



ADDENDUM TO THE CONTRACT

for the

JNU Runway Safety Area Improvements, Phase 2B Contract No. BE17-045

ADDENDUM NO.: THREE

CURRENT DEADLINE FOR BIDS:
August 24, 2016

PREVIOUS ADDENDA: TWO

ISSUED BY: City and Borough of Juneau
ENGINEERING DEPARTMENT
155 South Seward Street
Juneau, Alaska 99801

DATE ADDENDUM ISSUED: August 19, 2016

The following items of the contract are modified as herein indicated. All other items remain the same. This addendum has been issued and is posted online. Please refer to the CBJ Engineering Contracts Division webpage at: <http://www.juneau.org/engineering ftp/contracts/Contracts.php>

Project Manual:

- Item No. 1: SECTION 00 4114–BID SCHEDULE, labeled Addendum No. 2. **Delete** in its entirety, and **replace** with the attached SECTION 00 4114 – BID SCHEDULE, labeled Addendum No. 3.
- Item No. 2: General. **Replace** all references to “Subsection GCP 70-02” with reference to SECTION 00 7000 GENERAL CONDITIONS OF THE CONTRACT, Article 3.7 PERMITS, FEES AND NOTICES.
- Item No. 3: General. **Replace** all references to “SECTION 90” or “SECTION GCP-90” or “Subsection 90-02” **with** reference to SECTION 00 7000 GENERAL CONDITIONS OF THE CONTRACT, Article 9 PAYMENTS AND COMPLETION.
- Item No. 4: General. **Replace** all references to “SECTION GCP-90-04” **with** reference to “SECTION 00 7000 GENERAL CONDITIONS OF THE CONTRACT, Article 7 CHANGES IN THE WORK”.
- Item No. 5: **Add** SECTION GCP 100 – CONTRACTOR QUALITY CONTROL PROGRAM and SECTION GCP 110 – METHOD OF ESTIMATING PERCENTAGE OF MATERIAL WITHIN SPECIFICATION LIMITS (PWL) **after** cover sheet for PART II TECHNICAL SPECIFICATIONS.
- Item No. 6: SECTION G-100, - MOBILIZATION AND DEMOBILIZATION, 100-1.1. **Delete** the phrase “except as provided under Section G-130”
- Item No. 7: SECTION G-100, - MOBILIZATION AND DEMOBILIZATION, 100-5.1. **Delete** pay items G-100a(2), G-100a(3), G-100a(4), and G-100a(5).

- Item No. 8: SECTION G-135, - CONSTRUCTION SURVEYING AND MONUMENTS, 135-3.1 GENERAL, Item j. **Replace** "Section 50-08 Survey Control" **with** "SECTION 01 7839 PROJECT RECORD DOCUMENTS".
- Item No. 9: SECTION G-135, - CONSTRUCTION SURVEYING AND MONUMENTS, 135-4.1. **Delete** item c.
- Item No. 10: SECTION G-135, - CONSTRUCTION SURVEYING AND MONUMENTS, 135-5.1. **Delete** pay items G-135a(2), G-135a(3), G-135a(4), G-135a(5), G-135b(2), G-135b(3), G-135b(4), G-135b(5)
- Item No. 11: SECTION G-150, - EQUIPMENT RENTAL, 150-4.1. **Delete** pay items G-150a(2), G-150a(3), G-150a(4), G-150a(5)
- Item No. 12: SECTION G-300, - CRITICAL PATH METHOD SCHEDULING, 300-4.1. **Delete** and **replace** with "This item will not be measured for payment."
- Item No. 13: SECTION G-300, - CRITICAL PATH METHOD SCHEDULING, 300-5.1. **Delete** pay items G-300a(2), G-300a(3), G-300a(4), G-300a(5)
- Item No. 14: SECTION G-400, - MINING RESTORATION AND ROAD CLEANING. **Add** attached section labeled Addendum No. 3.
- Item No. 15: SECTION G-700, - TRAFFIC CONTROL FOR AIRPORTS, 700-1.1. **Replace** the phrase "80-04 Limitation of Operations" **with** the phrase "01 5200 Security and Safety".
- Item No. 16: SECTION G-700, - TRAFFIC CONTROL FOR AIRPORTS, 700-4.1. **Delete** pay items G-700a(2), G-700a(3), G-700a(4), G-700a(5)
- Item No. 17: SECTION P-152, - EXCAVATION AND EMBANKMENT, 152-2.3 SUITABLE MATERIAL. **Replace** paragraph c. (appears twice) **with** "Meets the definition of Non-Frost Susceptible according to the definition provided in FAA AC 150/5370-10G.
- Item No. 18: SECTION P-152, - EXCAVATION AND EMBANKMENT, 152-3.1 GENERAL. **Replace** the phrase "Subsection GCP 70-11.d." in the third paragraph **with** "Section 01 7000 GENERAL CONDITIONS OF THE CONTRACT, Article 10.3 HAZARDOUS MATERIALS."
- Item No. 19: SECTION P-152 EXCAVATION AND EMBANKMENT, 152-3.1 GENERAL, Item b. Utility Work. **Replace** the reference to "SECTION GCP 50-06.", **with** reference to "SECTION 00 7000 GENERAL CONDITIONS OF THE CONTRACT, Article 4.3 CLAIMS AND DISIPUTES".
- Item No. 20: SECTION P-152 EXCAVATION AND EMBANKMENT, 152-3.2 EXCAVATION. **Delete** the phrase "As required in GCP 40-04, all" in the second sentence.
- Item No. 21: SECTION P-152 EXCAVATION AND EMBANKMENT, 152-3.3 BORROW SOURCES, second paragraph. **Replace** the phrase "according to GCP 60-02." **with** "SECTION 00 7000 GENERAL CONDITIONS OF THE CONTRACT, Article 13.10 USE OF THE CBJ GRAVEL PIT".

- Item No. 22: SECTION P-157 EROSION, SEDIMENT, AND POLLUTION CONTROL. This SECTION references a number of Alaska Department of Transportation (ADOT) forms. Use the ADOT forms or equivalent forms provided by the Owner.
- Item No. 23: SECTION P-157 EROSION, SEDIMENT, AND POLLUTION CONTROL. **Delete** the phrase “plans listed in Subsection GCP 80-03.f (SWPPP and HMCP)” and **replace** with “all plans required by this Section”.
- Item No. 24: SECTION P-157 EROSION, SEDIMENT, AND POLLUTION CONTROL, 157-1.6 RESPONSIBILITY FOR STORM WATER PERMIT COVERAGE, Item c. **Delete** the phrase “(as defined in Subsection GCP 80-01.d)
- Item No. 25: SECTION P-157 EROSION, SEDIMENT, AND POLLUTION CONTROL 157-2.5 MATERIALS, third paragraph. **Delete** the phrase “Item P-.682 or”.
- Item No. 26: SECTION P-157 EROSION, SEDIMENT, AND POLLUTION CONTROL 157-2.5 MATERIALS, fourth paragraph. **Replace** the phrase “P-680” **with** “the BMP details attached to the SWPPP.”
- Item No. 27: SECTION P-157 EROSION, SEDIMENT, AND POLLUTION CONTROL, 157-3.1 b DURING CONSTRUCTION, fourth paragraph. **Replace** the phrase “Subsection GCP-70-11 Protection and Restoration of Property and Landscape” **with** “SECTION 00 7000 GENERAL CONDITIONS OF THE CONTRACT, Article 10 PROTECTION OF PERSONS AND PROPERTY.
- Item No. 28: SECTION P-157 EROSION, SEDIMENT, AND POLLUTION CONTROL, 157-5.1 BASIS OF PAYMENT, Item P-157e Temporary Erosion Sediment and Pollution Control by Directive, second sentence. **Replace** the phrase “Subsection GCP-90-05” **with** the phrase “SECTION 00 7000 GENERAL CONDITIONS OF THE CONTRACT Article 7 CHANGES IN THE WORK”.
- Item No. 29: SECTION P-157 EROSION, SEDIMENT, AND POLLUTION CONTROL 157-5.1 BASIS OF PAYMENT, Item P-157f Withholding, second sentence. **Replace** the phrase “Subsection GCP-30-05” **with** the phrase “SGC3”.
- Item No. 30: SECTION P-160 EXCAVATION OF PAVEMENT, 160-2.1 b. Disposal. **Replace** “Contractor” **with** “Owner” and **Replace** “off of” **with** “on”. Note to Contractors: the RAP stockpile site is located within the fenced area near Temsco.
- Item No. 31: SECTION P-161 RECYCLED ASPHALT PAVEMENT 161-1.1. **Replace** “NWDA” with “as shown on the plans (inside the fence near the intersection of Livingston and Maplesden)”
- Item No. 32: SECTION P-161 RECYCLED ASPHALT PAVEMENT 161-2.2 PLACEMENT AND SPREADING, second paragraph. **Replace** “State” **with** “Owner
- Item No. 33: SECTION P-165 REMOVAL OF STRUCTURES 165-2.1 a Removed Structures Designated for Disposal. **Delete** “[List specific structures designed for disposal]”
- Item No. 34: SECTION P-401 PLANT MIX ASPHALT PAVEMENT 401-4.2 a Truck Scales. **Delete** last sentence.

- Item No. 35: SECTION P-401 PLANT MIX ASPHALT PAVEMENT 401-4.12 JOINTS, fourth paragraph. **Replace** “surface” **with** “uniform vertical surface for the full depth of the course.”
- Item No. 36: SECTION P-401 PLANT MIX ASPHALT PAVEMENT 401-5.2 e Percentage of Material Within Specification Limits (PWL). **Replace** “the General Provisions” **with** “SECTION GCP FAA GENERAL CONTRACT PROVISIONS”.
- Item No. 37: SECTION P-401 PLANT MIX ASPHALT PAVEMENT 401-8.1 a Basis of Adjusted Payment, first sentence of the second paragraph. **Replace** “the General Provisions” **with** “SECTION GCP FAA GENERAL CONTRACT PROVISIONS”.
- Item No. 38: SECTION P-401 PLANT MIX ASPHALT PAVEMENT 401-8.4 1. **Delete** “P-310, P-602,” and “, P-609, and P-626”.
- Item No. 39: SECTION P-620 RUNWAY AND TAXIWAY PAINTING 620-3.5 APPLICATION, seventh paragraph. **Replace** “State” **with** “Owner” and **Replace** “ADOT Maintenance and” **with** “Airport”.
- Item No. 40: SECTION P-650 AIRCRAFT TIE-DOWN 650-5.1. **Add** “set” to the end of pay item P-650e(1).
- Item No. 41: SECTION P-670 HAZARDOUS AREA BARRIERS 670-1.1, first sentence. **Replace** “subsection 70-09, Barricades, Warning Signs and Hazard Markings” **with** “SECTION 01 5200 SAFETY AND SECURITY”.
- Item No. 42: SECTION P-670 HAZARDOUS AREA BARRIERS 670-1.1, second sentence of second paragraph. **Replace** “not more than 25 feet apart” **with** “as specified on the plans and in the Construction Safety and Phasing Plan”.
- Item No. 43: SECTION P-670 HAZARDOUS AREA BARRIERS 670-3.3 STORAGE. **Replace** “State” **with** “Owner.”
- Item No. 44: SECTION P-670 HAZARDOUS AREA BARRIERS 670-3.3 STORAGE. **Add** “Remove batteries from flashers.”
- Item No. 45: SECTION P-670 HAZARDOUS AREA BARRIERS. **Add** Article 670-3.4.
“670-3.4 MAINTENANCE. Maintain barriers, flashers, and flags in serviceable condition. Replace plastic barriers which no longer hold water ballast. Replace flashers when no longer working. Replace flags when the remaining area of the flag is less than 75% of the original flag area.”
- Item No. 46: SECTION U-700 GROUND LOOP, HORIZONTAL PIPING, 700-1.1 d. (5). **Delete** in its entirety.
- Item No. 47: SECTION U-700 GROUND LOOP, HORIZONTAL PIPING 700-1.6 d. Warranty. **Replace** “substantial” **with** “final”

DRAWINGS:

Item No. 48: **Replace** drawings 4, 12, 14, 22 through 26, 29, AD1, AD2, labeled Addendum 2, with drawings 4, 12, 14, 22 through 26, 29, AD1, AD2, labeled Addendum No. 3.

NOTICE TO CONTRACTOR:

Section P-620-3.5 directs the contractor to "Pressure apply the glass beads in the marked areas at the locations shown on the plans using a mechanical dispenser mounted not more than 12 inches behind the paint dispenser" No exceptions will be allowed. Hand applied beads will be rejected and no payment will be made for that portion of the work.

INFORMATION:

Addendum 1 of the JNU Snow Removal Equipment Building has been posted to the website as in information item, regarding the date of when the Contractor must remove temporary facilities and controls.

Cut-off for questions shall be September 22, 2016, close of business (4:30 pm AST).

CLARIFICATIONS:

Q. Plans do not show a place for excess excavation. Where is excess excavation supposed to be placed?

A. All Excess excavation is to be taken off site. Therefore, excess excavation will belong to the contractor.

Q. What type of material is to be used for the loop field bedding?

A. Loop field bedding is described in P-152, 152.2-1 Material Definitions, i. Bedding.

Q. Electrical Drawings E04 and E05 show 6 taxiway edge reflectors, but the bid schedule asks for 7 and it is under a "P" item, not L.

A. Reflective Marker, Type II, Pay Item P-660b is the same marker as listed on Drawing Sheets E04, E05, and E09.

Q. Pay item L-108a specifies #8 AWG. The electrical legend references #6, Pay item L108c specifies #6 copper ground conductor. The legend references #8.

A. New Bid Schedule reflects correct wire sizes.

By: 

Greg Smith,
Contract Administrator

Total number of pages contained within this Addendum: 23

BID SCHEDULE - 00 4114

BASE BID

PAY ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	APPROX. QUANTITY	UNIT PRICE		AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
D-701a(2)	CPEP Polyethylene Corrugated Pipe, 18-inch	LF	1,430				
D-701a(3)	CPEP Polyethylene Corrugated Pipe, 24-inch	LF	170				
D-751a(1)	Manhole, Type I	Each	6				
D-751a(2)	Manhole, Type II	Each	1				
D-754a	Curb and Gutter	Linear Foot	835				
G-100a(1)	Mobilization and Demobilization	Lump Sum	All Req'd	Lump	Sum		
G-135a(1)	Construction Surveying by the Contractor	Lump Sum	All Req'd	Lump	Sum		
G-135b(1)	Extra Three Person Survey Party	Hour	22				
G-150a(1)	Equipment Rental	Hour	34				
G-400a	Mining Area Restoration and Road Cleaning Guarantee	Contingent Sum	All Req'd	Contingent	Sum	\$ 10,000	00
G-300a(1)	CPM Scheduling	Lump Sum	All Req'd	Lump	Sum		
G-700a(1)	Airport Flagger	Contingent Sum	All Req'd	Contingent	Sum	\$ 16,200	00
L-100e	Taxiway Edge Light, L-861T	Each	13				
L-100h	Remove Runway and Taxiway Light	Each	1				
L-100n	Airport Sign, Type L-858	Each	1				
L-100ap	Spare Parts	Contingent Sum	All Req'd	Contingent	Sum	\$ 3,000	00
L-108a	Underground Cable #6 AWG, Copper, 5kV FAA Type "B" or Type "C" (as specified on Plans), L-824	Linear Foot	1,950				
L-108c	#8 Bare Copper Ground Conductor	Linear Foot	950				
L-110g	2-inch HDPE Conduit	Linear Foot	950				
P-152a	Unclassified Excavation	Cubic Yard	23,495				
P-154b	Subbase Course	Ton	5,295				
P-157a(1)	Erosion, Sediment and Pollution Control Administration	Lump Sum	All Req'd	Lump	Sum		
P157c(1)	Temporary Erosion, Sediment and Pollution Control	Lump Sum	All Req'd	Lump	Sum		

COMPANY NAME _____

BID SCHEDULE - 00 4114

PAY ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	APPROX. QUANTITY	UNIT PRICE		AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
P-157e(1)	Temporary Erosion, Sediment and Pollution Control by Directive	Contingent Sum	All Req'd	Contingent	Sum	\$ 40,500	00
P-157f(1)	Withholding	Contingent Sum	All Req'd	Contingent	Sum	\$ 00	00
P-160a	Excavation of Pavement	Square Yard	4,630				
P-161e	Recycled Asphalt Pavement Placement	Cubic Yard	1,255				
P-209b	Crushed Aggregate Base Course	Ton	7,100				
P-401a(1)	Hot Mix Asphalt Type II, Class B	Ton	4,745				
P-401b(1)	Hot Mix Asphalt Price Adjustment	Contingent Sum	All Req'd	Contingent	Sum	\$ 29,953	00
P-401c(1)	Asphalt Cement, PG 52-28	Ton	265				
P603a	Tack Coat, PG 52-28	Ton	7				
P620c	Runway and Taxiway Painting	Lump Sum	All Req'd	Lump	Sum		
P-620f	Painted Marking Removal	Lump Sum	All Req'd	Lump	Sum		
P-620h	Roadway Painting	Lump Sum	All Req'd	Lump	Sum		
P-650e(1)	Concrete Anchor, 5,000 lbs	Each	21				
P-660b	Reflective Marker, Type II	Each	6				
P-670a	Hazard Marker Barrier, Plastic	Each	48				
T-901a	Seeding	Acre	0.2				
T-901c	Water for Maintenance	M-Gal	135.4				
T-905a	Topsoiling	Square Yard	1,005				
U-100a	Water Main	Lump Sum	All Req'd	Lump	Sum		
U-200a	Sanitary Sewer System	Lump Sum	All Req'd	Lump	Sum		
U-700a	Ground Loop, Horizontal Piping	Lump Sum	All Req'd	Lump	Sum		

TOTAL BASE BID: _____

COMPANY NAME _____

SECTION 100

CONTRACTOR QUALITY CONTROL PROGRAM

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. When required, the Contractor shall establish, provide, and maintain an effective Quality Control Program 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 intent of this section is to enable the Contractor to establish a necessary level of control that will:

- a. Adequately provide for the production of acceptable quality materials.
- b. Provide sufficient information to assure both the Contractor and the Engineer that the specification requirements can be met.
- c. Allow the Contractor as much latitude as possible to develop their own standard of control.

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 Quality Control Program has been reviewed by the Engineer. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed and accepted.

The quality control 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.

Paving projects, with a total project bid over \$500,000, shall have a Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Contractor, subcontractors, and testing laboratories at start of construction. The workshop shall address QC and QA requirements of the project specifications. The Contractor shall coordinate with the Engineer on time and location of the QC/QA workshop.

100-02 DESCRIPTION OF PROGRAM.

- a. **General Description.** The Contractor shall establish a Quality Control Program 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 Quality Control Program shall ensure conformance to applicable specifications and Plans with respect to materials, workmanship, construction, finish, and functional performance. The Quality Control Program 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 quality control.
- b. **Quality Control Program.** The Contractor shall describe the Quality Control Program in a written document which shall be reviewed by the Engineer prior to the start of any production, construction, or off-site fabrication. The written Quality Control Program shall be submitted to the Engineer for review at least 5 calendar days before the preconstruction conference. The Contractor's Quality Control Program and Quality Control testing laboratory must be accepted in writing by the Engineer prior to the preconstruction conference.

The Quality Control Program shall be organized to address, as a minimum, the following items:

- a. Quality control organization;
- b. Project progress schedule;
- c. Submittals schedule;
- d. Inspection requirements;
- e. Quality control testing plan;
- f. Documentation of quality control activities; and
- g. Requirements for corrective action when quality control and/or acceptance criteria are not met.

The Contractor is encouraged to add any additional elements to the Quality Control Program that he/she deems necessary to adequately control all production and/or construction processes required by this contract.

100-03 QUALITY CONTROL ORGANIZATION. The Contractor's Quality Control Program shall be implemented by the establishment of a separate quality control organization. An organizational chart shall be developed to show all quality control personnel and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all quality control staff by name and function, and shall indicate the total staff required to implement all elements of the Quality Control Program, 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 Quality Control Program, the personnel assigned shall be subject to the qualification requirements of Subsection 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The quality control organization shall consist of the following minimum personnel:

- a. **Program Administrator.** The Program Administrator shall be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The Program Administrator shall have a minimum of 5 years of experience in airport and/or highway construction and shall have had prior quality control experience on a project of comparable size and scope as the contract.

Additional qualifications for the Program Administrator shall include 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) An individual with 3 years of highway and/or airport paving experience acceptable to the Engineer, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.
- (4) Construction materials technician certified at Level III by the National Institute for Certification in Engineering Technologies (NICET).
- (5) Highway materials technician certified at Level III by NICET.

(6) Highway construction technician certified at Level III by NICET.

(7) A NICET certified engineering technician in Civil Engineering Technology with 5 years of highway and/or airport paving experience acceptable to the Engineer.

The Program Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the contract Plans and technical specifications. The Program Administrator shall report directly to a responsible officer of the construction firm. The Program Administrator may supervise the Quality Control Program on more than one project provided that person can be at the job site within 2 hours after being notified of a problem.

b. Quality Control Technicians. A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program 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 or higher construction materials technician or highway construction technician and shall have a minimum of 2 years of experience in their area of expertise.

The quality control technicians shall report directly to the Program Administrator 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 Section 100-05; and

(2) Performance of all quality control tests as required by the technical specifications and Section 100-06.

Certification at an equivalent level, by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

c. Staffing Levels. The Contractor shall provide sufficient qualified quality control 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 Quality Control Program shall state where different technicians will be required for different work elements.

100-04 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:

- a. Pay item number;
- b. Item description;
- c. Description of submittal;
- d. Specification Subsection requiring submittal; and
- e. Scheduled date of submittal.

100-05 INSPECTION REQUIREMENTS. Quality control 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 Section 100-07.

Inspections shall be performed daily to ensure continuing compliance with contract requirements until completion of the particular feature of work. These shall include the following minimum requirements:

During plant operation for material production, quality control 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 Quality Control Program shall detail how these and other quality control functions will be accomplished and utilized.

During field operations, quality control 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 Program shall document how these and other quality control functions will be accomplished and utilized.

100-06 QUALITY CONTROL TESTING PLAN. As a part of the overall Quality Control Program, the Contractor shall implement a quality control 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 quality control tests that the Contractor deems necessary to adequately control production and/or construction processes.

The testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

- a. Pay item number (e.g., P-401a);
- b. Item description (e.g., Hot Mix Asphalt, Type II, 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 listed in appendix C when requirements are not stated);
- f. Responsibility (e.g., plant technician); and
- g. Control requirements (e.g., target, permissible deviations).

The 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 quality control sampling and testing.

All quality control test results shall be documented by the Contractor as required by Section 100-07.

100-07 DOCUMENTATION. The Contractor shall maintain current quality control records of all inspections and tests performed. These records shall include factual evidence that the required 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 Contractor's Program Administrator.

Specific Contractor quality control records required for the contract shall include, but are not necessarily limited to, the following records:

a. Daily Inspection Reports. Each Contractor quality control 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 quality control 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) Review of quality control tests; and
- (7) Safety inspection.

The daily inspection reports shall identify inspections 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 quality control technician and the Program Administrator. The Engineer shall be provided at least one copy of each daily inspection report on the work day following the day of record.

b. Daily Test Reports. The Contractor shall be responsible for establishing a system which will record all quality control 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 quality control charts. The daily test reports shall be signed by the responsible quality control technician and the Program Administrator.

100-08 CORRECTIVE ACTION REQUIREMENTS. The Quality Control Program 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 Quality Control Program as a whole, and for individual items of work contained in the technical specifications.

The Quality Control Program shall detail how the results of quality control inspections and tests will be used for determining the need for corrective action and shall contain clear sets of 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 quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

100-09 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 quality control 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 quality control inspections of either on-site or off-site Contractor's or subcontractor's work.

100-10 NONCOMPLIANCE.

- a. The Engineer will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the Engineer or their authorized representative to the Contractor or their authorized representative at the site of the work, shall be considered sufficient notice.
- b. In cases where quality control activities do not comply with either the Contractor's Quality Control Program or the contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the Engineer, the Engineer may:
 - (1) Order the Contractor in writing to replace ineffective or unqualified quality control personnel or subcontractors.
 - (2) Order the Contractor in writing to stop operations until appropriate corrective action is taken.

SECTION 110
METHOD OF ESTIMATING PERCENTAGE OF
MATERIAL WITHIN SPECIFICATION LIMITS (PWL)

110-01 GENERAL. Quality Level Analysis (QLA). 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.

- (1). The arithmetic mean is computed:

$$\bar{X} = \frac{\sum_{i=1}^n X_i}{n}$$

Where: X_i = test result for subplot i.

$\sum_{i=1}^n$ = sum of values from subplot 1 to n.

- (2) 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.

- (3) The Upper Quality Index (Q_U) is computed:

$$Q_U = \frac{USL - \bar{X}}{s}$$

- (4) 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).

- (5) 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.

(6) The pay factor (PF) for any given PWL is:

$$PF = 0.55 + \frac{PWL}{200}$$

Where: PWL varies from 50.000 to 100.000.

ITEM G-400 MINING AREA RESTORATION AND ROAD CLEANING

DESCRIPTION

400-1.1 This item consists of mining area restoration and road cleaning when the Contractor uses CBJ material sources. If CBJ material sources are not used for the project all funds will be returned to the contractor.

REQUIREMENTS

400-2.1 CONTRACTOR RESPONSIBILITIES.

A. The CONTRACTOR shall be responsible for removal of dirt, mud, rocks and other debris from CBJ and State Right-of-Ways accumulated from the hauling and quarry operations. It is the intent that the traveled public way be kept as clean as practical to minimize dust and to avoid unsafe traffic conditions. If the CONTRACTOR fails to perform necessary road cleaning, the CBJ may hire outside forces to perform the work and deduct the cost from this contingent sum item.

B. The CONTRACTOR shall be responsible for restoration of their mining area in accordance to the conditions of the material source used and mining plan submitted. If the CONTRACTOR fails to perform the required mining area restoration, the CBJ may hire outside forces to perform the work and deduct the cost from this contingent sum item.

METHOD OF MEASUREMENT

400-3.1 Measurement for this Item will be made as a Contingent Sum Pay Unit for completion of Mining Area Restoration and Road Cleaning.

BASIS OF PAYMENT

400-4.1 Payment for Mining Area Restoration and Road Cleaning Guarantee will be made at the amount named in the Bid Schedule under Pay Item G-200a. C. Release of final payment for Mining Area Restoration and Road Cleaning Guarantee will be made upon determination of completeness by the Engineer after deduction of Owner incurred costs for necessary road cleaning and/or mining area restoration not completed by the Contractor.

The CBJ will not release performance bonds until all restoration work is completed and all requirements according to Section 00 8000 SGC3 are satisfied.

Payment will be made under:

Item G-200a Mining Area Restoration and Road Cleaning Guarantee - Contingent Sum