prevent interference with drainage or to prevent dusty conditions under traffic, wind, or propellers.

After removal of markings on asphalt pavements, apply a fog seal or seal coat to 'block out' the removal area to eliminate 'ghost' markings.

c. **PREPARATION OF PAVEMENT MARKINGS PRIOR TO REMARKING.** Prior to remarking existing markings, loose existing markings must be removed minimizing damage to the pavement surface, with a method approved by the Engineer. After removal, the surface shall be cleaned of all residue or debris according to 620-3.3.a.

Prior to the application of markings, the Contractor shall certify in writing that the surface is dry and free from dirt, grease, oil, laitance, or other foreign material that would prevent the bond of the paint to the pavement or existing markings. This certification along with a copy of the paint manufacturer's application and surface preparation requirements must be submitted to the Engineer prior to the initial application of markings.

620-3.4 LAYOUT OF MARKINGS. The proposed markings shall be laid out in advance of the paint application. Layout markings and glass beads in advance of paint application at the locations shown on the Plans according to the tolerances in section 620-3.5 and according to the requirements of G-135. Space control points at such intervals to ensure accurate location of all markings. Provide an experienced technician to supervise the location, alignment, layout dimensions, and application of the paint.

620-3.5 APPLICATION. A period of 7 days minimum shall elapse between placement of surface course or seal coat and application of the permanent paint markings. Paint shall be applied at the locations and to the dimensions and spacing shown on the Plans. Paint shall not be applied until the layout and condition of the surface has been approved by the Engineer.

The edges of the markings shall not vary from a straight line more than 1/2 inch in 50 feet, and marking dimensions and spacing shall be within the tolerances shown in Table 620-2:

TABLE 620-2. MARKING DIMENSIONS AND SPACING TOLERANCE

Dimension and Spacing	Tolerance
36 inch or less	±1/2 inch
greater than 36 inch to 6 feet	±1 inch
greater than 6 feet to 60 feet	±2 inch
greater than 60 feet	±3 inch

The paint shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate shown in Table 620-1. The addition of thinner will not be permitted.

Pressure apply glass beads upon the marked areas at the locations shown on the Plans to receive glass beads immediately after application of the paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate shown in Table 620-1. Glass beads shall not be applied to black paint or green paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Different bead types shall not be mixed. Regular monitoring of glass bead embedment and distribution should be performed.

Apply temporary markings, if required, as directed by the Engineer. If pavement is opened to traffic before the pavement curing period is complete, apply paint in two coats. Apply the first coat at least 12 hours after paving is completed at 30 to 50 percent of the total application rate. Apply an additional coat at 100 percent of the total application rate following pavement curing time and after pavement grooving operations in affected areas. The direction of the second application shall be 180 degrees from the first to ensure complete coverage. Apply glass beads, if required, in the second coat only.

Return all emptied containers to the paint storage area for checking by the Engineer. The containers shall not be removed from the airport or destroyed until authorized by the Engineer.

620-3.6 NOT USED.

620-3.7 CONTROL STRIP. Prior to the full application of airfield markings, the Contractor shall prepare a control strip in the presence of the Engineer. The Contractor shall demonstrate the surface preparation method and all striping equipment to be used on the project. The marking equipment must achieve the prescribed application rate of paint and population of glass beads, according to Table 620-1, that are properly embedded and evenly distributed across the full width of the marking. Prior to acceptance of the control strip, markings must be evaluated during darkness to ensure a uniform appearance.

620-3.8 RETRO-REFLECTANCE TESTING (PART 139 CERTIFICATED AIRPORTS ONLY). Reflectance shall be measured with a portable retro-reflectometer meeting ASTM E1710 (or equivalent). A total of 6 reading shall be taken over a 6 square foot area with 3 readings taken from each direction. The average of all readings which are within 30% of each other shall be equal to or above the minimum levels shown in Table 620-3.

TABLE 620-3. MINIMUM RETRO-REFLECTANCE VALUES

Material	Retro-reflectance mcd/m^2/lux		
	White	Yellow	Red
Initial Type I	300	175	35
All materials, remark when less than[1]	100	75	10

[1] 'Prior to remarking determine if removal of contaminants on markings will restore retro-reflectance

620-3.9 PROTECTION AND CLEANUP. After application of the markings, all markings shall be protected from damage until dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings. The Contractor shall remove from the work area all debris, waste, loose reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the Engineer. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and federal environmental statutes and regulations.

METHOD OF MEASUREMENT

620-4.1 RUNWAY AND TAXIWAY PAINTING BY UNIT AREA. If runway and taxiway painting by unit area appears in the bid schedule, then new painted markings will be so measured.

620-4.2 REFLECTIVE MEDIA. If reflective media by unit weight appears in the bid schedule, then this material will be so measured. If reflective media appears by lump sum in the bid schedule, or does not appear at all, it will not be measured. If reflective media does not appear at in the bid schedule, it will be subsidiary to painting**.**

620-4.3 RUNWAY AND TAXIWAY PAINTING BY LUMP SUM. If Runway and Taxiway painting by a lump-sum item appears in the bid schedule, new painted markings will not be measured for payment. Reflective media is subsidiary to the work.

620-4.4 PAINTED MARKING REMOVAL. If painted marking removal by unit area, it will be measured by area. If painted marking removal by lump sum appears in the bid schedule no measurement for payment will be made. If painted marking removal is absent from the bid schedule, no measurement will be made and this item will be subsidiary to painting.

620-4.5 TEMPORARY RUNWAY AND TAXIWAY PAINTING. Lump Sum. Includes all necessary maintenance or reapplication of paint necessary during the time the numbers, markings, and stripes are required.

BASIS OF PAYMENT

620-5.1 Payment will be made at the respective contract unit or lump sum price for the pay items listed below that appear in the bid schedule.

Payment will be made under:

Item P620.010.0000	Runway and Taxiway Painting – per square foot

TESTING REQUIREMENTS

ASTM C371	Wire-Cloth Sieve Analysis of Nonplastic Ceramic Powders
ASTM D92	Flash and Fire Points by Cleveland Open Cup
ASTM D711	No-Pick-Up Time of Traffic Paint
ASTM D968	Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D1652	Epoxy Content of Epoxy Resins
ASTM D2074	Total Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D2240	Rubber Products-Durometer Hardness
ASTM D7585	Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
ASTM E1710	Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer
ASTM G53	Operating Light and Water-Exposure Apparatus (Florescent UV-Condensation Type) for Exposure of Nonmetallic Materials.
Federal Test Method	Paint, Varnish, Lacquer and Related Materials; Methods of Inspection,
Standard No. 141	Sampling and Testing

MATERIAL REQUIREMENTS

ASTM D476	Titanium Dioxide Pigments
Code of Federal Regulations	40 CFR Part 60, Appendix A-7, Method 24. Determination volatile matter content, water content, density, volume solids, and weight solids of surface coatings
Code of Federal Regulations	29 CFR Part 1910.1200 – Hazard Communications
Fed. Spec. TT-B-1325D	Beads (Glass Spheres) Retroreflective
Fed. Spec. TT-P1952F	Paint, traffic and Airfield Marking, Waterborne
Federal Standard 595	Colors used in Government Procurement
Commercial Item Description	A-A-2886B Paint, Traffic, Solvent Based

Advisory Circular 150/5340-1	Standard for Airport Markings
Advisory Circular 150/5320-12	Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces

ITEM P-635 PAVEMENT CRACK FILLING

DESCRIPTION

635-1.1 Prepare and fill cracks in existing asphalt concrete pavement. ~~after pavement cold planing is complete and prior to pavement overlay.~~

MATERIALS

635-2.1 CRACK FILLERS.

a. Sealant. Provide sealant that meets the requirements of ASTM D6690, Joint Sealants, Hot-Poured, for ~~Concrete and~~ Asphalt Pavements.

Use CRAFCO Roadsaver 522 Sealant or approved equal. In addition to the requirements of this specification, use materials that have the following additional properties when heated to the safe heating temperature in accordance with ASTM D 5167:

Test	Spec. Limits
Cone Penetration, 77 deg F (ASTM D 5329)	100-150 dmm
Cone Penetration, 0 deg F (ASTM D 5329 modified)	25 dmm, min.
Flow, 140 deg F, 5h (ASTM D 5329)	3/8-inch, max.
Resilience, (ASTM D 5329)	30-60%
Bond, -20 deg F, 200% ext. (ASTM D 5329) 1/2-inch specimen	Pass 3 Cycles
Asphalt Compatibility (ASTM D 5329)	Pass
Recommended Pour Temperature	374 degrees F, min.
Safe Heating Temperature*	per manuf. instruct.
Unit weight at 60 deg F	8.9 lbs./gal., min.

** Provide sealant in containers that display a manufacturer's label with the safe heating temperature stated.*

~~**b. Hot Mix Asphalt.** Provide hot mix asphalt that meets the requirements of section P-401.~~

635-2.2 ~~PREPARATORY~~ HEATING OF MATERIALS. Hot-applied sealant will be heated in conformance with ASTM D 5167, Standard Practice for Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation.

a. ~~Backer Rope.~~ ~~Provide rope material that is strong, non-raveling, and similar to upholstery cord. Use rope with a diameter that is approximately 1/8-inch larger than the width of the crack.~~

~~**b. Tack Coat.** Provide tack coat that meets the requirements of section P-603.~~

CONSTRUCTION REQUIREMENTS

635-3.1 ~~After pavement cold planing, the~~The Engineer will select the cracks to be prepared and filled based on the work shown in the plans and current pavement condition (distresses). The preparation requirements and filler material used depends on the width of the crack to be filled. For cracks equal to or less than 3/4-inch in width, prepare and fill selected cracks with sealant. For cracks greater than 3/4-inch in width, coordinate with the Engineer to determine if these cracks should be prepared and filled ~~selected cracks~~ with hot mix asphalt.

635-3.2 PREPARATION.

a. Routing. All cracks will be cleaned of debris or laitance by use of a hot lance and compressed air free of oil and water. In some instances, routing the cracks may be required. If required,

immediately after routing, the resulting debris will be completely removed from the crack and adjacent area by a hot lance and compressed air free of oil and water, and by use of other tools as necessary. The crack will be allowed sufficient time to dry before sealing. ~~Rout out all cracks selected by the Engineer that are to be filled with sealant. Rout out cracks to a nominal 3/4-inch width and to a nominal depth of 1-1/2 inch. Avoid routing to a width greater than specified. Avoid any damage or raveling of the adjacent pavement surface.~~

b. Cleaning. ~~After routing and i~~Immediately prior to filling, the cracks will be thoroughly cleaned of all remaining laitance and other foreign material. Cleaning will be accomplished by use of a hot lance. Upon completion of cleaning, the cracks will be blown out with compressed air free of oil and water. Only air compressors with operable oil and water traps will be used to prepare the cracks for sealing. The crack faces will be surface dry when the seal is applied. The surface of the installed sealant material will be 1/4-inch to 3/8-inch below the existing pavement surface. ~~use compressed air to remove any debris and moisture from cracks.~~

~~**c. Tack Coat.** For cracks to be filled with hot mix asphalt, apply tack coat after cleaning and immediately prior to filling. Apply in accordance with section P-603.~~

~~**d.**~~**c.** ~~**Backer Rope.** Use of backer rope is optional with the Contractor. For cracks to be filled with crack sealant, place the rope after cleaning and prior to filling. Place the rope deep enough to leave approximately 1-1/4 inch from the surface of the pavement to the top of the rope.~~

635-3.3 FILLING. The cracks will be inspected for proper width, depth, alignment, and preparation, and will be approved by the Engineer before sealing is allowed. Sealants will be installed with the following requirements:

a. Sealant. Heat crack sealant material in a double wall oil bath heater equipped with an agitator, a temperature controller, and a recirculating pump. Place sealant in the crack to within 1/4-inch of the surface of the pavement. Remove any material that overfills to the surface of the pavement. Heat and apply crack sealant material in accordance with the manufacturer's instructions.

METHOD OF MEASUREMENT

635-4.1 Pavement crack filler will be measured by the linear foot of crack filler in place, complete, and accepted.

BASIS OF PAYMENT

635-5.1 At the contract unit price per linear foot. This price will be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item. If the Engineer determines wider cracks should be filled with Hot Mix Asphalt, payment will be made under Item P401.

Payment will be made under:

Item P635.010.0000 Pavement Crack Filling – per linear foot

ITEM P-641
EROSION, SEDIMENT, AND POLLUTION CONTROL

641-1.1 DESCRIPTION. Provide project administration and work relating to control of erosion, sedimentation, and discharge of pollutants, according to this section and applicable local, state, and federal requirements, including the Alaska Pollution Discharge Elimination System (APDES) Construction General Permit (CGP). The state APDES program is administered by the Department of Environmental Conservation (DEC). Section 301(a) of the Clean Water Act (CWA) and 18 AAC 83.015 provide that the discharge of pollutants to water of the U.S. is unlawful except as allowed by the CGP.

Temporary erosion control measures shall be in accordance with the Erosion and Sediment Control Plan; the approved Construction Safety and Phasing Plan (CSPP), and AC 150/5370-2, *Operational Safety on Airports During Construction*. The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary erosion and sediment control measures may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites, when such areas are included in the Project Zone.

Temporary control measures shall be designed, installed and maintained:

a. outside of safety areas of active runways and taxiways, and

b. to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near airports.

DEFINITIONS AND TERMS

641-1.2 These definitions apply only to Item P-641.

ACTIVE TREATMENT SYSTEM (ATS) OPERATOR. See CGP Appendix C.

ALASKA CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (AK-CESCL). A person who has completed training, testing, and other requirements of, and is currently certified as, an AK-CESCL from an AK-CESCL Training Program (a program developed under a Memorandum of Understanding between the Department and others). The Department recognizes AK-CESCLs as “qualified personnel” required by the CGP. An AK-CESCL must be recertified every three years. (See Qualified Person).

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION (DEC). The state agency authorized by EPA to administer the Clean Water Act’s National Pollutant Discharge Elimination System.

ALASKA GENERAL PERMIT FOR EXCAVATION, DEWATERING (Excavation Dewatering Permit). The permit authorizing excavation dewatering discharges from Construction Activities.

ALASKA MULTI-SECTOR GENERAL PERMIT (MSGP). The permit authorizing stormwater discharges associated with Industrial Activity.

ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM (APDES). A system administered by DEC that issues and tracks permits for stormwater discharges.

BEST MANAGEMENT PRACTICES (BMPS). See CGP Appendix C.

CLEAN WATER ACT (CWA). Federal Water Pollution Control Amendments of 1972, as amended (33 U.S.C. 1251 et seq.).

CONSTRUCTION ACTIVITY. Ground disturbing activity by the contractor, subcontractor or utility company; that may result in erosion, sedimentation, or a discharge of pollutants into stormwater. See CGP Appendix C.

CONSTRUCTION GENERAL PERMIT (CGP). The permit authorizing stormwater discharges from Construction Activities, issued and enforced by Alaska DEC. It authorizes stormwater discharges providing permit conditions and water quality standards are met.

U.S. ARMY CORPS OF ENGINEERS PERMIT (COE PERMIT). A COE permit for construction in waters of the U.S. May be issued under Section 10 of the Rivers and Harbors Act of 1899, or Section 404 of the Clean Water Act.

ELECTRONIC NOTICE OF INTENT (ENOI). See CGP Appendix C.

ELECTRONIC NOTICE OF TERMINATION (ENOT). See CGP Appendix C.

ENVIRONMENTAL PROTECTION AGENCY (EPA). The federal agency charged to protect human health and the environment.

ERODIBLE STOCKPILE. Any material storage area or stockpile consisting of mineral aggregate, organic material, or a combination thereof, with greater than 5 percent passing the #200 sieve, and any material storage where wind or water transports sediments or other pollutants from the stockpile. Erodible Stockpile also includes any material storage area or stockpile, where the Engineer determines there is potential for wind or water transport, of sediments or other pollutants away from the stockpile.

EROSION AND SEDIMENT CONTROL PLAN (ESCP). The Department's project specific document that illustrates measures to control erosion and sediment on the project. The ESCP provides bidders with the basis for cost estimating and guidance for developing an acceptable Storm Water Pollutant Prevention Plan (SWPPP).

FINAL STABILIZATION. See CGP, Appendix C, "Stabilization."

HAZARDOUS MATERIAL CONTROL PLAN (HMCP). The Contractor's detailed project specific plan for prevention of pollution from storage, use, transfer, containment, cleanup, and disposal of hazardous material (including, but are not limited to, petroleum products related to construction activities and equipment). The HMCP is included as an appendix to the SWPPP.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT. A DEC stormwater discharge permit issued to certain local governments and other public bodies, for operation of stormwater conveyances and drainage systems. See CGP Appendix C.

OPERATOR(S). The party(s) responsible to obtain CGP permit coverage. CGP, Appendix C.

a. Contractor – the Contractor is an Operator inside and outside the Project Zone.

b. Department – the Department is an Operator inside the Project Zone.

POLLUTANT. Any substance or item meeting the definition of pollutant contained in 40 CFR § 122.2. A partial listing from this definition includes: dredged spoil, solid waste, sediment, sewage, garbage, sewage sludge, chemical wastes, biological materials, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial or municipal waste.

PROJECT ZONE. The physical area provided by the Department for Construction. The Project Zone includes the area of airport property or facility under construction, project staging and equipment areas, and material and disposal sites; when those areas, routes and sites, are provided by the Contract.

Material sites, material processing sites, disposal sites, haul routes, staging and equipment storage areas; that are furnished by the Contractor or a commercial operator, are not included in the Project Zone.

QUALIFIED PERSON. See CGP Appendix C and Subsection 641-1.4.

SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN (SPCC PLAN). The Contractor's detailed plan for petroleum spill prevention and control measures that meet the requirements of 40 CFR 112.

SPILL RESPONSE FIELD REPRESENTATIVE. The Contractor's representative with authority and responsibility for managing, implementing, and executing the HMCP and SPCC Plan.

STORM EVENT. See CGP Appendix C.

STORM WATER POLLUTION PREVENTION PLAN TWO (SWPPP2). The Contractor's plan for compliance with both the CGP and MSGP construction activities outside the Project Zone.

SUPERINTENDENT. The Contractor's duly authorized representative with authority and responsibility for the overall operation of the Project, and Contractor furnished sites and facilities.

SWPPP AMENDMENT. A modification to the SWPPP. CGP Part 5.0.

SWPPP MANAGER. The Contractor's Qualified Person with authority and responsibility. CGP Appendix C.

SWPPP PREPARER. The Contractor's Qualified Person with authority and responsibility. CGP Appendix C.

SWPPPTRACK. Software subscription service version SWPPPTrack DOT AK developed and provided by SWPPPTrack AK LTD, for use on construction projects that require coverage under the APDES CGP.

TEMPORARY STABILIZATION. See CGP Appendix C. See "Stabilization."

641-1.2.1 REFERENCE. A complete list of websites and documents referenced herein can be found at the DOT&PF Statewide Design and Engineering Services Stormwater webpage.

DEC Permit information can be found at the DEC Division of Water webpage. SWPPP preparation documents can be found at the DOT&PF Design and Engineering Services Stormwater webpage. Construction forms are found at the DOT&PF Design and Engineering Services Construction Forms webpage.

641-1.3 PLAN AND PERMIT SUBMITTALS.

For plans listed in Subsection 80-03.d (SWPPP, HMCP, and SPCC), use the Contractor submission and Department review deadlines identified in this Subsection.

Partial and incomplete submittals will not be accepted for review. Any submittal that is re-submitted or revised after submission, but before the review is completed, will restart the submittal review timeline. No additional Contract time or additional compensation will be allowed due to delays caused by partial or incomplete submittals, or required re-submittals.

a. Storm Water Pollution Prevention Plan. Submit an electronic copy and one hard copy of the SWPPP to the Engineer for approval. Deliver these documents to the Engineer at least 21 days before beginning Construction Activity. Organize the SWPPP and related documents for submittal according to the requirements of Subsection 641-2.1.b

The Department will review the SWPPP submittals within 14 days after they are received. Submittals will be returned to the Contractor, and marked as either "rejected" with reasons listed or as "approved" by the Department. When the submittal is rejected, the Contractor must revise and resubmit the SWPPP. The 14 day review period will restart when the contractor submits an electronic copy ~~and one hard copy~~ of the revised SWPPP to the Engineer for approval.

After the SWPPP is approved and certified by the Department using Form 25D-109, the Contractor must certify the approved SWPPP using Form 25D-111. See Subsection 641-1.3.d for further SWPPP submittal requirements.

b. Hazardous Material Control Plan. The HMCP Template can be found at the DOT&PF Construction Forms webpage. The HMCP submittal and review timeline, and signature requirements are the same as the SWPPP.

c. Spill Prevention, Control and Countermeasure Plan. When a SPCC Plan is required under Subsection 641-2.3, submit an electronic copy ~~and one hard copy~~ of the SPCC Plan to the Engineer. Deliver these documents to the Engineer at least 21 days before beginning Construction Activity. The Department reserves the right to review the SPCC Plan and require modifications.

d. CGP Coverage. The Contractor is responsible for permitting of Contractor and subcontractor Construction Activities related to the Project. Do not use the SWPPP for Construction Activities outside the Project Zone where the Department is not an operator. For Construction Activities outside the Project Zone, the Contractor must use a SWPPP2. Department approval is not needed for a SWPPP2.

After the Department certifies the SWPPP and prior to beginning Construction Activity, submit an eNOI with the required fee to DEC for coverage under the CGP. Submit a copy of the signed eNOI and DEC's written acknowledgement (by letter or other document), to the Engineer as soon as practicable and no later than three days after filing eNOI or receiving a written response.

Do not begin Construction Activity until the conditions listed in Subsection 641-3.1.a are completed.

The Department will submit an eNOI to DEC for Construction Activities inside the Project Zone. The Engineer will provide the Contractor with a copy of the Department's eNOI and DEC's written acknowledgment (by letter or other document), for inclusion in the SWPPP.

Before Construction Activities occur, transmit to the Engineer ~~one hard copy and~~ an electronic copy of the approved and certified SWPPP, with signed Delegations of Signature Authorities on Forms 25D-107 and 25D-108, SWPPP Certifications on Forms 25D-111 and 25D-109, both permittee's signed eNOIs and DEC's written acknowledgement.

e. DEC SWPPP Review. When CGP Part 2.1.3 or 2.1.4, requires DEC SWPPP review:

(1) Transmit a copy of the Department-approved SWPPP to DEC using delivery receipt confirmation;

(2) Transmit a copy of the delivery receipt confirmation to the Engineer within seven (7) days of receiving the confirmation; and

(3) Retain a copy of delivery receipt confirmation in the SWPPP.

f. Local Government SWPPP Review. When local government or the CGP Part 2.1.4, requires local government review:

(1) Transmit a copy of the Department-approved SWPPP and other information as required to local government, with the required fee. Use delivery receipt confirmation;

(2) Transmit a copy of the delivery receipt confirmation to the Engineer within seven days of receiving the confirmation;

(3) Transmit a copy of any comments by the local government to the Engineer within seven days of receipt;

(4) Amend the SWPPP as necessary to address local government comments and transmit SWPPP Amendments to the Engineer within seven days of receipt of the comments;

(5) Include a copy of local government SWPPP review letter in the SWPPP; and

(6) File a notification with local government that the project is ending.

g. Modifying Contractor's eNOI. When required by the CGP Part 2.7, modify your eNOI to update or correct information within 30 calendar days of the change. Reasons for modification are found in the CGP Part 2.7.1. The Contractor must submit an eNOT instead of an eNOI modification when the operator has changed. The new operator must file an eNOI to obtain permit coverage.

641-1.4 PERSONNEL QUALIFICATIONS. Provide documentation in the SWPPP that the individuals serving in these positions meet the personnel qualifications. The Department accepts the following certificates as equivalent to AK-CESCL: CPESC, Certified Professional in Erosion and Sediment Control or CISEC, Certified Inspector in Sediment and Erosion Control, which are found in the CGP Appendix C and repeated below.

Table 641-1
Personnel Qualifications

Personnel Title	Required Qualifications
SWPPP Preparer	Current certification as a Certified Professional in Erosion and Sediment Control (CPESC); OR ~~Current certification as AK-CESCL, and a~~At least two years' experience in erosion and sediment control~~,~~ as a SWPPP Manager or SWPPP writer, or equivalent. OR Professional Engineer registered in the State of Alaska ~~with current certification as AK-CESCL~~.
Superintendent	Current AK-CESCL or substitute training from CGP Appendix C Qualified Person Table 4
SWPPP Manager	Current AK-CESCL or substitute training from CGP Appendix C Qualified Person Table 4
Active Treatment System Operator	Current AK-CESCL or substitute training from CGP Appendix C Qualified Person Table 4. ATS operator should possess a recognized certification, or professional standing, or who by extensive knowledge, training, and experience has successfully demonstrated the ability to meet the ATS requirement.

641-1.5 SIGNATURE/CERTIFICATION REQUIREMENTS AND DELEGATIONS.

a. eNOI and eNOT. The eNOI, eNOT, and eNOI Modifications must be signed and certified by a responsible corporate officer according to CGP Appendix A, Part 1.12. Signature and certification authority for the eNOI and eNOT cannot be delegated.

b. Delegation of Signature Authority for Other SWPPP Documents and Reports. Use Form 25D-108 to delegate signature authority and certification authority to the Superintendent position, according to CGP Appendix A, Part 1.12.3, for the SWPPP, inspection reports and other reports required by the CGP. The Superintendent position is responsible for signing and certifying the SWPPP, inspection reports, and other reports required by the CGP, except the eNOI, eNOI Modifications, and eNOT.

The Engineer will provide the Department's delegation on Form 25D-107, which the Contractor must include in the SWPPP.

c. Subcontractor Certification. Subcontractors must certify on Form 25D-105, that they have read and will abide by the CGP and the conditions of the project SWPPP.

d. Signatures and Initials. Where documents are completed in SWPPPTrack, utilize SWPPPTrack to sign and initial documents. When documents are not completed in SWPPPTrack (e.g. Form 25D-111 SWPPP Certification for Contractor), upload scanned copies after signing and initialing the documents into SWPPPTrack.~~Certify or initial on the CGP documents and SWPPP forms, wherever a signature or initial is required.~~

641-1.6 RESPONSIBILITY FOR STORM WATER PERMIT COVERAGE.

a. The Department and the Contractor are jointly responsible for permitting and permit compliance within the Project Zone.

b. The Contractor is responsible for permitting and permit compliance for all construction support activity in the Project Zone and outside the Project Zone. The Contractor has sole responsibility for compliance with DEC, COE and other applicable federal, state, and local requirements, and for securing all necessary clearances, rights, and permits. The Contractor shall be responsible for protection, care, and upkeep of all work, and all associated off-site zones. Subsection 70-02 describes the requirement to obtain permits, and to provide permit documents to the Engineer.

c. The Contractor is responsible for obtaining an Excavation Dewatering Permit (AKG002000) if construction activities are within 1,500 feet of a DEC-identified contaminated site or groundwater plume.

d. An entity that owns or operates, a commercial plant as defined in Subsection 80-01.d. or material source or disposal site outside the Project Zone, is responsible for permitting and permit compliance. The Contractor has sole responsibility to verify that the entity has appropriate permit coverage. Subsection 70-02 describes the requirement to obtain permits, and to provide permit documents to the Engineer.

e. The Department is not responsible for permitting or permit compliance, and is not liable for fines resulting from noncompliance with permit conditions:

(1) For areas outside the Project Zone;

(2) For Construction Activity and Support Activities outside the Project Zone; and

(3) For commercial plants, commercial material sources, and commercial disposal sites.

641-1.7 UTILITY. (RESERVED FOR REGIONS)

641-1.8 USE OF SWPPPTRACK. The Contractor is responsible for purchasing and contracting with SWPPPTrack AK LTD for the use of the SWPPPTrack software application and services until final stabilization is achieved and the eNOT has been completed. Contact SWPPPTrack Alaska Support at (888)401-1993 or AKSupport@SWPPPTrack.com for project fees, setup coordination, device requirements, and training.

Perform and document all inspections required by the CGP and the SWPPP with SWPPPTrack and populate all inspection fields accurately to represent current project conditions. Include documentation within SWPPPTrack of information based on previously-used paper forms listed below:

a. SWPPP Construction Site Inspection Report (25D-100)

b. SWPPP Grading & Stabilization Activities Log (25D-110)

c. SWPPP Corrective Action Log (25D-112)

d. SWPPP Amendment Log (25D-114)

e. SWPPP Daily Record of Rainfall (25D-115)

f. SWPPP Training Log (25D-125)

g. SWPPP Project Staff Tracking (25D-127)

641-2.1 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS.

a. SWPPP Preparer and Pre-Construction Site Visit.

Use a SWPPP Preparer to develop the SWPPP in accordance with the CGP, DEC and Department SWPPP templates. See Subsection P-641-1.2.1 for guidance and templates. The SWPPP Preparer must conduct a pre-construction inspection at the Project Site before Construction Activity begins. If the SWPPP Preparer is not a Contractor employee, the SWPPP Preparer must visit the site accompanied by the Contractor. Give the Department at least seven days advance notice of the site visit, so that the Department may participate.

Document the SWPPP Preparer's pre-construction inspection in the SWPPP on Form 25D-106, SWPPP Pre-Construction Site Visit, including the names of attendees and the date.

b. Developing the SWPPP.

Use the Department's ESCP, Environmental commitments, and other Contract documents as a starting point for developing the SWPPP.

Develop the SWPPP with sections and appendices, according to the DEC CGP SWPPP template and DOT&PF SWPPP template. Include information required by the Contract and described in the CGP Part 5.0. Use SWPPP forms found at the DOT&PF Construction Forms website.

Compile the SWPPP in three ring binders with tabbed and labeled dividers for each appendix. One electronic copy of the SWPPP must be submitted as a single PDF file.

c. SWPPP Considerations and Contents.

(1) The SWPPP must provide erosion and sediment control measures for all Construction Activity within the Project Zone. Construction Activity outside the Project Zone must have permit coverage and document permit compliance according to a SWPPP2.

(2) The SWPPP must consider the activities of the Contractor and all subcontractors and utility companies performing work in the Project Zone. The SWPPP must describe the roles and responsibilities of the Contractor, subcontractors, utility companies, and the Department with regard to implementation of the SWPPP. The SWPPP must identify all operators for the project, including utility companies performing Construction Activity, and identify the areas:

(a) Over which each operator has operational control, and;

(b) Where the Department and Contractor are co-operators.

(3) For work outside the Project Zone the SWPPP must identify the entity that has stormwater permit coverage, the operator, and the areas that are:

(a) Dedicated to the project and where the Department is not an operator; and

(b) Not dedicated to the project, but used for the project.

(4) The SWPPP must meet all CGP requirements. Utilize the DEC CGP SWPPP Template in conjunction with the DOT&PF SWPPP Template to develop the SWPPP.

(5) Comply with the CGP Part 1.4.3 Authorized Non-Storm Water Discharges.

(6) If the project discharges to a Tier III, Outstanding Natural Resource Water, comply with CGP Part 2.1.6. Submittal deadlines apply prior to filing an eNOI and beginning construction activities. As noted, none have been designated in the state of Alaska as of the issuance of the 2021 CGP.

(7) There are special requirements in the CGP Part 3.2, for stormwater discharges into an impaired water body, and they may include monitoring of stormwater discharges. The Contractor is responsible for monitoring and reporting outside the Project Zone.

(8) Describe the sequence and timing of activities that disturb soils and BMP implementation and removal. Phase earth disturbing activities to minimize unstabilized areas, and to achieve temporary or final stabilization. Whenever practicable incorporate final stabilization work into excavation, embankment and grading activities. Include drawings showing each phase of the project with the BMPs implemented in the phase.

(9) Delineate the site according to CGP Part 4.2.1.

(10) Minimize the amount of soil exposed and preserve natural topsoil on site, unless infeasible according to the CGP Part 4.2.2.

(11) Describe methods and time limits, to initiate temporary or final soil stabilization. Comply with stabilization requirements in the CGP Part 4.5.

(12) If construction will cease during winter months, describe all requirements for winter shutdown according to the CGP Part 4.12.

(13) Plans for ATS must meet with the requirements in the CGP Part 2.1.5 and 4.6.

(14) Design all temporary BMPs to accommodate a two year 24-hour storm event. All installed control measures must be described and documented in the SWPPP, according to the CGP Part 5.3.6. All installed BMPs must include a citation from a published BMP Manual, publication, or manufacturers specification used as a source, or include a statement “No BMP Manual was used for this design.” If using out of state BMPs follow the instructions in the SWPPP Guide, found at the DOT&PF Stormwater webpage.

(15) Provide a legible site map or set of maps in the SWPPP, showing the entire site and identifying boundaries of the property where construction and earth-disturbing activities will occur. Include all the elements described in the CGP Part 5.3.5, and DEC CGP SWPPP Template Section 5.0.

(16) Identify the inspection frequency in the SWPPP according to the CGP Part 6.1.

(17) Linear Project Inspections, described in CGP Part 6.5, are not applicable to this contract.

(18) The SWPPP must cite and incorporate applicable requirements of the project permits, environmental commitments, COE permit, and commitments related to historic preservation. Make additional consultations or obtain permits as necessary for Contractor specific activities that were not included in the Department’s permitting and consultation.

(19) The SWPPP is a dynamic document. Keep the SWPPP current by noting installation, modification, and removal of BMPs, and by using amendments, SWPPP amendment logs, inspection reports, corrective action logs, records of land disturbance and stabilization, and any other records necessary to document stormwater pollution prevention activities and to satisfy the requirements of the CGP and this specification. See Subsection 641-3.3 for more information.

d. Recording Personnel and Contact Information in the SWPPP.

Identify the SWPPP Manager as the Storm Water Lead and Stormwater Inspector positions in the SWPPP. Document the SWPPP Manager's responsibilities in Section 2.0 Stormwater Contacts, of the SWPPP template and:

(1) Identify that the SWPPP Manager does not have authority to sign inspection reports (unless the SWPPP Manager is also the designated project Superintendent).

(2) Identify that the SWPPP Manager cannot prepare the SWPPP unless the SWPPP Manager meets the Contract requirements for the SWPPP Preparer.

Include in the SWPPP proof of AK-CESCL or equivalent certifications for the Superintendent and SWPPP Manager, and for any acting Superintendent and acting SWPPP Managers. If the Superintendent or SWPPP Manager is replaced permanently or temporarily, by an acting Superintendent or acting SWPPP Manager; record in the SWPPP (use Form 25D-127) the names of the replacement personnel and date of replacement. For temporary personnel, record their beginning and ending dates.

Provide 24-hour contact information for the Superintendent and SWPPP Manager. The Superintendent and SWPPP Manager must have 24-hour contact information for all Subcontractor SWPPP Coordinators and Utility SWPPP Coordinators.

Include in the SWPPP proof of AK-CESCL or equivalent certifications of ATS operators. Record names of ATS operators and their beginning and ending dates, on Form 25D-127.

The Department will provide proof of AK-CESCL, or equivalent certifications for the Department's Project Engineer, Stormwater Inspectors, and Monitoring Person (if applicable), and names and dates they are acting in that position. Include the Department's staff certifications in Appendix E. Include Department's staff names, dates acting, and assignments in Section 2.0 of the SWPPP and Form 25D-127.

641-2.2 HAZARDOUS MATERIAL CONTROL PLAN (HMCP) REQUIREMENTS.

Prepare the HMCP using the Department template for the prevention of pollution from storage, use, containment, cleanup, and disposal of all hazardous material, including petroleum products related to construction activities and equipment. Include the HMCP as an appendix to the SWPPP. Compile Material Safety Data Sheets in one location and reference that location in the HMCP.

641-2.3 SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN (SPCC PLAN) REQUIREMENTS.

Prepare and implement an SPCC Plan when required by 40 CFR 112 when both of the following conditions are present on the project:

a. Oil or petroleum products from a spill may reach navigable waters (as defined in 40 CFR 112); and

b. Total above ground storage capacity for oil and any petroleum products is greater than 1,320 gallons (not including onboard tanks for fuel or hydraulic fluid used primarily to power the movement of a motor vehicle or ancillary onboard oil-filled operational equipment, and not including containers with a storage capacity of less than 55 gallons).

Reference the SPCC Plan in the HMCP and SWPPP.

641-2.4 RESPONSIBILITY AND AUTHORITY OF THE SUPERINTENDENT AND SWPPP MANAGER.

The Superintendent shall certify the SWPPP, inspection reports, and other reports required by the CGP, except the eNOI and eNOT. The Superintendent may not delegate the task or responsibility of signing and certifying these documents.

The Superintendent may assign certain duties to the SWPPP Manager.

a. Ensuring Contractor's and subcontractor's compliance with the SWPPP and CGP;

b. Ensuring the control of erosion, sedimentation, or discharge of pollutants;

c. Directing and overseeing installation, maintenance, and removal of BMPs;

d. Performing inspections; and

e. Updating the SWPPP including adding amendments and forms.

When Bid Item P641.070.0000 is part of the Contract, the SWPPP Manager must be a different person than the Superintendent and must be available at all times to administer SWPPP requirements, and be physically present within the Project Zone or the project office, when construction activities are occurring.

The Superintendent and SWPPP Manager shall be knowledgeable in the requirements of this Item P-641, the SWPPP, CGP, BMPs, HMCP, SPCC Plan, environmental permits, environmental commitments.

The Superintendent and SWPPP Manager shall have the Contractor's complete authority and be responsible for suspending construction activities that do not conform to the SWPPP or CGP.

641-2.5 MATERIALS.

Use materials suitable to withstand hydraulic, wind, and soil forces, and to control erosion and trap sediments according to the requirements of the CGP and the Specifications.

Use the seed mixture specified in the contract or as directed by the Engineer.

Use soil stabilization material as specified in P-682 and T-908.

Use silt fences as specified in P-680.

Use straw and straw products certified weed free of prohibited and restricted noxious weed seed and quarantined pests, according to Alaska Administrative Code, Title 11, Chapter 34 (11 AAC 34). When straw or straw products certified according to 11 AAC 34 are not available, use non-certified products manufactured within Alaska before certified products manufactured in another state, country, or territory. Non-certified straw or straw products manufactured in another state, country, or territory shall not be used. Grass, legumes, or any other herbaceous plants produced as hay, shall not be substituted for straw or straw products.

641-3.1 CONSTRUCTION REQUIREMENTS.

Comply with the SWPPP and the requirements of the CGP Part 5.0.

a. Before Construction

The following actions must be completed before Construction Activity begins:

(1) The SWPPP Preparer must visit the project, the visit must be documented in the SWPPP using Form 25D-106, and the SWPPP must be developed or amended with findings from the visit.

(2) The SWPPP must be approved by the Engineer on Form 25D-109.

(3) The Contractor must be authorized to begin work by the Engineer.

(4) The Project must have an eNOI for the Department and for the Contractor.

(5) The Department approved SWPPP must be submitted to DEC and Local Government per CGP Part 2.1.2, Part 2.1.4, and Part 2.4.1.

(6) The Contractor has transmitted to the Engineer an electronic copy ~~and at least one hardcopy~~ of the approved SWPPP.

(7) The Delegation of Authority forms 25D-108 and 25D-107 for both the Contractor and Engineer are signed.

(8) Main entrance signage must meet requirements of CGP Part 5.10.2.

Post notices on the outside wall of the Contractor's project office, and near the main entrances of the construction project. Protect postings from the weather. Locate postings so the public can safely read them without obstructing construction activities or the traveling public (for example, at an existing pullout). Do not use retroreflective signs for the SWPPP posting. Do not locate SWPPP signs in locations where the signs may be confused with traffic control signs or devices. Update the notices if the listed information changes.

(9) Track precipitation according to CGP Part 7.3.9. Submit the method to track precipitation to the Engineer for approval.

(10) Complete all setup and training required to implement SWPPPTrack.

~~**(9)**~~**(11)** Complete the uplead of the BMP inventory into SWPPPTrack.

b. During Construction

(1) Delineate the site according to the CGP Part 4.2.1.

(2) Install required BMPs according to the SWPPP prior to the initiation of ground disturbance.

(3) Document subcontractors. Provide a copy of the SWPPP and the CGP to all subcontractors and utility companies before they begin soil disturbing activities, and verify they understand and comply the with SWPPP and CGP and:

(a) Document all subcontractors and utility companies that may work on the site, according to the CGP Part 5.3.1, and SWPPP Section 1.2.

(b) Require subcontractors and utility companies to sign the SWPPP Subcontractor Certification (Form 25D-105). Include in the signed Form in the SWPPP Appendix E.

(c) Inform subcontractors and utility companies in a timely manner of SWPPP amendments that affect them. Coordinate with subcontractors and utility companies to protect BMPs, including temporary and final stabilization from damage.

(d) Notify the Engineer immediately if the actions of any utility company or subcontractor do not comply with the SWPPP and the CGP.

(4) Provide ongoing training to all employees, subcontractors and utility companies, in according to the CGP Part 4.14. Training must:

(a) Be given no less than once a month during construction activity;

(b) Be documented in the SWPPP Training Log using Form 25D-125. Include the training record in the SWPPP Appendix I.

(5) Protection and Restoration. Comply with Subsection 70-11.

(6) Good housekeeping measures to comply with the SWPPP and CGP 4.8.

(7) Control measures. Comply with the SWPPP and CGP Part 5.3.6 including:

(a) Maintain BMPs.

(b) Comply with requirements of the HMCP and SPCC Plan, if applicable and all local, state and federal regulations that pertain to the handling, storage, containment, cleanup, and disposal of petroleum products or other hazardous materials.

(c) Keep the SWPPP and HMCP current (refer to Subsection 641-2.1.c, SWPPP Considerations and Contents).

c. Winter Construction

If winter construction activity occurs, the project must have appropriate BMPs in place CGP Part 4.12.2. Inspections can be reduced to once per month if the project meets the requirements in the CGP Part 6.2.4.

d. Storm Water Discharge Pollutant Reporting Requirements

If an incident of non-compliance occurs that may endanger health or the environment a report must be made, CGP, Appendix A, Part 3.4.

A permit non-compliance is considered any type of pollutant, such as turbidity or petroleum that enters storm water runoff and flows into a receiving water body, MS4, or wetland that is connected to waters of the U.S.

(1) Immediately report the incident to the Engineer verbally;

(2) Report to DEC verbally within 24 hours after the permittee becomes aware of the incident, and;

(3) Report to DEC in writing within five days after the permittee becomes aware of the circumstances. To report in writing, complete the written noncompliance report on Form 25D-143, and file the written report with DEC. Coordinate the report with the Engineer. Include in the report:

(a) A description of the noncompliance and its causes;

(b) The exact dates and times of noncompliance;

(c) If not yet corrected the anticipated time the project will be brought back into compliance, and;

(d) The corrective action taken or planned to reduce, eliminate and prevent reoccurrence.

(4) Notify the Engineer immediately if there is incident of noncompliance with COE Permits. The Engineer will notify the COE.

e. Hazardous Materials Reporting Requirements

Any release of a hazardous substance must be reported immediately to the Engineer as soon as the person has knowledge of the discharge.

Report spills of petroleum products or other hazardous materials to the Engineer and other agencies as required by law, and according to CGP Part 9.3.

(1) To water; any amount released must be reported immediately to the Engineer, DEC, and the Coast Guard.

(2) To land:

(a) Any release of a petroleum product in excess of 55 gallons must be reported as soon as the person has knowledge of the discharge CGP Part 9.3.2.

(b) Any release of a petroleum product in excess of 10 gallons but less than 55 gallons must be reported to the Engineer and must be reported to DEC within 48 hours after the person has knowledge of the discharge CGP Part 9.3.2.

(c) Any release of a petroleum product in excess of 1 gallon to 10 gallons must be recorded and logged and provided to DEC on a monthly basis.

(3) Use the HMCP and SPCC Plan (if available) for contact information to report spills to regulatory agencies.

(4) Implement measures to prevent the reoccurrence of and to respond to such releases.

(5) Prior to disposal of contaminated material, submit a Contaminated Media Transport and Treatment Disposal Approval Form to DEC Spill Prevention and Response. Dispose as approved by DEC.

f. Corrective Action and Maintenance of BMPs

Implement maintenance as required by the CGP Part 4.13 and Part 8.0, SWPPP, and manufacturer's specifications, whichever is more restrictive.

(1) Implement corrective action to comply with the CGP Part 8.0 and the SWPPP.

(2) Corrective action deadlines and documentation:

(a) Corrective actions must be completed according to CGP Part 8.2.

(b) Document corrective actions in the Corrective Action Log (25D-112) according to the SWPPP, CGP Part 8.3 and Part 5.9.2.

If a different BMP is installed to correct the condition leading to the corrective action a SWPPP Amendment must be completed.

(c) If a corrective action is not completed according to the CGP 8.2, document the conditions in the Corrective Action Log, notify the Engineer, and implement the corrective action as soon as possible.

The Engineer may assign a new complete-by date using a Delayed Action Item Report, Form 25D-113 (DAIR Form), if the contractor is unable to complete the corrective action within the required timeframe. The DAIR Form can only be authorized and completed by the Engineer.

g. Stabilization

(1) All Soil Stabilization requirements must be met in accordance with CGP Part 4.5 and the SWPPP.

(2) When temporary or permanent seeding is required, provide a working hydro seeding equipment located within 100 miles of the project by road; with 1,000 gallon or more tank capacity, paddle agitation of tank, and the capability to reach the seed areas with an uniform mixture of water, seed, mulch and tackifier. If the project is located in an isolated community, the hydro-seeder must be located at the project.

(3) Apply temporary seed and stabilization measures within 14 days after preparing the surface to reduce erosion potential and to facilitate germination and growth of vegetative cover according to T-901.

(4) Apply permanent seed and stabilization measures within 7 days after land-disturbing activity has permanently ceased. Comply with the CGP, SWPPP, and items T-907, T-908 or T-920 as specified.

(5) Incorporate final or temporary stabilization immediately after installing culverts or drainage structures to satisfy CGP Part 4.5, the SWPPP and the Engineer. Stabilize under any bridges, and in areas upstream and downstream of culverts, drainages and areas disturbed by related construction activities after installation, or before deactivating stream bypass or diversion.

(6) Stabilization before Fall Freeze up and Spring Thaw.

Stabilize Construction Activities within the Project Zone with appropriate BMPs prior to the anticipated date of fall freeze up, in accordance with the SWPPP and CGP, Part 4.12.

Exceptions to stabilization prior to anticipated date of fall freeze up include:

(a) Where temporary stabilization activities are precluded by snow cover or frozen ground conditions prior to the anticipated date of fall freeze up, stabilization measures must be initiated as soon as practicable following the actual spring thaw.

(b) When winter construction activity is authorized by the Engineer and conducted according to the contract.

h. Ending CGP Coverage

(1) The Engineer will determine the date that all the following conditions for ending CGP coverage have been met within the Project Zone:

(a) Land disturbing activities have ceased;

(b) Final Stabilization has been achieved on all portions of the Project Zone, according to the CGP 4.5.2 (including at Department furnished material sources, disposal sites, staging areas, equipment areas, etc.), and;

(c) Temporary BMPs have been removed.

(2) After the Engineer has determined the conditions have been met for submitting an NOT in accordance to CGP Part 10.2, the Department will:

(a) Send written notice to the Contractor with the date that the conditions were met;

(b) Submit an eNOT to DEC within 30 days, and;

(c) Provide a copy of the eNOT and DEC's acknowledgement letter to the Contractor.

(3) If the Contractor's CGP eNOI acreage includes Support Activities and any other areas where the Department is not an Operator, the Contractor may not be able to file an eNOT at the same time as the Department.

(4) The Contractor must submit a copy of each signed eNOT and DEC's acknowledgement letter to the Department within three days of filing the eNOT or receiving a written response. Insert the eNOT and DEC acknowledgement letter in SWPPP Appendix Q.

(5) The Contractor is responsible for coordinating local government inspections of work and ending permit coverage with local government. See Subsection 641-1.3.e for more information.

i. Ending BMP Maintenance in the Project Zone

The Contractor is responsible for continuing inspections, BMP maintenance and SWPPP updates until permit coverage is ended.

j. Transmit final SWPPP

Transmit one electronic copy of the final SWPPP, including all SWPPP documents, to the Engineer, when the Contractor's eNOT is filed, or within 30 days of the Department's eNOT being filed, whichever is sooner.

641-3.2 SWPPP DOCUMENTS, LOCATION ON-SITE, AVAILABILITY, AND RECORD RETENTION.

The SWPPP and related documents maintained by the Contractor are the record for demonstrating compliance with the CGP. Copies of SWPPP documents transmitted to the Engineer under the requirements of this specification are informational and do not relieve the Contractor's responsibility to maintain complete records as required by the CGP and this specification.

Keep the SWPPP, HMCP and SPCC Plan if applicable at the on-site project office. If there is not an on-site project office, keep the documents at a locally available location that meets CGP requirements and is approved by the Engineer. Records may be moved to another office for record retention after the eNOTs are filed. Records may be moved to another office during winter shutdown. Update on-site postings if records are relocated during winter shutdown. Provide the Department with copies of all records.

Retain records and a copy of the SWPPP, for at least three years after the date of eNOT according to the CGP Part 9.4.

The SWPPP and related documents must be made available for review and copy, to the Department and other regulatory agencies that request them. See CGP Parts 5.10, 6.6 and 9.5.

641-3.3 SWPPP INSPECTIONS, AMENDMENTS, REPORTS, AND LOGS.

Perform inspections, prepare Inspection Reports, and prepare SWPPP Amendments in compliance with the SWPPP and the CGP using Department forms found at the DOT&PF Construction Forms website.

a. Inspection during Construction

Conduct Inspections according to the schedule and requirements of the SWPPP and CGP Part 6.0. When the project is on a 14 calendar day inspection frequency, conduct Post-Storm Event Inspections within 24 hours of the end of a storm event, as required, in addition to the 14 day predetermined inspection cycle.

Inspections required by the CGP and SWPPP must be performed by the Contractor's SWPPP Manager and the Department's Stormwater Inspector jointly, unless approved by the Engineer, when:

(1) One of the inspectors is not on site, access is only by air, and weather delayed or canceled flights;

(2) One of the inspectors is sick;

(3) The project is on a reduced frequency inspection schedule with no staff on site, the only access to the site is by air, and it is economical to send only one inspector, or;

(4) When the Engineer determines a safety concern that makes joint inspection impracticable.

When this is the case, the Operator who conducts the inspection must provide a copy of the Inspection Report to the other Operator within three days of the inspection date and document the date of the report transmittal in SWPPP Appendix K.

b. Inspection Reports

Use only the Department SWPPP Construction Site Inspection Report, Form 25D-100, to record inspections. Changes or revisions to Form 25D-100 are not permitted, except for adding or deleting data fields that list Location of Discharge Points and Site Specific BMPs. Complete all fields in the Inspection Report; do not leave any fields blank.

Refer to the DOT&PF Construction Forms webpage for instruction to complete Form 25D-100.

The Superintendent or SWPPP Manager must review and correct all errors within three days of the date of inspection.

Inspection Reports must be signed by the person described in the CGP Appendix A, Part 1.12 or by a duly authorized representative of that person. Only the Superintendent can certify the Inspection Form.

Insert a Complete-by-Date for each corrective action listed that complies CGP Part 8.2.

Provide a copy of the completed, unsigned Inspection Report to the Engineer by the end of the next business day following the inspection.

The Engineer may coordinate with the Superintendent to review and correct any errors or omissions before the Superintendent signs the report. Corrections are limited to adding missing information or correcting entries to match field notes and conditions present at the time the inspection was performed. The signed and certified Inspection Report must be provided to the Engineer on the same day the Superintendent signed the form.

The Engineer will sign and certify the Inspection Report and will return the original to the Contractor within three working days if compliant with the CGP and SWPPP.

If the Inspection Report is not compliant with the CGP or SWPPP the Engineer may make corrections after the Superintendent has signed and certified the Inspection Report. The Engineer will initial and date each correction. If the Engineer makes corrections, the Superintendent must recertify the Inspection Report by entering a new signature and date in the white space below the original signature and date lines. Send a copy of the recertified Inspection Report to the Engineer on the day it is recertified.

When a correction is required to an Inspection Report that was already certified by both the Superintendent and Engineer, follow directions given below:

If subsequent corrections are required for a certified Inspection Report 25D-100, document the corrections in an addendum memo that addresses only the omitted or erroneous portions of the original Inspection Report. The Superintendent and the Engineer must both sign and certify the updated Inspection Report and addendum memo. File the corresponding Inspection Report and memo in the SWPPP Appendix K and update the amendment log. The issuance of an addendum memo does not relieve the Contractor of liquidated damages that may have been incurred as a result of the error on the original certified inspection report.

c. Items and Areas to Inspect

Conduct inspections of all areas required by the CGP Part 6.4 and SWPPP.

d. Reduced Inspection Frequencies

Conduct inspections according to the inspection schedule indicated in the approved SWPPP. Any change in inspection frequency must be approved by the Engineer, and beginning and ending dates documented as an amendment to the SWPPP.

If the Engineer approves and the entire site is stabilized, the frequency of inspections may be reduced in accordance to the CGP Part 6.2.1. At actively staffed sites, inspect within two business days of the end of a storm event that results in a discharge from the site.

e. Winter Shutdown Inspection

Conduct winter shutdown inspection 14 calendar days after the anticipated fall freeze up date and conditions under the CGP Parts 4.12, 6.2.3, and the SWPPP are met. The Engineer may approve suspension of inspections and waive requirements for updating the Grading and Stabilization Activities Log and Daily Record of Rainfall Form during Winter Shutdown.

Inspections must resume on a regular frequency or reduced inspection frequency identified in the SWPPP, at least 21 days before anticipated spring thaw CGP Part 6.2.3. Resume updating the Daily Record of Rainfall Form at the start of the 21-day spring thaw inspection.

f. Inspection before Project Completion.

Conduct inspection to ensure Final Stabilization is complete throughout the Project, and temporary BMPs that are required to be removed are removed. Temporary BMPs that are biodegradable and are specifically designed and installed with the intent of remaining in place until they degrade, may remain in place after project completion if approved by the Project Engineer.

g. SWPPP Amendments and SWPPP Amendment Log

The SWPPP Amendment Log Form 25D-114 must be filled out by an individual who holds a current AK-CESCL, or equivalent certification. The Superintendent or the SWPPP Manager must sign and date amendments to the SWPPP and updates to the SWPPP Amendment Log.

SWPPP Amendments must be approved by the Engineer.

Amendments must occur:

(1) Whenever there is a change in design, construction operation, or maintenance at the construction site that has or could cause erosion, sedimentation or the discharge of pollutants that has not been previously addressed in the SWPPP;

(2) If an inspection identifies that any portion of the SWPPP is ineffective in preventing erosion, sedimentation, or the discharge of pollutants;

(3) Whenever an inspection identifies a problem that requires additional or modified BMPs or a BMP not shown in the original SWPPP is added;

(4) If the inspection frequency is modified (note beginning and ending dates);

(5) When there is a change in personnel who are named in the SWPPP, according to Subsection 641-2.1.d.

(6) When an inspection is not conducted jointly;

(7) When a NOI modification is filed;

(8) When a Noncompliance Report is filed with DEC.

Place all correspondence with DEC, EPA or MS4s in Appendix Q.

Amend the SWPPP as soon as practicable after any change or modification, but in no case later than seven days following identification of the need for an amendment. All SWPPP Amendments must have an amendment number, be dated, and signed.

Keep the SWPPP Amendment Log current. Prior to a scheduled inspection or submittal of an inspection, submit to the Engineer a copy of the pages of the Amendment Log that contain new entries since the last submittal. Include copies of any documents amending the SWPPP.

Keep the SWPPP Amendment Log in Appendix M.

h. Site Maps

Maintain site maps in accordance with CGP Part 5.3.5 and the SWPPP template 5.0. It is acceptable to have separate site maps for BMPs and grading and stabilization activities.

i. Corrective Action Log

The Superintendent and SWPPP Manager are the only persons authorized to make entries on the SWPPP Corrective Action Log, Form 25D-112.

The Corrective Action Log must document corrective actions required by the conditions listed in the CGP Part 8.0. Document the need for corrective action within 24 hours of either:

(1) Identification during an inspection, or;

(2) Discovery by the Department's or Contractor's staff, a subcontractor, or a regulatory agency inspector;

(3) If a corrective action is discovered outside of an inspection, update the log with the date of discovery, the proposed corrective action, and the date the corrective action was completed.

Keep the Corrective Action Log current and submit a copy to the Engineer prior to performing each scheduled SWPPP Inspection.

Keep the Corrective Action Log in Appendix J of the SWPPP.

j. Grading and Stabilization Activities Log

The Superintendent and SWPPP Manager are the only persons authorized to date and initial entries on the SWPPP Grading and Stabilization Activities Log, Form 25D-110. Use the SWPPP Grading and Stabilization Activities Log, to record land disturbance and stabilization activities.

Keep the Grading and Stabilization Activities Log current and submit a copy to the Engineer prior to performing each scheduled SWPPP Inspection. Keep the Grading and Stabilization Activities Log organized and completed to demonstrate compliance with the CGP Part 4.5.

Keep the Grading and Stabilization Activities Log in Appendix G of the SWPPP.

k. Daily Record of Rainfall

Use SWPPP Daily Record of Rainfall, Form 25D-115 to comply with CGP Part 7.3.9. Submit a copy to the Engineer with each completed Inspection Report. Keep the Daily Record of Rainfall current in Appendix N of the SWPPP. For projects on a 14-day inspection frequency or reduced inspection frequency, SWPPPTrack will generate a precipitation alert for storm events that produce more than 0.5 inch of rainfall in 24 hours. If a storm event does not produce a discharge from the project zone, submit an explanation in response to the SWPPPTrack precipitation alert.

l. Staff Tracking Log

Use the SWPPP Project Staff Tracking Form 25D-127, to identify project staff that are required to be AK-CESCL certified or hold an equivalent qualification CGP Appendix C. Complete this form to document the following positions; Superintendent, SWPPP Manager, Engineer, DOT&PF Stormwater Inspector, and when positions have changed in personnel, either permanent or temporary. Update the SWPPP Project Staff Tracking Form within 24-hours of any changes in personnel, qualifications, or other staffing items related to administration of the CGP or Item P-641.

641-3.4 FAILURE TO PERFORM WORK.

The Engineer has authority to suspend work and withhold monies according to Subsections 50-01 and 80-06 for the reasons listed under Subsection 80-06 and for an incident of noncompliance with the CGP or SWPPP that may endanger health or the environment or for failure to perform work related to Item P-641.

a. An incident of noncompliance includes, but is not limited to, the Contractor's failure to:

(1) Obtain appropriate permits before Construction Activities occur;

(2) Perform SWPPP administration;

(3) Perform timely inspections;

(4) Update the SWPPP;

(5) Transmit updated SWPPP, Inspection Reports, and other updated SWPPP forms to the Engineer;

(6) Maintain effective BMPs to control erosion, sedimentation, and pollution in accordance with the SWPPP, the CGP, and applicable local, state, and federal requirements;

(7) Perform duties according to the requirements of Item P-641;

(8) Meet requirements of the CGP, SWPPP, or other permits, laws, and regulations related to erosion, sediment, or pollution control, or;

(9) Any other requirements established or included in the contract.

b. No additional Contract time or additional compensation will be allowed due to delays caused by the Engineer's suspension of work.

641-3.5 ACCESS TO WORK.

The Project, including any related off-site areas or support activities, must be made available for inspection, or sampling and monitoring, by the Department and other regulatory agencies. See CGP Part 6.6.

METHOD OF MEASUREMENT

641-4.1 See Section 90 and as follows:

Items P641.010.0000, P641.030.0000, and P641.070.0000 are lump sum.

Items P641.020.0000, P641.040.0000, and P641.050.0000 will be measured on a contingent sum basis as specified by the Directive authorizing the work.

Item P641.060.0000 will be measured on a contingent sum basis with withholding determined by the Department.

TABLE 641-1 BMP VALUES – RESERVED

Liquidated Damages assessed according to Table 641-2 are not an adjustment to the Contract amount. These damages charges are related to Contract performance but are billed by the Department to the Contractor, independent of the Contract amount. An amount equal to the Liquidated Damages may be withheld for unsatisfactory performance, from payment due under the Contract, until the Contractor remits payment for billed Liquidated Damages.

TABLE 641-2 - VERSION C
EROSION, SEDIMENT AND POLLUTION CONTROL – LIQUIDATED DAMAGES

Code	Specification Section Number and Description	Deductible Amount in Dollars	Cumulative Deductible Amounts in Dollars
A	641-1.4 Failure to have a qualified (AK-CESCL or equivalent) SWPPP Manager	Calculated in Code B or F	
B	Failure to meet SWPPP requirements of: (1) 641-2.1a Name of SWPPP Preparer (2) Not Applicable (3) 641-3.3h Sign and Date SWPPP amendments by qualified person (4) 641-3.2 Records maintained at project and made available for review	$750 per omission	
C	Not Applicable		
D	641-3.3.e Failure to stabilize a Project prior to fall freeze up.	$5,000 per Project per year	
E	641-2.1a Failure to conduct pre-construction inspections before Construction Activities on all projects greater than 1 acre.	$2,000 per Project	
F*	641-3.3. Failure to conduct and record CGP Inspections 641-3.3a Personnel conducting Inspections and Frequency 641-3.3b Inspection Reports, use Form 25D-100, completed with all required information	$750 per Inspection	Additional $750 for every additional 7 day period without completing the required inspection.
G	641-3.1d Corrective action, failure to timely accomplish BMP maintenance and/or repairs. In effect until BMP maintenance and/or repairs is completed.	$500 per Project per day	
H	641-3.1c Failure to provide to the Engineer and DEC a timely oral noncompliance report of violations or for a deficient oral noncompliance report	$750 for the first day the report is late or deficient	Additional $750 for every 14 day period with- out the required information
I	641-3.1c Failure to provide to the Engineer and DEC a timely written noncompliance report, use Form 25D-143, of violations or for a deficient written noncompliance report	$750 for the first day the report is late or deficient	Additional $750 for every 14 day period without the required information
J	641-3.4 Failure to comply with the requirements of the CGP, approved SWPPP, and Item P-641, except as listed above	$750 per occurrence for the first day of noncompliance	Additional $750 for every day the deficiency remains uncorrected

Code F* Liquidated Damages according to Code F will not be billed for typographic errors and minor data entry errors, except the liquidated damages will be assessed for these errors when:
(1) the Contractor has previously been notified and subsequent inspection reports repeat the same or similar error,
(2) multiple inspection reports are submitted after the submission due date and the same or similar errors are repeated on multiple overdue reports,
(3) an error in recording the inspector's AK-CESCL certification date results in an inspector performing the inspection during a period when their certification was lapsed or was otherwise invalid.

BASIS OF PAYMENT

641-5.1 See Subsection 641-3.4 Failure to Perform Work, for additional work and payment requirements.

Item P641.010.0000 Erosion, Sediment and Pollution Control Administration. At the Contract lump sum price for administration of all work under this Section. Includes, but is not limited to, SWPPP and HMCP and SPCC Plan preparation, agency fees for SWPPP reviews, SWPPP amendments, pre-construction inspections, inspections, monitoring, reporting, and recordkeeping or copying records related to the SWPPP and required by the CGP, and record retention.

Item P641.020.0000 Temporary Erosion, Sediment and Pollution Control. At the contingent sum prices specified for all labor, supervision, material, equipment, and incidentals to install, maintain, remove and dispose of approved temporary erosion, sedimentation, and pollution control BMPs required to implement the SWPPP and SPCC Plan.

Item P641.030.0000 Temporary Erosion, Sediment and Pollution Control. At the Contract lump sum price for all labor, supervision, material, equipment, and incidentals to install, maintain, remove and dispose of temporary erosion, sedimentation, and pollution control BMPs identified in the SWPPP and SPCC Plan.

Item P641.040.0000 Temporary Erosion, Sediment and Pollution Control Additives. At the contingent sum prices specified in the Directive to authorize the work, for all labor, supervision, materials, equipment, and incidentals for extra, additional, or unanticipated work, to install, maintain, remove and dispose of temporary erosion, sedimentation, and pollution control BMPs not covered by Item P641.030.0000. All additional Erosion, Sediment, and Pollution Control Administration necessary due to this item will not be paid for separately but will be subsidiary to other bid items.

Item P641.050.0000 Temporary Erosion, Sediment and Pollution Control by Directive. At the contingent sum prices specified in the Directive using time and materials to authorize the work, for all labor, supervision, materials, equipment, and incidentals to install, maintain, remove and dispose of temporary erosion, sedimentation, and pollution control BMPs. Prices for this item will be by time and materials according to Subsection 90-05, or by mutual agreement between the Engineer and Contractor. All additional Erosion, Sediment, and Pollution Control Administration necessary due to this item will not be paid for separately but will be subsidiary to other bid items.

Item P641.060.0000 Withholding. The Engineer may withhold an amount equal to Liquidated Damages, assessed according to Item P-641, from payment due the Contractor. Liquidated Damages for violations of the Contract, CWA, CGP, are determined by the Engineer according to Table 641-2. The Engineer may withhold payment due the Contractors until the Contractor pays the Liquidated Damages to the Department.

The Department will not release performance bonds until Liquidated Damages assessed according to Item P-641 are paid to the Department, and all requirements according to Subsection 30-05 are satisfied.

Item P641.070.0000 SWPPP Manager. At the Contract lump sum price for a SWPPP Manager that conforms to this specification. When Item P641.070.0000 appears in the Bid Schedule, the SWPPP Manager must be a different person than the superintendent, and must be physically present during construction activity with duties and authority as described in Subsection 641-2.4. When Item P641.070.0000 does not appear in the Bid Schedule, the SWPPP Manager is subsidiary to Item P641.010.0000.

Item P641.110.0000 SWPPPTrack. Payment for purchasing and contracting with SWPPPTrack AK LTD for the use of the SWPPPTrack software application and services will be based on paid receipts plus a 5 percent markup.

Subsidiary Items. Temporary erosion, sediment and pollution control measures that are required outside the Project Zone are subsidiary. Work required by the HMCP and SPCC Plan including hazardous material storage, containment, removal, cleanup and disposal, are subsidiary to Item P641.010.0000 Erosion, Sediment and Pollution Control Administration.

Work under other pay items. Work that is paid for directly or indirectly under other pay items will not be measured and paid for under Item P-641. This work includes but is not limited to:

a. Dewatering;
b. Shoring;
c. Bailing;
d. Permanent seeding;
e. Installation and removal of temporary work pads;
f. Temporary accesses;
g. Temporary drainage pipes and structures;
h. Diversion channels;
i. Settling impoundment, and;
j. Filtration.

Permanent erosion, sediment and pollution control measures will be measured and paid for under other Contract items, when shown on the bid schedule.

Work at the Contractor's Expense. Temporary erosion, sediment and pollution control measures that are required due to carelessness, negligence, or failure to install temporary or permanent controls as scheduled or ordered by the Engineer, or for the Contractor's convenience, are at the Contractor's expense.

Payment will be made under:

Item P641.010.0000	Erosion, Sediment and Pollution Control Administration – per lump sum
Item P641.020.0000	Temporary Erosion, Sediment and Pollution Control – per contingent sum
Item P641.060.0000	Withholding – per contingent sum
Item P641.070.0000	SWPPP Manager – per lump sum
Item P641.110.0000	SWPPPTrack – per contingent sum

ITEM P-650 AIRCRAFT TIE-DOWN

DESCRIPTION

650-1.1 This item consists of furnishing and installing aircraft tie-down anchors according to these specifications and the details on the Plans, or as directed by the Engineer.

MATERIALS

650-2.1 GENERAL.

Meet the strength and/or capacity requirements of this section for the type of anchor specified.

Substitution of products as approved equals will be determined by comparing ratings for tensile breaking strength and pull-out capacity that exceed the specified minimums when installed under prevailing soil or rock conditions. The practicality of installing proposed anchors at the plan locations and corrosion resistance will also be considered.

Locate existing tiedowns and record their locations such that new tie-downs may be placed in a similar layout.

Cut existing tie-downs off at the lowest point available after excavation in the area is complete.

Install tie-downs such that the new tie-down is offset 18 inches or as directed by the Engineer to avoid hitting the existing anchor with the new installation.

650-2.2 SOIL ANCHOR TIE-DOWNS.

a. **Driven Toggle.** Provide an anchor assembly with a minimum tensile breaking strength of 9,000 pounds, a minimum working load capacity of 3,500 pounds and a minimum field pull-out capacity of 5,000 pounds. Provide anchors equipped with stainless steel cable, swaged eyes at cable ends, and no intermediate connections.

b. **Buried Plate.** Provide an anchor assembly meeting the details shown on the plans.

c. **Helical "Screw" Anchor.** Provide an anchor assembly with minimum tensile breaking strength of 9,000 pounds, a minimum working load capacity of 3,500 pounds, and a minimum field pull-out capacity of 5,000 pounds.

For each anchor assembly, provide a chain extension to the anchor cable so that the cable eye is buried 12 inches minimum below finish grade and the chain extends several links above finish grade after locking the anchor. Use 3/8-inch grade 43 high test hot galvanized steel chain with two 3/8-inch removable coupling links, one at each end of the chain.

650-2.3 ROCK ANCHOR TIE-DOWNS. Rock anchors shall be 1/2-inch diameter Williams Solid Bar "Spin Lock" Rock Bolts, Williams Titan Injection Anchor 30/16, or an approved equal. Provide anchor assembly with a minimum tensile breaking strength of 9,000 pounds and minimum field pull-out capacity of 5,000 pounds. Provide chain and chain coupling links meeting the same requirements as specified for soil anchor tie downs.

650-2.4 TEMPORARY TIE-DOWNS. Temporary tie-down anchors shall provide a minimum 500 pounds of resistance to uplift per anchor. Temporary anchors shall be laid out as shown on the plans or as approved by the Engineer. Each anchor shall be provided with a 2-inch link or eye to which aircraft can be tethered. If above ground weights are used they shall be painted with reflective paint to be visible from any horizontal angle.

CONSTRUCTION METHODS

650-3.1 GENERAL. Soil and Rock Anchor tie-downs shall be installed as shown on the Plans.

Install anchor eye to the end of the anchor shaft by either bolting or as recommended by the manufacturer and approved by the Engineer. Eye must be able to pass a 1-inch rope or pin.

650-3.2 SOIL ANCHOR TIE-DOWNS.

a. **Driven Toggle.** Drive to sufficient depth to develop the minimum pull-out strength according to the manufacturer's installation instructions. Predrilling may be required depending on soil class. Anchor placement shall be achieved by methods recommended in the manufacturer's installation instructions. Backfill material, when required, shall be aggregate compacted to the satisfaction of the Engineer. If the anchor is set in pavement, backfill to a level 2-inchs below finish grade. Two-component sealant shall be used to fill the remainder of the hole to a level 1-inch below finish grade.

b. **Buried Plate.** Install each plate on a level and compacted surface at 5 feet minimum below finish grade. Place backfill with the chain plumb and under tension. Meet the material and compaction requirements for the applicable lift of material involved.

c. **Helical "Screw" Anchor.** Helical anchors shall be handled, stored, and installed in accordance with the manufacturer's recommendations. The helix of the helical anchors shall be installed a minimum of 6 feet below finish grade. Under no circumstances shall the manufacturer's recommended maximum allowable torque be exceeded at any time during installation.

   The helix must be advanced in a continuous manner that allows the helix to "screw" into the soil matrix rather than "auger" through the soil matrix, resulting in disturbed soils around the helices. The rate of advance should provide a rotation of 5 to 15 rotations per minute. Apply uniform down pressure to maintain a penetration rate commensurate with the helix pitch. The rate of rotation and magnitude of down pressure may require adjustments during installation.

   Prior to installing helical anchors in paved areas, core through the asphalt using a circular coring machine approved by the engineer. Install as shown on the Plans and compact to the satisfaction of the Engineer.

   The helical anchors installed shall be field tension tested to the design pull-out load under the supervision of the Engineer to confirm tension load performance.

650-3.3 ROCK ANCHOR TIE-DOWNS. Rock anchors shall be anchored in sound bedrock at sufficient penetration to develop the minimum pull-out strength according to the manufacturer's instructions.

650-3.4 TEMPORARY TIE-DOWNS. Temporary tie-downs shall be produced that can be located to provide tie downs for aircraft displaced by the Contractor's operations. Tie-downs shall not require any permanent modifications to existing facilities or pavements and shall be re-locatable using readily available equipment. Initial placement and subsequent relocations of tie-downs shall be accomplished at the direction of the Engineer at no additional cost to the State.

650-3.5 MANUFACTURER'S CERTIFICATION AND ACCEPTANCE TESTING. For anchors where minimum tensile breaking strength or working load capacity is specified, provide manufacturer's certification that requirements are met. For anchors where minimum field pull-out capacities are specified, provide an Engineer approved testing apparatus that can apply and measure the required minimum field pull-out capacity. Field test each anchor and certify each test by recording the date of the test, the force applied, and the person completing the test. Tabulate this data and deliver to the Engineer within 24 hours of completing the tests.

METHOD OF MEASUREMENT

650-4.1 By each set, consisting of 3 anchors, completed and accepted in final position. Removal of temporary tie-downs is subsidiary to the pay item and will not be measured for payment.

BASIS OF PAYMENT

650-5.1 At the contract price, per set, for each of the pay items shown in the bid schedule.

Payment will be made under:

Item P650.040.0000 Temporary Tie-down – per each

ITEM P-655 AIRCRAFT RELOCATION

DESCRIPTION

655-1.1 move parked aircraft from the work area to a temporary parking area while work is in progress. Move the aircraft back to the parking apron following construction. Notify aircraft owners before moving Aircraft to give them the opportunity to relocate their aircraft. If there is no response, accomplish the relocation**.**

REQUIREMENTS

655-2.1 Notification. Notify the Engineer ~~and Airport Manager~~ a minimum of 14 calendar days prior to the requirement to remove aircraft from the area of apron to be reconstructed. You will be provided with each aircraft owners name, most current address, and telephone number. Make a minimum of three attempts on different days beginning a minimum of 10 days prior to the planned apron reconstruction start date. Document by phone log or other approved method your attempts to contact the owner. Repeat this process when work in an area is complete and ready to be reoccupied by aircraft.

Allow a minimum of 7 calendar days for aircraft owners to relocate their aircraft. At the direction of the Engineer, relocate any aircraft that remain following the 7 day period allowed for owners to move their aircraft.

655-2.2 QUALIFIED PERSONNEL. Accomplish relocation of aircraft under the direct supervision of an aircraft maintenance technician in possession of a current A&P or AI license issued by the FAA.

655-2.3 TIE DOWN MATERIAL. Tie aircraft down either in the temporary tie-down area or in a vacant tiedown space as directed by the Engineer. Secure each aircraft at 3 points; at each wing and the tail using 3 lengths of suitable ½ - inch nylon rope. Tie-down rope used to tie down the aircraft at its original position may be used if, in the aircraft technician's opinion, it is suitable for the purpose. If the existing tie-down ropes are not used, return the ropes to the owner and tie aircraft down with the new rope.

METHOD OF MEASUREMENT

655-3.1 Payment for Aircraft Relocation will be full compensation for moving the aircraft to or from the temporary parking area including new tie-down ropes and for all labor, material and equipment needed to complete the item. Contacting and coordinating with aircraft owners will not be paid for separately but shall be considered subsidiary to items P-655.010.0000.

Payment will be made under:

Item P-655.010.0000 Aircraft Relocation – per each

ITEM P-661 STANDARD SIGNS

DESCRIPTION

661-1.1 Furnish and install standard signs. The location and type of installation will be as shown on the plans or as designated. Where shown on the plans, remove sign and post assemblies and store securely until reinstalling the assemblies as shown or as directed by the Engineer.

MATERIALS

661-2.1 Use materials that conform to the following:

a. Sheet Aluminum. Use alloy 6061-T6, 5052-H36, 5052-H38, or recycled aluminum meeting alloy 3105, as specified in ASTM B 209. Meet the thickness of aluminum sheet designated on the plans. Verify alloy and temper designations by mill certification.

Treat the aluminum base metal sheets with coating for aluminum to meet ASTM B921, Class 2. Handle the cleaned and coated base metal only by a mechanical device or by operators wearing clean cotton or rubber gloves. After cleaning and coating operations, protect the panels at all times from contact or exposure to greases, oils, dust or other contaminants.

Make each sign panel a continuous sheet for all lengths 72 inches or less in the horizontal direction. Use no more than one vertical splice for signs up to 144 inches in length and 48 inches or less in height.

Meet the panel dimensions specified with a tolerance of 1/16-inch. Furnish metal panels that are cut to size and shape and free of buckles, warp, dents, cockles, burrs and any other defects resulting from fabrication. Complete all possible fabrication, including shearing, cutting and punching of holes prior to the base metal preparation.

b. Retroreflective Sheeting. Meet ASTM D4956, for the type specified.

c. Sign Posts. Use the type and size of posts designated on the plans.

(1) Perforated Steel Posts.

Fabricate posts from 0.105-inch thick cold-rolled carbon steel sheets, commercial quality, to meet ASTM A 653 and ASTM A 924. Zinc coat, both sides, to meet coating designation G90. Form posts into a steel tube, roll to size, and weld in the corner.

Perforate all members for their entire length with 7/16-inch diameter holes on 1-inch centers.

Furnish members that are straight and with a smooth, uniform finish, with no splices.

Ensure that all perforations and cut off ends are free from burrs.

Ensure that consecutive sizes will telescope freely with a minimum of play.

d. Sign Fabrication. Use Type IV retroreflective sheeting (for lettering, symbols, borders, and background) on sheet aluminum panels.

e. Sign Posts and Bases. Use sign posts and bases of the types specified. The structural aspects of design and materials for sign supports must comply with the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*. Do not splice sign posts.

Use commercial grade concrete for sign foundations with a minimum 28-day compressive strength of 2,500 psi or an approved, pre-mixed, sacked concrete.

CONSTRUCTION REQUIREMENTS

661-3.1 Attach sign panels to posts using the types and sizes of fastening hardware shown on the plans.

All materials and finished signs are subject to inspection and acceptance in place.

a. Surfaces exposed to weathering must be free of defects in the coating that impair serviceability or detract from general appearance or color match.

b. Finished signs must be clean and have no chatter marks, burrs, sharp edges, loose rivets, delaminated retroreflective sheeting, or aluminum marks. Do not make repairs to the face sheet.

Install breakaway assemblies according to the manufacturer's written instructions.

Remove and replace all foundations requiring more than three shims to plumb a post without extra compensation.

Construct the top of any foundation located on a slope so that the finished slope passes through the top center of the foundation. Grade the area 24 inches up and down slope of the foundation edge so that no portion of the foundation projects above the surrounding slope and water will drain away from the foundation.

Attach a label to the back of all standard signs in the lower right corner. Make the label at least 15 square inches and show the year the sign was purchased from the manufacturer. Show the last two digits of the year in clear and bold numbers. Make the label from Type I or brighter reflective sheeting. Use background and legend colors meeting Table 661-1.

Table 661-1
DECAL COLORS

YEAR	BACKGROUND COLOR	LEGEND COLOR
XXX1	Yellow	Black
XXX2	Red	White
XXX3	Blue	White
XXX4	Green	White
XXX5	Brown	White
XXX6	Orange	Black
XXX7	Black	White
XXX8	White	Black
XXX9	Purple	White
XXX0	Strong Yellow-Green	Black

Central values and tolerance limits for each color, as referenced in the MUTCD, are available from the Federal Highway Administration, (HHS-30), 400 7th St. SW, Washington, D.C. 20590

661-3.2 SIGN PLACEMENT AND INSTALLATION. Sign locations are approximate and subject to field adjustment by the Engineer.

Do not allow the top of the embedded steel tube to extend more than 2 inches above the surrounding ground and concrete foundation.

On all signs, install 2-inch diameter wind washers, colored to match the sign face, between the fastener head and the sign. Use rust-resistant washers fabricated from a material equal in strength to the sign blank.

METHOD OF MEASUREMENT

661-4.1 By the total area of legend-bearing sign panel erected in place. No deductions in quantity for corner rounding will be made. Nominal dimensions for sign sizes indicated on the plans will be used to calculate sign pay quantities. Octagons and round signs will be measured as rectangles.

661-4.2 By each unit of sign and post assembly designated for relocation, accepted in place.

BASIS OF PAYMENT

661-5.1 Payment will be made at the contract price per unit of measurement. Sign posts, bases, mounting hardware, and concrete used for sign bases are subsidiary.

661-5.2 Payment will be made for each assembly of sign and post relocated to final position. Additional hardware, assembly components, and concrete used for bases are subsidiary.

Payment will be made under:

Item P661.040.0000 Relocate Standard Sign – per each

ITEM P-670 HAZARDOUS AREA BARRIERS

DESCRIPTION

670-1.1 Provide barriers for use on the project under subsection 70-09, Barricades, Warning Signs and Hazard Markings. Provide each barrier complete with flasher unit and flag in accordance with the dimensions, design, and details shown on the Plans. Haul and place barriers as shown on the Plans or as directed by the Engineer. Relocate barriers as conditions warrant.

When used during periods of darkness, such barricades, warning signs and hazard markings shall be suitably illuminated. Barricades shall be spaced not more than 25 feet apart.

Relocate barriers as work areas shift within a project area or from one work area to another.

~~Provide additional flasher units and flags, when specified, for use on Department-supplied barriers.~~

MATERIALS

670-2.1 Use materials that conform to the following:

a. Hazard Marker Barrier, Timber. Provide construction-grade Douglas Fir-Larch with nominal dimensions of 12 inches by 12 inches and a length of 8 feet. All timber that is exposed to weather, water, or soil shall be pressure treated to the current edition of the AWPA Standards, or AASHTO M 133, using preservatives registered with the US Environmental Protection Agency. Products shall be treated according AWPA Standard U1, Use Category System. Use either oil base or latex exterior paint in colors international orange and white.

b. Hazard Marker Barrier, Plastic. Provide 10-inch by 10-inch by 8-foot nominal dimension portable water-ballast barriers made from high impact, safety orange and white, UV-resistant, high density polyethylene (HDPE) plastic. Provide barriers with ~~pre-molded flag staff and~~ flasher bracket attachment holes. Provide barriers that are designed as a modular system to allow assembly/disassembly and nesting for compact storage, and to permit the option of physically bolting multiple barriers together to provide a continuous barrier wall. Provide 6-inch by 72-inch reflective striping panel for attachment to one side of each barrier.

670-2.2 FLAG. Not used. ~~Provide heavy vinyl coated nylon, 18-inch by 18-inch flag with an integral diagonal metal or plastic stay to make the flag self-supporting. Provide flag in color fluorescent orange and mounted on a 3/4-inch by 30-inch staff.~~

670-2.3 FLASHER UNIT. Provide battery-operated omnidirectional flashing red light. Provide flasher unit with mounting bracket designed for the appropriate barrier type.

a. Flasher Unit for Timber Barrier. Meet Manual on Uniform Traffic Control Devices (MUTCD) requirements for Type A Warning Lights. Supply one set of non-standard tools, such as the on/off switch or battery access tool, for each 5 flasher units furnished.

b. Flasher Unit for Plastic Barrier. Meet Manual on Uniform Traffic Control Devices (MUTCD) requirements for Type A Warning Lights.

~~Composition~~	~~High impact, polycarbonate plastic lens and base~~
~~Flashing Rate~~	~~60 flashes per minute~~
~~Brightness~~	~~6000 mcd~~
~~LED~~	~~Total of 3 red~~
~~Photo Cell~~	~~Allows for solar light to automatically shut off in higher level light conditions and turn on in lower light conditions~~

CONSTRUCTION REQUIREMENTS

670-3.1 GENERAL. On the top side ~~and at opposite ends of each barrier~~, mount ~~one flag and~~ one flasher unit per manufacturer's instructions. ~~Tether flag to the barrier.~~

a. Hazard Marker Barrier, Timber.

(1) Preparation. Prior to painting, notch the underside of each timber to allow for the use of a forklift. Cut two 4-inch high by 12-inch wide notches spaced 36 inches center to center, centered on the long axis of the timber.

(2) Painting. Apply one coat of primer and one coat of finish white color paint on all sides and the ends followed by two coats of orange finish paint to form the stripes on the sides. Paint orange stripes 24 inches wide and offset by 6 inches from one side to the next giving a "barber pole" effect.

(3) Flag and Flasher Unit. Mount the flag 24 inches from one end of the timber by drilling a hole 1/8-inch larger than the diameter of the staff by 8 inches deep. Mount the flasher unit 24 inches from the opposite end of the timber.

b. Hazard Marker Barrier, Plastic. Fill barriers with water for ballast in accordance with manufacturer's recommendations when placed or moved. When shown on the plans or directed by the Engineer, interlock barrier units using manufacturer recommended connectors to form a continuous wall separating the hazardous work area from aircraft movement areas. Adhere reflective striping panels to one side of each barrier. Mount the flasher unit as shown in the CSPP and in accordance with manufacturer's recommendations.

Inspect barriers daily and fill as required to maintain ballast.

670-3.2 DELIVERY. Deliver hazard marker barriers~~,~~ and flasher units~~, and flags~~ to the project site prior to commencing work within the Air Operations Area.

Upon project completion, the barriers and flasher units are the property of the contractor.

METHOD OF MEASUREMENT

670-4.1 Hazard marker barriers, complete with ~~flag and~~ flasher unit will be measured by the number of units furnished and accepted.

Flasher units ~~and flags~~ to be used on Department-supplied barriers will be measured by the number of units furnished and accepted.

Estimate of the number of barriers required for construction was determined based on the most demanding concurrently performed construction phases.

BASIS OF PAYMENT

670-5.1 Payment covers all costs associated with furnishing and storing hazard marker barriers~~,~~ and flasher units, ~~and flags,~~ including tools, batteries, and incidentals. Pay quantity based on the number or units furnished during most demanding phase of the project.

Work required for placing, erecting, moving, relocating, and maintaining barriers and flasher units is subsidiary.

Payment will be made under:

Item P670.010.000 Hazard Marker Barrier, Plastic – per each

ITEM P-671 RUNWAY AND TAXIWAY CLOSURE MARKERS

DESCRIPTION

671-1.1 Furnish, install, and maintain runway and/or taxiway closure markers at the locations shown on the Plans or as directed by the Engineer. Where a new runway is built to replace an existing runway, install runway closure markers on the old runway immediately after the new runway has been opened for operations. Place markers as shown on the Plans or as directed by the Engineer. Relocate markers as required. Materials supplied under this item may be used as temporary closure markers as required in GCP Subsection 80-04.

MATERIALS

671-2.1 Use materials that conform to the following.

a. Vinyl Mesh Panel.

(1) Panel Material. High tenacity vinyl coated polyester mesh fabric, 9 ounces per square yard (oz/yd^2), 70% closed mesh allowing water to flow through. Use 3.0 oz/yd^2 woven polyester fabric, coated after weaving with 6.0 oz/yd^2 coating of poly vinyl chloride, color traffic yellow. Minimum tensile strength 230 by 200 pounds (lbs) grab method and 200 by 140 lbs strip method. Meet ASTM D 471 for water absorption, 7 days @160°F, 5.0% maximum weight gain and ASTM D 750 for weathering, 2,500 hours, no appreciable change in color, no cracking, minimum crazing.

(2) Seams, Perimeter Hem, and Thread. Double flat felled seams, double stitched, and 3-ply perimeter hem sewn with UV resistant #92 bonded polyester thread.

(3) Grommets. No. 2 brass rolled-rim spur grommets installed through hem at 30-inch intervals along marker perimeter.

(4) Anchors. 3/8-inch diameter deformed reinforcing steel at least 18 inches long, including a hook formed as a 4-inch segment bent perpendicular to the anchor stem.

b. Snow Fence Panel.

(1) Panel Material. Wire-supported wood lathe snow fence, pre-treated with a suitable wood stain.

(2) Paint Type: (select one)

(a) AASHTO M248, Type F (Alkyd resin)

(b) FSS TT-P-19D(1) Paint Latex (Acrylic emulsion, Exterior).

(3) Paint Color: Traffic Yellow, #33538

(4) Anchors: 3/8-inch diameter deformed reinforcing steel at least 18 inches long, including a hook formed as a 4-inch segment bent perpendicular to the anchor stem.

c. Temporary Illuminated Panel.

(1) Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program (ALECP). The AC 150/5345-53, the latest certified

equipment list, and the address list of certified airport lighting equipment manufacturers are available on the FAA webpage at: https://www.faa.gov/airports/engineering/airport_lighting/.

CONSTRUCTION REQUIREMENTS

671-3.1 Meet the following requirements.

a. Vinyl Mesh Panel. Secure by driving anchors into the embankment through all grommets.

b. Snow Fence Panel. Apply to the upper side of the panels, two coats of paint that result in a dense and consistent color. Construct panels double layered, with upper layer wood lathe oriented to lower lathe at right angles to provide a solid yellow appearance.

Combine standard manufactured widths to provide plan dimensions, if necessary.

Secure panels by driving anchors into the embankment at 30-inch intervals around the perimeter of each panel. If more than one standard manufactured width is combined to obtain plan dimensions, provide anchors on each strip.

c. Temporary Illuminate Panel. Locate the marker where shown on the plans or as directed by the Engineer. The contractor shall maintain an uninterrupted operation of the closure marker. Maintenance records shall be kept by the Contractor for all portable lighted markers and will be turned in to the Engineer when construction is complete.

METHOD OF MEASUREMENT

671-4.1 By the number of markers of the specified type, installed and accepted as completed units in place. No additional measurement will be made for removing and relocating markers for various stages of work.

BASIS OF PAYMENT

671-5.1 Payment will be made at the contract unit price for each furnished and accepted item of the marker type specified.

Payment will be made under:

Item P671.040.0000	Taxiway Closure Marker, Vinyl – per each

TESTING REQUIREMENTS

ASTM D 471	Rubber Property – Effect of Liquids
ASTM D 750	Rubber Deterioration in Carbon-Arc Weathering Apparatus

ITEM P-681 GEOTEXTILE FOR SEPARATION AND STABILIZATION

681-1. 1 DESCRIPTION. Prepare ground surface, and furnish and place geotextiles for separation, stabilization, and/or reinforcement as shown on the Plans.

681-2.1 MATERIALS. Use materials that conform to the following:

a. Separation. Meet AASHTO M 288 for Separation, except provide a minimum permittivity of 0.50 sec^{-1}, and meet Class 3 Strength Property Requirements.

b. Stabilization. Meet AASHTO M 288 for Stabilization, except provides a minimum permittivity of 0.50 sec^{-1}, and meet Class 1 Strength Property Requirements.

c. Reinforcement. Meet the requirements in Table 681-1 for Type 1 or Type 2.

Package, label, handle and store geotextile materials according to ASTM D 4873.

TABLE 681-1
GEOTEXTILE REINFORCEMENT PROPERTIES

Property	Test Method	Units	Requirement[a]	
			Type 1	Type 2
Grab Tensile	ASTM D4632	lb.	200/200	400/400
Grab Elongation	ASTM D4632	% (MD)	10	10
Wide Width Tensile	ASTM D4595	lb/in. (ultimate)	200/200	400/400
Wide Width Tensile	ASTM D4595	lb/in. (@ 5% strain)	100/100	200/200
Seam Breaking Strength	ASTM D4632	lb./in.	180	360
Puncture	ASTM D6241	lb.	500	1500
Trapezoidal Tear	ASTM D4533	lb.	100	150
AOS	ASTM D4751	U.S. sieve size	#30[b]	#30[b]
Permittivity	ASTM D4491	sec^{-1}	0.20	0.20
Flow Rate	ASTM D4491	gal./min./ft^2	10	10

[a] *Minimum Average Roll Values (MARV) in machine direction (MD) / cross-machine direction (XD) unless otherwise specified*

[b] *Maximum average roll value*

Sewing Thread. Use high strength polypropylene, or polyester. Do not use nylon thread. Use thread of contrasting color to that of the geotextile itself.

CONSTRUCTION REQUIREMENTS

681-3.1. SURFACE PREPARATION. Prepare ground surface by removing stumps, brush, boulders, and sharp objects. Fill holes and ruts over 3 inches deep, with material shown on the Plans or as approved by the Engineer.

681-3.2. GEOTEXTILE PLACEMENT. Unroll geotextile directly onto the prepared surface. Stretch geotextile to remove any creases, folds or wrinkles. Do not drag the geotextile through mud or over sharp objects that could damage the geotextile. Do not expose geotextiles to sunlight for longer than 14 days after removal of protective covering. Do not allow geotextiles to get wet prior to installation.

a. Separation and Stabilization. Lay geotextile for embankment separation and stabilization parallel to roadway centerline. On horizontal curves, place in segment lengths not exceeding those listed in Table 681-1, with butt ends cut to match and sewn or overlapped. On tangents, straighten the geotextile and sew or overlap butt ends. Shingle overlaps in the same direction as fill placement. Prevent overlapped edges from lifting during construction.

b. Reinforcement. Lay the machine direction of the geotextile for embankment reinforcement perpendicular to the roadway centerline or as shown on the Plans. Join segments by sewing or an approved bonding or attachment process. Shingle overlaps in the same direction as fill placement if seams are not sewn. Prevent overlapped edges from lifting during construction.

TABLE 681-2
GEOTEXTILE PLACEMENT ON CURVES

Degree of Curve	Maximum Segment Length (ft.)
1	125
2	90
3	75
4	65
5	55
6	50

681-3.3. JOINING. Join adjacent geotextiles for separation or stabilization by overlapping or sewing. Join adjacent geotextiles for reinforcement by sewing or as shown on the Plans.

a. Sew seams with a Butterfly or J-Seam using a double-thread chain stitch (lock stitch). Bring adjacent sections of geotextile together and fold so that the stitching penetrates four layers of geotextile for the full seam length. Make the stitching line 1-1/4 inches (±1/4-inch) from the folded edge of the seam and at least 1/2-inch from the free edge of the geotextile. Sew seams so that they face upward and can be easily inspected by the Engineer. Illustrations showing correct stitch formation and seam configurations are provided in Figure 1-2 (page 1-28) of the FHWA publication, *Geosynthetic Design & Construction Guidelines*, FHWA-NHI-07-092, August 2008.

b. Overlap geotextile sections by a minimum of 3 feet at all longitudinal and transverse joints. Place the beginning of each new roll beneath the end of the previous roll to prevent the advancing fill from lifting the geotextile. Shingle in the direction of construction.

681-3.4. MATERIAL PLACING AND SPREADING. During placing and spreading of material, maintain a minimum depth of 12 inches of cover material; or a minimum depth equal to the separation distance between multiple layers of geotextile as shown on the Plans when this separation distance is less than 12 inches; at all times between the geotextile and the wheels or tracks of the construction equipment. Limit the size and weight of construction equipment to reduce rutting in the initial lift above the geotextile to not greater than 3 inches deep to prevent overstressing the geotextile.

Spread the material in the direction of the upper overlapped geotextile. Maintain proper overlap and geotextile continuity. If sewn or bonded seams are used, place the cover material and spread in only one direction for the entire length of the geotextile. On weak subgrades limit height of dumped cover material to prevent localized subgrade and/or geotextile failure. Do not drop stones or frozen material larger than 1 foot in diameter directly onto the geotextile from a height of more than 1 foot.

Compact using a smooth drum roller. Do not allow construction equipment to make sudden stops, starts, or turns on the cover material. Do not allow turning of vehicles on the initial lift of cover material above the geotextile. Fill any ruts over 3 inches deep occurring during construction with material shown on the Plans; do not grade adjacent material into rut; and compact to the specified density.

681-3.5. GEOTEXTILE REPAIR. Repair and replace damaged geotextile (torn, punctured, or disturbed at the overlaps or sewn joints). For damage evidenced by visible geotextile damage, subgrade pumping,

intrusion, or embankment distortion, remove the backfill around and under the damaged or displaced area, and repair with material matching the damaged material. Make patches overlap or sew patches to the existing geotextile..

a. Separation and Stabilization. Overlay torn area with geotextile with a minimum 3 foot overlap around the edges of the torn or damaged area or sew and bond according to Subsection 681-3.3.a Ensure the patch remains in place when cover material is placed over the affected area.

b. Reinforcement. Sew according to Subsection 681-3.3.a unless joining by overlap is shown on the Plans. Ensure the patch remains in place when cover material is placed over the affected area.

681-4.1 METHOD OF MEASUREMENT. By multiplying plan neat line width by the measured length in final position parallel to installation centerline along the ground surface. No allowance will be made for overlap, whether at joints or patches.

681-5.1 BASIS OF PAYMENT. Payment will be made at the contract unit price per square yard. Material used to fill ruts and holes will be paid for under separate materials pay items.

Payment will be made under:

Item P681.010.0000 Geotextile, Separation – per square yard

APPENDIX A

CONSTRUCTION SURVEY REQUIREMENTS (NOT USED)

APPENDIX B

MATERIALS SAMPLING AND TESTING FREQUENCY

AIRPORT CONSTRUCTION – Materials Sampling & Testing Frequency (MSTF) Table					
Material	**Type of Sample**	**Sample Size**	**Type of Tests**	**Frequency**	**Remarks**
Excavation	Acceptance	(5)	Gradation, P.I. (4), Moisture (or visual description if organic)	1 per 5,000 CY waste or undesignated waste cut	For unsuitable excavation number consecutively EX-W-1. No need to test if waste is designated on plans
Embankment	Acceptance	(5)	Standard Density	As required by changes in material	Number consecutively BM-SD-1 or EX-SD-1.
			Field Density (1)	1 per 1,500 CY or 1 per 3,000 Tons (6)	Number consecutively BM-D-1 or EX-D-1.
			Gradation, P.I. (4) and Deleterious (visual)	1 per 5,000 CY or 1 per 10,000 Tons (6)	Number consecutively BM-G-1 or EX-G-1.
	Independent Assurance	(5)	Standard Density (2)	1 per source	Use numbers that correspond to acceptance samples. Include field test results with sample.
			Field Density (1)	1 per 15,000 CY or 1 per 30,000 Tons	
			Gradation and Deleterious (visual)	1 per 50,000 CY or 1 per 100,000 Tons	
Bedding & Backfill for Structures (Drainage Items, Ducts, Conduits, etc.)	Acceptance	(5)	Standard Density	As required by change in material	
			Field Density (1)	(3)	
			Gradation, P.I. (4), and Deleterious (visual)	1 per source or as required by change in material	

General: When acceptance testing is performed in the Department's Regional Laboratories that are accredited in the specified test method, Independent Assurance (IA) testing is not required. If the regional laboratories perform acceptance testing and choose to perform IA testing, they must use different personnel and equipment for IA testing than was used for acceptance testing.

1) If material is impractical for field density, document quantity and/or area by reporting percent oversize and compactive effort used on a proper density acceptance form. IA density testing is not required when material (as shown by gradation testing) is Too Coarse to Test (TCTT). Any material can be rejected based on failure to meet any one of the criteria.
2) Required when Standard Density is performed in the project laboratory.
3) One density per structure (pipe, conduit, manhole, catch basin, inlet, utility vault, etc.), with a minimum of one density per 100 lineal feet of structure installed same day and same manner. Perform densities within 18 inches of the structure or outside diameter of the pipe. Frequency may be reduced to 1 per 200 lineal feet for electrical conduits when approved by Regional Quality Assurance Engineer (RQE) or Regional Materials Engineer (RME).
4) Perform Plasticity Index (P.I.) tests on the first five acceptance samples at the start of production from any source. If these tests indicate the material to be non-plastic, additional acceptance tests need only be performed when IA samples are taken. The RQE or RME may reduce the number of tests required if the source is known to have no value for liquid limit and be non-plastic.
5) See the specified test method for minimum sample size.
6) For large unclassified embankments, a field density and gradation testing frequency of 1/10,000 CY or 1/20,000 Tons is acceptable subject to the approval of the RQE, RME or Statewide Materials Engineer (SME).

Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks
Subbase Course	Source Quality	150 lbs.	L.A. Wear, Micro-Deval	1 per source prior to use or as required based on change in material	Allow minimum of 14 days for transport and testing. Number consecutively Q-SB-1 or Q-SC-1
	Acceptance	(6)	Standard Density	1 per source and as required based on change in material	Number consecutively SB-SD-1
			Field Density (1)	1 per 1,000 CY or 1 per 2,000 Tons	Number consecutively SB-D-1
			Gradation, L.L. P.I. (3), Deleterious	1 per 2,500 CY or 1 per 5,000 Ton (3)	Number consecutively SB-G-1
	Independent Assurance	(6)	Standard Density (2)	1 per source	Use numbers that correspond to acceptance samples. Include field test results with sample.
			Field Density (1)	1 per 10,000 CY or 1 per 20,000 Tons	
			Gradation, L.L., P.I. (3), Deleterious,	1 per 25,000 CY or 1 per 50,000 Tons	
Crushed Aggregate Base Course	Source Quality	150 lbs.	L.A. Wear, Micro-Deval, Soundness, Nordic Abrasion (7),	1 per source prior to use or as required based on change in material	Allow minimum 14 days for transport and testing. Number consecutively Q-BC-1
	Acceptance	(6)	Standard Density	1 per source and as required based on change in material	Number consecutively BC-SD-1
			Field Density (1)	1 per 200 CY or 400 Tons	Number consecutively BC-D-1
			Gradation, L.L., P.I. (3), Fracture, SE, Deleterious,	1 per 400 CY or 1 per 800 Tons (3) (4) (5)	Number consecutively BC-G-1
	Independent Assurance	(6)	Standard Density (2)	1 per source	Use numbers that correspond to acceptance samples. Include field test results with sample
			Field Density (1)	1 per 2,000 CY or 1 per 4,000 Tons	
			Gradation, L.L., P.I. (3), Fracture, SE, Deleterious	1 per 4,000 CY or 1 per 8,000 Tons	

1) If material is impractical to test for field density, document quantity and/or area by reporting percent oversize and compactive effort used on a proper density acceptance form. IA density testing is not required when material (as shown by gradation testing) is To Coarse to Test (TCTT).
2) Required when Standard Density is performed in project laboratory.
3) Perform Liquid Limit (L.L.) and Plastic Index (P.I.) tests on the first five acceptance samples at the start of production from any source. If these tests indicate the material to be non-plastic, additional acceptance tests need only be performed when IA samples are taken. The RQE or RME may reduce the number of tests required if the source is known to have no value for liquid limit and be non-plastic.
4) Perform fracture tests on the first ten acceptance tests. If these tests indicate the fracture to be 5% or more above specification, additional acceptance tests need only be performed when IA samples are taken.
5) Perform Sand Equivalent (SE) tests on the first five acceptance tests. If these tests indicate the material meets specification, additional acceptance tests need only be performed when IA samples are taken. The SE test is not required for Aggregate Surface Course.
6) See the specified test method for minimum sample size.
7) Include Nordic Abrasion testing of source material. Report test results to Statewide Materials section.

Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks
Aggregate Surface Course	Source Quality	150 lbs.	L.A. Wear, Micro-Deval Soundness, Nordic Abrasion (7),	1 per source prior to use or as required based on change in material	Allow minimum 14 days for transport and testing. Number consecutively Q-SC-1
	Acceptance	(6)	Standard Density	1 per source and as required based on change in material	Number consecutively SC-SD-1
			Field Density (1)	1 per 500 CY or 1 per 1,000 Tons	Number consecutively SC-D-1
			Gradation, L.L., P.I. (3), Fracture, Deleterious,	1 per 1,000 CY or 1 per 2,000 Tons (3) (4)	Number consecutively SC-G-1
	Independent Assurance	(6)	Standard Density (2)	1 per source	Use numbers that correspond to acceptance samples. Include field test results with sample
			Field Density (1)	1 per 5,000 CY or 1 per 10,000 Tons	
			Gradation, L.L., P.I. (3), Fracture, Deleterious	1 per 10,000 CY or 1 per 20,000 Tons	

1) If material is impractical to test for field density, document quantity and/or area by reporting percent oversize and compactive effort used on a proper density acceptance form. IA density testing is not required when material (as shown by gradation testing) is To Coarse to Test (TCTT).
2) Required when Standard Density is performed in project laboratory.
3) Perform Liquid Limit (L.L.) and Plastic Index (P.I.) tests on the first five acceptance samples at the start of production from any source. If these tests indicate the material to be non-plastic, additional acceptance tests need only be performed when IA samples are taken. The RQE or RME may reduce the number of tests required if the source is known to have no value for liquid limit and be non-plastic.
4) Perform fracture tests on the first ten acceptance tests. If these tests indicate the fracture to be 5% or more above specification, additional acceptance tests need only be performed when IA samples are taken.
5) Perform Sand Equivalent (SE) tests on the first five acceptance tests. If these tests indicate the material meets specification, additional acceptance tests need only be performed when IA samples are taken. The SE test is not required for Aggregate Surface Course.
6) See the specified test method for minimum sample size.
7) Include Nordic Abrasion testing of source material. Report test results to Statewide Materials section.

Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks
Plant Hot Mix Asphalt and Asphalt Treated Base Course	Source Quality	150 lbs. Aggregate	L.A. Wear, Micro-Deval, Sodium Sulfate Loss, Nordic Abrasion (10)	1 per source prior to use or as required based on change in material	Allow 25 days for transport and testing.
	Mix Design	500 lbs. Aggregate (7) 5 one gallon. cans of AB, 1 pint of Anti-strip	Mix Design (1) (2) L.L., P.I. (3), Fracture, Sand Equivalent (SE), Flat & Elongated (F&E),	1 per source and as required based on change in material	Allow 15 days or contract specified time for mix design and testing after receiving contractor's proposed gradation. AB = asphalt binder, same as asphalt cement. If possible sample AB at the plant for the Mix Design.
	Acceptance	(8)	MSG (Maximum Specific Gravity)	1 per Lot (1) (9)	(1) From Mix Design on first lot and then from the first sublot of each additional lot
			Mat Density, Gradation, Binder Content, L.L., P.I. (3), Fracture, F&E, SE, Deleterious, Thickness	1 per sublot (3) (4) (5) (6) (9)	Ross Count (AASHTO T 195, Coating Test) as required by RQE or RME.
			Joint Density	(9)	Top Lift (1)
	Independent Assurance	(8)	MSG	1 per project minimum (1)	Required when MSG is run in the field.
			Mat Density, Gradation, Binder Content, L.L., P.I. (3), Fracture, F&E, SE	1 per 10 sublots	Use numbers that correspond to acceptance samples. Include field test results with sample.
	Information	30 lbs.	3-Marshall Biscuits or 2-gyratory samples	1 per Mix Design minimum	Compare results to Mix Design.

1) Refer to project specifications.
2) Recommendations regarding anti-strip requirements must be determined for each mix design.
3) Perform Liquid Limit (L.L.) and Plastic Index (P.I.) tests on the first five acceptance samples at the start of production from any source. If these tests indicate the material to be non-plastic, additional acceptance tests need only be performed when IA samples are taken. The RQE or RME may reduce the number of tests required if the source is known to have no value for liquid limit and be non-plastic.
4) Perform fracture tests on the first ten acceptance tests. If these tests indicate the fracture to be 5% or more above specification, additional acceptance tests need only be performed when IA samples are taken.
5) Perform Sand Equivalent (SE) tests on the first five acceptance tests. If these tests indicate the material meets specification, additional acceptance tests need only be performed when IA samples are taken.
6) Perform Flat and Elongated (F&E) tests on the first five acceptance samples from any source. For known sources, the RQE or RME may waive this requirement.
7) For multiple stockpiles, proportion each stockpile sample to the proposed Job Mix Design blend ratio.
8) See the specified test method for minimum sample size.
9) May not be applicable to Asphalt Treated Base Course. Refer to project specifications.
10) Include Nordic Abrasion testing of source material. Report test results to Statewide Materials section.

Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks
Asphalt Binder	Source Quality	(1)	(1)	1 per each grade and source prior to use	Manufacturer's certification required
	Acceptance (1)	Three 1-quart cans		1 per 50,000 gals. or 1 per 200 Tons	Sampled on project. Test for anti-strip if required by RQE or RME.
Liquid Asphalt for: a) Prime Coat b) Tack Coat c) Seal Coats d) Asphalt Surface Treatment	Source Quality	(1)	Type and Grading	1 per each grade and source prior to use	Manufacturer's certification required
	Acceptance	1-1 gallon plastic jug (for emulsified asphalt)	(1)	1 per 50,000 gallons or 1 per 200 Tons	Sample must be tested by Lab that did not test material for Quality. Material sampled prior to dilution
Aggregate for Seal Coats and Asphalt Surface Treatments	Source Quality	150 lbs. Aggregate	Fracture, F&E, L.A. Wear, Soundness, Micro-Deval	1 per source prior to use or as required by change in material prior to use	Allow 25 days for transport and testing.
	Acceptance	(4)	Gradation, Fracture, F&E, Deleterious (visual)	1 per 500 Tons (2) (3)	May be taken from stockpile or production
	Independent Assurance		Gradation, Fracture, F&E, Deleterious (visual)	1 per 5,000 Tons	May be taken from stockpile or production

1) Refer to project specifications.
2) Perform fracture tests on the first ten acceptance tests. If these tests indicate the fracture to be 5% or more above specification, additional acceptance tests need only be performed when IA samples are taken.
3) Perform Flat and Elongated (F&E) tests on the first five acceptance samples from any source. For known sources, the RQE or RME may waive this requirement.
4) See the specified test method for minimum sample size.

Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks
Portland Cement Concrete	Source Quality				
a. Cement and Cementitious	Quality	a. Two 1-gal. cans, each	See Remarks	1 per shipment (2) (4)	Allow 40 days for transport and testing. Manufacturer's certification required
b. Water		b. ½ gal. in glass jar	See Remarks	1 per source	Allow 20 days for testing or potable water accepted by Project Engineer.
c. Coarse Aggregate		c. 100 lbs.	Deleterious Substances, L.A. wear, Soundness	1 per source	Allow 25 days for transport and testing.
d. Fine Aggregate		d. 25 lbs.	Deleterious Substances, Soundness	1 per source	Allow 25 days for transport and testing.
Portland Cement Concrete	Mix Design Submittal (1) (3)				
a. Cement and Cementitious	Mix Design	a. 94 lbs., each	Mix Design Verification as required by RQE or RME	1 per source prior to use	For verification of Contractor-furnished mix design, allow 40 days for transport and testing.
b. Water		b. None			
c. Coarse Aggregate		c. 330 lbs.			
d. Fine Aggregate		d. 220 lbs.			
e. Admixtures		e. 1 qt. each			

1) Refer to project specifications.
2) Cement stored in silos or bins over six months, or in bags over three months, may require re-testing. See project specifications.
3) Manufacturer's certifications and aggregate test reports required.
4) Manufacturer's Certification for cement used on project may be accepted in lieu of sampling as approved by the RQE or RME.

Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks
Concrete Continued:					
Coarse Aggregate	Acceptance	(5)	Gradation and Deleterious (visual)	1 per 200 CY (6)	Number consecutively CA-G-1
Fine Aggregate			Gradation, Deleterious (visual), Fineness Modulus	1 per 200 CY (6)	Number consecutively FA-G-1
Mix		As required by test method	Temperature, Slump, % Air, Water/Cement Ratio, Unit Weight, Yield, Proportions per CY	1 per ½ days pour (2) or 1 per 200 CY	(3)
		Cylinders or beams	Compressive strength or Flexural strength (1)	1 per ½ days pour (2) or 1 per 200 CY	Mold two (6”x12”) or three (4”x8”) cylinders or 2 (6”x6”x20”) beams. Test at 28 days. (1) (4)
	Information	Cylinders or beams	Compressive strength or Flexural strength	As required (e.g. for 7 day break)	Mold two (6”x12”) or three (4”x8”) cylinders or 2 (6”x6”x20”) beams “As Required” for Strength Data.
Coarse Aggregate	Independent Assurance	(5)	Gradation and; Deleterious (visual)	1 per 2,000 CY with minimum of 1 per project if over 100 CY is placed (6)	Use numbers that correspond to acceptance samples. Include field test results with sample.
Fine Aggregate			Gradation, Deleterious (visual), Fineness Modulus		
Mix		As required by test method	Temperature, Slump, % Air, Water/Cement Ratio, Unit Weight, Yield, Proportions per CY	1 per 2,000 CY	
		Cylinders or beams	Compressive strength or Flexural strength	1 per 2,000 CY	Mold two (6”x12”) or three (4”x8”) cylinders or 2 (6”x6”x20”) beams.

1) Refer to project specifications.
2) Half day’s pour considered to be 6 hours or less.
3) Commercial sources which are periodically inspected do not have to be tested if day’s total quantity of concrete placement is less than 5 CY as determined by the Project Engineer. Placement reports summarizing all minor pours will be completed.
4) For non-structural or minor concrete construction, as determined by the RQE or RME, 1 set minimum per project is recommended.
5) See the specified test method for minimum sample size.
6) For known Commercial sources that are periodically inspected, the RQE or RME may reduce the frequency of sampling and testing to 1 per project per mix design.

Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks
Misc. Hardware	Source Quality	(1)		1 per pay item or assembly, min.	Approved by designated authority; reference MCL
Concrete Reinforcing Steel	Source Quality	(2)		1 for each type, grade and size in a shipment	Approved by designated authority; reference MCL
Joint Sealer, Joint Filler, and Curing Materials for Concrete	Source Quality	1 Quart for each liquid (see remarks)	See remarks (1)	1 per type	Project Engineer documentation if on QPL. If not on QPL, manufacturer's certification or sample for testing.
Porous Backfill	Source Quality	(3)	Clay Lumps, Deleterious	1 per source (4)	
	Acceptance		Gradation, Deleterious (visual)	1 per source or as required based on change in material	Number consecutively PB-G-1
Topsoil	Source Quality	15 lbs.	Organic content, Gradation, pH	1 per source prior to use or as required by change in material	Allow 15 days for transport and testing.
	Acceptance	(3)	Gradation	1 per 15,000 SY or 1 per 2,500 CY	Number consecutively TS-G-1
Signals and Lighting	Quality and Acceptance	Within 30 days following award of the contract, the contractor shall submit to the Project Engineer for approval a complete list of material and equipment that is proposed to be used for this item. The data shall include catalog cuts, diagrams, test reports, manufacturers' certifications, etc. The above data shall be submitted in eight sets. Any proposed deviation from the plans shall also be submitted.			

1) Certificates of Compliance per Specifications GCP- 60.
2) Mill Test Reports to include heat numbers, fabrication date, physical and chemical properties, and Buy American certification (when required by specifications).
3) See the specified test method for minimum sample size.
4) For known quarry sources, the RQE or RME may waive Clay Lumps testing if visual inspection for deleterious materials has been performed and the percent passing (by weight) the No. 200 sieve is 3% or less.

Small Quantities of Miscellaneous Materials and Installations

If the Pay Item quantity at bid opening is equal to or less than the amounts listed below, the following applies:

1. Acceptance and Independent Assurance sampling & testing is not required.
2. Documentation required to support the Acceptance decision is:
    I. Asphalt/Aggregate Mixtures and Bituminous Materials – Mix design and Project Materials Report (PMR).
    II. Portland Cement Concrete – Mix design, batch tickets, Concrete Placement Report (CPR), and PMR.
    III. Soils and Aggregates – PMR.
3. Inspection of materials and workmanship is still required.
4. Source quality testing may be required as noted below.

I. Small Quantities of Asphalt/Aggregate Mixtures and Bituminous Materials:

a) Bituminous Material — not to exceed 85 Tons of asphalt binder or 15 Tons for other liquid asphalt.
b) Landscaping, paved ditches and flumes -- all quantities.
c) Temporary materials -- all quantities.

II. Small Quantities of Portland Cement Concrete:

a) Sidewalks — not to exceed 150 Square Yards per day.
b) Curb and gutter — not to exceed 250 Lineal Feet per day.
c) Slope paving and headers -- all quantities.
d) Landscaping, paved ditches and flumes -- all quantities.
e) Catch basins, manholes, inlets, inspection holes; and grout for risers, pipes and invert channels – all quantities.
f) Culvert headwalls for pipe diameters 48 inches or less -- all quantities.
g) Cable markers -- all quantities.
h) Temporary materials -- all quantities.

III. Small Quantities of Soils and Aggregates:

a) Embankment, Borrow, Aggregates for Base Course, Surface Course, and Subbase — not to exceed 500 Tons or 250 Cubic Yards with PMR; 1,000 Tons or 500 Cubic Yards with PMR and source quality report (4).
b) Riprap or Armor Stone — not to exceed 500 Tons or 250 Cubic Yards.
c) Topsoil — not to exceed 600 Square Yards or 100 Cubic Yards.
d) Temporary materials -- all quantities.

APPENDIX C

CONSTRUCTION SAFETY AND PHASING PLAN

STATE OF ALASKA

Department of Transportation

And

Public Facilities

Central Region

Construction Safety and Phasing Plan (DRAFT)

LHD Aprons A, B, E, and Taxiway E Surface Seal

Project No. CFAPT01199 / AIP No. 3-02-0013-XXX-2026

Ted Stevens Anchorage International Airport

Anchorage, AK

Prepared by: Stantec Consulting Services, Inc.

November 2025

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Airport Emergency Notification Procedure:

- **Call Airport Police & Fire Emergency:** 266-2555 (911 calls Anchorage Police)
- **State Emergency & If Aircraft or Vehicle is Involved** (accidents, collisions, injuries, fires, trespassers on airport property, etc.)
- **Give Location (**distance/direction from nearest runway, taxiway, or building)

Example:

"I need the {police or fire department} to respond to an accident involving an {aircraft, vehicle, or personnel}. The accident occurred near the intersection of Runway 25R and Taxiway A, approximately 200 feet north of Runway 25R."

Emergency Follow up – As soon as possible notify:

266-2600 On-Duty Manager – Airport Operations Center

Contractor: 24-hour Representative

Name: _____

24-hour Phone:_____

Non-Emergency Notification:

264-2411 Airport Police, Rescue and Fire Dispatch (Non-Emergency)

Immediately notify Dispatch of any personal injury requiring medical attention or damage to Airport/State/Federal property, even when an emergency response is not required.

266-2600 On-Duty Manager – Airport Operations Center

Contractor: 24-hour Representative

Name:_____

Cell Phone:_____ Office Phone:_____

Points of Contact:

Engineer:

Frank Lee

DOT&PF Aviation Construction
P.O. Box 196900
Anchorage, Alaska 99519-6900
Telephone (907) 243-4169
Cellular (907) 727-4808
FAX (907) 243-4597

The DOT&PF Engineer will be the central point of contact between the Contractor and Airport Operations Center and the FAA.

Airport Operations Center:

Airport Construction Coordinator
Ted Stevens Anchorage International Airport
P.O. Box 196960, Anchorage, Alaska 99519-6960
Office (907) 266-2615 (24 hr.)
Cellular (907) 748-2107
FAX (907) 266-2646

Tim Coons, LHD Airport Manager
Lake Hood Seaplane Base
P.O. Box 196960, Anchorage, Alaska 99519-6960
Office (907) 266-2741

Zaramie Lindseth, Field Maintenance Manager
Ted Stevens Anchorage International Airport
P.O. Box 196960, Anchorage, Alaska 99519-6960
Office (907) 266-2427
Cellular (907) 748-2302
FAX (907) 266-2677

Dennis Deering, Field Electrician
Ted Stevens Anchorage International Airport
P.O. Box 196960, Anchorage, Alaska 99519-6960
Office (907) 266-2423
Cellular (907) 748-2310
FAX (907) 266-2122

Security Contact Phone Numbers:

Airport Security Manager: (907) 782-5419
Airport Operations: (907) 266-2600

Airport Badge Office: (907) 266-2409
Airport Communications Center: (907) 266-2415
Due to the ever-changing nature of security requirements, please contact the Airport Security Manager at 266-2522 for any clarification you may need.

FAA:

Daniel Wight, ATO Engineering Services
Office (206) 231-2615

Joe Ferguson, FAA Engineering Services (AJW2-W13B), Fiber Optic System Engineer
Office (303) 342-1817
Cellular (303) 898-0736

Myles Peterson, Turnagain System Support Manager (Turnagain SSC)
Office (907) 271-2216

Thomas Bradley, Anchorage SSC Manager
Office (907) 271-6748
Cellular (907) 351-9987

Burke Stott, Anchorage SSC Coordinator
Office (907) 271-3890
Cellular (907) 231-5503

ATCT Watch Supervisor
Office (907) 271-2701

FAA Anchorage SSC
Office (907) 271-6783

FAA Turnagain SSC
Office (907) 271-6780

FAA Operations Control Center (OCC)
(866) 4-FAA-OCC

FAA Network Enterprise Management Center System Operations Center (NEMC SOC)
(855) 322-6362

FAA Anchorage Service Operations Center
(907) 269-1803

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List of Acronyms

AC ..... Advisory Circular
ACS ..... Alaska Communications
ACSI ..... Airport Certification Safety Inspector
ANC ..... Ted Stevens Anchorage International Airport
AOA ..... Airport Operations Area
ARFF ..... Aircraft Rescue and Fire Fighting
ASDE ..... Airport Surface Detection Equipment
ASSC ..... Airport Surface Surveillance Capability
ATCT ..... Air Traffic Control Tower
ATO ..... Air Traffic Organization
AWSS ..... Automated Weather Sensor System
AWWU ..... Anchorage Water & Wastewater Utility
BMP ..... Best Management Practices
CEA ..... Chugach Electric Association Inc.
CFR ..... Code of Federal Regulations
CONUS ..... Continental United States
CPM ..... Critical Path Method
CSPP ..... Construction and Safety Phasing Plan
CTAF ..... Common Traffic Advisory Frequency
DOT&PF ..... State of Alaska Department of Transportation and Public Facilities
EMH ..... Electrical Manhole
FAA ..... Federal Aviation Administration
FOD ..... Foreign Object Debris
GCP ..... General Contract Provision
HAZMAT ..... Hazardous Material
HMA ..... Hot Mix Asphalt
LHD ..... Lake Hood Seaplane Base
NAVAIDs ..... Navigational Aids
NEMC SOC ..... Network Enterprise Management Center System Operations Center
NOTAM ..... Notice to Air Missions
NTP ..... Notice to Proceed
OCC ..... Operations Control Center
OFA ..... Object Free Area
OFZ ..... Obstacle Free Zone
OSHA ..... Occupational Safety and Health Administration
PAPI ..... Precision Approach Path Indicator
P&R ..... Planning & Requirements
PCC ..... Portland Cement Concrete
RA ..... Reimbursable Agreement
REIL ..... Runway End Identifier Light

ROFA ..... Runway Object Free Area
ROFZ..... Runway Obstacle Free Zone
RSA ..... Runway Safety Area
RW ..... Runway
SPCD..... Safety Plan Compliance Document
SREB..... Snow Removal Equipment Building
SSC ..... System Service Center
SWPPP ..... Storm Water Pollution Prevention Plan
TDG ..... Taxiway Design Group
TL..... Taxilane
TOFA ..... Taxiway Object Free Area
TSA ..... Taxiway Safety Area
TW ..... Taxiway
UNICOM ..... Universal Integrated Community
VGSI ..... Visual Glide Slope Indicator
WSA..... Western Service Area

Introduction

Lake Hood Seaplane Base (LHD) is part of Ted Stevens Anchorage International Airport (ANC) and is state owned and operated, serving as the busiest seaplane base in the world. Based on data from 2021, operations consist of 61% transient general aviation, 25% air taxi (commercial operations), and 14% local general aviation (AirNav.com). Approximately 1,000 single-engine aircraft and 33 multi-engine aircraft are based at Lake Hood. Lake Hood supports the visitor industry with connections to remote Alaska lodges and flightseeing. The base supports commercial and industrial activity with regular cargo flights and air transport to remote work sites. In addition, Lake Hood houses several government and other nonprofit entities: US Department of the Interior, Alaska Department of Public Safety, Alaska Wing Civil Air Patrol, Alaska Airmen's Association, Alaska Aviation Museum, and the Iditarod Air Force. Lake Hood also supports personal use aviation, with most tie downs, hangar space, and slips used by private aircraft owners.

The gravel-surfaced runway at LHD is oriented north-south (14-32) and measures 2,200 feet by 75 feet. Three water runways consist of an E/W runway (4,541 feet by 188 feet), a N/S runway (1,930 feet by 200 feet, and a SE/NW runway (1,369 feet by 150 feet). Aircraft often use float plane slips in the summer and convert to parking apron tie downs in other seasons. Parking aprons are surfaced with asphalt concrete pavement.

Land within the project area is located within the Lake Hood Boundary as part of the overall ANC property. Many areas of the seaplane base have mixed airside and landside use; they include aircraft operations areas but are also accessible to the general public (DOWL et al, *Lake Hood Seaplane Base, Master Plan Update*, September 2017.)

This Construction Safety and Phasing Plan (CSPP) is for use during the LHD Aprons A, B, E and Taxiway E Surface Seal project. It has been prepared in conformance with the Alaska Department of Transportation and Public Facilities (DOT&PF) Aviation Preconstruction Manual, Federal Aviation Administration (FAA) Standard of Practice 2.0 (SOP 2.0), and FAA Advisory Circular (AC) 150/5370-2G Operational Safety on Airports During Construction (Safety AC). The Safety AC may be downloaded here:

https://www.faa.gov/airports/resources/advisory_circulars/

This Safety AC mandates the format and content of both the CSPP and the Safety Plan Compliance Document (SPCD). The CSPP is to be used as the basis for the Contractor to develop their SPCD for submittal to the Engineer per the provisions set forth in General Contract Provision (GCP) 80. All references to construction safety plans, security plans, and construction phasing or staging plans in the Alaska Standard Specifications for Airport Construction and the project manual refer to this CSPP and the Contractor's SPCD.

The FAA intends the CSPP and the SPCD to be "stand-alone" documents that can be circulated to the relevant sections of the FAA for review and approval within the Safety Management

System. Additionally, the CSPP and the SPCD are both enforceable parts of the contract documents.

Safety and security are of paramount importance. The entire airport is an industrial site that can present potentially significant danger to the traveling public, individual workers, and property if safety and security are not carefully attended to. The purpose of this CSPP is to present information needed for safe airport operations during construction activities, to minimize disruption to operations of air and ground traffic, and to facilitate the completion of construction in the shortest time possible. Failure to comply with airport rules, regulations, and the CSPP may result in penalties, fines, and/or work stoppage.

This CSPP is intended to supply useful information to assist the Contractor in the preparation of other plans as required by the contract. Many of the topics covered in this CSPP are also addressed, often in more detail, in the contract specifications. The CSPP is not intended to contradict the specifications. If any discrepancy exists, follow the order of precedence in GCP 50-04. Work necessary to meet requirements of the CSPP is subsidiary to the contract and no additional payment will be made.

(1) Coordination

The airport administration holds the primary responsibility for virtually all aspects of the airport's operation, safety, and security. The Contractor's point of contact with the airport is through the Engineer. The airport will provide training to the Contractor and Subcontractors to provide for proper access, airport security, radio communication, vehicle operation, and any safety procedures or precautions prior to any work beginning on airport property. Plan the first meeting with ANC Operation's Airport Construction Coordinator and the LHD Airport Manager, through the Engineer, prior to preparing the SPCD. The SPCD must be submitted prior to the preconstruction conference.

The preconstruction conference must be conducted as soon as practicable after the contract has been awarded and before issuance of the Notice to Proceed (NTP). Sufficient time should be allowed to notify all parties so schedules can be arranged accordingly. **A 10-day minimum notification is recommended.** At the preconstruction conference, the Contractor must introduce and discuss the subject of airport operational safety during construction and the construction phasing. Safety for air operations, personnel, and the public is the highest priority. The participants will vary according to the effect the proposed construction will have on airport operations. As applicable, the sponsor should invite the following parties to participate:

- Sponsor's Engineer
- Engineer
- Airport Manager
- Contractor and Subcontractor(s)
- Contractor's project superintendent

- Contractor's project clerk
- Airport users, including airline representatives, fixed base operators, Air Line Pilots Association representative, Air Transport Association regional representative, and military representative (for joint-use airports)
- Utility companies affected by the proposed construction
- Federal, state, or local agencies affected by the proposed construction
- Representative of FAA Airports regional or field office

Coordination Through the Engineer: Whenever the project documents call for coordination, notification, contact, or other interaction with FAA; airport management; maintenance and operations; Airport Rescue and Fire Fighting (ARFF) personnel; airport tenants; airport users; any local, state, or federal agency, group, or association; or the general public, such activity shall be done through, in the presence of, or with the written approval of the Engineer. The Contractor shall allow sufficient time for coordination and approvals within proposed work schedules.

The Contractor shall plan work activities ahead of when they are needed to be performed. The airport cannot accommodate last-minute requests to allow access or close portions of the active Airport Operations Area (AOA) except in emergencies. The inability of the airport, or other entities, to meet these requests shall not constitute a delay to the Contractor's work effort or entitlement to further compensation. The Contractor shall initiate coordination through the Engineer and provide schedule information.

The following are required lead times for coordination with certain groups:

Entity/Group/Agency/Organization	Lead Time for Coordination
FAA*	45 Business Days
Airport Operations**	14 Days
Airport Facilities	3 Days
ARFF**	14 Days
Airport Tenants/Users	45 Days
Air Carriers	90 Days

* Notifications to FAA requiring different lead times are shown in Sections 1(c) & 9(e).
** Any issue involving airport safety or security, and all emergencies or accidents require immediate notification.

(a) Contractor Progress Meetings

Construction progress meetings must be held throughout the duration of the project on a coordinated schedule. At a minimum, the required attendees will include the Airport Manager, the Engineer, the Contractor, and Subcontractors. Representatives from the following may also be invited to attend:

- FAA Air Traffic Organization (ATO) Engineering Services Engineer
- ANC Air Traffic Control
- ANC ARFF Department
- Airport Operations and Security
- Airport Facilities
- Airport Engineering
- Airport Maintenance
- Airport Stakeholders

Construction phasing, operational safety, security, and traffic must be a standing agenda item for discussion during progress meetings throughout the project. At these meetings, the Contractor will remind personnel of safety and security issues, requirements, and boundaries that affect their work areas.

(b) Scope or Schedule Changes

Any scope or schedule changes must be addressed in accordance with GCP 40 and GCP 80. Changes in the scope or duration of the project may necessitate revisions to the CSPP and review and approval by the airport operator and the FAA.

The Engineer will hold coordination conferences as necessary for the purpose of assuring coordination of the work covered by this contract and/or scope or schedule changes. The Contractor must attend all such conferences and address the effects on the approved CSPP.

The Contractor will develop a Critical Path Method (CPM) schedule according to the requirements in G-300. The goal of the schedule is to facilitate construction activities while maintaining Airport Operations to the fullest extent possible.

An acceptable schedule must be based on the following operational constraints and mitigation efforts:

- Aircraft operations must continue day and night outside of areas closed for construction.
- Aircraft access for all taxiways and taxilanes in and around the project area must be maintained except where described in this CSPP and the CSPP drawings.
- All efforts must be made to minimize the impact to airport operations.

(c) FAA ATO Coordination

No runway closures, navigational aid, or lighting aid outages are anticipated because of this project.

The Contractor shall notify the FAA ATO Planning and Requirements (P&R) Western Service Area (WSA) office (through the Engineer) at least 45 days prior to the physical construction start date, runway closures (partial or full), re-opening a closed runway, displacing a runway threshold, or implementing an event that causes impacts to NAVAIDs by emailing an "Airport Sponsor Strategic Event Submission Form" including all date, time and/or duration changes via email to 9-AJV-SEC-WSA@faa.gov. Daniel Wight is the FAA ATO Engineering services contact (206) 231-2615 (office).

The Contractor shall notify the FAA Turnagain Systems Service Center (SSC) Manager Myles Peterson, (through the Engineer), at (907) 271-2216 (office) at least 30 days prior to any impacts to the FAA NAVAIDs.

The Contractor shall notify the FAA Anchorage System Support Center (SSC) Manager, Thomas Bradley at (907) 271-6748 (office) or (907) 351-9987 (cell) and FAA Anchorage SSC Coordinator Burke Stott at (907) 271-3890 (office) or (907) 231-5503 (cell) at least 30 days prior to start of construction to institute temporary and permanent mapping changes to the ANC Airport Surface Detection Equipment (ASDE)/Airport Surface Surveillance Capability (ASSC) system.

(2) Phasing

The construction schedule will be developed by the Contractor and coordinated with and approved by the Engineer. The Contractor will propose a schedule for construction phasing to the Engineer at the preconstruction conference. This must be approved prior to commencement of any construction activities in the AOA. Advance scheduling and communication are essential to enable the Engineer to ensure all appropriate Notice to Air Missions (NOTAMs) are issued in a timely manner. To file the appropriate NOTAMs, the Contractor shall follow the procedures outlined in Section 9.b. Prior to the physical construction start date, runway closures (partial or full), re-opening a closed runway, displacing a runway threshold, or implementing an event that causes impacts to NAVAIDs, the Contractor shall follow the procedures outlined in Section 1.c.

This project includes a two-year construction period with the following scope of work:

Construction year one – Apron E and Taxiway E Surface Seal (includes part of TW H)

- Apply airfield traffic control devices such hazard marker barriers as required per CSPP.
- Apply highway traffic control devices such as barricades and signing as required.
- Remove obstructions in the aircraft relocation route to temporary parking (fencing, gates, and signage), as required.
- Construct a temporary access route from Apron E, across Lake Hood Drive, to temporary aircraft parking, using the eastern approach into the snow disposal pad north of Lake Hood Drive (includes temporary culvert south of Lake Hood Drive).
- Relocate aircraft to temporary aircraft parking per CSPP.

In areas designated for crack repairs and a surface seal coat:

- Replace culvert crossing Taxiway H and replace embankment, including asphalt.
- Sawcut or route surface cracks if required or use compressed air to remove existing joint sealant and/or dust, debris and vegetative matter from pavement cracks.
- Apply crack sealant to surface cracks.
- Apply surface seal to aprons and taxiway surfaces.
- Replace pavement markings.

In areas designated for milling and paving:

- Mill two inches of existing asphalt.
- Repair cracks found in milled surface.
- Repave with two inches of Type II, Class A hot mix asphalt.
- Replace pavement markings.

Upon completion of all areas of year one work:

- Deconstruct the temporary aircraft parking apron and taxilane.
- Remove the temporary culvert south of Lake Hood Drive.
- Replace obstructions previously removed to restore fencing, gates and signage.
- Remove hazard marker barriers. (NOTE: barriers will be relocated as work areas shift during construction.)

Construction year two – Apron A and Apron B

- Apply airfield traffic control devices such hazard marker barriers as required per CSPP.
- Construct a temporary aircraft parking area in part of the North Terminal Apron (requiring closure of Gates N1 and N3).
- Relocate aircraft to temporary aircraft parking per CSPP.

In areas designated for crack repairs and a surface seal coat:

- Sawcut or route surface cracks if required or use compressed air to remove existing joint sealant and/or dust, debris and vegetative matter from pavement cracks.
- Apply crack sealant to surface cracks.
- Apply surface seal to apron surfaces.
- Replace pavement markings.

In areas designated for milling and paving:

- Mill two inches of existing asphalt.
- Repair cracks found in milled surface.
- Repave with two inches of Type II, Class A hot mix asphalt.
- Replace pavement markings.

Upon completion of all areas of year two work:

- Deconstruct the temporary aircraft parking apron.
- Replace obstructions previously removed to restore fencing and blast fence.
- Remove hazard marker barriers. (NOTE: barriers will be relocated as work areas shift during construction.)

(a) Phase Elements

Contractor staging areas will be provided as shown in the CSPP drawings. Staging can be conducted within work areas. The project is comprised of 12 phases of work. Scope of work is described above and phased work areas are as follows:

YEAR 1

- Phase 1– Construction of temporary aircraft parking north of Lake Hood Drive with a taxilane access crossing Lake Hood Drive
- Phases 2-4 – Sequential segments or Apron E, requiring staged relocation of aircraft to temporary parking and partial closure of the apron and portions of Taxiway E as work stages proceed. Temporary aircraft parking is planned in the newly constructed area north of Lake Hood Drive and using available tie downs in C Parking, west of Postmark Drive with access using Taxilane V.
- Phase 5-7 – Taxiway H, from Apron E through intersection with Lake Shore Taxiway, will require half-width closure of airstrip access Taxiways H1 and H2. Lake Shore Taxiway aligns with Taxiway H2 and provides the only access to the airstrip from Aprons A, B, and ANC locations. Work on the TW H2 intersection with TW H will be limited to nighttime construction.
- Phase 8 – Upon completion of year one repair work, the temporary aircraft parking apron and taxilane access will be deconstructed. This includes reinstallation of fencing, signs and light poles temporarily removed in Phase 1.

YEAR 2

- Phase 9 – Construction of temporary aircraft parking in a portion of the North Terminal north apron requiring closure of Gates N1 and N3. An access to the area will be constructed from TL V.
- Phase 10 – Apron A will require staged relocation of aircraft to temporary parking and will require partial closure of the apron as work stages proceed. Access to TL V will be restricted to half-width during two subphases.
- Phase 11 – Apron B will require staged relocation of aircraft to temporary parking and will require partial closure of the apron as work stages proceed. Access to TL V will be restricted to half-width during two subphases.
- Phase 12 - Upon completion of year two repair work, the temporary aircraft parking area in the north apron of North Terminal and its access to TL V will be deconstructed. This includes reinstallation of fencing and blast fence temporarily removed in Phase 9.

(b) Construction Phasing and Safety Drawings

The CSPP drawings are included in Appendix C of the construction plan set and appended to this narrative.

(3) Areas and Operations Affected by the Construction Activity

Runways and taxiways should remain in use by aircraft to the maximum extent possible without compromising safety.

(a) Identification of Affected Areas

There are no planned runway closures during construction, however Taxiway E and portions of Taxiway H will require partial closures. Work on Taxiway H, in the access to airstrip H1 and H2 areas, will require half width construction to remain open but with restrictions. Airport flaggers must be used to control construction traffic and allow aircraft movement to the extent practicable. A portion of TW H between H1 and H2 will be closed temporarily. During temporary taxiway closures, signage and flaggers will be used to direct aircraft elsewhere. Hazard marker barriers must be placed to limit access to the active construction areas. The hazard marker barriers must be lighted when dark to prevent aircraft from inadvertently entering areas closed for construction. See the CSPP drawings and GCP 70-09 for additional information. The construction staging areas and haul routes are shown in the CSPP drawings. Aircraft relocation routes are shown in the CSPP drawings.

Table 3.1 identifies the areas affected by this construction project. Areas affected in the table below do not account for instances when phases are allowed to be done concurrently. The Contractor is required to coordinate with Airport Operations through the Engineer prior to making changes to the project site that will impact operations on the airport.

Table 3.1 Areas Affected

Area	2026 Phases				2027 Phases			
	1	2-4	5-7	8	9	10	11	12
Apron E and Taxiway E	Open	**Partially Closed**	Open	Open	Open	Open	Open	Open
Taxiway H	Open	Open	**Partially Closed**	Open	Open	Open	Open	Open
Apron A	Open	Open	Open	Open	Open	**Partially Closed**	Open	Open
Apron B	Open	Open	Open	Open	Open	Open	**Partially Closed**	Open

(b) Mitigation of Effects

The Contractor will appoint a Safety Officer who will be the primary point of contact for all safety issues including worker and airfield safety. The Safety Officer will have the authority

to immediately direct Contractor and Subcontractor personnel and equipment to evacuate an area or otherwise address a potentially unsafe situation. The Safety Officer will inspect the jobsite daily for compliance with safety requirements. All State, Contractor, and Sub-contractor personnel must be instructed to remain alert for situations which could negatively impact the safety of air operations or the safety of personnel or the public. When an unsafe situation or condition is identified, regardless of the source, immediate action must be taken to create a safe and healthy environment.

The Contractor will maintain a 24-hour point-of-contact for safety issues that arise, requiring immediate attention. This duty may be shared by more than one person as long as the personnel are identified to the Engineer in writing. These personnel must have the power to immediately take action involving Contractor personnel and equipment.

Ensure that all lighting systems, telecommunications, and control cables remain in operation continuously throughout the construction period except as noted in the plans and specifications. Facilities that are directly related to work items for this project may be placed out of service only as long as necessary to make the alterations shown in the plans.

(4) Navigation Aid (NAVAID) Protection

NAVAIDs provide visual and electronic information which is used by pilots who operate and land aircraft at the airport. Construction activities can have negative impacts on the functionality and serviceability of NAVAIDs. The Contractor must coordinate their work efforts and limit their operations so that NAVAIDs are not impacted beyond what is planned. Planned NAVAID impacts must be addressed in the Contractor's construction schedule.

Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordinate with the appropriate FAA ATO/Technical Operations office to evaluate the effect of the construction activity and the required distance and direction from the NAVAID. See Section 9.e.3 for additional information.

Construction activities/equipment storage, and vehicle parking near electronic NAVAIDs require special consideration since they may interfere with signals essential to air navigation. If any NAVAID may be affected, the CSPP and SPCD must show an understanding of the "critical area" associated with each NAVAID and describe how it will be protected. Pay particular attention to stockpiling material, as well as to movement and parking of equipment that may interfere with line of sight from the Air Traffic Control Tower (ATCT) or with electronic emissions. Interference from construction equipment and activities may require NAVAID shutdown or adjustment of instrument approach minimums for low visibility operations. This condition requires that a NOTAM be filed.

Underground utilities serving these NAVAIDs must also be protected. See Section 11 for additional information about the underground utilities.

Construction activities and material/equipment storage near a NAVAID must not obstruct access to the equipment and instruments for maintenance. **Submittal of a 7460-1 form is required for construction vehicles operating near FAA NAVAIDs, see Section 9.e.1 of this CSPP.**

To file the appropriate NOTAMs, the Contractor shall follow the procedures outlined in Section 9.b below. Prior to the physical construction start date, runway closures (partial or full), re-opening a closed runway, displacing a runway threshold, or implementing an event that causes impacts to NAVIDS, the Contractor shall follow the procedures outlined in Section 1.c above. For unplanned or emergency (short notice) impacts to FAA facilities/ NAVAIDs contact FAA Anchorage Service Operations Center (SOC) (907) 269-1803.

(5) Contractor Access

This section will detail the areas in which the Contractor will have access and explain how Contractor personnel will access those areas.

(a) Location of Stockpiled Construction Materials

The Contractor is limited to placement of stockpiled material in the staging areas or within the work limits as shown in the CSPP drawings. Stockpiled materials or equipment are not permitted within an active TOFA or TSA. **The Contractor must receive approval from FAA, through submitting Form 7460-1, and the Engineer prior to locating stockpiles or equipment within an active TOFA; see Section 9.e.1 of this CSPP.** The TSA and TOFA dimensions are described below in Section 17 of this CSPP.

Stockpiled materials and equipment adjacent to the active areas described above must be prominently marked and lighted during hours of restricted visibility or darkness. See Section 16 below for additional information.

To avoid creating an obstacle hazard for active taxiways, material stockpile heights must be limited to 15 feet unless limited by a more restrictive maximum height, such as for runway obstacle limitations or ATCT or aircraft line-of-sight requirements, etc.

All fuel storage and filling operations must occur in a staging area approved by the Engineer. All material deliveries shall be received in the Contractor's staging area. No delivery trucks will be allowed access to a secure area of the airport beyond the staging area.

Stockpiling of material must be performed in a manner to protect from water or wind erosion. The Contractor must follow the Storm Water Pollution Prevention Plan (SWPPP) for these protection measures. The Contractor shall ensure materials are stabilized and stored at an approved location to prevent hazards to aircraft operations, prevent attraction of wildlife, and prevent foreign object debris (FOD). See Sections 6 and 7 below for additional information.

(b) Vehicle and Pedestrian Operations

Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of vehicles, pedestrians, or wildlife onto the AOA. Vehicle operators must have an appropriate level of knowledge of airport rules and regulations. All vehicles, operators and pedestrians must:

- Obey state laws.
- Heed posted signs and traffic markings.
- Be familiar with and heed airfield signs, barriers, markings, and lighting, including edge lights and markings, hold short lines, and hazardous area barriers, markings and lighting.
- Obtain clearance from ATCT Ground Control before entering or operating within runway or taxiway safety areas.
- Obtain clearance to cross a runway or taxiway. Confirm by personal observation that no aircraft are approaching when given clearance to cross.
- Yield the right of way to moving aircraft and responding emergency vehicles and equipment. Be aware that pilots have poor visibility of objects and vehicles on the ground.
- Watch for slow moving vehicles, aircraft in tow, and vehicles parked in unusual places.
- Understand the dangers of jet blast and prop wash.
- Understand that roads on some areas of the airfield are designated using only painted pavement markings.
- Persons that are found not complying with airport driving rules will no longer be allowed to operate vehicles on the airport.

It is recommended that the Contractor post the "Best Practices" for vehicle drivers and place the "FAA Guide to Ground Vehicle Operations" in each vehicle. These may be downloaded through the Runway Safety Program Website: https://www.faa.gov/airports/runway_safety/vehicle/.

Flaggers will be utilized as follows and flagger positions may be adjusted as conditions warrant:

- At each position shown in the plans or at an alternate location as directed by the Engineer.
- Where construction activity is being conducted near operating aircraft and the Engineer determines that a flagger is needed.
- Where gates not manned by Airport Security are used for haul or other construction access.
- To protect the safety of the public where construction traffic is passing through populated areas.

- To maintain vehicular traffic on an existing road, street, or highway during construction activities.
- Anytime the Engineer determines a flagger is needed to enhance safety.

Flaggers must also:

- Be trained by the Contractor on the location and dimensions of the RSA, TSA, OFA, and OFZ and know how to immediately evacuate these areas for aircraft use.

Provide each airport flagger with a two-way radio to contact construction equipment and other airport flaggers on the project.

Duties of flaggers or other persons positioned at gates not manned by Airport Security include vehicle access, pedestrian control, hazardous condition reporting, and wildlife control. These persons shall be instructed by Airport Operations in the proper procedures and identification requirements for persons and vehicles. Typically, pedestrians would be limited to construction employees whose vehicles must be parked outside the AOA. These procedures are specific to each contract and may change during different phases of the contract.

Watch for moose or other wildlife in the vicinity of open gates. If a breach of the AOA by wildlife appears imminent, close gates and notify Airport Operations via the Airport Operations frequency.

(1) Construction site parking

Vehicle parking for Contractor employees shall be in designated employee parking areas shown in the plans or other areas as approved by the Engineer. Do not park vehicles on unimproved grassy surfaces. Do not park vehicles within 15 feet of any roadway or within 6 feet of any airport fence.

(2) Construction equipment parking

Park and service all construction vehicles in designated staging areas or other areas as approved by the Engineer. Do not park vehicles or equipment in the RSA, TSA, OFA, or OFZ. Do not stage motorized equipment on dirt surfaces in the staging area without a drip pan. Unless a complex setup procedure makes the movement of specialized equipment infeasible, inactive equipment must not be parked on a closed taxiway or runway. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Park vehicles or equipment outside the OFA when not in use by construction personnel. Parked vehicles or equipment must not obstruct the clear line of sight by the ATCT to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigational aids.

(3) Access and haul roads

The access/haul routes on airport property are designated on the CSPP drawings. Contractor access and hauling operations are strictly limited to the access/haul routes shown in the plans. Every truck must possess a copy of the designated haul routes. Construction vehicles and equipment must remain confined to the approved haul routes and work areas as directed by the Engineer. Access routes used by Contractor vehicles must be clearly marked to prevent inadvertent entry to areas open to airport operations. If any construction traffic is to share or cross ARFF routes, construction employees must pay special attention to ensure ARFF routes are not impeded at any time. Construction traffic must not interfere with NAVAIDs or approach surfaces of operational runways. Construction for other projects may be occurring concurrently. Ensure that access is also maintained for these projects according to the instructions of the Engineer.

The Contractor may not impede, modify or control traffic flow outside airport boundaries without a Traffic Control Plan approved by the Engineer. Such activities must follow all applicable federal, state, and municipal statutes and regulations.

The Contractor is responsible for any improvements and maintenance of haul routes as needed to efficiently perform construction activities. Following construction completion, the Contractor is required to restore haul routes to original or better condition. Provide water or other dust palliative and appropriate distribution equipment, as required, for dust control on the haul route surfaces and in the work areas.

(4) Marking and lighting of vehicles

Each Contractor licensed vehicle must display a company logo on both sides and a temporary ramp permit as issued and instructed by the Airport Badge Office. Each vehicle must also have a yellow flashing light affixed to the uppermost part of the vehicle and a 3’x3’ checkered flag with 1’x1’ orange and white checks. The flag must be on a staff attached to the vehicle, so it is readily visible. The beacon must be visible from any direction, day and night, including from the air. Specialized construction equipment does not require signs or rotating beacons. Contractor vehicle marking and lighting is the sole responsibility of the Contractor. The airport will not provide marking or lights.

(5) Description of proper vehicle operations

Traffic crossing active movement areas must be controlled either by two-way radio with the ATCT, escort, flagman, or signal light.

Vehicles and pedestrians must yield the right of way to moving aircraft, responding emergency vehicles and equipment, and be aware that pilots have poor visibility of objects and vehicles on the ground.

(6) Required escorts

When any vehicle operator must travel over any portion of an aircraft movement or non-movement area, other than properly closed and marked areas, they shall be escorted by a vehicle operator who has received radio communication training, and drivers training on compliance with airport vehicle rules, a working aviation-band two-way radio, and prior approval from Airport Operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time.

Personnel engaged in activities involving unescorted vehicle operation on aircraft movement areas will be trained by Airport Operations to observe the proper procedures for communications, including using appropriate radio frequencies. When operating vehicles on or near open runways or taxiways, personnel must understand the critical importance of maintaining radio contact with Airport Operations.

If authorized by the Airport, vehicle operators granted access to travel a designated haul route within the line-of sight of airport ID badged individuals with the capability to radio Airport Operations can travel the haul route unescorted. These persons will not deviate from the designated route and will not leave their vehicles in route except in an emergency.

(7) Training requirements for vehicle drivers

Personnel who drive vehicles or equipment on the apron or taxiways, or within the ROFZ and ROFA, must be trained in safety requirements. The Contractor shall have a training program in place to provide vehicle operators with the level of training necessary for their positions so they are capable of operating safely on the airside of an airport in accordance with the current version of FAA AC 150/5210-20 Ground Vehicle Operations on Airports.

(8) Situational awareness

Vehicle drivers must confirm by personal observation that no aircraft is approaching their position (either in the air or on the ground) when given clearance to cross a runway, taxiway, or any other area open to airport operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time.

There are several factors that hamper vehicle operator situational awareness. Situational awareness can decline due to fatigue, running behind schedule, incomplete communication, or degrading operational conditions. Situational awareness can be enhanced by establishing dedicated marked routes through congested areas or blind spots or eliminating or relocating fixed objects that hinder a vehicle’s line of sight.

(9) Two-way radio communication procedures

(a) General

All construction vehicles and equipment must have functioning two-way radio communication capabilities. When it is not practical to install radios in the equipment, the Contractor must provide additional personnel with radio communications in constant and immediate proximity to the equipment lacking radio equipment.

(b) Area requiring two-way radio communication with the ATCT

No two-way radio communication shall be conducted between the ATCT and the Contractor. Vehicular traffic crossing active movement areas must be controlled either by escort, flagman, or signal light.

(c) Frequencies to be used

When operating vehicles on or near open runways or taxiways, personnel must maintain radio contact with Airport Operations and the ATCT as required using the following frequencies:

Lake Hood Tower ..... **126.8 MHz**
CTAF ..... **126.8 MHz**
Anchorage Approach/Departure ..... **119.1 MHz**
Emergency ..... **121.5 MHz**

To monitor weather, use the following frequency:
Anchorage (ANC) Center ..... **124.5 MHz**
WX ASOS ..... **125.6 MHz**

(d) Proper radio usage

Personnel in communication with pilots must be trained, by the Contractor, in proper radio usage and read back requirements

(e) Proper phraseology

Personnel in communication with pilots must be trained, by the Contractor, in radio phraseology, including the International Phonetic Alphabet as required.

(f) Light gun signals

Even though radio communication is maintained, escort vehicle drivers must also familiarize themselves with ATCT light gun signals as required in the event of radio failure described below:

Steady Green ..... **Cleared to cross, proceed, or go**

Flashing Green ..... **Not applicable to vehicles**
Steady Red..... **STOP**
Flashing Red..... **Clear the taxiway/runway**
Flashing White ..... **Clear the taxiway/runway**
Alternating Red/Green ..... **Clear the taxiway/runway**

(10) Maintenance of the secured area of the airport

More detailed security information and requirements are included in Section 70-21 of the contract documents. This section pertains to the use of temporary aircraft parking area(s) within the AOA, designated in the SCPP Drawings

(a) Fencing and gates

The Contractor is responsible for preventing unauthorized access to the AOA by way of the construction site and is responsible for maintaining, as a minimum, a six (6) foot clear zone on both sides of any perimeter fence line affected by the Contractor or any authorized representative. This includes maintaining ANC perimeter gates and doors in either a locked condition or attended by appropriately badged persons who ensure that only authorized personnel or vehicles are admitted through them into the AOA. Those persons designated to control access points into the AOA shall be instructed by Airport Operations in the proper procedures of identification requirements for persons and vehicles. These procedures are specific to each contract and may change during different phases of the contract. The Contractor will provide these persons with the capability to communicate directly with Airport Operations and/or Airport Dispatch. Ensure personnel assigned to access authorization or perimeter guard duties are properly trained and alert to security concerns and procedures. Where the Contractor has the responsibility of monitoring gates and entry points, restrict access to the AOA to only authorized persons and vehicles.

(b) Badging Requirements

The Transportation Security Administration requires ANC to control access and prevent unauthorized persons from entering the AOA. In compliance with this requirement, the airport operator has established procedures to authorize or deny access to the AOA and to identify and control persons while in these areas.

The Airport Identification Badge, developed and adopted by ANC, is the only identification system recognized as authority to enter the Security Identification Display Area (SIDA) and Customs Sterile Areas of the airport. Only persons identified by this system have permitted access. All Airport Identification Badges must be worn on the outermost garment above the waist.

An individually-assigned Airport Identification Badge will be used by each Contractor employee granted access to the airport SIDA, Sterile Area, or other airport restricted areas for construction projects. It does not grant access to aircraft and is valid only for the area in which their construction is taking place and the approved routes to and from that area.

In lieu of individually issued Airport Identification Badges, those employees working in the same area together may be escorted by one employee with an Airport Identification Badge with Escort Authorization indicated on their badge. Escorted employees in the area must be issued and display a visitor badge. They must be monitored and under the immediate control of the escort at all times. A person using a visitor badge is expected to follow all regulations while on the restricted areas of the airport. Contractors utilizing escorts and visitor badges must receive prior approval from Airport Operations or the Airport Security Manager.

The Contractor shall be responsible for the maintenance of records necessary to ensure the retrieval of badges from employees and subcontractor(s). The Contractor shall designate one or more persons to act as the authorized point of contact for coordination in matters of badge program administration and security.

Should an employee lose his or her I.D. Badge, they should immediately notify their employer, who shall then immediately notify the Airport Badge Office at (907) 266-2409. If lost after normal business hours, then it should be reported to the Airport Communications Center at (907) 266-2415.

For specific job sites, the Airport may authorize the use of an access list. An airport badged individual would be responsible for checking each individual entering the work area against the list. Use of such a list is limited and solely at the discretion of the Airport.

Due to the ever-changing nature of ANC security requirements, please contact the Airport Security Manager at (907) 782-5419 for any changes, updates or additional requirements.

(c) Airport Security

Airports subject to 49 CFR Part 1542, Airport Security, must meet standards for access control, movement of ground vehicles, and identification of construction Contractor and tenant personnel.

(6) Wildlife Management

The Contractor must review the current version of FAA AC 150/5200-33, Hazardous Wildlife Attractants On or Near Airports and FAA CertAlert 98-05, Grasses Attractive to Hazardous Wildlife. The Contractor must carefully control and continuously remove waste or loose materials, including food scraps or land clearing debris that might attract wildlife. Contractor personnel must be aware of and avoid construction activities that can create wildlife hazards on airports. The Contractor must mitigate the following items.

(a) Trash

All construction personnel will dispose of trash and food scrapes in closed containers provided by the Contractor. The Contractor must perform trash clean-up on a daily basis and empty all trash containers at an approved landfill off site.

(b) Standing Water

If standing water remains for more than (3) hours after a rainfall, the Contractor will immediately re-grade any runway, taxiway, or apron area that has been disturbed by construction activities. The Contractor shall provide temporary drainage during construction to avoid standing water for all other work site areas.

(c) Tall Grass and Seeds

The Contractor is responsible for maintaining a maximum grass height of 10 inches or less for or all disturbed areas that are being returned to turf throughout the construction work area. The Contractor shall adhere to the requirements of Specification T-901, Seeding.

(d) Poorly Maintained Fencing and Gates

The Contractor shall immediately report any damage to gates or fences. The Contractor will be responsible for repairs to any gates or fences caused by negligence by the Contractor. Watch for moose or other wildlife in the vicinity of open gates. If a breach of the AOA by wildlife appears imminent, close gates and notify Airport Operations via the Airport Operations frequency. See Section 5.b.10.a above for additional information.

(e) Disruption of Existing Wildlife Habitat

The Contractor must notify airport operations immediately of any wildlife sightings on the airfield.

(7) Foreign Object Debris (FOD) Management

Waste and loose materials, commonly referred to as FOD, can cause damage to aircraft landing gear, propellers, and jet engines. On construction sites, FOD typically is comprised of loose gravel, blowing sand, wire bristles from sweeper heads, food wrappers, and material packaging.

The presence of FOD on the AOA poses a significant threat to the safety of air travel. FOD has the potential to damage aircraft during critical phases of flight, which can lead to catastrophic loss of life or airframe, and at the very least increased maintenance and operating costs. For more information see Section 10, Inspection Requirements below and AC 150/5210-24, Foreign Object Debris (FOD) Management.

The Contractor must:

- Provide training to all employees working within the AOA on description of FOD, consequences of FOD, effective FOD management, FOD awareness, and housekeeping procedures.
- Avoid leaving FOD on or near active aircraft movement areas.
- Use covered trash containers, cover loads, have a zero tolerance of littering, and tie down items which may be easily windblown.
- Continuously remove materials capable of creating FOD during the construction project.
- Perform vehicle tire checks for any loose rocks in the treads prior to crossing active airfield pavement. Tires covered in mud must be cleaned prior to crossing active airfield pavement in order to prevent tracking of dirt.
- Sweep the entire pavement surface (including shoulders) of a work area prior to opening it to aircraft traffic. The Contractor is required to clean all bristles from the pavement after sweeping. Compressed air and vacuums may also be used to clean surfaces.

(8) Hazardous Material (HAZMAT) Management

If any construction vehicle or equipment is operated within airport property, the Contractor must be prepared to expeditiously contain and clean-up spills resulting from fuel or hydraulic fluid leaks or other hazardous material spills. Special procedures are required when handling or transporting hazardous materials on airport property. Do not stage motorized equipment on dirt surfaces in the staging area without a drip pan. For more information, see AC 150/5320-15, Management of Airport Industrial Waste and GCP-70. The Contractor must prepare and follow all Hazardous Material Control Plan (HMCP) and Spill Prevention Control and Countermeasures (SPCC) plans required in the contract. See contract specification P-641 for more information.

(9) Notification of Construction Activities

(a) List Responsible Representatives

Upon award of the project, the Contractor shall provide all appropriate contact information for its staff and subcontractors in the SPCD such as project managers, project superintendents, and safety managers. Should any personnel change occur during the project, it is the responsibility of that organization to provide revised contact information.

The State of Alaska Department of Transportation and Public Facilities (DOT&PF) Engineer will be the central point of contact between the Contractor, Airport Operations, and the FAA. The primary contact for DOT&PF will be:

Frank Lee
DOT&PF Construction Engineer
frank.lee@alaska.gov
Office: (907) 243-4169
Cell: (907) 727-4808

(b) Notices to Air Missions (NOTAMs)

Before beginning any construction activity, coordinate with the Engineer to enable the LHD Airport Manager to issue the NOTAM at least 24 hours in advance.

Airport Operations will issue the NOTAM for activities affecting operations at ANC. The LHD Airport Manager will issue the NOTAM for activities affecting the LHD airport. The following person, or designated alternate, has authority to issue the NOTAM and will be the point of contact, through the Engineer, for required issuances, updates, and cancellations:

LHD Airport Manager, Tim Coons
P.O. Box 196960
Anchorage, AK 99519-6960
Phone: (907) 266-2741

Airport Operations – Construction Coordinator
Ted Stevens Anchorage International Airport
P.O. Box 196960
Anchorage, AK 99519-6960
Phone: (907) 266-2615 (24 hr.)
Cell: (907) 748-2107
Fax: (907) 266-2646

Alternate Contact
Airport Duty Officer
Ted Stevens Anchorage International Airport
P.O. Box 196960
Anchorage, AK 99519-6960
Phone: (907) 266-2600 (24 hr.)

The Contractor shall provide sufficient information to the Engineer to enable Airport Operations to fulfill the following procedures:

- Only Airport Operations may initiate or cancel NOTAMs on airport conditions and Airport Operations is the only entity that can close or open a runway.
- Airport Operations must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility.
- Airport Operations must provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM.

Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate, must immediately notify Airport Operations.

Upon completion of work, return all areas to standard conditions and coordinate similarly to provide information regarding the cancellation of all notices issued as a NOTAM.

(c) Emergency Notification Procedures

In the case of a life-threatening emergency, dial 911, then contact Airport Operations and the Engineer immediately thereafter. Airport Operations will coordinate any emergency response.

Airport Operations

(907) 266-2615 (24 hr.)
(907) 748-2107
(907) 266-2600

Alternate Contact for Airport Operations

Airport Duty Officer	(907) 266-2600 (24 hr.)

Airport Facilities Maintenance

Contact	(907) 266-2844

Medical

911 for emergencies	
Airport Police & Fire	(907) 266-2555 – Emergency
Airport Police & Fire	(907) 266-2411 – Non-Emergency
Alaska Regional Hospital	(907) 276-1131
Providence Hospital	(907) 562-2211
Anchorage Poison Control Center	(907) 261-3193 or (800) 478-3193

Fire/Emergency Responders

911 for emergencies

Airport Police & Fire	(907) 266-2555 – Emergency
Airport Police & Fire	(907) 266-2411 – Non-Emergency

(d) Coordination with ARFF Personnel

The Contractor shall coordinate, through the Engineer, with ARFF personnel, mutual aid providers, and other emergency services if construction requires:

- The deactivation or subsequent reactivation of water lines or fire hydrants,
- The rerouting, blocking, and restoration of emergency access routes, or
- The use of hazardous materials on the airfield.

(e) Notification to the FAA

All questions and notices to the FAA shall be coordinated through the Engineer.
Provide notices to FAA as required under CRF 14, Part 77 and Part 157.

The following person will be the point of contact with FAA ATO/Technical Operations in matters relating to FAA NAVAIDs/facilities at ANC:

Myles Peterson
FAA Turnagain System Support Center (SSC) Manager
Phone: (907) 271-2216

The following persons will be the point of contact with FAA ATO/Technical Operations in matters relating to Air Traffic at ANC:

Thomas Bradley
FAA Anchorage System Support Center (SSC) Manager
Phone: (907) 271-6748
Cell: (907) 351-9987

Burke Stott
FAA Anchorage System Support Center (SSC) Coordinator
Phone: (907) 271-3890
Cell: (907) 231-5503

Prior to the physical construction start date, runway closures (partial or full), re-opening a closed runway, displacing a runway threshold, or implementing an event that causes impacts to NAVAIDs, the Contractor shall follow the procedures outlined in Section 1.c.

Prior to any work requiring crane(s) to be raised, the Contractor shall notify the ATCT Watch Supervisor through the Engineer at (907) 271-2701 to establish a procedure to

have the crane(s) immediately lowered upon request of the ATCT. When crane(s) are no longer needed and have been permanently lowered, the Contractor shall notify the ATCT through the Engineer that the NOTAM can be cancelled.

(1) FAR Part 77

Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for the equipment (i.e. cranes, graders, etc.) on airports. The Contractor must provide this information to the Engineer and Airport Operations. **The Contractor must submit Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA, following the instructions on the form, for approval at least 45 days prior to the start of construction. This form may be submitted here: https://oeaaa.faa.gov**

(2) FAR Part 157

With some exceptions, Title 14 Code of Federal Regulations (CFR) Part 157, Notice for Construction, Alteration and Deactivation of Airports, requires that the airport operator notify the FAA in writing whenever a non-federally funded project involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport. The Contractor must provide this information to the Engineer and Airport Manager. **Form 7480-1, Notice of Landing Area Proposal, must be submitted to the FAA, following the instructions on the form, for approval at least 90 days before construction, alteration, activation, deactivation, or change to the status or use of a civil or joint-use (civil/military) airport. This form may be submitted here: https://oeaaa.faa.gov**

(3) NAVAIDs

For unplanned or emergency (short notice) impacts to FAA facilities/ NAVAIDs contact FAA Anchorage Service Operations Center (907) 269-1803.

(a) Airport Owned/FAA maintained

This section is not applicable for ANC/LHD.

(b) FAA Owned

1. General

Notify FAA ATO Service Area P&R WSA office a **minimum of 45 days prior** to implementing an event that causes impacts to NAVAIDs following the procedures outlined in Section 1.c. (Impacts to FAA equipment covered by a Reimbursable Agreement (RA) do not have to be reported by Airport Operations.)

2. Coordination

Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office following the procedures outlined in Section 1.c. **Also, provide seven days' notice to the actual shutdown.**

(10) Inspection Requirements

(a) Daily Inspections

The Contractor must inspect the project site and vehicles daily for FOD and employ a "clean as you go" approach throughout the project. The daily inspections must also ensure all traffic control devices are in a proper location and in working order. These inspections may need to be more frequent when construction is in progress. The Contractor shall notify Airport Operations at least 30 minutes before the end of shifts each day for a safety inspection of the work site. The Contractor must perform joint inspections with the Engineer and Airport Operations throughout the project, with immediate remedy of any deficiencies, whether caused by negligence, oversight, or project scope change. These inspections include an inspection of all paved airfield areas and safety areas to ensure compliance with FAR Part 139.327.

(b) Final Inspections

Prior to opening work areas to aircraft operations, the Contractor must coordinate with Airport Operations for inspection of work area. The work area must be free of any FOD that could cause damage to aircraft engines. Coordinate with the FAA Airport Certification Safety Inspector (ACSI) to determine if a final inspection will be necessary.

(11) Underground Utilities

The Contractor must request locates from all utilities having facilities in the area prior to any work being performed in the area. Locates from the local utilities listed below can be obtained by calling the Alaska Dig Line at:

Alaska Dig Line	811 (907) 278-3121 (800) 478-3121

Local Utilities

Alaska Communications Systems (ACS)
Anchorage Water and Wastewater Utility (AWWU)
Chugach Electric Association (CEA)
Enstar Natural Gas Company
General Communications, Inc. (GCI)
Municipal Traffic Operations
Menzies Aviation
Andeavor (formerly Tesoro)

In addition, contact the following utilities separately and individually for locates of their utility

lines. All costs associated with this work are considered subsidiary to other pay items and no separate payment will be made.

ANC Field Maintenance	(907) 266-2425
ANC Field Maintenance, Electric	(907) 266-2423
ANC Facilities	(907) 266-2844
FAA Anchorage SSC	(907) 271-6783
FAA Turnagain SSC	(907) 271-6780

Notify ANC Airfield Maintenance when work is expected to begin for de-energizing any circuit. Upon completion of each stage, notify ANC Airfield Maintenance before energizing that portion of the system.

The FAA has various navigational aids and other equipment in operation at ANC. The approximate locations of the power cable, control cables and equipment are shown in the plans. There may be cables and equipment that are not shown in the plans. Contact the FAA for locates **21 days prior to excavation and/or stockpiling.**

Approximate locations of the utilities known to the DOT&PF within the work area are shown in the plans. The actual locations, elevations, and true nature of utilities may vary, and additional utilities may exist at locations other than those shown in the plans.

When the Contractor's operations meet any of the following conditions, the Contractor will advise the owning utility in writing, indicating location and duration of the work to be performed, at least 24 hours in advance of the work.

- Operations anticipated within 10 feet of an overhead electric line.
- Operations requiring the use of equipment capable of coming within 10 feet of an overhead electrical line.
- Operations anticipated within 3 feet of an underground electrical line according to the locations provided by the owning utility.

Take all precautions necessary to protect the safety of workers and the public when performing work involving utilities. Carefully work around existing underground utilities. If utility lines are found in areas of excavation, hand dig potholes every 100 feet along the utility to maintain visibility of the utility. Carefully uncover utilities where they intersect the work. Coordinate requests to temporarily remove any other underground utilities from service with the Engineer.

Ensure that all lighting systems, telecommunications, and control cables remain in operation continuously throughout the construction period except as noted in the plans and specifications. Facilities that are directly related to work items for this project may be placed out of service only as long as necessary to make the alterations shown in the plans. The Contractor will obtain

permission from the Engineer before taking any facilities out of service. The Contractor must **provide at least 24 hours' notice** to Airport Operations, through the Engineer, before placing any airport lighting or NAVAIDs out of service for the NOTAM to be filed. All airfield lighting circuits locked out for construction shall be returned to ATCT control no later than 2 hours before sunset.

Immediately stop excavating in the vicinity of a utility and notify the Engineer and the utility owner if an underground utility is discovered that was not field marked or was inaccurately field marked. Promptly notify the utility owner and the Engineer in the event of accidental interruption of utility service and cooperate with the utility owner and the Engineer until service is restored. The Contractor must repair any damage to utilities, including FAA utilities and equipment, caused by the Contractor's operations at no cost to the DOT&PF.

The Contractor is required to work around aboveground and underground utility facilities, either existing or relocated, throughout the project unless advised by the utility that the facility is abandoned in place.

See Section 50-06 of the contract documents for more details.

(12) Penalties

Failure to comply with the safety rules of this CSPP, the General Contract Provisions, Occupational Safety and Health Administration (OSHA) regulations, SIDA rules, airport rules, security of the AOA, or any other federal, state, or local laws may result in suspension of construction activities or imposition of fines or other legal action. Penalties could also include rescission of driving privileges or access to the AOA. The Contractor will be liable for any penalty levied against the State resulting from actions by the Contractor or those for whom the Contractor is responsible.

(13) Special Conditions

Airport operations take precedence over all work, especially if a question of safety is involved. Special conditions such as low visibility, snow removal, aircraft in distress, aircraft accident, security breach, vehicle/pedestrian deviations, or other activities may require the suspension or rescheduling of project construction to accomplish air safety. See Section 5 above for compliance with airport safety and security measures and for radio communication procedures. See Section 9 above for emergency notification information for all involved parties, including police/security, and medical services.

(14) Runway and Taxiway Visual Aids

Taxiway and runway lighting will not be affected by this project. Marking will affected by this project will be replaced in kind, as required.

(a) General N/A

(b) Markings Markings for Aprons A, B and E and Taxiways E and H will be affected by this project as repairs progress. The contractor will survey existing markings before construction activity begins to identify marking types and locations and will replace affected markings following construction activity in each area, including those associated with Lake Hood Drive.

(c) Lighting and Visual NAVAIDs N/A

(d) Signs Signs for Taxiway E and portions of Taxiway H will be affected by this project. The contractor will survey existing signs before construction activity and will replace or uncover those signs affected following construction activity in each area. In addition, the contractor will survey location and types of signs associated with aircraft relocation routes. This includes signs mounted on fence and gates panels removed and reinstalled and roadway signs (and posts) removed and reinstalled.

(15) Marking and Signs for Access Routes

The Contractor is responsible for supplying and installing all necessary markings and signage for all access routes to and from the site to be used by Contractor personnel, subcontractor personnel, or delivery operations. Any pavement markings and signs for construction personnel will conform to the current version of FAA AC 150/5340-18, Standards for Airport Sign Systems, and, to the extent practicable, with the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) and the Alaska Traffic Manual (ATM) Supplement. All signage in the Airport Operations ROFA or TOFA must be frangible, these requirements are detailed in the current version of FAA AC 150/5220-23, Frangible Connections, which may require modification to size and height guidance in the MUTCD. All visual aids must conform to the current version of FAA AC 150/5340-30, Design and Installation Details for Airport Visual Aids.

(16) Hazard Marking and Lighting

(a) Purpose

Hazard marking and lighting prevents pilots from entering areas closed to aircraft and prevents construction personnel from entering areas open to aircraft. Hazard marking and lighting must also be used to identify open manholes, open excavations, trenches, hazardous areas, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast and prop wash. Also consider less obvious construction related hazards and include markings to identify FAA, airport, and National Weather Service facilities cables and power lines;

instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.

(b) Equipment

(1) Barricades

Barricades, including traffic cones, (weighted or sturdily attached to the surface) are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. Careful consideration must be given to selecting equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subject to typical winds, prop wash, and jet blast. The spacing of barricades must be 4 feet, so that a breach is physically prevented barring a deliberate act. Provisions must be made for ARFF access if necessary. If barricades are intended to exclude pedestrians, they must be continuously linked. Continuous linking may be accomplished using ropes, securely attached to prevent FOD. The Contractor is responsible for supplying and installing all hazard marker barriers. Hazard marker barriers must be in accordance with Specifications GCP 70-09 and P-670. Hazard marker barriers will be used as shown in the CSPP drawings and as required by the direction of the Engineer and Airport Operations.

(2) Barricade Lights

The hazard marker barriers must be lighted when dark to prevent aircraft from inadvertently entering the closed runway, taxiway, or apron. Lights must be red, either steady burning or flashing, and must meet the luminance requirements of the State Highway Department. Batteries powering lights will last longer if lights flash. Lights must be mounted on barricades, spaced at no more than 10 feet. Lights must be operated between sunset and sunrise and during periods of low visibility. Light may be operated by photocell, but this may require that the Contractor turn them on manually during periods of low visibility during daytime hours.

(3) Supplemental Barricades

Provide supplemental barricades with signs as necessary, for example “No Entry” or “No Vehicles.”

(4) Air Operations Area - General

Barricades are not permitted in any active safety area. Within a runway or taxiway OFA and on aprons, use orange traffic cones, flashing or steady burning red lights as noted above, collapsible barricades marked with diagonal, alternating orange and white stripes to separate all construction areas from the movement areas. These locations are denoted in the CSPP drawings.

(5) Air Operations Area – Runway/Taxiway Intersections

Use highly reflective barricades with lights to close taxiways leading to closed runways. The use of traffic cones is appropriate for short-duration closures.

(6) Air Operations Area – Other

Beyond a runway and taxiway OFA and aprons, barricades intended for construction vehicles and personnel may be different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels.

(7) Maintenance

The Contractor must have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The Contractor must file the contact person's information with the airport operator and be included in the contact list as described in Section 9.a. Lighting should be checked for proper operation at least once a day, preferably at dusk.

(17) Protection of Runway and Taxiway Safety Areas

Since construction personnel may not be familiar with the airport, especially the AOA, the potential for confusion resulting in safety or security incidents is greatly increased. The airport contains facilities for major passenger and cargo airlines and numerous businesses providing airport related services.

Several entities have responsibilities for the safety and security of the airport including the Air Traffic Control Tower (FAA), Ground Control (FAA), FAA operations facilities, ARFF, the Transportation Security Administration, and the airport police.

The RSA, TSA, OFA, OFZ, and approach surfaces are described below, but can be found in more detail in the current version of FAA AC 150/5300-13. Protection of these areas includes limitations on the location and height of equipment and stockpiled material.

(a) Runway Safety Area (RSA)

No RSA will be impacted by this project. An RSA is defined as the surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. No equipment will operate within these limits when the runway is open. Exceptions to these construction limitations may occur only with the permission of the Engineer and Airport Operations and after the proper NOTAM has been issued. See Section 5 of this CSPP for details regarding vehicle and personnel movement within safety areas and material stockpiling restrictions. See Section 16 of this CSPP for details regarding the hazard marking and lighting devices used to identify open excavations. Construction activities within the existing RSA are subject to the following conditions:

(1) No construction may occur within the existing RSA while the runway is open for aircraft operations.

(2) Adjustments of the RSA dimensions must be coordinated with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and a NOTAM issued.

(3) Blasting operations are prohibited on airport property.

(4) Excavations

(a) Open trenches or excavations are not permitted within the RSA while the runway is open. If possible, backfill trenches before the runway is opened. If the runway must be opened before excavations are backfilled, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the runway across the trench without damaging the aircraft.

(b) The Contractor must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by Airport Operations, and light them with red lights during hours of restricted visibility or darkness.

(5) Soil erosion must be controlled to maintain RSA standards. The RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, ARFF equipment, and occasional passage of aircraft without causing structural damage to the aircraft.

(b) Runway Object Free Area (ROFA)

No ROFA will be impacted by this project. Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use and material should not be stockpiled in the ROFA if not necessary. Equipment or stockpiling material in the ROFA requires approval from the Engineer and submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval, see Section 9.e of this CSPP.

(c) Taxiway/Taxilane Safety Area (TSA)

A TSA is a defined surface alongside the taxiway/taxilane prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway. The TSA dimensions for each phase of construction are shown in Table 17.2 below. Construction activities within the TSA are subject to the following conditions:

(1) No construction may occur within the TSA while the taxiway is open for aircraft operations.

(2) Adjustments of the TSA dimensions must be coordinated with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and a NOTAM issued.

(3) Blasting operations are prohibited on airport property.

(4) Excavations

(a) Open trenches or excavations are not permitted within the TSA while the taxiway is open. If possible, backfill trenches before the taxiway is opened. If the taxiway must be opened before excavations are backfilled, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft.

(b) The Contractor must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

(5) Soil erosion must be controlled to maintain TSA standards. The TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment occasional passage of aircraft without causing structural damage to the aircraft.

(d) Taxiway/Taxilane Object Free Area (TOFA)

Unlike the ROFA, aircraft wings regularly penetrate the TOFA during normal operations. Thus, the restrictions are more stringent. The TOFA dimensions for each phase of construction are shown in Table 17.1 below. Except as noted below, no construction may occur within the taxiway object free area while the taxiway is open for aircraft operations.

(1) The TOFA dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a TOFA that is equal to the TOFA width available.

(2) Offset taxiway markings may be used as a temporary measure to provide the required TOFA. If offset taxiway markings are used, centerline lighting or reflectors are required.

(3) Construction activity may be accomplished without adjusting the width of the TOFA, subject to the following restrictions:

(a) Appropriate NOTAMs are issued.

(b) Marking and lighting meeting provisions of Sections 14 and 16 of this CSPP are implemented.

(c) Five-foot clearance is maintained between equipment and materials and any part of an aircraft (including wingtip overhang). In these situations, flaggers must be used to direct construction equipment, and wing walkers will be necessary to guide aircraft. Wing walkers shall be airline/aviation personnel rather than construction workers. If such clearance can only be maintained if an aircraft does not have full use of the entire taxiway width (with its main landing gear at the edge of the pavement), then it will be necessary to move personnel and equipment for the passage of that aircraft.

(e) Obstacle Free Zone (OFZ)

This project will not impact any runway OFZs. In general, personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. If a penetration to the OFZ is necessary, it may be possible to continue aircraft operations through operational restrictions. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

(f) Runway Approach/Departure Surfaces

This project will not impact any runway approach or departure surfaces. All personnel, materials, and/or equipment must remain clear of the threshold siting surfaces, as defined in FAA AC 150/5300-13. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. For examples, the boom of an excavator or a raised dump bed, for instance, could potentially obstruct an aircraft on approach for landing. The Engineer and the Contractor must remain aware of the equipment operating in these sensitive areas and calculate and enforce the ceiling beneath which equipment can operate safely without evacuating upon aircraft approach.

Table 17.1 Taxiway and Protection Areas*

Taxiway Component	TSA	TOFA
Taxilane V	49’	79’
Taxiway E	49’	89’
Taxiway H	49’	60’
Lake Shore Taxiway	49’	89’
Temporary TL XX LHD	49’	79’

*TSA and TOFA widths are total widths centered on the TW or TL centerline.

The Runway Safety Area for the airstrip Runway 14-32 is120’; the ROFA is 250’ (both centered about the runway centerline.

(18) Other Limitations on Construction

(a) Prohibitions

(1) No use of equipment taller than 15 feet unless a 7460-1 determination letter is issued for such equipment.

(2) No use of open flame or welding torches unless fire safety precautions are provided and Airport Operations has approved their use.

(3) No use of electrical blasting caps on or within 1,000 feet of the airport property.

(4) No use of flare pots within the AOA.

(b) Restrictions

(1) Construction suspension required during specific airport operations

Construction may be suspended when low visibility operations are in effect.

(2) Areas that cannot be worked on simultaneously

Construction activity for each phase is limited to the areas shown in the CSPP drawings.

(3) Day or night construction restrictions

There are no day or night construction restrictions.

(4) Seasonal construction restrictions

All work for this project shall be completed by the completion date stated in GCP-80.

APPENDIX D

PERMITS (pending)

APPENDIX E

TRAFFIC PLAN (NOT USED)

APPENDIX F

SIGN PLAN (NOT USED)

APPENDIX G

MINING PLAN (NOT USED)

APPENDIX H

AVIATION MATERIALS CERTIFICATION LIST

AIRPORT MATERIALS CERTIFICATION LIST

Project Name LHD Aprons A, B, E, and Taxiway E Surface Seal

Project Number 3-02-0013-XXX-2026 / CFAPT01199

Project Engineer Signature

Unshaded boxes indicate who approves the manufacturer's certificate of compliance or materials submittals.

If two boxes not shaded, either approving authority may be used.

Materials Item	Specification	Construction			Design		Statewide Materials		Remarks	Materials Certificate Location e.g. Binder #
		Project Engineer	Regional Materials or QA Engineer	Airport Ltg. Equipment Certification Program	Civil Design Engineer of Record	Electrical Design Engineer of Record	*Qualified Products List (QPL)	State Materials or QA Engineer		
D-701 PIPE FOR STORM DRAINS AND CULVERTS										
Pipe	D-701-2.2									
Culvert Marker Posts	D-701-2.9									
D-760 THAW PIPE AND THAW WIRES										
Thaw Pipe	D-760-2.1									
F-162 CHAIN-LINK FENCE										
Fabric	F 162-2.1									
Barbed Wire	F-162-2.2									
Posts, Rails and Braces	F-162-2.3									
Gates	F-162-2.4									
Wire Ties and Tension Wires	F-162-2.5									
Misc. Fittings and Hardware	F-162-2.6									
Concrete	F-162-2.7									
Gate Locks	F-162-2.9									
P-401 ASPHALT MIX PAVEMENT										
Joint Adhesive	P-401-2.7									
Job Mix Design	P-401-3.2									
P-608-R RAPID CURE SEAL COAT										
Asphalt Material	P-608-R-2.2									
Seal Coat with Aggregate	P-608-R-2.3									

*Unshaded boxes under the QPL do not indicate that the materials are on that list. They indicate materials with potential for being on the QPL once qualified.
See GCP 60-05 for submittal requirements.

Unshaded boxes indicate who approves the manufacturer's certificate of compliance or materials submittals.
If two boxes not shaded, either approving authority may be used.

Materials Item	Specification	Construction			Design		Statewide Materials		Remarks	Materials Certificate Location e.g. Binder #
		Project Engineer	Regional Materials or QA Engineer	Airport Ltg. Equipment Certification Program	Civil Design Engineer of Record	Electrical Design Engineer of Record	*Qualified Products List (QPL)	State Materials or QA Engineer		
P-620 RUNWAY AND TAXIWAY PAINTING										
Paint, Waterborne										
White	P-620-2.2									
Yellow	P-620-2.2									
Paint, Solvent Base										
White	P-620-2.2									
Yellow	P-620-2.2									
Reflective Media, Combined Cert. with Paint	P-620-2.3									
P-635 PAVEMENT CRACK FILLING										
Sealant	P-635-2.1									
P-641 EROSION, SEDIMENT AND POLLUTION CONTROL										
BMP Installations	P-157-2.5								P-641 Control and Stabilization Materials identified and documented in SWPPP and approved on project.	
P-650 AIRCRAFT TIE-DOWN										
Temporary Tie-Downs	P-650-2.4									
P-661 STANDARD SIGNS										
Sign Posts	P-661-2.1c								Follow if new posts are required.	
Concrete for Bases	P-661-2.1e									

*Unshaded boxes under the QPL do not indicate that the materials are on that list. They indicate materials with potential for being on the QPL once qualified.
See GCP 60-05 for submittal requirements.

Unshaded boxes indicate who approves the manufacturer's certificate of compliance or materials submittals.
If two boxes not shaded, either approving authority may be used.

Materials Item	Specification	Construction			Design		Statewide Materials		Remarks	Materials Certificate Location e.g. Binder #
		Project Engineer	Regional Materials or QA Engineer	Airport Ltg. Equipment Certification Program	Civil Design Engineer of Record	Electrical Design Engineer of Record	*Qualified Products List (QPL)	State Materials or QA Engineer		
P-670 HAZARDOUS AREA BARRIERS										
Hazard Marker Barrier, Plastic	P-670-2.1b									
Flasher Unit	P-670-2.3									
P-671 RUNWAY AND TAXIWAY CLOSURE MARKERS										
Vinyl Mesh Panel	P-671-2.1a									
ADDITIONAL MATERIALS										

*Unshaded boxes under the QPL do not indicate that the materials are on that list. They indicate materials with potential for being on the QPL once qualified.
See GCP 60-05 for submittal requirements.

APPENDIX I

FAA TECHNICAL SPECIFICATIONS FOR APPROACH LIGHTING AIDS (NOT USED)

APPENDIX J

MANDATORY POST-AWARD CONFERENCE NOTICE AND AGENDA (NOT USED)

APPENDIX K

SNOW REMOVAL EQUIPMENT BUILDING TECHNICAL SPECIFICATIONS (NOT USED)

APPENDIX L

MATERIALS SALES AGREEMENT (NOT USED)

APPENDIX M

CONTAMINATED MATERIALS MANAGEMENT PLAN AND
PFAS INVESTIGATION WORK PLAN (NOT USED)