



City Council
Regular Meeting
AGENDA

Civic Center Council Chamber ♦ 300 Seminary Avenue ♦ Ukiah, CA 95482
Register for Ukiah City Council Regular Meeting at:

<https://attendee.gotowebinar.com/rt/4910662329263871245>

After registering, you will receive a confirmation email containing information about joining the webinar. Alternatively, you may view the meeting (without participating) by clicking on the name of the meeting at www.cityofukiah.com/meetings.

December 2, 2020 - 5:45 PM

5:45 P.M. MAYOR'S RECEPTION

6:00 - REGULAR MEETING

1. ROLL CALL

2. PLEDGE OF ALLEGIANCE

3. PROCLAMATIONS/INTRODUCTIONS/PRESENTATIONS

- 3.a. Adoption of Resolution Declaring Results of Statewide General Municipal Election of November 3, 2020, and Swearing in Ceremony for Councilmembers Douglas F. Crane and Josefina Duenas.

Recommended Action: 1) Adopt Resolution reciting the fact of the General Municipal Election held on November 3, 2020, Declaring the results and such other matters as provided by law; 2) Direct the City Clerk to enter into the minutes a statement of results; and 3) Direct the City Clerk to present the Certificates of Election and administer the Oath of Office to the newly elected officials.

Attachments:

1. Resolution - Election Results with Exhibit A Placeholder

- 3.b. Annual Appointment of New Mayor and Vice Mayor, and Council Reorganization.

Recommended Action: Nominate and appoint the positions of Mayor and Vice Mayor for 2021, and approve council rotation for immediate seating and Council reorganization.

Attachments:

1. Resolution 2020-50 - Councilmember Rotation Guidelines

4. PETITIONS AND COMMUNICATIONS

5. APPROVAL OF MINUTES

- 5.a. Approval of the Minutes for the November 18, 2020, Regular Meeting.

Recommended Action: Approve the Minutes of November 18, 2020, a Regular Meeting, as submitted.

Attachments:

1. 2020-11-18 Draft Minutes

6. RIGHT TO APPEAL DECISION

Persons who are dissatisfied with a decision of the City Council may have the right to a review of that decision by a court. The City has adopted Section 1094.6 of the California Code of Civil Procedure, which generally limits to ninety days (90) the time within which the decision of the City Boards and Agencies may be judicially challenged.

7. CONSENT CALENDAR

The following items listed are considered routine and will be enacted by a single motion and roll call vote by the City Council. Items may be removed from the Consent Calendar upon request of a Councilmember or a citizen in which event the item will be considered at the completion of all other items on the agenda. The motion by the City Council on the Consent Calendar will approve and make findings in accordance with Administrative Staff and/or Planning Commission recommendations.

- 7.a. Authorize City Manager to Execute Renewal Agreement with Liebert Cassidy Whitmore (LCW) for Special Legal Counsel Services as Needed.

Recommended Action: Authorize the City Manager to execute a renewal agreement with Liebert Cassidy Whitmore (LCW) for special legal counsel services as needed.

Attachments:

1. 2020 Updated City of Ukiah Agreement

- 7.b. Approval of Notice of Completion for the Runway 15-33 Pavement Rehabilitation Project, Specification No. 19-11, and Approve Final Payment and the 5% Retention to Granite Construction Company.

Recommended Action: Approve Notice of Completion for the Runway 15-33 Pavement Rehabilitation Project, Specification No. 19-11 and direct the City Clerk to file the Notice of Completion with the County Recorder.

Attachments:

1. UKI_Rwy 15-33 Specification No 19-11
2. Notice of Completion RWY 15-33 Rehab Project

- 7.c. Council to Consider Approval of the Master Plan for the Development of the Great Redwood Trail- Ukiah Linear Park.

Recommended Action: Approve presented draft Master Plan for the Development of the Great Redwood Trail- Ukiah Linear Park as the Final Approved plan.

Attachments:

1. GRT Ukiah Park Master Plan

- 7.d. Approval of Agreement with NCE of Richmond in the Amount of \$88,900 for Professional Consulting Services Related to a Trench Cut Fee Study and Implementation and Corresponding Budget Amendment.
Recommended Action: Approval of Agreement with NCE of Richmond in the Amount of \$88,900 for Professional Consulting Services Related to a Trench Cut Fee Study and Implementation and Corresponding Budget Amendment.
Attachments:
1. NCE Ukiah Trench Cut Proposal FINAL
- 7.e. Notification of Purchase of Services from DC Electric Group, Inc. of Cotati in the Amount of \$16,270 for the Repair of Traffic Signal Poles and Approval of Corresponding Budget Amendment
Recommended Action: Notification of Purchase of Services from DC Electric Group, Inc. of Cotati in the Amount of \$16,270 for the Repair of Traffic Signal Poles and Approval of Corresponding Budget Amendment
Attachments:
1. Ukiah- Orchard & Perkins- Traffic Signal Pole Replacements
- 7.f. Approval of Amendment No. 1 with GHD, Inc. in the Amount of \$13,623.89 for Additional Investigations and Engineering Analysis for Future Water Storage.
Recommended Action: Approve Amendment No. 1 with GHD, Inc. in the Amount of \$13,623.89 for Additional Investigations and Engineering Analysis for Future Water Storage.
Attachments: None
- 7.g. Report of Acquisition of Professional Services from Alpha Analytical Laboratories, Inc. in the Amount of \$18,917.85 for Quarterly Water Sampling and Completion of Chemical Examination Reports for the Ukiah Landfill.
Recommended Action: Receive and file report of acquisition of professional services from Alpha Analytical Laboratories, Inc. in the amount of \$18,917.85 for quarterly water sampling and completion of chemical examination reports for the Ukiah Landfill. Report is submitted pursuant to City Code.
Attachments:
1. Alpha Analytical Labs Invoices_11Nov2020

8. AUDIENCE COMMENTS ON NON-AGENDA ITEMS

The City Council welcomes input from the audience. If there is a matter of business on the agenda that you are interested in, you may address the Council when this matter is considered. If you wish to speak on a matter that is not on this agenda, you may do so at this time. In order for everyone to be heard, please limit your comments to three (3) minutes per person and not more than ten (10) minutes per subject. The Brown Act regulations do not allow action to be taken on audience comments in which the subject is not listed on the agenda.

9. COUNCIL REPORTS

10. CITY MANAGER/CITY CLERK REPORTS

11. PUBLIC HEARINGS (6:15 PM)

12. UNFINISHED BUSINESS

- 12.a. Receive Status Report and Consider Any Action or Direction Related to the Novel Coronavirus (COVID-19) Emergency Including Operational Preparedness and Response; Continuity of City Operations and Services; Community and Business Impacts; and Any Other Related Matters.
Recommended Action: Receive status report and consider any action or direction related to the Novel Coronavirus (COVID-19) Emergency including operational preparedness and response; continuity of City operations and services; community and business impacts; and any other related matters.

Attachments: None

- 12.b. Update on Emergency Repair of the Yosemite Drive Water Main and Determine that Emergency Conditions Continue to Require the Emergency Repair.
Recommended Action: Determine that emergency conditions continue to require the repair of the Yosemite Drive Water Main without competitive bidding.

Attachments:

1. Resolution 2020-63 Yosemite Drive Water Main Emergency Work

13. **NEW BUSINESS**

- 13.a. Presentation and Discussion on the Redwood Empire Municipal Insurance Fund (REMIF) Merger with Public Agency Risk Sharing Authority of California to Create the California Intergovernmental Risk Sharing Authority (CIRA)
Recommended Action: Receive presentation regarding the merger of the City's liability and workers' compensation Joint Powers Authority (JPA) insurance pool [Redwood Empire Municipal Insurance Fund (REMIF)] with Public Agency Risk Sharing Authority of California (PARSAC) to create the California Intergovernmental Risk Sharing Authority (CIRA).

Attachments:

1. REMIF PARSAC Comparison Checklist
2. CIRA Merger FAQs

- 13.b. Authorization for City Manager to Negotiate and Execute an Agreement with the Mendocino Local Agency Formation Commission to Procure Services for Preparation of the City of Ukiah Municipal Service Review and Sphere of Influence Update; and Approval of Corresponding Budget Amendment.
Recommended Action: Authorize City Manager to negotiate and execute an agreement with the Mendocino Local Agency Formation Commission (LAFCo) to procure services for preparation of the City of Ukiah Municipal Service Review and Sphere of Influence update; and approve corresponding budget amendment.

Attachments: None

- 13.c. Authorization for City Manager to Negotiate and Execute a Month-to-Month Contract with KP Public Affairs.
Recommended Action: Authorize the City Manager to negotiate and execute a month-to-month contract with KP Public Affairs in the amount of \$10,000 per month.

Attachments:

1. Ukiah proposal _KP Public Affairs

- 13.d. Receive Updates on City Council Committee and Ad Hoc Assignments, and, if Necessary, Consider Modifications to Assignments and/or the Creation/Elimination of Ad Hoc(s).
Recommended Action: Receive report(s). The Council will consider modifications to committee and ad hoc assignments along with the creation/elimination ad hoc(s).
Attachments:

1. 2020 City Council Special Assignments

14. CLOSED SESSION - CLOSED SESSION MAY BE HELD AT ANY TIME DURING THE MEETING

- 14.a. **Conference with Legal Counsel—Anticipated Litigation**
(Government Code Section 54956.9(d)(2))
Significant exposure to litigation pursuant to Government Code Section 54956.9(d)(2)(Number of potential cases: 3)
Recommended Action: Confer in Closed Session
Attachments: None
- 14.b. **Conference with Legal Counsel—Anticipated Litigation**
(Government Code Section 54956.9(d)(4))
Deciding whether to initiate litigation pursuant to paragraph (4) of subdivision (d) of Government Code Section 54956.9 (Potential Cases: 1)
Recommended Action: Confer in Closed Session
Attachments: None
- 14.c. **Conference with Legal Counsel – Existing Litigation**
(Government Code Section 54956.9(d)(1))
Name of case: Vichy Springs Resort v. City of Ukiah, Et Al; Case No. SCUk-CVPT-2018-70200
Recommended Action: Confer in Closed Session
Attachments: None
- 14.d. **Conference with Legal Counsel – Existing Litigation**
(Cal. Gov't Code Section 54956.9(d)(1))
Name of case: City of Ukiah v. Questex, LTD, et al, Mendocino County Superior Court, Case No. SCUk- CVPT-15-66036
Recommended Action: Confer in Closed Session
Attachments: None
- 14.e. **Conference with Labor Negotiator (54957.6)**
Agency Representative: Sage Sangiacomo, City Manager
Employee Organizations: All Bargaining Units
Recommended Action: Confer in Closed Session
Attachments: None

14.f. **Conference with Real Property Negotiators**

(Cal. Gov't Code Section 54956.8)

Property: APN Nos: 157-050-03, 157-060-02, 157-050-04, 157-050-03, 157-030-02, 157-050-01, 157-050-02, 157-050-10, 157-050-09, 157-070-01, 157-070-02, 003-190-01

Negotiator: Sage Sangiacomo, City Manager;

Negotiating Parties: Dave Hull and Ric Piffero

Under Negotiation: Price & Terms of Payment

Recommended Action: Confer in Closed Session

Attachments: None

15. ADJOURNMENT

Please be advised that the City needs to be notified 72 hours in advance of a meeting if any specific accommodations or interpreter services are needed in order for you to attend. The City complies with ADA requirements and will attempt to reasonably accommodate individuals with disabilities upon request. Materials related to an item on this Agenda submitted to the City Council after distribution of the agenda packet are available for public inspection at the front counter at the Ukiah Civic Center, 300 Seminary Avenue, Ukiah, CA 95482, during normal business hours, Monday through Friday, 8:00 am to 5:00 pm.

I hereby certify under penalty of perjury under the laws of the State of California that the foregoing agenda was posted on the bulletin board at the main entrance of the City of Ukiah City Hall, located at 300 Seminary Avenue, Ukiah, California, not less than 72 hours prior to the meeting set forth on this agenda.

Kristine Lawler, City Clerk

Dated: 11/25/2020



AGENDA SUMMARY REPORT

SUBJECT: Adoption of Resolution Declaring Results of Statewide General Municipal Election of November 3, 2020, and Swearing in Ceremony for Councilmembers Douglas F. Crane and Josefina Duenas.

DEPARTMENT: City Clerk

PREPARED BY: Kristine Lawler, City Clerk

PRESENTER: Kristine Lawler, City Clerk

ATTACHMENTS:

1. Resolution - Election Results with Exhibit A Placeholder

Summary: The City Council is being asked to adopt a resolution reciting the fact of the General Municipal Election held on November 3, 2020, declaring the results and such other matters as provided by law; direct the City Clerk to enter into the minutes a statement of results, and direct the City Clerk to present the Certificates of Election and administer the Oaths of Office to the newly elected officials.

Background: The City of Ukiah consolidates the municipal election with the County of Mendocino. The *Certificate of County Clerk to Result of the Canvass of the Statewide General Election Held on November 3, 2020*, has been received by the City Clerk (Exhibit A to Attachment 1.)

Discussion: Pursuant to Election code §10262, 10263, and 10264, City Council shall adopt the Resolution (Attachment 1) declaring the results of the General Municipal Election of November 3, 2020, before installing new officers and the City Clerk shall enter into the minutes a statement of results.

Pursuant to election code §10265, the City Clerk shall present the Certificate of Election and administer the Oaths of Office for the two newly elected City Council members.

Recommended Action: 1) Adopt Resolution reciting the fact of the General Municipal Election held on November 3, 2020, Declaring the results and such other matters as provided by law; 2) Direct the City Clerk to enter into the minutes a statement of results; and 3) Direct the City Clerk to present the Certificates of Election and administer the Oath of Office to the newly elected officials.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: City Manager's Office

Approved: 
Sage Sangiacomo, City Manager

RESOLUTION NO. 2020-

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF UKIAH CALIFORNIA, RECITING THE FACT OF THE GENERAL MUNICIPAL ELECTION HELD ON NOVEMBER 3, 2020, DECLARING THE RESULT AND SUCH OTHER MATTERS AS PROVIDED BY LAW

WHEREAS, a General Municipal Election was held and conducted in the City of Ukiah, California, on Tuesday, November 3, 2020, as required by law; and

WHEREAS, notice of the election was given in time, form and manner as provided by law; that voting precincts were properly established; that election officers were appointed and that in all respects the election was held and conducted and the votes were cast, received and canvassed and the returns made and declared in time, form and manner as required by the provisions of the Elections Code of the State of California for the holding of elections in general law cities; and

WHEREAS, the City Council of the City of Ukiah has reviewed the *Certificate of County Clerk to Result of the Canvass of the November 3, 2020, Statewide General Election* based on the Statement of All Votes Cast provided by the County Clerk of Mendocino County (pursuant to Resolution No. 2020-32 of the City Council of the City of Ukiah) and attached as Exhibit A; and

WHEREAS, subject to receipt of the Certificate of the County Clerk of the result of the County Clerk's canvass of the Consolidated Election Results for the November 3, 2020, General Municipal and Statewide General Election, the City Council finds as a result of said count and review that the number of votes cast, the names of the persons voted for, and other matters as required by law are as hereinafter stated.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF UKIAH, CALIFORNIA, DOES RESOLVE, DECLARE, DETERMINE AND ORDER AS FOLLOWS:

SECTION 1. That the whole number of ballots cast in the City of Ukiah was 7,081, with 10,555 ballots cast for all candidates (*some ballots having votes for two candidates*).

SECTION 2. That the names of persons voted for at the election for Councilmember are as follows: Douglas F. Crane, Josefina Duenas, Jenny Kimbler, Stephen G. Scalmanini, Ed Donovan, Cameron Ramos, and Brian Eriksen.

SECTION 3. The City Clerk shall enter on the records of the City Council for the City of Ukiah, a statement of the result of the election, showing: (1) The whole number of ballots cast; (2) The names of the persons voted for; (3) For what office each person was voted for; (4) The number of votes given at each precinct to each person; also attached as Exhibit A.

SECTION 4. The City Council does declare and determine that the following persons were elected as Members of the City Council for a full term of four years, terms ending in the year of 2024: Douglas F. Crane with 1,995 votes and Josefina Duenas with 1,947 votes.

SECTION 5. That the City Clerk shall immediately make and deliver to each of the persons so elected a Certificate of Election signed by the City Clerk and authenticated; that the City Clerk shall also administer to each person elected the Oath of Office prescribed in the Constitution of the State of California and shall have them subscribe to it and file it in the office of the City Clerk. Each and all of the persons so elected shall then be inducted into the respective office to which they have been elected.

SECTION 6. That the City Clerk shall certify to the passage and adoption of this Resolution and enter it into the book of original Resolutions.

PASSED AND ADOPTED this 2nd day of December 2020, by the following roll call vote.

AYES:

NOES:

ABSENT:

ABSTAIN:

Douglas F. Crane, Mayor

ATTEST:

Kristine Lawler, City Clerk

EXHIBIT A SHALL BE FORTHCOMING

Placeholder:

CITY OF UKIAH MEMBER, CITY COUNCIL - Vote for no more than 2							
Polling Places			Voters				
Counted	Total	Percent	Ballots	Registered	Percent		
4	4	100.00%	7,081	8,820	80.28%		
Choice	Party	Vote By Mail		Polling		Total	
DOUGLAS F. CRANE		1,994	18.90%	1	16.67%	1,995	18.90%
JOSEFINA DUENAS		1,947	18.46%	0	0.00%	1,947	18.45%
JENNY KIMBLER		1,752	16.61%	2	33.33%	1,754	16.62%
STEPHEN G. SCALMANINI		1,724	16.34%	1	16.67%	1,725	16.34%
ED DONOVAN		1,315	12.47%	1	16.67%	1,316	12.47%
CAMERON RAMOS		1,128	10.69%	1	16.67%	1,129	10.70%
BRIAN ERICKSON		689	6.53%	0	0.00%	689	6.53%
Cast Votes:		10,549	100.00%	6	100.00%	10,555	100.00%
Undervotes:		3,589		2		3,591	
Overvotes:		8		0		8	



AGENDA SUMMARY REPORT

SUBJECT: Annual Appointment of New Mayor and Vice Mayor, and Council Reorganization.

DEPARTMENT: City Clerk

PREPARED BY: Kristine Lawler, City Clerk

PRESENTER: Kristine Lawler, City Clerk

ATTACHMENTS:

1. Resolution 2020-50 - Councilmember Rotation Guidelines

Summary: Council will appoint a new Mayor and Vice Mayor with the assistance of Resolution No. 2020-50, which gives guidelines for the annual rotation and seating arrangement, after which the Council will take their new preverbal seats on the Dais.

Background: In September 2020, following the review of an ad hoc committee to review the mayoral rotation, the City Council adopted Resolution 2020-50 (Attachment 1) which provided new guidelines for Council rotation and appointment of the Mayor and Vice Mayor.

Per Resolution 2020-50, the naming of the Mayor and Vice Mayor takes place annually at the regular meeting in December when the election results are presented.

Discussion: Using the councilmember information below, and the guidelines from Resolution 2020-50 - excerpt also below, suggested rotations have been listed beneath the councilmember and resolution information.

COUNCILMEMBER INFORMATION:

DOUGLAS F. CRANE:

Year Took Office – 11/2004

Served as Mayor – 2020

JUAN V. OROZCO

Year Took Office – 11/2018

Served as Vice Mayor – 2020

JIM O. BROWN:

Year Took Office – 11/2014

Occupied Seat #2 – 2020

MAUREEN MULHEREN:

Year Took Office – 11/2014

Occupied Seat #1 – 2020

JOSEFINA DUEÑAS

Newly Elected – 11/2020

Not Yet Seated

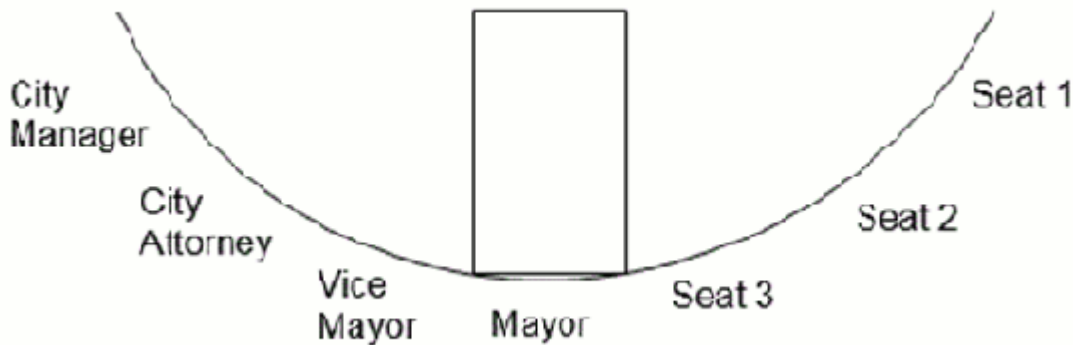
2020 Seat Formation:

MAYOR	Douglas F. Crane
VICE MAYOR	Juan V. Orozco
SEAT 3 - next to Mayor	Stephen G. Scalmanini
SEAT 2 - middle	Jim O. Brown
SEAT 1 - far right	Maureen Mulheren

EXCERPT FROM RESOLUTION 2020-50:

Rotation is based on the following seating arrangement:

Seat 1 – Farthest to Mayor's right
Seat 2 – Middle seat to Mayor's right
Seat 3 – Directly to Mayor's right
Vice Mayor
Mayor



Each year, all members will rotate as follows:

- Seat 1 to Seat 2
- Seat 2 to Seat 3
- Seat 3 to Vice Mayor
- Vice Mayor to Mayor
- Outgoing Mayor to Seat 1

Incoming Councilmembers:

- Outgoing Mayor will rotate into Seat 1.
- New member will rotate into Seat 2;
- If there are two new members, then they will rotate into Seat 2 & 3.

- If there are three new members, then incoming members will go into Seat 2, 3, and the Vice Mayor position, with the member having received the most votes going into the Vice Mayor position, and the member with the least votes going into Seat 2.
- Appointed members to unfulfilled terms will be treated as new members in respect to the rotations.

If a Councilmember declines to serve as Vice Mayor, the Council will decide by formal action where the member will fit into the rotation at the December meeting. The Council has the ultimate discretion to elect or not elect any Councilmember for any office at the December meeting.

SUGGESTED ROTATION:

MAYOR	Juan V. Orozco
VICE MAYOR	Jim O. Brown
SEAT 3 - next to Mayor	Maureen Mulheren
SEAT 2 - middle	Josefina Dueñas
SEAT 1 - far right	Douglas F. Crane

Vice Mayor Orozco to Mayor – as the Vice Mayor moves to the Mayor position.

Mayor Crane to Seat #1 – as outgoing Mayor moves to Seat #1

Councilmember Brown to Vice Mayor – as departing Councilmember Scalmanini leaves the next in-line position for Vice Mayor to Councilmember Brown.

Councilmember Mulheren to Seat #3 – as Seat #2 will be occupied by incoming councilmember.

Councilmember Dueñas to Seat #2 – as new member will rotate into Seat #2

Having stated the various provisions, Resolution 2020-50 also asserts that the Council has the ultimate discretion to elect or not elect any Councilmember for any office at the December meeting.

Please note that as it is anticipated that Councilmember Mulheren's seat will be vacant beginning in January 2021, the seating arrangement may come back to Council for further consideration at that time.

Recommended Action: Nominate and appoint the positions of Mayor and Vice Mayor for 2021, and approve council rotation for immediate seating and Council reorganization.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: City Manager's Office

Approved: 
Sage Sangiacomo, City Manager

RESOLUTION NO. 2020-50**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF UKIAH AMENDING RULES GOVERNING COUNCIL MEETINGS****WHEREAS,**

1. The City Council has adopted by resolution Procedures of Conduct for City Council Meetings, last revised on November 2, 2011 ("Procedures"); and
2. The City Council has determined to revise the rules governing the Mayoral Rotation and Seating Arrangement for Council.

NOW, THEREFORE, BE IT RESOLVED that the title and Section 7 of the Procedures are amended as follows:

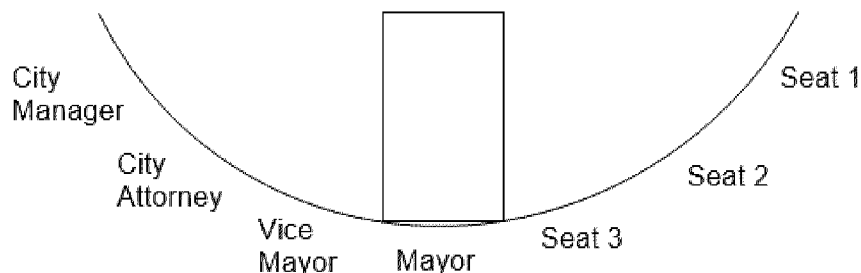
TITLE: City of Ukiah City Council Meeting Procedures

SECTION 7. VOTING PROCEDURE**I. Mayoral Rotation and Seating Arrangement for Council**

It is the policy of the City Council that the office of Mayor be rotated among the members of the City Council and that the Mayor shall serve a term of one year or until a successor is appointed. The City Council shall choose one of its members as Mayor, and one of its members as Vice Mayor, at the regular meeting in the month of December when the election results are presented.

Rotation is based on the following seating arrangement:

Seat 1 – Farthest to Mayor's right
 Seat 2 – Middle seat to Mayor's right
 Seat 3 – Directly to Mayor's right
 Vice Mayor
 Mayor



Each year, all members will rotate as follows:

- Seat 1 to Seat 2
- Seat 2 to Seat 3
- Seat 3 to Vice Mayor
- Vice Mayor to Mayor
- Outgoing Mayor to Seat 1

Incoming Councilmembers:

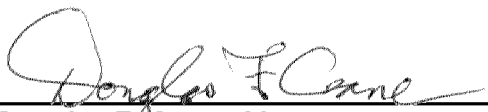
- Outgoing Mayor will rotate into Seat 1.
- New member will rotate into Seat 2;
- If there are two new members, then they will rotate into Seat 2 & 3.
- If there are three new members, then incoming members will go into Seat 2, 3, and the Vice Mayor position, with the member having received the most votes going into the Vice Mayor position, and the member with the least votes going into Seat 2.
- Appointed members to unfulfilled terms will be treated as new members in respect to the rotations.

If a Councilmember declines to serve as Vice Mayor, the Council will decide by formal action where the member will fit into the rotation at the December meeting. The Council has the ultimate discretion to elect or not elect any Councilmember for any office at the December meeting.

BE IT FURTHER RESOLVED that the amended version of Section 7 as contained in this Resolution shall replace Section 7 in the City Council Meeting Procedures as it read prior to the adoption of this Resolution.

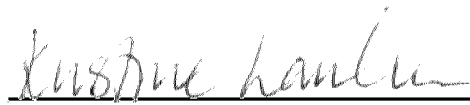
PASSED AND ADOPTED this 2nd day of September, 2020, by the following roll call vote:

AYES: Councilmembers Mulheren, Brown, Scalmanini, Orozco, and Mayor Crane
NOES: None
ABSENT: None
ABSTAIN: None



Douglas F. Crane, Mayor

ATTEST:



Kristine Lawler, City Clerk

(Option A from the 9-2-2020, 12d Staff Report)

**CITY OF UKIAH
CITY COUNCIL MINUTES
Regular Meeting
CIVIC CENTER COUNCIL CHAMBERS**

Virtual Meeting Link: <https://attendee.gotowebinar.com/rt/7607882002839353870>

Ukiah, CA 95482
November 18, 2020
6:00 p.m.

1. ROLL CALL

Ukiah City Council met at a Regular Meeting on January 15, 2020, having been legally noticed on January 10, 2020. The meeting was held virtually at the following meeting link: <https://attendee.gotowebinar.com/rt/7607882002839353870>. Mayor Crane called the meeting to order at 6:00 p.m. Roll was taken with the following **Councilmembers Present:** Maureen Mulheren, Jim O. Brown, Stephen G. Scalmanini, Juan V. Orozco, and Douglas F. Crane. **Staff Present:** Sage Sangiacomo, City Manager; David Rapport, City Attorney; and Kristine Lawler, City Clerk.

MAYOR CRANE PRESIDING.

2. PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Vice Mayor Orozco.

URGENCY ITEM

URGENCY ITEM - Update on Emergency Repair of the Yosemite Drive Water Main and Determine that Emergency Conditions Continue to Require the Emergency Repair.

Presenter: Sage Sangiacomo, City Manager.

Motion/Second: Mulheren/Brown to accept Urgency Item and place as Agenda Item 13c. Motion **carried** by the all votes: AYES: Mulheren, Brown, Scalmanini, Orozco, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

3. PROCLAMATIONS/INTRODUCTIONS/PRESENTATIONS

4. PETITIONS AND COMMUNICATIONS

5. APPROVAL OF MINUTES

a. Approval of the Minutes for the November 4, 2020, Special Meeting.

b. Approval of the Minutes for the November 4, 2020, Regular Meeting.

Motion/Second: Mulheren/Brown to approve Special and Regular Minutes of November 4, 2020, as submitted. Motion **carried** by the following roll call votes: AYES: Mulheren, Brown, Scalmanini, Orozco, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

6. RIGHT TO APPEAL DECISION

7. CONSENT CALENDAR

a. Report of Disbursements for the Month of October 2020 – Finance.

- b. Consideration of Adoption of the State of California Governor's Designation of Applicant's Agent Resolution (*non-City resolution*) Allowing the City Manager to Apply for Public Assistance and Recovery Funding – *Office of Emergency Services*.
- c. Consideration of Adoption of a Resolution (2020-64) Terminating the Proclamation of a Local Emergency Due to Extreme Heat Emergency – *Office of Emergency Services*.
- d. Approval of Notice of Completion for the 2020 Slurry Seal of Local Streets Project, Specification No. 20-01 and Approval of Corresponding Budget Amendment – *Public Works*.
- e. Approval of Notice of Completion for the Gobbi Street Underground District No. 3, Specification No. 19-03, and Approve the Final Payment of the 5% Retention to St. Francis Electric, LLC – *Electric Utility*.
- f. Approve Professional Services Contract Amendment No. 1 (*COU No. 1617-091-A1*) with L.S. Mitchell Architect, Inc. to Increase Contract Funding for Engineering and Construction Services for the 1350 Hastings Road Property in an Amount Not to Exceed \$45,000 – *Electric Utility*.
- g. Consideration of City of Ukiah's Community Green Lighting Program to Enhance and Promote Energy Conservation, and Approval of LED Lighting Rebate – *Electric Utility*.

Motion/Second: Brown/Orozco to approve Consent Calendar Items 7a-7g, as submitted. Motion **carried** by the following roll call votes: AYES: Mulheren, Brown, Scalmanini, Orozco, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

8. AUDIENCE COMMENTS ON NON-AGENDA ITEMS

Public Comment: Larry Olsen – tobacco product concerns.

9. COUNCIL REPORTS

Presenter: Councilmember Mulheren.

10. CITY MANAGER/CITY CLERK REPORTS

Presenter: Sage Sangiacomo, City Manager.

11. PUBLIC HEARINGS (6:15 PM)

12. UNFINISHED BUSINESS

- a. **Receive Status Report and Consider Any Action or Direction Related to the Novel Coronavirus (COVID-19) Emergency Including Operational Preparedness and Response; Continuity of City Operations and Services; Community and Business Impacts; and Any Other Related Matters.**

Presenters: Tami Bartolomei, Office of Emergency Management Coordinator and Lucy Kramer, North Coast Opportunities.

Reports were received.

b. Consideration and Possible Approval of Option #2 in the October 20, 2020, Mead & Hunt Technical Memorandum (Attachment 1) to Protect for a Future 5,000-Foot Runway for CalFire and Other Operations; and Direction to Staff to Communicate Council's Recommendation to the Mendocino County Airport Land Use Commission.

Presenters: Craig Schlatter, Community Development Director and Greg Owen, Airport Manager.

Motion by Councilmember Scalmanini to approve Option #2 with the added obligation to include in the study how far south the runway can go.

After further consideration Councilmember Scalmanini modified his motion as follows:

Motion by Councilmember Scalmanini to approve Option #2 with the added obligation to include in the study how far south the runway can go, and to extend the grey line [on the runway diagram presented to Council] to include an additional 100 feet.

After additional discussion the motion was modified as follows:

Motion/Second: Scalmanini/Orozco to approve Option #2* in the October 20, 2020, Mead & Hunt Technical Memorandum within Attachment 1 (*attached to minutes for reference*) to protect for a future 5,000-foot runway for CalFire and other operations; and direct staff to communicate Council's direction to the Mendocino County Airport Land Use Commission, adding the modification that within Option #2 that the technical memorandum refer to the City's GIS map on file to ensure that the map aligns with the map presented to council. Motion **carried** by the following roll call votes: AYES: Mulheren, Brown, Scalmanini, Orozco, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

**Option #2: Immediately modify the draft ALUCP to include compatibility zone boundaries and/or criteria that would better preserve the potential for a longer runway. Any such modifications will need to be based upon features depicted in the 2019 ALP, specifically the current and proposed aviation easements. This can most readily be achieved by creating a Compatibility Zone 1*. This concept is supported by the existence of the A* Zone in the 1996 ACLUP.*

Further, to reflect the fact that the affected area is mostly private property, the criteria should be less restrictive than for Zone 1 but more restrictive than the Zone 2 criteria. For example, future uses could be limited to very-low-intensity activities (30 people per acre maximum) such as storage or light industrial with uses such as retail, offices, and residential prohibited. Limits on the size of buildings also could be set.

13. NEW BUSINESS

a. Consideration of Adoption of a Resolution Adopting the 2020 Multi-Jurisdictional Hazard Mitigation Plan for Mendocino County.

Presenters: Tami Bartolomei, Office of Emergency Management Coordinator and Torie Jarvis, Dynamic Planning – Planning Manager.

Motion/Second: Brown/Orozco to adopt the Resolution (2020-65) adopting the Mendocino County Multi-Jurisdictional Hazard Mitigation Plan required by Federal Emergency Management Agency (FEMA) to apply for funding under FEMA's Hazard Mitigation Assistance Program. Motion **carried** by the following roll call votes: AYES: Mulheren, Brown, Scalmanini, Orozco, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

b. Receive Updates on City Council Committee and Ad Hoc Assignments and, if Necessary, Consider Modifications to Assignments and/or the Creation/Elimination of Ad hoc(s).

Presenter: Sage Sangiacomo, City Manager.

Report was received.

c. Update on Emergency Repair of the Yosemite Drive Water Main and Determine that Emergency Conditions Continue to Require the Emergency Repair.

Presenter: Tim Eriksen, Public Works Director; City Engineer.

Motion/Second: Brown/Mulheren to determine that emergency conditions continue to require the repair of the Yosemite Drive Water Main without competitive bidding.

14. CLOSED SESSION

a. Conference with Legal Counsel—Anticipated Litigation

(Government Code Section 54956.9(d)(2))

Significant exposure to litigation pursuant to Government Code Section 54956.9(d)(2)(Number of potential cases: 3)"

b. Conference with Legal Counsel—Anticipated Litigation

(Government Code Section 54956.9(d)(4))

Deciding whether to initiate litigation pursuant to paragraph (4) of subdivision (d) of Government Code Section 54956.9 (Potential Cases: 1)"

c. Conference with Legal Counsel – Existing Litigation

(Government Code Section 54956.9(d)(1))

Name of case: Vichy Springs Resort v. City of Ukiah, Et Al; Case No. SCUK-CVPT-2018-70200

d. Conference with Legal Counsel – Existing Litigation

(Cal. Gov't Code Section 54956.9(d)(1))

Name of case: City of Ukiah v. Questex, LTD, et al, Mendocino County Superior Court, Case No. SCUK- CVPT-15-66036

e. Conference with Labor Negotiator (54957.6)

Agency Representative: Sage Sangiacomo, City Manager

Employee Organizations: All Bargaining Units

f. Conference with Real Property Negotiators

(Cal. Gov't Code Section 54956.8)

Property: APN Nos: 157-050-03, 157-060-02, 157-050-04, 157-050-03, 157-030-02, 157-050-01, 157-050-02, 157-050-10, 157-050-09, 157-070-01, 157-070-02, 003-190-01

Negotiator: Sage Sangiacomo, City Manager; Negotiating Parties: Dave Hull and Ric Piffero
Under Negotiation: Price & Terms of Payment

No Closed Session was held.

15. ADJOURNMENT

There being no further business, the meeting adjourned at 8:14 p.m.

Kristine Lawler, City Clerk



AGENDA SUMMARY REPORT

SUBJECT: Authorize City Manager to Execute Renewal Agreement with Liebert Cassidy Whitmore (LCW) for Special Legal Counsel Services as Needed.

DEPARTMENT: Human Resources / Risk
Management

PREPARED BY: Sheri Mannion, H.R. Director/Risk
Manager

PRESENTER: Consent Calendar

ATTACHMENTS:

1. 2020 Updated City of Ukiah Agreement

Summary: Council is being asked to authorize the City Manager to execute a renewal agreement with Liebert Cassidy Whitmore (LCW) on a time and expense basis for labor related legal services.

Background: The City of Ukiah has been utilizing the legal firm Liebert Cassidy Whitmore (LCW) since 2006 to provide consulting, representation, and legal services pertaining to employment relations matters, including negotiations and in administrative and court proceedings, as outlined in the Agreement for Special Services (Attachment 1).

Discussion: Based on the ongoing relationship between the City and this firm, staff is recommending continued utilization of the firm's services. LCW has extensive experience working with public sector clientele throughout the state and has a staff of over 20 partners and associates in the San Francisco Office.

Staff recommends authorizing the City Manager to execute a renewal agreement with LCW (Attachment #1).

Recommended Action: Authorize the City Manager to execute a renewal agreement with Liebert Cassidy Whitmore (LCW) for special legal counsel services as needed.

BUDGET AMENDMENT REQUIRED: None

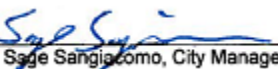
CURRENT BUDGET AMOUNT: \$55,000

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: 20016100.52150

PREVIOUS CONTRACT/PURCHASE ORDER NO.: 1617175

COORDINATED WITH:

Approved: 
Sage Sangiacomo, City Manager

AGREEMENT FOR SPECIAL SERVICES

This Agreement is entered into between the law firm of LIEBERT CASSIDY WHITMORE, A Professional Corporation (“Attorney”), and the CITY OF UKIAH, A Municipal Corporation (“City”).

1. Conditions

This Agreement will not take effect, and Attorney will have no obligation to provide services, until City returns a properly signed and executed copy of this Agreement.

2. Attorney’s Services

Attorney agrees to provide City with consulting, representational and legal services pertaining to employment relations matters, including representation in negotiations and in administrative and court proceedings, as requested by City or otherwise required by law.

3. Fees, Costs, Expenses

City agrees to pay Attorney the sums billed monthly for time spent by Attorney in providing the services, including reasonable travel time.

The current range of hourly rates for Attorney time is from Two Hundred Ten to Three Hundred Eighty Dollars (\$210.00 - \$380.00). See Schedule I for a full Fee Schedule. Attorney reviews its hourly rates on an annual basis and, if appropriate, adjusts them effective July 1. Attorney will provide the City with written notification of any adjustment in the range of rates. Attorney bills its time in minimum units of one-tenth of an hour.

For Litigation Matters

See Schedule II attached for a description of Attorney's Litigation and E-Discovery Management.

Other Expenses

City agrees to reimburse Attorney for necessary costs and expenses incurred by Attorney on behalf of City. Attorney bills photocopying charges at Fifteen Cents (\$0.15) per page. See Schedule I attached.

Payment by City against monthly billings is due upon receipt of statements, and is considered delinquent if payment is not received within thirty (30) days of the date of the invoice.

4. Professional Liability Insurance

The California Business & Professions Code requires us to inform you whether we maintain errors and omissions insurance coverage applicable to the services to be rendered to you. We hereby confirm that the firm does maintain such insurance coverage.

5. Arbitration of Professional Liability or Other Claims

Disputes. If a dispute between City and Attorney arises over fees charged for services, the controversy will be submitted to binding arbitration in accordance with the rules of the California State Bar Fee Arbitration Program, set forth in California Business and Professions Code, sections 6200 through 6206. The arbitrator or arbitration panel shall have the authority to award to the prevailing party attorneys' fees, costs and interest incurred. Any arbitration award may be served by mail upon either side and personal service shall not be required.

If a dispute arises between City and Attorney over any other aspect of the attorney-client relationship, including, without limitation, a claim for breach of professional duty, that dispute will also be resolved by arbitration. It is understood that any dispute as to any alleged breach of professional duty (that is, as to whether any legal services rendered under this agreement were allegedly unnecessary, unauthorized, omitted entirely, or were improperly, negligently or incompetently rendered) will be determined by submission to arbitration as provided by California law, and not by a lawsuit or resort to court process except as California law provides for judicial review of arbitration proceedings. **Both parties to this agreement, by entering into it, are giving up their constitutional right to have any such dispute decided in a court of law before a jury, and instead are accepting the use of arbitration.** Each party is to bear its own attorney's fees and costs.

6. File Retention

After our services conclude, Attorney will, upon City's request, deliver the file for the matter to City, along with any funds or property of City's in our possession. If City requests the file for the matter, Attorney will retain a copy of the file at the City's expense. If City does not request the file for this matter, we will retain it for a period of seven (7) years after this matter is closed. If City does not request delivery of the file for this matter before the end of the seven (7) year period, we will have no further obligation to retain the file and may, at our discretion, destroy it without further notice to City. At any point during the seven (7) year period, City may request delivery of the file.

7. **Assignment**

This Agreement is not assignable without the written consent of City.

8. **Independent Contractor**

It is understood and agreed that Attorney, while engaged in performing the terms of this Agreement, is an independent contractor and not an employee of City.

9. **Authority**

The signators to this Agreement represent that they hold the positions set forth below their signatures, and that they are authorized to execute this Agreement on behalf of their respective parties and to bind their respective parties hereto.

10. **Term**

This Agreement is effective November 18, 2020, ongoing and may be modified by mutual agreement of the parties. This agreement shall be terminable by either party upon thirty (30) days written notice.

LIEBERT CASSIDY WHITMORE,
A Professional Corporation

CITY OF UKIAH,
A Municipal Corporation

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

SCHEDULE I – FEES & COSTS

1. Hourly Rates (As of Agreement Effective Date)

Partners	\$380.00
Senior Counsel	\$325.00
Associates	\$210.00 - \$305.00
Labor Relations/HR Consultant	\$240.00
Paralegals	\$135.00
E- Discovery Specialists	\$135.00
Law Clerks	\$135.00 - \$175.00

2. COSTS

1. Photocopies	\$0.15 per copy
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SCHEDULE II

LCW LITIGATION and E-DISCOVERY MANAGEMENT

LCW is committed to using state-of-the-art technology to efficiently manage and harness electronically-stored information (“ESI”) in compliance with Federal and State law requirements. LCW partners with an outside managed services provider to provide Relativity, the industry leading e-discovery software, for this purpose. The cost for each matter will depend on the volume and format of the data. For non-complex data up to 50 gigabytes, LCW charges a monthly fee of \$375 on all active litigation matters for data management, including data validation and security, ingestion, de-duplication, culling and streamlining, and creation of Relativity fields for expedited review. For data of 50 gigabytes and over and for complex data requiring specialized services (e.g., payroll data, spreadsheets with underlying formulas, video, advanced searches, etc.), additional charges are incurred and are passed through to the client. For such charges, we will provide an itemized bill from our managed services provider and obtain client approval prior to incurring the charges.

Litigation Case Staffing

LCW has organized its litigation practice to meet the challenges of today’s complex litigation cases. We employ a dedicated Litigation Manager – a non-billing attorney litigator – whose responsibility is to monitor all litigation cases to ensure quality, efficiency, and adherence to client and firm litigation guidelines. Each litigation case is staffed with a Partner, an Associate (or Associates, as required and as approved by the Client), a Paralegal and an E-Discovery Specialist. Our E-Discovery Specialists have extensive experience in the efficient management of electronic data through every stage of the e-discovery life cycle, and they strategize with attorneys and clients on effective ESI protocols. This makes the document review process more efficient and enables our attorneys to target the most relevant data to meet litigation objectives. Working with our e-discovery managed services provider, we are able to provide state-of-the-art data processing and hosting services at below-market rates.



AGENDA SUMMARY REPORT

SUBJECT: Approval of Notice of Completion for the Runway 15-33 Pavement Rehabilitation Project, Specification No. 19-11, and Approve Final Payment and the 5% Retention to Granite Construction Company.

DEPARTMENT: Airport **PREPARED BY:** Greg Owen, Airport Manager

PRESENTER: Consent Calendar

ATTACHMENTS:

1. UKI_Rwy 15-33 Specification No 19-11
2. Notice of Completion RWY 15-33 Rehab Project

Summary: Council is being asked to approve a Notice of Completion for the Runway 15-33 Pavement Rehabilitation Project, Specification No. 19-11, and to approve final payment and the 5% retention to Granite Construction Company.

Background: The project was awarded to Granite Construction Company on Wednesday, July 17, 2019, in the amount of \$3,425,623.95. The project included all labor and materials for the rehabilitation of the 75-foot center section of runway 15-33 and rehabilitation of the remaining pavement edges. The construction of new taxiway connector A2 also was performed to comply with FAA standards; this construction also included the demolition of Taxiways B.

Discussion: The contracted work was completed by the contractor in conformance with the approved plans and specifications on July 29, 2020 (Attachment 1). The original awarded unit price contract amount, based on estimated quantities, was \$3,425,623.95, with actual quantities resulting in a final contract amount of \$3,721,297.69. Final payment of the retention will be made to the contractor after 35 days from the date of the Notice of Completion (Attachment 2) is filed with the County Recorder.

Recommended Action: Approve Notice of Completion for the Runway 15-33 Pavement Rehabilitation Project, Specification No. 19-11 and direct the City Clerk to file the Notice of Completion with the County Recorder.

BUDGET AMENDMENT REQUIRED: No

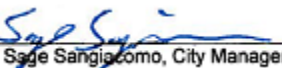
CURRENT BUDGET AMOUNT: \$3,721,297.69,77825200.80230.13044

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.:

COORDINATED WITH: Mary Horger, Financial Services Manager, Greg Owen, Airport Manager

Approved: 
Sage Sangiacomo, City Manager

CITY OF UKIAH
MENDOCINO COUNTY, CALIFORNIA

SPECIAL PROVISIONS
FOR
RUNWAY 15-33 PAVEMENT REHABILITATION, PHASE 1
SPECIFICATION NO. 19-11
FAA AIP NO. 3-03-0268-027-0219

CITY OF UKIAH
DEPARTMENT OF AIRPORT
300 Seminary Avenue
Ukiah, California 95482-5400



SIGNED JUNE 7, 2019

Bids Open: **July 10, 2019**
 2:00 p.m.
 Office of City Clerk

Pre-bid Meeting: July 3, 2019 at 10:00 a.m.

CITY OF UKIAH
MENDOCINO COUNTY, CALIFORNIA

CITY COUNCIL:

MAUREEN MULHEREN – MAYOR
DOUGLAS CRANE – VICE-MAYOR
JIM BROWN – COUNCIL MEMBER
STEVE SCALMANINI – COUNCIL MEMBER
JUAN OROZCO – COUNCIL MEMBER

SAGE SANGIACOMO – CITY MANAGER
TIM ERIKSEN – DIRECTOR OF PUBLIC WORKS / CITY ENGINEER
GREG OWEN – AIRPORT MANAGER
MARY HORGER – PROCUREMENT MANAGER
KRISTINE LAWLER – CITY CLERK
R. ALLEN CARTER – CITY TREASURER

CITY OF UKIAH
DEPARTMENT OF AIRPORT
JUNE 12, 2019

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Proposal Form

Bidding Schedule (with amounts written in both figures and words)

Acknowledgment of receipt of addendum (at end of bid schedule)

Check the City website for any addenda issued: www.cityofukiah.com/purchasing

Fair Employment Practices Certification

Worker's Compensation Certificate

Certification of Nondiscrimination in Employment

List of Subcontractors

Statement of Experience

Signature of Bidder page

Bidder's Bond

Non-Collusion Declaration

Prohibition of Segregated Facilities

Certification of Bidder Regarding Affirmative Action Program

Certification Regarding Foreign Trade Restrictions

Certificate of Buy American d for Manufactured Products

Non-lobbying Certification

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DEFECTIVE MATERIAL AND WORKMANSHIP (MAINTENANCE) BOND

INSURANCE CERTIFICATES AND ENDORSEMENT FORMS

CITY OF UKIAH, MENDOCINO COUNTY, CALIFORNIA
NOTICE TO BIDDERS FOR RUNWAY 15-33 PAVEMENT REHABILITATION, SPECIFICATION NO.
19-11

NOTICE IS HEREBY GIVEN that sealed standard proposals for UKIAH MUNICIPAL AIRPORT RUNWAY 15-33 PAVEMENT REHABILITATION, PHASE 1 will be received at the Office of the City Clerk, Ukiah Civic Center, 300 Seminary Avenue, Ukiah California until 2:00 p.m. on July 10, 2019, at which time, or as soon thereafter as possible, they will be publicly opened and read. Bids shall be addressed to the City Clerk and shall be endorsed RUNWAY 15-33 PAVEMENT REHABILITATION, PHASE 1. Bids are required for the entire work described herein. No fax bids will be accepted.

DESCRIPTION OF WORK: The scope of work for this Project consists of the following:

- Runway 15-33 Pavement Rehabilitation
- Taxiway A2 pavement demolition and construction of new taxiway connector.
- Taxiway A North End Closure

ENGINEER'S COST ESTIMATE: \$3,158,055

Plans and Special Provisions may be inspected and/or copies obtained from the City's website at www.cityofukiah.com/purchasing. No bid will be considered unless it is made on the forms furnished by the City and is made in accordance with the details of the Special Provisions. Each bidder must be licensed as required by law. Further information regarding the work or these specifications can be obtained by calling Mary Horger, Procurement Manager at (707) 463-6233 or by email at mhorger@cityofukiah.com.

The City Council reserves the right to reject any or all bids and to determine which proposal is, in its opinion, the lowest responsive bid by a responsible bidder and which it deems in the best interest of the City to accept. The City Council also reserves the right, but not the obligation, to waive any irregularity or failure to strictly comply with the bidding requirements, that the City determines in the reasonable exercise of its discretion does not provide the bidder with a competitive advantage over other bidders.

No contractor or subcontractor may be listed on a bid proposal for a public works unless registered with the Department of Industrial Relations ("DIR") pursuant to Labor Code section 1725.5 except as allowed. under Labor Code section 1771.1(a). The prime contractor shall be responsible for posting job site notices as prescribed by regulation. This project is subject to compliance monitoring and enforcement by the DIR.

Minimum Wage: All labor on this Project shall be paid not less than the greater of the minimum wage rates established by the U.S. Secretary of Labor (Federal Wage Rates), or by the State of California's Director of the Department of Industrial Relations (State Wage Rates). (See Instructions to Bidders for further information.)

The prime contractor for the work herein shall possess a current, valid State of California, Class A Contractor's Licenses. Pursuant to California Public Contract Code §22300, this contract includes provisions that allow substitutions of certain types of securities in lieu of the City withholding a portion of the partial payments due the Contractor to insure performance under this contract.

PRE-BID MEETING: A pre-bid meeting has been scheduled to discuss the project details and requirements, and to visit the project site. The meeting will be held on July 3, 2019 at 10:00 a.m. (PST) at the Airport Manager's Office, 1403 South State Street, Ukiah, California. Meeting is not mandatory; however, bidders are highly encouraged to attend.

FEDERAL AVIATION ADMINISTRATION (FAA). This project is funded under the Federal Aviation Administration (FAA) Airport Improvement Program (AIP). Contractor(s) will be required to comply with specific federal contract provisions as listed herein and contained in the Bid Documents.

(1) NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION to ENSURE EQUAL EMPLOYMENT OPPORTUNITY

The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables

Goals for minority participation for each trade:	23.2% (Mendocino County)
Goals for female participation in each trade:	6.9%

These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

As used in this notice and in the contract resulting from this solicitation, the "covered area" is CITY OF UKIAH, COUNTY OF MENDOCINO, STATE OF CALIFORNIA.

(2) CIVIL RIGHTS – TITLE VI ASSURANCE

The CITY OF UKIAH, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

(3) DISADVANTAGED BUSINESS ENTERPRISE (DBE)

The requirements of 49 CFR part 26 apply to this contract. It is the policy of the CITY OF UKIAH to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

(4) Federal Provisions

The following provisions are incorporated herein by reference with the same force and effect as if given in full text:

- 1) Buy American Preference (Reference: 49 USC § 50101)
- 2) Trade Restriction Certification (Reference: 49 USC § 50104; 49 CFR Part 30)
- 3) Davis Bacon Act (Reference: 2 CFR § 200, Appendix II(D); 29 CFR Part 5)
- 4) Debarment and Suspension (Reference: 2 CFR part 180 (Subpart C); 2 CFR part 1200; and DOT Order 4200.5)
- 5) Lobbying and Influencing Federal Employees (Reference: 31 USC § 1352 – Byrd Anti-Lobbying Amendment; 2 CFR part 200, Appendix II(J); and 49 CFR part 20, Appendix A)
- 6) Procurement of Recovered Materials (Reference: 2 CFR § 200.322; 40 CFR part 247; and Solid Waste Disposal Act)
- 7) Government-wide Requirements for Drug-free Workplace (Reference: 28 CFR 83.635)
- 8) Certification of Nonsegregated Facilities (41 CFR Part 60-1.8)
- 9) Veteran's Preference (49 USC Section 47112(c))
- 10) Distracted Driving (Texting when Driving) (Executive Order 13513/ DOT Order 3902.10)

(See Federal Contract Provisions of the Project Special Provisions for further details.)

Successful Bidder/Contractor will be required to insert applicable federal contract provisions in all subcontracts, and shall be responsible for compliance by subcontractor(s).

LIST OF SUBCONTRACTORS. The prime contractor must provide a list of subcontractors with his bid on the form provided in the Proposal forms. (Refer to General Conditions for further information.)

Each bid/proposal must be accompanied by a certified check, cashier's check, or bid bond in an amount not less **10%** of the amount bid. The successful bidder shall be required to submit at the time of execution of the Contract a Performance Bond and a Payment Bond (Labor and Material), each for 100% of the Contract price.

By order of the City Council, City of Ukiah, County of Mendocino, State of California.

Dated: _____

6/13/19



Kristine Lawler, City Clerk, City of Ukiah, California

PUBLISH TWO TIMES: June 18 and June 25, 2019

INSTRUCTIONS TO BIDDERS

The UKIAH MUNICIPAL AIRPORT RUNWAY 15-33 PAVEMENT REHABILITATION, PHASE 1 project

shall be performed in accordance with the Plans and Special Provisions therefor adopted, to which special reference is hereby made.

Each bidder must supply all the information required by the bid documents and Special Provisions.

General Requirements. The Bidder's / Contractor's attention is directed to Section 13-03, Part 1, FAA General Contract Provisions, Section 20, "Proposal Requirements and Conditions," for general details on the preparation of proposals for this Project.

- Each bidder shall submit "evidence of competency" and "evidence of financial responsibility" to the Owner at the time of bid opening.

Federal Requirements. This Project is funded by the FAA and as such is subject to extensive Federal requirements and provisions in the areas of labor, wage rates, notices for Contracts, and bidding provisions. The Bidder's / Contractor's attention is directed to Section 13-01 "Federal Required Provisions," and Section 13-03, Part 1 "FAA General Contract Provisions" for detailed information on FAA requirements .

Minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color or national origin in consideration for an award of any contract entered into pursuant to this advertisement. Women will be afforded equal opportunity in all areas of employment. However, the employment of women shall not diminish the standards or requirements for the employment of minorities.

All proposals or bids shall be accompanied by a cashier's check or certified check payable to the order of the City of Ukiah amounting to 10 percent of the bid, or by a bond in said amount and signed by the bidder and a corporate surety, payable to said City. Said check shall be forfeited, or said bond shall become payable to said City in case the bidder depositing the same does not, within fifteen (15) days after written notice that the contract has been awarded to him: (a) enter into a contract with the City and (b) furnish certificates of insurance and endorsements, a bond of faithful performance and a payment bond as described in the Special Provisions.

No bidder shall withdraw his or her bid for a period of ninety (90) calendar days after the date set by the City for the opening thereof.

The Contractor and any subcontractors shall each possess a valid City of Ukiah Business License prior to the start of any work.

The Contractor shall furnish a project schedule to the Engineer prior to the start of any work and start work as scheduled.

Minimum Wage: Wage rates and restrictions on working days and times shall meet all requirements of the Labor Code of the State of California for public contract and the Federal Requirements, as detailed in the Special Provisions "Required Federal Provisions." All labor on this Project shall be paid not less than the greater of the minimum wage rates established by the U.S. Secretary of Labor (Federal Wage Rates), or by the State of California's Director of the Department of Industrial Relations (State Wage Rates). Federal wage determinations issued under the Davis-Bacon and related Acts are available electronically at no cost at Wage Determinations OnLine.gov, <http://www.wdol.gov/Index.aspx>. The bidder may contact the Director of the Department of Industrial Relations, phone number (415) 703-4774 or www.dir.ca.gov/dlsr/PWD/ (website), to obtain a schedule of the State general prevailing wages applicable to the location and work to be done. The Contractor and the Contractor's subcontractors are responsible for compliance with the requirements of Section 1777.5 and 1777.6 of the Labor Code of the State of California regarding employment of apprentices.

The work is to be completed within SIXTY-EIGHT (68) calendar days. This Project is subject to liquidated damages if time limitations are not met. The Contractor will pay to the City the sum of two thousand (\$2,000.00) dollars per day for each and every calendar day delay beyond the time prescribed.

The staff shall notify a bidder by telephone, email or fax, if it intends to recommend the rejection of the bidder's bid. Any bid protest must be filed with the City Clerk not more than five calendar days following the bid opening, or 2 calendar days following notice that staff is recommending the rejection of a bid. If any such timely written protest is filed, all bidders shall be provided a copy of the protest within 2 calendar days of its receipt, which may be delivered to the bidders as an email attachment or by fax. All such bidders may file with the City Manager a written objection or other response to the protest.

All objections or responses filed not more than 5 days after receipt of the written protest will be presented to the City Council at its next regular meeting occurring not less than 12 calendar days following the bid opening. The City Council will resolve the bid protest at that meeting based on the written protest, any staff recommendation and all timely written objections and responses. In accordance with the Brown Act, any person may address the City Council on this item during the meeting. The City Council action on the protest shall represent a final decision by the City on the protest.

Examination of Site, Drawings, Etc.

Each bidder shall visit the site of the proposed work and fully acquaint himself with local conditions, construction and labor required so that he or she may fully understand the facilities, difficulties and restrictions attending the execution of the work under the Contract. Bidders shall thoroughly examine and be familiar with the Plans and Special Provisions. The failure of any bidder to receive or examine any form, instrument, addendum, or other document, or to visit the site and acquaint himself with conditions there existing, shall in no way relieve the bidder from any obligation with respect to his or her proposal or to the contract. The drawings for the work show conditions as they are supposed or believed by the Engineer to exist; but, it is neither intended nor shall it be inferred that the conditions as shown thereon constitute a representation by the Engineer, the City or its officers that such conditions are actually existent, nor shall the City, the Engineer or any of their officers or representatives be liable for any loss sustained by the Contractor as a result of a variance between the conditions shown on the drawings and the conditions actually revealed during the progress of the work or otherwise.

The bidder's attention is directed to the possible existence of obstructions and public improvements within the limits of the work or adjacent thereto, which may or may not be shown on the Drawings. Any bid shall take into consideration that conditions may exist underground or otherwise that are not known to the City or easily detected during a site inspection that could impact the time or cost of completing the project. The City expects the bids to anticipate such conditions so that it can know for budgeting and other purposes the total cost to complete the project before accepting a bid and undertaking the legal obligation to construct the project. In awarding the contract the City relies on the contractor's representation that its bid anticipates differing site conditions and the additional time or cost that such conditions may necessitate.

The bidder shall investigate to his or her satisfaction the conditions to be encountered, the character, quality and quantities of work to be performed and materials to be furnished and the requirements of the Plans, Special Provisions, FAA Technical Specifications, Standard Specifications, Standard Plans, and Contract Documents. The submission of a proposal shall be considered conclusive evidence that the bidder has made such examination and has accepted the project workplace as a safe workplace to perform the work of the Contract.

Drug-free Workplace. This project / contract is covered by the Drug-Free Workplace Act of 1988; contractor will be required to provide a drug-free workplace.

Compliance: The Contractor shall be responsible for complying with all City, County, State, and Federal Codes, Laws, Statutes, Regulations, Ordinances, and Policies, as applicable, in the performance of the Contract.

Contractor's Employees Identification: Contractor must submit a current list of full names i.e., first, middle, and last (no nicknames), addresses, birth dates, social security numbers, driver's license numbers, and last known address of all employees who perform work in City / County facilities under this Contract. Changes in the employment list must be reported to the City within 24 hours.

Bidder Inquiries and Questions

Inquiries and questions must be submitted in writing via fax or email to the following designated contact person:

Mary Horger, Procurement Manager
Fax: (707) 313-3621
Email: mhorger@cityofukiah.com

The City reserves the right to not respond to inquiries or questions submitted within 3 business days of the bid opening.

Location of the Work

All of the work to be performed is within the City of Ukiah. Project is located at 1403 South State Street, Ukiah, California.

END OF INSTRUCTIONS TO BIDDERS

GENERAL CONDITIONS

****This is an FAA AIP funded project; thus, if there is a conflict in information or contract terms contained in these General Conditions and the FAA General Contract Provisions, the FAA Provisions will hold precedence. See Section 13-03, Part 1, subsections 50-03 (page 139) and 50-04 (page 140) for a list of the Order of Precedence, where there are conflicts or inconsistencies between documents comprising the bid package or construction contract, including but not limited to, conflicts or inconsistencies between the City's General Conditions and FAA's General Provisions. (Wage rates are summarized in the Instructions to Bidders (pg 4) and the Federal Contract Provisions article A-6, page 43.)***

SECTION 1. PROPOSAL REQUIREMENTS AND GENERAL CONDITIONS

1-01. Definitions. Whenever any word or expression defined in this section, or pronoun used in its stead, occurs in these contract documents, it shall have and is mutually understood to have the meaning given:

- a. "City of Ukiah" or "City" shall mean the City of Ukiah, Mendocino County, California, acting through its City Council or any other board, body, official or officials to which or to whom the power belonging to the Council shall by virtue of any act or acts, hereafter pass or be held to appertain.
- b. "Engineer" shall mean the Engineer duly and officially appointed by the City to supervise and direct the work of construction under this contract, acting personally or through agents or assistants duly authorized by him, such agents or assistants acting within the scope of the particular duties entrusted to them.
- c. "Inspector" shall mean the engineering or technical inspector or inspectors duly authorized or appointed by the Engineer, limited to the particular duties entrusted to him or her or them.
- d. "Contractor" shall mean the party entering into contract with the City of Ukiah for the performance of work covered by this contract and his or her authorized agents or legal representatives.
- e. "Date of signing of contract" or words equivalent thereto, shall mean the date upon which this contract, with the signature of the Contractor affixed, together with the prescribed bonds, shall be or shall have been delivered to the City or its duly authorized representatives.
- f. "Day" or "days", unless herein otherwise expressly defined, shall mean a calendar day or days of twenty-four hours each.
- g. "The work" shall mean and include all the work specified, indicated, shown or contemplated in the contract to construct the improvement, including all alterations, amendments or extensions thereto made by contract change order or other written orders of the Engineer.
- h. "Contract drawings", "drawings", "plans" shall mean and include 1) all drawings or plans which may have been prepared by or on behalf of the City, as a basis for proposals, when duly signed and made a part of this contract by incorporation or reference, 2) all drawings submitted in pursuance of the terms of this contract by the successful bidder with his or her proposal and by the Contractor to the City if and when approved by the Engineer and 3) all drawings submitted by the Engineer to the Contractor during the progress of the work as provided for herein.
- i. Where "as shown", "as indicated", "as detailed" or words of similar import are used, it shall be understood that reference to the drawings accompanying these Special Provisions is made unless stated otherwise.

Where "as directed", "as permitted", "approved" or words of similar import are used, it shall be understood that the direction, requirements, permission, approval or acceptance of the Engineer is intended unless stated otherwise.

As used herein, "provide" or "install" shall be understood to mean "provide or install complete in place", that is, "furnish and install". "Shall" is mandatory; "may" is permissive.

1-02. Examination of Plans, Special Provisions and Site of Work. The bidder shall examine carefully the Proposal, Plans, Special Provisions, Contract forms and the site of the work contemplated therefor. It will be assumed that the bidder has investigated to his or her satisfaction the conditions to be encountered and the character, quality and requirements of all Plans, Special Provisions, FAA Technical Specifications, Standard Specifications, and Standard Plans involved.

1-03. Proposal. Bids shall be made on the blank forms prepared by the City. All bids shall give the prices bid, both in writing and in figures and shall be signed by the bidder or his or her authorized representative, with his or her address. If the bid is made by an individual or partner, his or her name and the post office address of his or her business or partnership, along with his or her signature or the signature of one or more partners must be shown; if made by a corporation, the bid shall show the name of the state under the laws of which the corporation is chartered, the name of the corporation and the title of the person who signs on behalf of the corporation.

Each proposal shall be enclosed in a sealed envelope, endorsed as specified in the notice to bidders. Bidders are warned against making erasures or alterations of any kind and proposals which contain omissions, erasures, conditions, alterations, additions not called for, additional proposals or irregularities of any kind may be rejected.

1-04. Withdrawal of Bids. Any bid may be withdrawn at any time prior to the hour fixed in the notice to bidders for the openings of bids, provided that a request in writing, executed by the bidder or his or her duly authorized representative, for the withdrawal of such bid is filed with the City. The withdrawal of a bid will not prejudice the right of a bidder to file a new bid.

1-05. Public Opening of Bids. Bids will be opened and read publicly at the time and place indicated in the notice to bidders. Bidders or their agents are invited to be present.

1-06. Bid Guaranty. Each bid must be accompanied by a certified check, cashier's check or bidder's bond executed by an admitted surety insurer, payable to the order of the City of Ukiah in an amount not less than 10 percent of the bid as a guarantee that the bidder will enter into a contract, if awarded the work.

1-07. Qualification of Bidders. No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)]. No contractor or subcontractor may be awarded a contract for public work on a public works project (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5. The prime contractor shall be responsible for posting job site notices as prescribed by regulation. This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

Each bidder shall be licensed under the provisions of Chapter 9, Division 3 of the Business and Professions Code and shall be skilled and regularly engaged in the general class or type of work called for under this contract. A statement setting forth this experience and business standing shall be submitted by each bidder on the form provided herewith. It is the intention of the City to award a contract only to a bidder who furnishes satisfactory evidence that he or she has the requisite experience and ability and that he or she has sufficient capital, facilities and equipment to enable him or her to prosecute the work successfully and promptly within the time and in the manner agreed.

In determining the degree of responsibility to be credited to a bidder, the City may weigh evidence that the bidder or his or her personnel charged with the responsibility in the work, has performed satisfactorily other contracts of like nature and magnitude or comparable difficulty at similar rates of progress.

1-08. Disqualification of Bidders. More than one bid from an individual business, partnership, corporation or association, under the same or different names, will not be considered. Reasonable grounds for believing that any bidder is financially interested in more than one bid for the work will cause the rejection of all bids in which he or she is so interested. If there is reason to believe that collusion exists among the bidders, none of the participants in such collusion will be considered. Bids in which the prices obviously are unbalanced may be rejected.

1-09. Identification of Subcontractors. All bids shall comply with the Subletting and Subcontracting Fair Practices Act (Public Contract Code Section 4100 and following) and shall set forth:

(a) The name and the location of the place of business of each subcontractor who will perform work or labor, or render service to the prime contractor in or about the construction of the work, or to a subcontractor licensed by the State of California who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work according to detailed drawings contained in the plans and Special Provisions, in an amount in excess of one-half of 1 percent of the prime contractor's total bid.

(b) The portion of the work which will be done by each such subcontractor. The prime contractor shall list only one subcontractor for each such portion defined by the prime contractor in his or her bid.

1-10. General Provisions of the Standard Specifications. All provisions of the General Provisions, Sections 1 through 11, of the Standard Specifications, shall be applicable to the contract except as modified by these Special Provisions. (See 1-10.1 below). The Standard Specifications are set forth in Section 12-06 of these Special Provisions.

1-10.1. FAA Standard Specifications. Per Advisory Circular 150-5370-10H, "FAA Standard Specifications for Construction of Airports," Section 13-03, Parts 1, 2 and 3-13 shall be used for this Project.

1-11. Addenda. If it becomes necessary to revise any part of these plans and specifications after they have been released, the City will issue an addendum containing the revision. All addenda will be posted on the City's website at www.cityofukiah.com/purchasing with the rest of the bid documents. Anyone who intends to submit a bid in response to this Request for Bid must check the website frequently for any posted addenda. Anyone submitting a bid will be deemed to have seen and agreed to be bound by the posted addenda.

SECTION 2. AWARD AND EXECUTION OF CONTRACT

2-01. Award of Contract. Award of the contract, if it be awarded, will be to the lowest responsible bidder whose bid complies with all the specified requirements. The award, if made, will be made within thirty (30) days after opening of the bids (pending approval from the FAA). The City reserves the right to reject any and all bids and to waive any irregularity in the proposal not pertaining to cost.

The award(s), if made, will be pending FAA review and confirmation of availability of funds. All bids shall be valid for a period of ninety (90) working days from the bid opening date.

2-02. Return of Proposal Guaranties. All bid guaranties will be held until the contract has been fully executed, after which they will be returned upon request to the respective bidders whose bids they accompany.

2-03. Execution of Contract. The contract agreement shall be executed in duplicate by the successful bidder and returned, together with the contract bonds, insurance certificates and endorsements, within fifteen (15) days after written notice of the award of the contract. After execution by the City; one copy shall be filed with the City and one copy shall be returned to the Contractor. If the bidder fails or refuses to enter into the contract agreement within the required time, then the bid guaranty accompanying the bid shall be forfeited to the City.

SECTION 3. SCOPE AND INTENT OF CONTRACT

3-01. Effect of Inspection and Payments. Neither the inspection by the Engineer or an inspector, nor any order, measurement or approved modification, nor certificate or payment of money, nor acceptance of any part or whole of the work, nor any extension of time, nor any possession by the City or its agents, shall operate as a waiver of any provision of this contract or of any power reserved therein to the City, or of any right to damages thereunder; nor shall any breach of this contract be held to be a waiver of any subsequent breach. All remedies shall be construed as cumulative.

3-02. Effect of Extension of Time. The granting of any extension of time on account of delays which, in the judgement of the City, are avoidable delays shall in no way operate as a waiver on the part of the City of its rights under this contract.

3-03. Extra Work. If extra work orders are given in accordance with provisions of this contract, such work shall be considered a part hereof and shall be subject to each and all of its terms and requirements.

3-04. Assignment of Contract. The contract may be assigned or sublet in whole or in part only upon the written consent of the City acting through its authorized agents. Consent will not be given to any proposed assignment which would relieve the original contractor or its surety of their responsibilities under the contract nor will the Engineer consent to any assignment of a part of the work under the contract.

3-05. Subcontractors. The Contractor shall be as fully responsible for the acts and omissions of his or her subcontractors and of persons either directly or indirectly employed by them, as he or she is for the acts and omissions of persons directly employed by him.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the terms of this Contract which are applicable to the work of subcontractors.

Nothing contained in this contract shall be construed to create or shall be relied upon to create any contractual relationship between any subcontractor and the City and no action may be brought by any subcontractor against the City based on this contract.

3-06. Interpretation of Special Provisions and Drawings. The Special Provisions and the Contract Drawings are intended to be explanatory of each other. Any work indicated in the Contract Drawings and not in the Special Provisions, or vice versa, is to be executed as if indicated in both. In case of a discrepancy or conflict between the Technical Specifications and Contract Plans, the Technical Specifications shall govern. All work shown on the Contract Drawings, the dimensions of which are not figured, shall be accurately followed to the scale to which the drawings are made, but figured dimensions are in all cases to be followed, where given, though they differ from scaled measurements. Large scale drawings shall be followed in preference to small scale drawings. Should it appear that the work to be done, or any of the matters relative thereto, are not sufficiently detailed or explained in these contract documents, including the contract drawings, the Contractor shall apply to the Engineer for such further explanations as may be necessary and shall conform thereto as part of this contract, so far as may be consistent with the terms of this contract. In the event of any doubt or questions arising respecting the true meaning of the Special Provisions, reference shall be made to the Engineer and his or her decision thereon shall be final. If the Contractor believes that a clarification or interpretation justifies an increase in the contract price or contract time, the Contractor must comply with the written notice provisions of Sections 9-05 and 10-07 of these Special Provisions. Contractor's attention is directed to Section 12-06 of the Technical Specifications regarding the Standard Specifications and Standard Plans.

3-07. Addenda. If it becomes necessary to revise any part of these plans and specifications after they have been released, the City will issue an addendum containing the revision. All addenda will be posted on the City's website at www.cityofukiah.com/purchasing with the rest of the bid documents. Anyone who intends to submit a bid in response to this Request for Bid must check the website frequently for any posted addenda. Anyone submitting a bid will be deemed to have seen and agreed to be bound by the posted addenda.

3-08. Liability of City Officials. No city official, nor the Engineer, nor any authorized assistant of any of them, shall be personally responsible for any liability arising under this contract.

3-09. Dispute Resolution. Claims of \$375,000 or less by the Contractor that arise under this Contract are subject to the mandatory dispute resolutions provisions in Public Contract Code Sections 20104-20104.6.

SECTION 4. BONDS

4-01. Faithful Performance Bond. As a part of the execution of this contract, the Contractor shall furnish a bond of a surety company or other securities providing equivalent protection such as cash, letter of credit, or certificates of deposit, acceptable to the City, conditioned upon the faithful performance of all covenants and

stipulations under this contract. The amount of the bond shall be 100 percent of the total contract price, as this sum is set forth in the agreement.

4-02. Material and Labor Bond. As a part of the execution of this contract, the Contractor shall furnish a bond of a surety company or other securities providing equivalent protection such as cash, letter of credit or certificates of deposit acceptable to the City in a sum not less than 50 percent of the total contract price, as this sum is set forth in the agreement for the payment in full of all persons, companies or corporations who perform labor upon or furnish materials to be used in the work under this contract, in accordance with the provisions of Sections 3247 through 3252 inclusive of the Civil Code of the State of California and any acts amendatory thereof.

4-03. Defective Material and Workmanship Bond. As a condition precedent to the completion of this contract, the Contractor shall furnish a bond of a surety company acceptable to the City in an amount not less than 5 percent (5%) of the final contract price, to hold good for a period of one (1) year after the completion and acceptance of the work, to protect the City against the results of defective materials, workmanship and equipment during that time. This bond shall be delivered to the City before the final payment under this contract will be made.

4-04. Notification of Surety Companies. The surety companies shall familiarize themselves with all of the conditions and provisions of this contract and they waive the right of special notification of any change or modification of this contract or of extension of time, or decreased or increased work, or of the cancellation of the contract, or of any other act or acts by the City or its authorized agents, under the terms of this contract; and failure to so notify the aforesaid surety companies of changes shall in no way relieve the surety companies of their obligation under this contract.

SECTION 5. INSURANCE REQUIREMENTS FOR CONTRACTORS (WITH CONSTRUCTION RISKS)

Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his or her agents, representatives, employees or subcontractors.

5-01. Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. Insurance Services Office Commercial Liability Coverage (occurrence form CG 0001).
2. Insurance Services Office form number CA 0001 (Ed. 1/87) covering Automobile Liability, code 1 (any auto).
3. Worker's Compensation insurance as required by the State of California and Employer's Liability Insurance.
4. Course of Construction insurance covering for "all risks" of loss.

5-02. Minimum Limits of Insurance

Contractor shall maintain limits no less than:

1. General Liability: \$1,000,000 per occurrence for bodily injury, personal injury and property damage including operations, products and completed operations. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.
2. Automobile Liability: \$1,000,000 per accident for bodily injury and property damage.
3. Employer's Liability: \$1,000,000 per accident for bodily injury and property damage.

4. Course of Construction: Completed value of the project with no co-insurance penalty provisions.

5-03. Deductibles and Self-insured Retentions. Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officers, officials, employees and volunteers; or the Contractor shall provide a financial guarantee satisfactory to the City guaranteeing payment of losses and related investigations, claim administration and defense expenses.

5-04. Other Insurance Provisions

The general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:

1. The City, its officers, officials, employees and volunteers are to be covered as Additional Insured with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the contractor; and with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts or equipment furnished in connection with such work or operations. General liability coverage can be provided in the form of an endorsement to the Contractor's insurance, or as a separate owner's policy.
2. The workers' compensation policy is to be endorsed with a waiver of subrogation. The insurance company, in its endorsement, agrees to waive all rights of subrogation against the City, its officers, officials, employees and volunteers for losses paid under the terms of this policy which arises from the work performed by the named insured for the City.
3. For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects the City, its officers, officials, employees or volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.
4. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be canceled by either party, except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the City.
5. Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under Subdivision (b) of Section 2782 of Civil Code.
6. Course of Construction policies shall contain the following provisions:
 - a.) The City shall be named as loss payee.
 - b.) The insurer shall waive all rights of subrogation against the City.

5-05. Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best's rating of no less than the following:

A++ VII	A- VIII
A+ VII	B++ X
A VII	B+ X

5-06. Verification of Coverage. Contractor shall furnish the City with original certificates and amendatory endorsements effecting coverage required by this clause. The endorsements shall be on forms provided by the City or on other than the City's forms, provided those endorsements or policies conform to the requirements. All certificates and endorsements are to be received within 15 days from written notice of contract award, and the work shall not commence until the certificates and endorsements have been approved by the City. The City reserves the right to require complete certified copies of all required insurance policies, including endorsements affecting the coverage required by these Special Provisions at any time.

5-07. Subcontractors. Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

SECTION 6. RESPONSIBILITIES AND RIGHTS OF CONTRACTOR

6-01. Legal Address of Contractor. Both the address given in the proposal and the Contractor's office in the vicinity of the work are hereby designated as places to either of which drawings, samples, notices, letters or other articles or communications to the Contractor may be mailed or delivered. The delivery at either of these places of any such thing from the City or its agents to the Contractor shall be deemed sufficient service thereof upon the Contractor and the date of such service shall be the date of such delivery. The address named in the proposal may be changed at any time by notice in writing from the Contractor to the City. Nothing herein contained shall be deemed to preclude or render inoperative the service of any drawing, sample, notice, letter or other article or communication to or upon the Contractor personally.

6-02. Office of Contractor at Site. During the performance of this contract, the Contractor shall maintain a suitable office at the site of the work which shall be the headquarters of a representative authorized to receive drawings and any such thing given to the said representatives or delivered at the Contractor's office at the site of work in his or her absence shall be deemed to have been given to the Contractor.

6-03. Attention to Work. The Contractor shall give his or her personal attention to and shall supervise the work to the end that it shall be prosecuted faithfully and when he or she is not personally present on the work, he or she shall at all reasonable times be represented by a competent superintendent or foreman who shall receive and obey all instructions or orders given under this contract and who shall have full authority to execute the same and to supply materials, tools and labor without delay and who shall be the legal representative of the Contractor. The Contractor shall be liable for the faithful observance of any instructions delivered to him or her or to his or her authorized representative.

6-04. Liability of Contractor. The Contractor shall do all of the work and furnish all labor, materials, tools and appliances, except as otherwise herein expressly stipulated, necessary or proper for performing and completing the work herein required in the manner and within the time herein specified. The mention of any specific duty or liability imposed upon the Contractor shall not be construed as a limitation or restriction of any general liability or duty imposed upon the Contractor by this contract, said reference to any specific duty or liability being made herein merely for the purpose of explanation.

The right of general supervision by the City shall not make the Contractor an agent of the City and the liability of the Contractor for all damages to persons or to public or private property, arising from the Contractor's execution of the work, shall not be lessened because of such general supervision.

Until the completion and final acceptance by the City of all the work under and implied by this contract, the work shall be under the Contractor's responsible care and charge. The Contractor shall rebuild, repair, restore and make good all injuries, damages, re-erectments and repairs, occasioned or rendered necessary by causes of any nature whatsoever, excepting only acts of God and none other, to all or any portions of the work, except as otherwise stipulated.

To the fullest extent permitted by law, Contractor shall indemnify and hold harmless the City and its officers, directors, agents and employees from and against all claims, damages, losses and expenses including but not limited to attorneys' fees, costs of suit, expert witness fees and expenses and fees and costs of any necessary private investigators arising out of or resulting from the performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, other than the work itself, including the loss of use resulting therefrom and (2) is caused in whole or in part by any act or omission of the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder, or by the negligence or omission of a party indemnified herein.

In any and all claims against the City or any of its agents or employees by any employee of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may

be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under workers' or workmen's compensation acts, disability benefit acts, or other employee benefit acts. The obligation to indemnify shall extend to and include acts of the indemnified party which may be negligent or omissions which may cause negligence.

The City shall have the right to estimate the amount of such damage and to cause the City to pay the same and the amount so paid for such damage shall be deducted from the money due the Contractor under this contract; or the whole or so much of the money due or to become due the Contractor under this contract as may be considered necessary by the City, shall be retained by the City until such suits or claims for damages shall have been settled or otherwise disposed of and satisfactory evidence to that effect furnished to the City.

6-05. Protection of Persons and Property. The Contractor shall furnish such watchman, guards, fences, warning signs, walks and lights as shall be necessary and shall take all other necessary precautions to prevent damage or injury to persons or property.

All property line fences and improvements in the vicinity of the work shall be protected by the Contractor and, if they are injured or destroyed, they and any other property injured by the Contractor, his or her employees or agents, shall be restored to a condition as good as when he or she entered upon the work.

6-06. Protection of City Against Patent Claims. All fees, royalties or claims for any patented invention, article or method that may be used upon or in any manner connected with the work under this contract shall be included in the price bid for the work and the Contractor and his or her sureties shall protect and hold the City, together with all of its officers, agents, servants and employees, harmless against any and all demands made for such fees or claims brought or made on account of this contract. The Contractor shall, if requested by the Engineer, furnish acceptable proof of a proper release from all such fees or classes.

Should the Contractor, his or her agents, servants or employees, or any of them be enjoined from furnishing or using any invention, article, material or appliance supplied or required to be supplied or used under this contract, the Contractor shall promptly substitute other articles, materials or appliance, in lieu thereof, of equal efficiency, quality, finish, suitability and market value and satisfactory in all respects to the Engineer. Or, in the event that the Engineer elects, in lieu of such substitution, to have supplied and to retain and use, any such invention, article, material or appliance, as may by this contract be required to be supplied, in that event the Contractor shall pay such royalties and secure such valid licenses as may be requisite and necessary for the City, its officers, agents, servants and employees, or any of them, to use such invention, article, material or appliance without being disturbed or in any way interfered with by any proceeding in law or equity on account thereof. Should the Contractor neglect or refuse to make the substitution promptly, or to pay such royalties and secure such licenses as may be necessary, then in that event the Engineer shall have the right to make such substitution, or the City may pay such royalties and secure such licenses and charge the cost thereof against any money due to the Contractor from the City or recover the amount thereof from him or her and his or her sureties notwithstanding final payment under this contract may have been made.

6-07. Protection of Contractor's Work Property. The Contractor shall protect his or her work, supplies and materials from damage due to the nature of the work, the action of the elements, trespassers, or any cause whatsoever under his or her control, until the completion and acceptance of the work. Neither the City nor any of its agents assumes any responsibility for collecting indemnity from any person or persons causing damage to the work of the Contractor.

6-08. Regulations and Permits. The Contractor shall secure and pay for all permits, give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the Plans and Special Provisions are at variance therewith, he or she shall promptly notify the Engineer in writing and any necessary changes shall be adjusted as provided in the contract for changes in the work. The contractor and any subcontractors shall each secure and maintain a valid City of Ukiah Business License. The City of Ukiah will issue a no fee encroachment permit to the Contractor allowing him or her to perform work within City right of way or within City property after the Contract Documents have been executed and insurance certificates and endorsements have been approved by the City.

6-09. Construction Utilities. The Contractor shall be responsible for providing for and in behalf of his or her work under this contract, all necessary utilities, such as special connection to water supply, telephones, power lines, fences, roads, watchmen, suitable storage places, etc.

6-10. Approval of Contractor's Plans. The approval by the Engineer of any drawing or any method of work proposed by the Contractor in accordance with paragraph 8-06 shall not relieve the Contractor of any of his or her responsibility for his or her errors therein and shall not be regarded as any assumption of risk or liability by the City or any officer or employee thereof and the Contractor shall have no claim under this contract on account of the failure or partial failure or inefficiency of any plan or method so approved. Such approval shall be considered to mean merely that the Engineer has no objection to the Contractor's using, upon his or her own full responsibility the plan or method approved.

6-11. Suggestions to the Contractor. Any plan or method of work suggested by the Engineer to the Contractor, but not specified or required, if adopted or followed by the Contractor in whole or in part, shall be used at the risk and responsibility of the Contractor; and the Engineer and the City shall assume no responsibility thereof.

6-12. Termination of Unsatisfactory Subcontracts. Should any subcontractor fail to perform in a satisfactory manner the work undertaken by him, such subcontract shall be terminated immediately by the Contractor upon notice from the Engineer.

6-13. Preservation of Stakes and Marks. The Contractor shall preserve carefully bench marks, reference points and stakes and in case of destruction he or she shall replace his or her stakes, reference points and bench marks and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance. Contractor's attention is directed to Section 7-03 of these Special Provisions.

6-14. Assistance to Engineer. At the request of the Engineer the Contractor shall provide men from his or her force and tools, stakes and other materials to assist the Engineer temporarily in making measurements and surveys and in establishing temporary or permanent reference marks. Payment for such materials and assistance will be made as provided for under the caption "Extra Work," provided, however, that the cost of setting stakes and marks carelessly lost or destroyed by the Contractor's employees will be assessed to the Contractor.

6-15. Removal of Condemned Materials and Structures. The Contractor shall remove from the site of the work, without delay, all rejected and condemned materials or structures of any kind brought to or incorporated in the work and upon his or her failure to do so, or to make satisfactory progress in so doing, within forty-eight (48) hours after the service of a written notice from the Engineer, the condemned material or work may be removed by the City and the cost of such removal shall be taken out of the money that may be due or may become due the Contractor on account of or by virtue of this contract. No such rejected or condemned material shall again be offered for use by the Contractor under this Contract.

6-16. Proof of Compliance with Contract. In order that the Engineer may determine whether the Contractor has complied with the requirements of this contract, not readily enforceable through inspection and tests of the work and materials, the Contractor shall, at any time when requested, submit to the Engineer properly authenticated documents or other satisfactory proofs as to his or her compliance with such requirements.

6-17. Errors and Omissions. If the Contractor, in the course of the work, finds any errors or omissions in plans or in the layout as given by survey points and instruction, or if he or she finds any discrepancy between the plans and the physical conditions of the locality, he or she shall immediately inform the Engineer, in writing and the Engineer shall promptly verify the same. Any work done after such discovery, until authorized, will be done at the Contractor's risk.

6-18. Cooperation. The Contractor shall cooperate with all other contractors who may be performing work in behalf of the City and workmen who may be employed by the City on any work in the vicinity of the work to be done under this contract with the work of such contractors or workmen. he or she shall make good promptly, at his or her own expense, any injury or damage that may be sustained by other contractors or employees of the City at his or her hands.

Any difference or conflict which may arise between the Contractor and other contractors, or between the contractor and workmen of the City in regard to their work shall be adjusted and determined by the Engineer. If the work of the Contractor is delayed because of any acts or omissions of any other contractor or of the City, the Contractor shall on that account have no claim against the City other than for an extension of time.

6-19. Right of Contractor to Stop Work. Under the following conditions the Contractor shall have the right, if he or she so desires, to stop the work and terminate the contract upon ten (10) days written notice to the Engineer and recover from the City payment for all work actually performed and for all satisfactory materials actually delivered to the site of the work for permanent incorporation therein, all as may be shown by the estimate of the Engineer.

- (1) If the work is stopped under an order of any court or other competent public authority for a period of time of three (3) months through no act or fault of the Contractor or of anyone employed by him.
- (2) If the Engineer fails to issue the monthly certificate for payment in accordance with the terms of this contract.
- (3) If the City fails to pay the Contractor within sixty (60) days after it shall have become due, as provided by the terms of this contract, any sum certified by the Engineer or awarded by the City.

All provided that if such action to terminate the contract be not instituted by the Contractor within ten (10) days after the alleged existence of such condition and if written notice of such action be not at that time delivered to the City and the Engineer, then such right shall lapse until another occasion arises according to this section.

6-20. Hiring and Dismissal of Employees. The Contractor shall employ only such foremen, mechanics and laborers as are competent and skilled in their respective lines of work and whenever the Engineer shall notify the Contractor that any person on the work is, in his or her opinion, incompetent, unfaithful, intemperate or disorderly, or refuses to carry out the provisions of this contract, or uses threatening or abusive language to any person on the work representing the City, or is otherwise unsatisfactory, such person shall be discharged immediately from the work and shall not be re-employed upon it except with the consent of the Engineer.

6-21. Wage Rates.

1. Contractor shall pay all mechanics and laborers employed or working upon the site of the work unconditionally and without subsequent deductions or rebate on any account the full amounts due at the time of payment at wage rates not less than those contained in the applicable prevailing wage determination, regardless of any contractual relationship which may be alleged to exist between the Contractor and subcontractors and such laborers and mechanics.
2. Contractor shall comply with the California Labor Code Section 1775. In accordance with said Section 1775, Contractor shall forfeit as a penalty to the Owner, \$50.00 (or the higher minimum penalty as provided in Section 1775(B)(ii) – (iii)) for each calendar day or portion thereof, for each workman paid less than the stipulated prevailing rates for such work or craft in which such workman is employed for any work done under the Contract by him or her or by any subcontractor under him or her in violation of the provisions of the Labor Code and in particular, Labor Code Sections 1770 to 1780, inclusive. In addition to said penalty and pursuant to Section 1775, the difference between such stipulated prevailing wage rates and the amount paid to each workman for each calendar day or portion thereof for which each workman was paid less than the stipulated prevailing wage rate shall be paid to each workman by the Contractor.
3. Pursuant to the provision of Section 1770 of the Labor Code of the State of California, Owner has ascertained the general prevailing rate of wages (which rate includes employer payments for health and welfare, vacation, pension and similar purposes) applicable to the work to be done, for straight time work. The holiday wage rate listed shall be applicable to all holidays recognized in the collective bargaining agreement of the particular craft, classification or type of workmen concerned. Copies of the General Prevailing Wage Determination are available on the Internet at web address:

<http://www.dir.ca.gov/DLSR/PWD> The Contractor shall post the wage determination at the site of work in a prominent place where it can easily be seen by the workers.

4. City will not recognize any claim for additional compensation because the Contractor has paid any rate in excess of the prevailing wage rate obtained by the Contractor. The possibility of wage increases is one of the elements to be considered by the Contractor in determining his or her bid and will not in any circumstances be considered as the basis for a claim against the City.
5. The Labor Commissioner through the Division of Labor Standards Enforcement (DLSE) may at any time require contractors and subcontractors to furnish electronic certified payroll records directly to DLSE. Commencing with contracts awarded or after April 1, 2015, all contractors and subcontractors must furnish electronic certified payroll records directly to the DLSE.
6. Travel and Subsistence Payments.

Contractor shall make travel and subsistence payments to each workman needed to execute the work in accordance with the requirements in Section 1773.8 of the Labor Code (Chapter 880, Statutes of 1968).

7. Apprentices.

Attention is directed to the provisions in Sections 1777.5 (Chapter 1411, Statutes of 1968) and 1777.6 of the California Labor Code concerning the employment of apprentices by the Contractor or any subcontractor under him. Contractor and any subcontractor under him or her shall comply with the requirements of said sections in the employment of apprentices.

Information relative to apprenticeship standards, wage schedules and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

6-22. Cleaning Up. The Contractor shall not allow the site of the work to become littered with trash and waste material, but shall maintain the same in a neat and orderly condition throughout the construction period. The Engineer shall have the right to determine what is or is not waste material or rubbish and the place and manner of disposal.

On or before the completion of the work, the Contractor shall without charge therefore carefully clean out all pits, pipes, chambers or conduits and shall tear down and remove all temporary structures built by him or her and shall remove rubbish of all kind from any of the grounds which he or she has occupied and leave them in first class condition.

6-23. Guaranty. All work shall be guarantied for a period of one year from the date of acceptance by the City. The Contractor shall promptly make all needed repairs arising out of defective materials, workmanship and equipment.

The City is hereby authorized to make such repairs if within ten days after the mailing of a notice in writing to the Contractor or his or her agent, the Contractor shall neglect to make or undertake with due diligence the aforesaid repairs, provided, however, that in case of an emergency where, in the opinion of the City delay would cause serious loss or damage, repairs may be made without notice being sent to the Contractor and the Contractor shall pay the costs thereof.

Pursuant to the provisions of Section 4-03 of these Special Provisions, the Contractor shall furnish a Defective Material and Workmanship Bond in an amount not less than 5 percent of the final contract price, which shall be effective for a period of one (1) year after the completion and acceptance of the work.

SECTION 7. RESPONSIBILITIES AND RIGHTS OF CITY

7-01. Authority of the Engineer. All work done under this contract shall be done in a workmanlike manner and shall be performed to the reasonable satisfaction of the Engineer, who shall have general supervision of all work included hereunder. To prevent disputes and litigation, the Engineer (1) shall in all cases determine the amount, quality, acceptability and fitness of the several kinds of work and materials which are to be paid for under this contract, (2) shall decide all questions relative to the true construction, meaning and intent of the Special Provisions and Drawings, (3) shall decide all questions which may arise relative to the classifications and measurements of quantities and materials and the fulfillment of this contract and (4) shall have the power to reject or condemn all work or material which does not conform to the terms of this contract. his or her estimate and decision in all matters shall be a condition precedent to an appeal for arbitration, or the right of the Contractor to receive, demand, or claim any money or other compensation under this agreement and a condition precedent to any liability on the part of the City to the Contractor on account of this contract. Whenever the Engineer shall be unable to act, in consequence of absence or other cause, then such engineer as the Engineer or the City shall designate, shall perform any and all of the duties and be vested with any or all of the powers herein given to the Engineer.

7-02. Inspection. The City will provide engineering personnel for the inspection of the work.

The Engineer and his or her representatives shall at all times have access to the work whenever it is in preparation or progress and the Contractor shall provide proper facilities for such access and inspection.

If the Special Provisions, the Engineer's instruction, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection and, if the inspection is by an authority other than the Engineer, of the date fixed for such inspection. Inspections by the Engineer shall be promptly made at the source of supply where practicable. If any work shall be covered up without approval or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination and properly restored at the Contractor's expense.

Re-examination of any work may be ordered by the Engineer and, if so ordered, the work must be uncovered by the Contractor. If such work is found to be in accordance with the contract documents, the City shall pay the cost of re-examination and replacement. If such work is not in accordance with the contract documents, the Contractor shall pay such cost.

Properly authorized and accredited inspectors shall be considered to be the representatives of the City limited to the duties and powers entrusted to them. It will be their duty to inspect materials and workmanship of those portions of the work to which they are assigned, either individually or collectively, under instructions of the Engineer and to report any and all deviations from the Drawings, Special Provisions and other contract provisions which may come to their notice. Any inspector may be considered to have the right to order the work entrusted to his or her supervision stopped, if in his or her opinion such action becomes necessary, until the Engineer is notified and has determined and ordered that the work may proceed in due fulfillment of all contract requirements.

7-03. Surveys. Contractor shall furnish all land surveys, establish all base lines and bench marks and make sufficient detailed surveys needed for working points, lines and elevations. The Contractor shall develop all slope stakes and batter boards. Contractor shall also develop all additional working points, lines and elevations as he or she may desire to facilitate his or her methods and sequence of construction.

7-04. Rights-of-Way. The City will provide all necessary rights-of-way and easements in or beneath which work will be performed by the Contractor under this contract.

7-05. Retention of Imperfect Work. If any portion of the work done or material furnished under this contract shall prove defective and not in accordance with the Plans and Special Provisions, and if the imperfection in the same shall not be of sufficient magnitude or importance to make the work dangerous or undesirable, the Engineer shall have the right and authority to retain such work instead of requiring the imperfect work to be removed and reconstructed, but he or she shall make such deductions therefor in the payments due or to become due the Contractor as may be just and reasonable.

7-06. Changes in the Work. The Engineer shall have the right, in writing, to order additions to, omissions from, or corrections, alterations and modifications in the line, grade, form, dimensions, plan, or kind or amount of work or materials herein contemplated, or any part thereof, either before or after the beginning of construction. However, the arithmetical sum of the cost to the City of additions and subtractions from the work under this contract shall not exceed 10 percent of original contract amount or \$5,000, whichever is the greater, unless based upon a supplementary agreement to be made therefore.

The order of such additions, omissions, corrections, alterations and modifications shall be in writing and signed by the Engineer and, in order, shall then be binding upon the Contractor. The Contractor shall proceed with the work as changed and the value of such change shall be determined as provided for in section 10-07 of these Special Provisions.

Such alterations shall in no way affect, vitiate, or make void this contract or any part thereof, except that which is necessarily affected by such alterations and is clearly the evident intention of the parties to this contract.

7-07. Additional Drawings by City. The drawings made a part of this contract at the time of its execution are intended to be fairly comprehensive and to indicate in more or less detail the scope of the work. In addition to these drawings, however, the Engineer shall furnish such additional drawings from time to time during the progress of the work as are necessary to make clear or to define in greater detail the intent of the Special Provisions and the contract drawings and the Contractor shall make his or her work conform to all such drawings.

7-08. Additional and Emergency Protection. Whenever, in the opinion of the Engineer, the Contractor has not taken sufficient precautions for the safety of the public or the protection of the works to be constructed under this contract, or of adjacent structures or property which may be injured by the processes of construction on account of such neglect and whenever, in the opinion of the Engineer, an emergency shall arise and immediate action shall be considered necessary in order to protect public or private, personal or property interest, then and in that event, the Engineer, with or without notice to the Contractor may provide suitable protection to the said interests by causing such work to be done and such material to be furnished as shall provide such protection as the Engineer may consider necessary and adequate.

The cost and expense of such work and material so furnished shall be borne by the Contractor and, if the same shall not be paid on presentation of the bills therefor, then such costs shall be deducted from any amounts due or to become due the Contractor.

The performance of such emergency work under the direction of the Engineer shall in no way relieve the Contractor from any damages which may occur during or after such precaution has been taken by the Engineer.

7-09. Suspension of Work. The City may at any time suspend the work or any part thereof by giving five (5) days written notice to the Contractor. The work shall be resumed by the Contractor within ten (10) days after the date fixed in the written notice from the City to the Contractor so to do. The City shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this contract as a result of such suspension.

If the work, or any part thereof, shall be stopped by the notice in writing aforesaid and if the City does not give notice in writing to the Contractor to resume work at a date within ten (10) days of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work so suspended and he or she will be entitled to the estimates and payments for all work done on the portions so abandoned, if any, plus 5 percent of the value of the work so abandoned, to compensate for loss of overhead, plant expense and anticipated profit.

7-10. Right of City to Terminate Contract. If the Contractor should be adjudged a bankrupt, or if he or she should make a general assignment for the benefit of his or her creditors, or if a receiver should be appointed on account of his or her insolvency, or if he or she should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply sufficient properly skilled workmen or proper materials, or if he or she should fail to make prompt payments to subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Engineer, or otherwise be guilty of a substantial violation of any provision of the contract, then the City, upon the certificate of the Engineer that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor seven days written notice, terminate the employment of the Contractor and take possession of the premises and of all

materials, tools and appliances and finish the work by whatever method the City may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expense of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the City. The expense incurred by the City as herein provided and the damage incurred through the Contractor's default, shall be certified by the Engineer.

7-11. Use of Completed Portions. The City shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding the time for completing the entire work or such portions which may not have expired; but such taking possession and using shall not be deemed an acceptance of any work not completed in accordance with the contract documents. If such prior use increases the cost of or delays the work, the Contractor shall be entitled to such extra compensation, or extension of time or both, as the Engineer may determine.

SECTION 8. WORKMANSHIP, MATERIALS and EQUIPMENT

8-01. General Quality. Materials and equipment shall be new and of a quality equal to that specified or approved. Work shall be done and completed in a thorough and workmanlike manner.

8-02. Quality in Absence of Detailed Specifications. Whenever under this contract it is provided that the Contractor shall furnish materials or manufactured articles or shall do work for which no detailed specifications are set forth, the materials or manufactured articles shall be of the best grade in quality and workmanship obtainable in the market from firms of established good reputation, or, if not ordinarily carried in stock, shall conform to the usual standards for first-class materials or articles of the kind required, with due consideration of the use to which they are to be put. In general, the work performed shall be in full conformity and harmony with the intent to secure the best standard of construction and equipment of the work as a whole or in part.

8-03. Materials and Equipment Specified by Name. Whenever any material or equipment is indicated or specified by patent or proprietary name or by the name of the manufacturer, such specification shall be considered as used for the purpose of describing the material or equipment desired and shall be considered as followed by the words "or approved equal". The Contractor may offer any material or equipment which shall be equal in every respect to that specified, provided that written approval first is obtained from the Engineer.

8-04. Source of Materials. Price, fitness and quality being equal, preference shall be given by the Contractor for supplies grown, manufactured or produced in the State of California and, next, for such products partially produced in this State in accordance with Government Code Section 4332.

8-05. Storage of Materials. Materials shall be so stored to ensure the preservation of their quality and fitness for the work. They shall be so located and disposed that prompt and proper inspection thereof may be made.

8-06. Drawings, Samples and Tests. As soon as possible after execution of the contract, the Contractor shall submit to the Engineer, in quintuplicate, sufficient information including, if necessary, assembly and detail drawings to demonstrate fully that the equipment and materials to be furnished comply with the provisions and intent of these Special Provisions and Drawings. If the information thus submitted indicates the equipment or materials is acceptable, the Engineer will return one copy stamped with his or her approval; otherwise, one copy will be returned with an explanation of why the equipment or material is unsatisfactory. The Contractor shall have no claims for damages or for extension of time on account of any delay due to the revision of drawings or rejection of material. Fabrication or other work performed in advance of approval shall be done entirely at the Contractor's risk. After approval of equipment or material, the Contractor shall not deviate in any way from the design and specifications given without the written consent of the Engineer.

When requested by the Engineer, a sample or test specimens of the materials to be used or offered for use in connection with the work shall be prepared at the expense of the Contractor and furnished by him or her in such quantities and sizes as may be required for proper examination and tests, with all freight charges prepaid and with information as to their sources.

All samples shall be submitted before shipment and in ample time to permit the making of proper tests, analyses, or examination before the time at which it is desired to incorporate the material into the work. All tests of materials furnished by the Contractor shall be made by the Engineer. Samples shall be secured and tested whenever necessary to determine the quality of the material.

SECTION 9. PROSECUTION OF WORK

9-01. Equipment and Methods. The work under this contract shall be prosecuted with all materials, tools, machinery, apparatus and labor and by such methods as are necessary to the complete execution of everything described, shown, or reasonably implied. If at any time before the beginning or during the progress of the work, any part of the Contractor's plant or equipment, or any of his or her methods of execution of the work, appear to the Engineer to be unsafe, inefficient, or inadequate to insure the required quality or the rate of progress of the work, he or she may order the Contractor to increase or improve his or her facilities or methods and the Contractor shall comply promptly with such orders; but, neither compliance with such orders nor failure of the Engineer to issue such orders shall relieve the Contractor from his or her obligation to secure the degree of safety, the quality of the work and the rate of progress required of the Contractor. The Contractor alone shall be responsible for the safety, adequacy and efficiency of his or her plant, equipment and methods.

9-02. Time of Completion. The Contractor shall promptly begin the work under this contract and shall complete and make ready for full use all portions of the project made the subject of this contract within the time set forth in the agreement bound herewith.

9-03. Avoidable Delays. Avoidable delays in the prosecution or completion of the work shall include all delays which might have been avoided by the exercise of care, prudence, foresight and diligence on the part of the Contractor. The City will consider as avoidable delays within the meaning of this contract (1) delays in the prosecution of parts of the work, which may in themselves be unavoidable, but do not necessarily prevent or delay the prosecution of other parts of the work nor the completion of the whole work within the time herein specified, (2) reasonable loss of time resulting from the necessity of submitting plans to the Engineer for approval and from the making of surveys, measurements, inspections, and testing and (3) such interruptions as may occur in the prosecution of the work on account of the reasonable interference of other contractors employed by the City which do not necessarily prevent the completion of the whole work within the time herein specified.

9-04. Unavoidable Delays. Unavoidable delays in the prosecution or completion of the work under this contract shall include all delays which may result, through cause beyond the control of the Contractor and which he or she could not have provided against by the exercise of care, prudence, foresight and diligence. Orders issued by the City changing the amount of work to be done, the quantity of material to be furnished or the manner in which the work is to be prosecuted and unforeseen delays in the completion of the work of other contractors under contract with the City will be considered unavoidable delays, so far as they necessarily interfere with the Contractor's completion of the whole of the work. Delays due to normally adverse weather conditions will not be regarded as unavoidable delays. However, truly abnormal amounts of rainfall, temperatures or other weather conditions for the location of the work and time of year may be considered as unavoidable delays if those conditions necessarily cause a delay in the completion of the work.

9-05. Notice of Delays. Whenever the Contractor foresees any delay in the prosecution of the work and, in any event, immediately upon the occurrence of any delay which the contractor regards as an unavoidable delay, he or she shall notify the Engineer in writing of the probability of the occurrence of such delay and its cause, in order that the Engineer may take immediate steps to prevent, if possible, the occurrence or continuance of the delay, or, if this cannot be done, may determine whether the delay is to be considered avoidable or unavoidable, how long it continues and to what extent the prosecution and completion of the work are to be delayed thereby.

9-06. Extension of Time. Should any delays occur which the Engineer may consider unavoidable, as herein defined, the Contractor shall, pursuant to his or her application, be allowed an extension of time proportional to said delay or delays, beyond the time herein set forth, in which to complete this contract; and liquidated damages for delay shall not be charged against the Contractor by the City during an extension of time granted because of unavoidable delay or delays.

Any claim by Contractor for a time extension based on unavoidable delays shall be based on written notice delivered to the Engineer within 15 days of the occurrence of the event giving rise to the claim. Failure to file

said written notice within the time specified shall constitute a waiver of said claim. Notice of the full extent of the claim and all supporting data must be delivered to the Engineer within 45 days of the occurrence unless the Engineer specifies in writing a longer period. All claims for a time extension must be approved by the Engineer and incorporated into a written change order.

9-07. Unfavorable Weather and Other Conditions. During unfavorable weather and other conditions, the Contractor shall pursue only such portions of the work as shall not be damaged thereby. No portions of the work whose satisfactory quality or efficiency will be affected by any unfavorable conditions shall be constructed while these conditions remain, unless, by special means or precautions approved by the Engineer, the Contractor shall be able to overcome them.

The Contractor shall be granted a time extension of one day for each unfavorable weather day which prevents him or her from placing concrete forms or placing and finishing concrete or asphalt concrete. Such unfavorable weather day is defined as a rain day where precipitation prevents the contractor from performing the work more than four (4) continuous hours within the authorized work period or a temperature day where the ambient temperature is below that specified for the placement of materials associated with the controlling work item for more than four (4) continuous work hours of the authorized work period.

9-08. Saturday, Sunday, Holiday and Night Work. No work shall be done between the hours of 6 p.m. and 7 a.m., nor on Saturdays, Sundays or legal holidays except such work as is necessary for the proper care and protection of work already performed, or except in cases of absolute necessity and in any case only with the permission of the Engineer.

It is understood, however, that night work may be established as a regular procedure by the Contractor if he or she first obtains the written permission of the Engineer and that such permission may be revoked at any time by the Engineer if the Contractor fails to maintain at night adequate force and equipment for reasonable prosecution and to justify inspection of the work.

9-09. Hours of Labor. Eight (8) hours of labor shall constitute a legal day's work and the Contractor or any subcontractor shall not require or permit more than eight hours of labor in a day from any person employed by him or her in the performance of the work under this contract, unless paying compensation for all hours worked in excess of eight (8) hours per day at not less than 1½ times the basic rate of pay. The Contractor shall forfeit to the City, as a penalty, the sum of twenty-five dollars (\$25.00) for each workman employed in the execution of the contract by him or her or by any subcontractor, for each calendar day during which such laborer, workman, or mechanic is required or permitted to labor more than eight hours in violation of the provisions of Section 1810 to 1816, inclusive, (Article 3, Chapter 1, Part 7, Division 2) of the Labor Code of the State of California and any acts amendatory thereof.

SECTION 10. PAYMENT

10-01. Certification by Engineer. All payments under this contract shall be made upon the presentation of certificates in writing from the Engineer and shall show that the work covered by the payments has been done and the payments thereof are due in accordance with this contract.

10-02. Progress Estimates and Payment. The Engineer shall, within the first seven (7) days of each month, make an estimate of the value of the work performed in accordance with this contract during the previous calendar month.

The first estimate shall be of the value of the work satisfactorily completed in place and meeting the requirements of the contract. And every subsequent estimate, except the final estimate, shall be of the value of the work satisfactorily completed in place since the last preceding estimate was made; provided, however, that should the Contractor fail to adhere to the program of completion fixed in this contract, the Engineer shall deduct from the next and all subsequent estimates the full calculated accruing amount of the liquidated damages to the date of said estimate, until such time as the compliance with the program has been restored.

The estimate shall be signed by the Engineer and, after approval, the City shall pay or cause to be paid to the Contractor in the manner provided by law, an amount equal to 95 percent of the estimated value of the work satisfactorily performed and complete in place.

10-03. Substitution of Securities.

1. At such times that Pubic Contract Code Section 22300 is in effect Contractor may propose the substitution of securities of at least equal market value for any moneys to be withheld to ensure performance under the Contract. Market value shall be determined as of the day prior to the date such substitution is to take place. Such substitution shall be made at the request and expense of the Contractor. The securities shall be one or more of the following types:

- (a) Bonds or interest-bearing notes or obligations of the United States, or those for which the faith and credit of the United States are pledged for the payment of principal and interest.
- (b) Bonds or interest-bearing notes on obligations that are guaranteed as to principal and interest by a federal agency of the United States.
- (c) Bonds of the State of California, or those for which the faith and credit of the State of California are pledged for the payment of principal and interest.
- (d) Bonds or warrants, including, but not limited to, revenue warrants, of any county, city, metropolitan water district, California water district, California water storage district, irrigation district in the State of California, municipal utility district, or school district of the State of California, which are rated by Moody's or Standard and Poor as A or better.
- (e) Bonds, consolidated bonds, collateral trust debentures, consolidated debentures, or other obligations issued by federal land banks or federal intermediate credit banks established under the Federal Farm Loan Act, as amended; debentures and consolidated debentures issued by the Central Bank for Cooperatives and banks for cooperatives established under the Farm Credit Act of 1933, as amended; bonds, or debentures of the Federal Home Loan Bank Board established under the Federal Home Loan Bank Act; and stock, bonds, debentures and other obligations of the Federal National Mortgage Association established under the National Housing Act as amended and bonds of any Federal Home Loan Mortgage Corporation.
- (f) Commercial paper of "prime" quality as defined by a nationally recognized organization which rates such securities. Eligible paper is further limited to issuing corporations: (1) organized and operating within the United States; (2) having total assets in excess of five hundred million dollars (\$500,000,000); and (3) approved by the Pooled Money Investment Board of the State of California. Purchases of eligible commercial paper may not exceed 180 days' maturity, nor represent more than 10 percent of the outstanding paper of an issuing corporation.
- (g) Bills of exchange or time drafts on and accepted by a commercial bank, otherwise known as bankers acceptances, which are eligible for purchase by the Federal Reserve System.
- (h) Certificates of deposits issued by a nationally or state-chartered bank or savings and loan association.
- (i) The portion of bank loans and obligations guaranteed by the United States Small Business Administration or the United States Farmers Home Administration.
- (j) Student loan notes insured under the Guaranteed Student Loan Program established pursuant to the Higher Education Act of 1965, as amended (20 U.S.C. 1001, et seq.) and eligible for resale to the Student Loan Marketing Association established pursuant to Section 133 of the Education Amendments of 1972, as amended (20 U.S.C. 1087-2).
- (k) Obligations issued, assumed or guaranteed by International Bank for Reconstruction and Development, the Inter-American Development Bank, the Asian Development Bank, or the Government Development Bank of Puerto Rico.

(I) Bonds, debentures and notes issued by corporations organized and operating within the United States. Such securities eligible for substitution shall be within the top three ratings of a nationally recognized rating service.

2. The securities shall be deposited with City or with any commercial bank as escrow agent, who shall arrange for transfer of such securities to the Contractor upon satisfactory completion of the contract. Any interest accrued or paid on such securities shall belong to the Contractor and shall be paid upon satisfactory completion of the contract.

The market value of the securities deposited shall at all times be maintained in an amount at least equal, in the sole judgment of City, to the moneys to be withheld pursuant to the Contract Documents to ensure performance of the Contract. In order to comply with this condition, Contractor shall deposit additional securities as necessary upon request by City or the escrow agent.

3. Upon acceptance of any Proposal that includes substituting securities for amounts withheld to ensure performance, a separate escrow agreement satisfactory in form and substance to City shall be prepared and executed by City, the Contractor and the escrow agent, which may be City. The escrow agreement shall specify, among other matters, value of securities to be deposited; procedures for valuing the securities and for adding or withdrawing securities to maintain the market value of the deposited securities at least equal to the amount of moneys which would otherwise be withheld; the terms and conditions of conversion to cash in case of the default by the Contractor; and terms, conditions and procedure for termination of the escrow. City shall have no obligation to enter any such Agreement that does not provide the City with the unilateral right to convert securities to cash and to gain immediate possession of the cash.

10-04. Acceptance. The work must be accepted by vote of the City Council of the City of Ukiah when the whole shall have been completed satisfactorily. The Contractor shall notify the Engineer, in writing, of the completion of the work, whereupon the Engineer shall promptly, by personal inspection, satisfy himself as to the actual completion of the work in accordance with the terms of the contract and shall thereupon recommend acceptance by the City Council.

10-05. Final Estimate and Payment. The Engineer shall, as soon as practicable after the final acceptance of the work done under this contract, make a final estimate of the amount of work done thereunder and the value thereof.

Such final estimate shall be signed by the Engineer, and after approval, the City shall pay or cause to be paid to the Contractor, in the manner provided by law, the entire sum so found to be due hereunder, after deducting therefrom all previous payments and such other lawful amounts as the terms of this contract prescribe.

In no case will final payment be made in less than thirty-five (35) days after the filing of the notice of completion with the County Recorder.

10-06. Delay Payments. Should any payment due the Contractor or any estimate be delayed, through fault of the City beyond the time stipulated, such delay shall not constitute a breach of contract or be the basis for a claim for damages, but the City shall pay the Contractor interest on the amount of the payment at the rate of 6 percent per annum for the period of such delay. The terms for which interest will be paid shall be reckoned, in the case of any monthly or progress payment, from the twentieth day of the month next succeeding the month in which the work was performed to the date of payment of the estimate; and in the case of the final estimate, from the forty-fifth day after acceptance to the date of payment of the final estimate.

The date of payment of any estimate shall be considered the day on which the payment is offered or mailed as evidenced by the records of the Treasurer of the City. If interest shall become due on any delayed payment, the amount thereof, as determined by the City, shall be added to a succeeding payment. If the interest shall become due on the final payment, it shall be paid on a supplementary voucher to interest or any sum or sums which, by the terms of this contract, the City is authorized to reserve or retain.

10-07. Extra Work and Work Omitted. Whenever corrections, alterations, or modifications of the work under this contract ordered by the Engineer and approved by the City increase the amount of work to be done, such

added work shall be known as "extra work"; and when such corrections, alterations, or modifications decrease the amount of work to be done, such subtracted work shall be known as "work omitted".

When the Contractor considers that any changes ordered involve extra work, he or she shall immediately notify the Engineer in writing and subsequently keep him or her informed as to when and where extra work is to be performed and shall make claim for compensation therefor each month not later than the first day of the month following that in which the work claimed to be extra work was performed and he or she shall submit a daily complete statement of materials and labor used and expenses incurred on account of extra work performed, showing allocation of all materials, labor and expenses.

All such claims shall state the date of the Engineer's written order and the date of approval by the City authorizing the work on account of which claim is made. Unless such notification is made in writing within the time specified and unless complete statements of materials used and expenses incurred on account of such extra work are furnished as above required, the Contractor shall not be entitled to payment on account of extra work and Contractor shall be deemed to have waived the right to make any future claims for compensation for such extra work.

When changes decrease the amount of work to be done, they shall not constitute a claim for damages on account of anticipated profits on the work that may be omitted.

10-08. Compensation for Extra Work or Work Omitted. Whenever corrections, additions, or modifications in the work under this contract change the amount of work to be done or the amount of compensation due the Contractor, excepting increases or decreases in contract items having unit contract prices for each measurable quantity installed in place, and such changes have been ordered in writing by the Engineer and approved by the City prior to the Contractor performing the extra work, then a price may be agreed upon. Failing such an agreement in price, the Contractor shall be compensated for performing extra work pursuant to the provisions of Section 4-1.03 D, "Extra Work", and Section 9-1.03, "Force Account Payment" of the Standard Specifications.

This method of determining the price of work shall not apply to the performance of any work which is required or reasonably implied to be performed or furnished under this contract.

10-09. Compensation to the City for Extension of Time. In case the work called for under this contract is not completed within the time limit stipulated herein, the City shall have the right as provided hereinabove, to extend the time of completion thereof. If the time limit be so extended, the City shall have the right to charge to the Contractor and to deduct from the final payment for the work the actual cost to the City of engineering, inspection, superintendence and other overhead expenses which are directly chargeable to the contract and which accrue during the period of such extension, except that the cost of final unavoidable delays shall not be included in such charges.

10-10. Liquidated Damages for Delay. It is agreed by the parties to the contract that time is of the essence and that, in case all the work is not completed before or upon the expiration of the time limit as set forth, damage, other than those cost items identified in section 10-09, will be sustained by the City and that it is and will be impracticable to determine the actual amount of damage by reason of such delay; and it is therefore agreed that the Contractor will pay to the City the sum of two thousand dollars (\$2,000) per day for each and every calendar day's delay beyond the time prescribed.

SECTION 11. MISCELLANEOUS

11-01. Notice. Whenever any provision of the contract documents requires the giving of written notice, it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice. If mailed, the notice shall be deemed received on the date of delivery stated in the return receipt.

11-02. Computation of Time. When any period of time is referred to in the Contract Documents by days, it shall be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day shall be omitted from the computation.

11-03. Claims Procedure Required by Public Contract Code Section 9204. This section shall apply to any claim by the Contractor arising in connection with this project in accordance with Public Contract Code Section 9204.

a, For purposes of this section "Claim" means a separate demand by the Contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

(A) A time extension, including, without limitation, for relief from damages or penalties for delay assessed by the City under this contract.

(B) Payment by the City of money or damages arising from work done by, or on behalf of, the Contractor pursuant to this contract and payment for which is not otherwise expressly provided or to which the Contractor is not otherwise entitled.

(C) Payment of an amount that is disputed by the City.

(1)

(A) Upon receipt of a claim pursuant to this section, the City shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the Contractor a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and the contractor may, by mutual agreement, extend the time period provided in this subdivision.

(B) The Contractor shall furnish reasonable documentation to support the claim.

(C) If the City needs approval from its governing body to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the City shall have up to three days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.

(D) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the City issues its written statement. If the City fails to issue a written statement, paragraph (3) shall apply.

(2)

(A) If the Contractor disputes the City's written response, or if the City fails to respond to a claim issued pursuant to this section within the time prescribed, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the City shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(B) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the City shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the City and the Contractor sharing the associated costs equally. The City and Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

(C) For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

(D) Unless otherwise agreed to in writing by the City and the Contractor, the mediation conducted pursuant to this section shall excuse any further obligation under Public Contract Code Section 20104.4 to mediate after litigation has been commenced.

(3) Failure by the City to respond to a claim from the Contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the Contractor.

(4) Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.

(5) If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the Contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that the Contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the public entity shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the Contractor shall notify the subcontractor in writing as to whether the Contractor presented the claim to the public entity and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

c. A waiver of the rights granted by this section is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) the City may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

11-04. Litigation and Forum Selection. Contractor and City stipulate and agree that any litigation relating to the enforcement or interpretation of this contract, arising out of Contractor's performance or relating in any way to the work shall be brought in Mendocino County and that venue will lie in Mendocino County.

Except as otherwise expressly provided by law, the parties waive any objections they might otherwise have to the propriety of jurisdiction or venue in the state courts in Mendocino County and agree that California law shall govern any such litigation.

The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto and, in particular but without limitation, the warranties, guaranties and obligations imposed upon the Contractor and all of the rights and remedies available to the City thereunder, shall be in addition to and shall not be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by law or contract, by special warranty or guaranty, or by other provisions of the contract documents and the provisions of this paragraph shall be as effective as if repeated specifically in the contract documents in connection with each particular duty, obligation, right and remedy to which they apply. All warranties and guaranties made in the contract document shall survive final payment and termination or completion of this contract. The City disclaims an express or implied warranty that the plans and specifications identify all site conditions that could affect the time or cost to complete the Work.

11-05. Waiver. The Contractor shall strictly comply with all notices and other contract requirements. Waiver by the City of any failure of the Contractor to comply with any term of the contract, including the notice provisions, shall not be deemed a waiver of a subsequent breach.

SECTION 12. GENERAL INFORMATION

12-01. Location and Scope of Work. All of the work to be performed is within the City of Ukiah and consists of RUNWAY 15-33 PAVEMENT REHABILITATION, PHASE 1. General locations of the work are UKIAH MUNICIPAL AIRPORT (refer to project Plans).

The Contractor should familiarize himself with the local conditions of the project sites. Failure to do so will in no way relieve him of the responsibility for performing any of the work or operations required as a part of this contract. Further information regarding the work or these specifications can be obtained from Mary Horger at (707) 463-6233.

12-02. Arrangement of Technical Specifications. The Technical Specifications are arranged in sections covering the various phases of work as follows:

Section No.	Title
12	General Information
13	Construction Details - Including FAA Technical Specifications, Parts
3-13	
14	Exclusions from General Conditions
15	Amendments to General Conditions

12-03. Arrangement of Plans. Project Plan Set consists of thirty (30) plan sheets.

12-04. Business Licenses. The Contractor and any subcontractors shall each secure and maintain a valid City of Ukiah Business License prior to the start of any portion of the work.

12-05. Permits. The Contractor shall provide, procure, and pay for all permits required to complete this work.

12-06. Standard Specifications and Standard Plans. State Standard Specifications and Plans do not apply to this project. FAA Standard Specifications and Plan format will be used for this project.

Refer to FAA General Contract Provisions for terms used in the FAA Standard documents.

Whenever in the California Standard Specifications and the California Standard Plans the following terms are used, they shall be understood to mean and refer to the following:

Department of Transportation - The City Council.

Director of Public Works - The City of Ukiah Director of Public Works.

Engineer - The Engineer, designated by the City Council, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

Laboratory - The designated laboratory authorized by the City of Ukiah to test materials and work involved in the contract.

State - The City of Ukiah

Refer to Section 50-04 of the FAA General Contract Provisions for order of precedence.

12-07. Temporary Facilities. All temporary facilities are the responsibility of the Contractor. The removal of said facilities shall be the responsibility of the Contractor. The Contractor shall be responsible for any and all damages to existing facilities which are a result of the work.

12-08. Public Convenience and Safety. The Contractor shall conduct operations so as to cause the least possible obstruction and inconvenience to public traffic. The Contractor shall, at his or her expense, furnish such flag persons and furnish, erect, construct and maintain such fences, barriers, lights, signs, detours, pedestrian walkways, driveway ramps and bridging as may be necessary to give adequate warning to the public that work is in progress and that dangerous conditions exist, to provide access to abutting properties and to permit the flow of pedestrian and vehicular traffic to safely and expeditiously pass the work.

12-09. Maintaining Traffic. Attention is directed to Section 7-1.08, "Public Convenience," 7-1.09, "Public Safety," 7-1.092, "Lane Closure," and 7-1.095, "Flagging Costs," of the California Standard Specifications.

Streets shall be open to through vehicular traffic during non-working hours. All public traffic shall be permitted to pass through the work with as little inconvenience and delay as possible.

Full costs for "Maintaining Traffic", including "Flagging Costs", shall be considered as included in the various items of work and no additional compensation will be made.

12-10. Stream Pollution. The Contractor shall exercise every reasonable precaution to prevent muddying or silting of live streams, and the Contractor's attention is called to the fact that the terms of this contract do not relieve him or her of responsibility for compliance with Sections 5650 and 12015 of the Fish and Game Code or other applicable statutes relating to pollution prevention or abatement.

12-11. Warranties. Unless otherwise indicated, the Contractor shall warrant all materials provided and work performed under this contract for a period of one year from the date of final acceptance. He shall replace promptly and at his own expense any materials and/or workmanship which fail during this warranty period.

12-12. Utilities. No water, sewer or electrical services will be provided by the owner. It is the Contractor's sole responsibility to arrange such services as necessary.

12-13. Preconstruction Conference. A preconstruction conference will be held before any work will be allowed to commence. This meeting will cover inspection, schedule for work, and among other items, the responsibilities and procedures of each of the interested parties to assure that the project will be completed in accordance with the contract documents.

12-14. Safety Requirements. The Contractor shall comply with all pertinent provisions of the Department of Labor "Safety and Health Regulations for Construction (29 FCS Part 1518, 36 CFR 7340)", with additions or modifications thereto, in effect during construction of this project.

SECTION 13 - CONSTRUCTION DETAILS

This project is funded under the Federal Aviation Administration (FAA) Airport Improvement Program (AIP). Contractor(s) will be required to comply with specific federal contract provisions as listed herein and contained in the Bid Documents.

Use of the documents contained in this section follow Advisory Circular 150-5370-10H, and are mandatory for all projects funded under FAA Airport Improvement Program (AIP).

Included in this section are the following:

13-01. Federal Required Contract Provisions

13-02. Project-Specific Requirements for Airport Construction

Part 1, Provisions for Airport Construction

Part 2, Construction Safety and Phasing Plan

13-03. FAA Standard Specifications for Construction of Airports

Part 1 – FAA General Contract Provisions

Part 2 – FAA General Construction Items

Item C-100 Contractor Quality Control Program (CQCP)

Item C-105 Mobilization

Item C-110 Method of Estimating Percentage of Material Within Specification (PWL)

Part 3 – Sitework

Item P-101 Preparation and Removal of Existing Pavements

Item P-151 Clearing and Grubbing

Item P-152 Excavation, Subgrade, and Embankment

Item P-153 Controlled Low Strength Material (CLSM)

Item P-154 Subbase Course

Item P-155 Lime-Treated Subgrade

Part 4 – Base Courses

Item P-209 Crushed Aggregate Base Course

Part 5 – Stabilized Base Courses – *Not Used.*

Part 6 – Flexible Pavements

Item P-401 Asphalt Mix Pavement

Part 7 – Rigid Pavement – *Not Used.*

Part 8 – Surface Treatments

Item P-608 Emulsified Asphalt Seal Coat

Part 9 – Miscellaneous

Item P-602 Emulsified Asphalt Prime Coat

Item P-603 Emulsified Asphalt Tack Coat

Item P-605 Joint Sealants for Pavements

Item P-610 Concrete for Miscellaneous Structures

Item P-620 Runway and Taxiway Marking

Part 10 – Fencing – *Not Used.*

Part 11 – Drainage – *Not Used.*

Part 12 – Turfing

Item T-901 Seeding

Part 13 – Lighting Installation

Item L-108 Underground Power Cables for Airports

Item L-110 Airport Underground Electrical Duct Banks and Conduits

Item L-115 Electrical Manholes and Junction Structures

Item L-110 Installation of Airport Lighting Systems

13-04. Additional Project Specifications – *Not Used.*

**13-05. Supplemental Documentation in Support of Construction of this Project
Geotechnical Report**

Section 13.01

Federal Required Contract Provisions

Required Federal Contract Provisions for FAA Airport Improvement Program Projects

GUIDANCE & REQUIREMENTS

This project is funded by the Federal Aviation Administration. Federal laws and regulations require that projects funded by federal assistance must include specific contract provisions. Contractor(s) including subcontractors are required to:

- include certain provisions in their subcontracts and sub-tier agreements.
- incorporate the applicable requirements of these contract provisions by reference for work done under any purchase orders, rental agreements and other agreements for supplies or services.

The prime contractor shall be responsible for compliance with these contract provisions by any subcontractor, lower-tier subcontractor or service provider.

Failure to Comply with Provisions

Contractor failure to comply with the terms of these contract provisions may be sufficient grounds to:

- 1) Withhold progress payments or final payment;
- 2) Terminate the contract for cause;
- 3) Seek suspension/debarment; or
- 4) Take other actions determined to be appropriate by the Sponsor or the FAA.

A1 ACCESS TO RECORDS AND REPORTS

(2 CFR § 200.333, 2 CFR § 200.336, FAA Order 5100.38)

ACCESS TO RECORDS AND REPORTS

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

A2 AFFIRMATIVE ACTION REQUIREMENT

(41 CFR part 60-4, Executive Order 11246)

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION to ENSURE EQUAL EMPLOYMENT OPPORTUNITY

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables

Goals for minority participation for each trade: 23.2%

Goals for female participation in each trade: 6.9%

These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in

excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the “covered area” is CITY OF UKIAH, COUNTY OF MENDOCINO, STATE OF CALIFORNIA.

A3 BREACH OF CONTRACT TERMS (2 CFR § 200 Appendix II(A))

Applies to all Contracts over \$150,000

BREACH OF CONTRACT TERMS

Any violation or breach of terms of this contract on the part of the *Contractor* or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide *Contractor* written notice that describes the nature of the breach and corrective actions the *Contractor* must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner’s notice will identify a specific date by which the *Contractor* must correct the breach. Owner may proceed with termination of the contract if the *Contractor* fails to correct the breach by the deadline indicated in the Owner’s notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

A4 BUY AMERICAN PREFERENCE (Title 49 USC § 50101)

The Buy America requirements flow down from the sponsor to first tier contractors, who are responsible for ensuring that lower tier contractors and subcontractors are also in compliance.

Note: the Buy American Preference does not apply to equipment a contractor uses as a tool of their trade **and does not remain** as part of the project.

There are two types of Buy American certifications.

1. Projects for a facility (Buildings such as Terminal, SRE, ARFF, etc.) – Insert the Certificate of Compliance Based on Total Facility
2. Projects for non-facility development (non-building construction projects such as runway or roadway construction; or equipment acquisition projects)

Bidder must sign and submit with bid the Certification contained in the Proposal Forms.

BUY AMERICAN PREFERENCE

The Contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods 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 an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

A bidder or offeror must complete and submit the Buy America certification included herein with their bid or offer. The Owner will reject as nonresponsive any bid or offer that does not include a completed Certificate of Buy American Compliance.

Certificate of Buy American Compliance for Manufactured Products

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101 by selecting one on the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by inserting a checkmark (✓) or the letter "X".

- ☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101 by:
- a) Only installing steel and manufactured products produced in the United States;
 - b) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
 - c) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

1. To provide to the Owner evidence that documents the source and origin of the steel and manufactured product.
2. To faithfully comply with providing U.S. domestic product.
3. To furnish U.S. domestic product for any waiver request that the FAA rejects
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

- ☐ The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for either a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

1. To submit to the Owner within 15 calendar days of the bid opening, a formal waiver request and required documentation that supports the type of waiver being requested.
2. That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination may result in rejection of the proposal.

3. To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 3 Waiver – The cost of the item components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the “item”. The required documentation for a Type 3 waiver is:

- a) Listing of all product components and subcomponents that are not comprised of 100 percent U.S. domestic content (Excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
- b) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly at place of manufacture.
- c) Percentage of non-domestic component and subcomponent cost as compared to total “item” component and subcomponent costs, excluding labor costs associated with final assembly at place of manufacture.

Type 4 Waiver – Total cost of project using U.S. domestic source product exceeds the total project cost using non-domestic product by 25 percent. The required documentation for a Type 4 of waiver is:

- a) Detailed cost information for total project using U.S. domestic product
- b) Detailed cost information for total project using non-domestic product

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

A1 CIVIL RIGHTS - GENERAL (49 USC § 47123)

GENERAL CIVIL RIGHTS PROVISIONS

The Contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

A2 CIVIL RIGHTS – TITLE VI ASSURANCE (49 USC § 47123, FAA Order 1400.11)

A6.1 Title VI Solicitation Notice:

The CITY OF UKIAH, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

A6.2 Compliance with Nondiscrimination Requirements:

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “Contractor”), agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
1. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.
2. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the contractor’s obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
3. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
4. **Sanctions for Noncompliance:** In the event of a Contractor’s noncompliance with the non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
 - a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
 - b. Cancelling, terminating, or suspending a contract, in whole or in part.
5. **Incorporation of Provisions:** **The Contractor will include the provisions of paragraphs one through six in every subcontract,** including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as

the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

Insert this list in every contract or agreement

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “Contractor”) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 USC § 2000d *et seq.*, 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 *et seq.*), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 *et seq.*) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 USC § 471, Section 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-209) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 USC §§ 12131 – 12189) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration’s Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC 1681 et seq).

A3 CLEAN AIR AND WATER POLLUTION CONTROL (2 CFR § 200, Appendix II(G))

Contract Types – This provision is required for all contracts and lower tier contracts that exceed \$150,000.

CLEAN AIR AND WATER POLLUTION CONTROL

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 USC § 740-7671q) and the Federal Water Pollution Control Act as amended (33 USC § 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

Contractor must include this requirement in all subcontracts that exceeds \$150,000.

A4 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS (2 CFR § 200, Appendix II(E))

This provision applies to all contracts and lower tier contracts that exceed \$100,000, and employ laborers, mechanics, watchmen, and guards.

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

1. Overtime Requirements.

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontractors.

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

A5 COPELAND “ANTI-KICKBACK” ACT
(2 CFR § 200, Appendix II(D), 29 CFR Parts 3 and 5)

This provision applies to all construction contracts and subcontracts financed under the AIP that exceed \$2,000.

COPELAND “ANTI-KICKBACK” ACT

Contractor must comply with the requirements of the Copeland “Anti-Kickback” Act (18 USC 874 and 40 USC 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

A6 DAVIS-BACON REQUIREMENTS
(2 CFR § 200, Appendix II(D), 29 CFR Part 5)

Construction – Incorporate into all construction contracts and subcontracts that exceed \$2,000 and include funding from the AIP.

DAVIS-BACON REQUIREMENTS

1. Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided* that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination;
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program: *Provided* that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding.

The Federal Aviation Administration or the sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and that show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and

certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (*e.g.* the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at www.dol.gov/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) The payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i), and that such information is correct and complete;

(2) Each laborer and mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;

(3) Each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the sponsor, the Federal Aviation Administration, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees, and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements.

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract Termination: Debarment.

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC 1001.

A7 DEBARMENT AND SUSPENSION

(2 CFR part 180 (Subpart C). 2 CFR part 1200, DOT Order 4200.5)

This provision is required to be included in any AIP-funded contract, regardless of tier, that is awarded by a contractor, subcontractor, supplier, consultant if the amount of the contract is equal to or exceeds \$25,000.

CERTIFICATION OF OFFERER/BIDDER REGARDING DEBARMENT

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: <http://www.sam.gov>.
1. Collecting a certification statement similar to the Certification of Offerer /Bidder Regarding Debarment, above.
2. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

A8 DISADVANTAGED BUSINESS ENTERPRISE (49 CFR part 26)

The requirements of 49 CFR part 26 apply to this contract. It is the policy of the CITY OF UKIAH to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

DISADVANTAGED BUSINESS ENTERPRISES

Contract Assurance (§ 26.13) –

The Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of Department of Transportation-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Owner deems appropriate, which may include, but is not limited to:

- 1) Withholding monthly progress payments;
- 2) Assessing sanctions;
- 3) Liquidated damages; and/or
- 4) Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (§26.29) – The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than FOURTEEN days from the receipt of each payment the prime contractor receives from CITY OF UKIAH. The prime contractor agrees further to return retainage payments to each subcontractor within FOURTEEN days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the CITY OF UKIAH. This clause applies to both DBE and non-DBE subcontractors.

A9 DISTRACTED DRIVING (Executive Order 13513, DOT Order 3902.10)

The Contractor must include the substance of this clause in all sub-tier contracts exceeding \$3,500 that involve driving a motor vehicle in performance of work activities associated with the project.

TEXTING WHEN DRIVING

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving", (10/1/2009) and DOT Order 3902.10, "Text Messaging While Driving", (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with

the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding \$3,500 that involve driving a motor vehicle in performance of work activities associated with the project.

A10 ENERGY CONSERVATION REQUIREMENTS (2 CFR § 200, Appendix II(H))

Include this provision in all AIP funded contracts and lower-tier contracts.

ENERGY CONSERVATION REQUIREMENTS

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to energy efficiency as contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 USC 6201*et seq.*).

A11 DRUG FREE WORKPLACE REQUIREMENTS (49 CFR part 32)

Drug-Free Workplace Act of 1988 (41 U.S.C. 701 *et seq.*, as amended)

The Drug-Free Workplace Act of 1988 requires some Federal contractors and *all* Federal grantees to agree that they will provide drug-free workplaces as a condition of receiving a contract or grant from a Federal agency. The Act does **not** apply to contractors, subcontractors, or subgrantees, although the Federal grantees workplace may be where the contractors, subcontractors, or subgrantees are working.

Contract Types – This provision applies to all AIP funded projects, but not to the contracts between the grantee (the sponsor) and a contractor, subcontractors, suppliers, or subgrantees.

Use of Provision – No mandatory or recommended text provided because the requirements do not extend beyond the sponsor level.

A12 EQUAL EMPLOYMENT OPPORTUNITY (2 CFR 200, Appendix II©, 41 CFR § 60-1.4, 41 CFR § 60-4.3, Executive Order 11246)

The EEO Opportunity “Contract Clause” must be included (without modification) in any contract or subcontract when the amount exceeds \$10,000.

EQUAL OPPORTUNITY CONTRACT CLAUSE

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identify, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff, or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

(3) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however*, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

1. As used in these specifications:

- a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
- b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;
- c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

d. "Minority" includes:

- (1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
- (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);
- (3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
- (4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR part 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors shall be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the Contractor during the training period and the Contractor shall have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or female sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions, including specific review of these items, with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor union, contractor community, or other similar groups of which the Contractor is a

member and participant may be asserted as fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, if the particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally), the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR part 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of

local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

A13 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)
(29 USC § 201, et seq)

All consultants, sub-consultants, contractors, and subcontractors employed under this federally assisted project must comply with the FLSA.

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The *Contractor* has full responsibility to monitor compliance to the referenced statute or regulation. The *Contractor* must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

A14 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES
(31 USC § 1352 – Byrd Anti-Lobbying Amendment, 2 CFR part 200, Appendix II(J), 49 CFR part 20, Appendix A)

Contractor must include Lobbying Certification and this language (not modified) in subcontracts exceeding \$100,000.

CERTIFICATION REGARDING LOBBYING

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.
- (3) The undersigned shall require that **the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts**

under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

(Certification is included in the bid forms package)

A15 PROHIBITION of SEGREGATED FACILITIES

(41 CFR § 60)

This clause must be included in all contracts that include the Equal Opportunity clause, regardless of the amount of the contract. This obligation flows down to subcontract and sub-tier purchase orders containing the Equal Employment Opportunity clause.

PROHIBITION OF SEGREGATED FACILITIES

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.

(b) “Segregated facilities,” as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

A16 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

(29 CFR part 1910)

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor’s compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

A17 PROCUREMENT OF RECOVERED MATERIALS

(2 CFR § 200.322, 40 CFR part 247, Solid Waste Disposal Act)

Include this provision in all construction and equipment projects.

PROCUREMENT OF RECOVERED MATERIALS

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

- 1) The contract requires procurement of \$10,000 or more of a designated item during the fiscal year; or
- 2) The contractor has procured \$10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

- a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;
- b) Fails to meet reasonable contract performance requirements; or
- c) Is only available at an unreasonable price.

A18 RIGHT TO INVENTIONS

38 (2 CFR § 200, Appendix II(F), FR §401)

Not Applicable.

A19 SEISMIC SAFETY

(49 CFR part 41)

Not Applicable.

A20 TAX DELINQUENCY AND FELONY CONVICTIONS

(DOT Order 4200.6 - Requirements for Procurement and Non-Procurement Regarding Tax Delinquency and Felony Convictions)

Bidder: if awarded a contract resulting from this solicitation, this provision must be incorporated in all lower tier subcontracts.

CERTIFICATION OF OFFERER/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The applicant must complete the following two certification statements. The applicant must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the

space following the applicable response. The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

- 1) The applicant represents that it is (☐) is not (☐) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.
- 2) The applicant represents that it is (☐) is not (☐) is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twenty-four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 U.S.C. § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

A21 TERMINATION OF CONTRACT

(2 CFR § 200 Appendix II(B), FAA Advisory Circular 150/5370-10, Section 80-09)

TERMINATION FOR CONVENIENCE (CONSTRUCTION CONTRACTS)

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.

4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

- 3) completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
- 4) documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;
- 5) reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
- 6) reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

TERMINATION FOR DEFAULT (CONSTRUCTION)

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes conditions, rights, and remedies associated with Owner termination of this contract due to default of the Contractor.

A22 TRADE RESTRICTION CERTIFICATION

(49 USC § 50104, 49 CFR part 30)

Bidder: If awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts.

TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

- 1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);
- 2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and

- 3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

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

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, **no contract shall be awarded to an Offeror or subcontractor:**

- 1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR or
- 2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list or
- 3) who incorporates in the public works project any product of a foreign country on such USTR list.

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.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

(Note: Trade Restriction Certification is included in the bid forms for bidder's signature and submittal)

A23 VETERAN'S PREFERENCE

(49 USC § 47112©)

VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), **the Contractor and all sub-tier contractors** must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as

defined by 15 USC 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

Section 13.02

Project-Specific Requirements for Airport Construction

13.02 - Part 1

Provisions for Airport Construction

Item SP-100, Special Provisions for Airport Construction

DESCRIPTION

100-1.1 Overview. This Section provides for construction safety in an Airport environment; limitations on construction operations; minimum requirements for construction management and scheduling; and site specific information pertaining to potential impacts on construction activities. Unless otherwise noted, all costs associated with related work shall be included in the Contract pay item for Airfield Safety and Traffic Control.

100-1.2 Construction Safety and Phasing Plan (CSPP). A Construction Safety and Phasing Plan has been prepared for this project. Contractor shall comply with the Project-specific CSPP included as Part 2 of "Project-Specific Requirements for Airport Construction.". Included as part of the requirements of the CSPP is the Safety Plan Compliance Document (SPCD) to be completed by the Contractor.

100-1.3 Security Access. Refer to the CSPP included as Part 2 of "Project-Specific Requirements for Airport Construction." Contractor shall comply with the CSPP. Included as part of the requirements of the CSPP is the Safety Plan Compliance Document (SPCD) to be completed by the Contractor. Any costs shall be included in the bid item for Airfield Safety and Traffic Control.

100-1.4 Construction Schedule and Progress Schedule. A construction schedule and progress schedule shall be submitted to the Engineer by the Contractor within five (5) working days prior to the preconstruction meeting. A City-approved schedule will be required prior to issuing a Notice to Proceed with the Construction Element.

Schedule shall be a Critical Path Method Baseline type. Schedule shall indicate complete sequence of each construction category, indicating a time bar for each major category or unit of work to be performed. Work shall be properly sequenced and indicate being fully completed within the scheduled time of completion or substantial completion. The schedule shall also include manpower, equipment utilization and resource needs (resource loading) in order to meet the schedule.

Schedule shall be coordinated with all other Contractors, subcontractors and material suppliers prior to submission. Contractor shall update the schedule for each weekly construction meeting or whenever there is a significant change in progress, whether in a particular phase or total job progress.

Progress schedule shall incorporate, submittals, product data, and sample submissions. Schedule shall indicate preparation time, approval time, resubmissions, fabrications, delivery dates and installation time.

100-1.5 Lines and Grades. The Contractor shall provide construction and layout staking in accordance with the requirements of these Specifications. The Contractor shall protect and preserve all marks set by others and shall be liable for replacement of marks destroyed during construction. The Engineer will be given 48 hours' notice of subgrade, and aggregate base completion, building foundation, and pavement markings so finished grades and layout may be checked. The Contractor shall include the associated costs in the Contract item for Construction Staking and Survey Layout.

100-1.6 Record Drawings. The Contractor shall maintain Record Drawings of all work continuously as the job progresses. A separate set of prints, for this purpose only, shall be kept at the job site at all times. It shall be required that these Drawings be up to date and be reviewed by the resident observer at the time each progress bill is submitted. All deviations from the Drawings, exact locations and sizes of all utilities and electrical lines, equipment details, and all stub outs and connections for future expansion,

shall be incorporated. Documentation of Record Drawings shall be included in other items of work and no separate payment will be made.

100-1.7 Material Testing and Retesting. All Quality Control shall be performed by the Contractor; all acceptance testing will be performed by the Engineer as detailed in these Specifications. The Quality Control Testing shall include, but is not limited to:

- A. Compaction testing for soils, aggregates, and pavements prior to acceptance testing by Engineer, if required. **The Contractor is allotted one acceptance test per area per material per lot.** In the event the acceptance tests do not pass, and the Engineer is required to retest the area, the cost for each retest shall be borne by the Contractor at the actual cost plus a 25% markup.
- B. Concrete strength mix design and other conformance testing required for structural Portland cement concrete.
- C. Electrical grounding and circuit testing.

100-1.8 Construction Staking and Survey Layout. The Contractor shall provide the surveying and staking as necessary to meet the requirements of the Contract Documents. The initial survey layout shall be performed by a Registered Land Surveyor and layout reconfirmed prior to paving. Project Plans indicate elevations at points of paving and grading joins and daylight. Contractor shall verify existing elevations and advise the Engineer of any discrepancies three (3) days in advance of critical path work. Any costs for rework required due to existing grade discrepancies not brought to the Engineer's attention shall be borne by the Contractor.

100-1.9 Schedule of Values. A schedule of value(s) shall be provided for each lump sum bid item within 5 days of request, but not later than 10 working days before the first progress payment. The schedule of values shall be in the form of a detailed, itemized cost breakdown of the lump sum amount that includes the profit and overhead costs for each item including a line-by-line breakdown of labor and materials. All work to be performed by subcontractors shall be listed. The schedule of values, once established, will serve as the basis for estimating or evaluating the percentage of lump sum work completed for progress payments. Progress payments on Unit Price Work will be based on the number of units completed. The schedule of values may also be used to evaluate the impact of unbalanced pricing.

100-1.10 Time Limitations. The overall time of completion for this Project is Sixty-Eight (68) calendar days. Should this time schedule not be met, liquidated damages will be assessed. Refer to the CSPP included as Part 2 for detailed time limitations for the specific work areas. A summary of contract time is divided as follows:

- A. **Mobilization Element.** Notice to Proceed with Mobilization shall be given after award of Contract. All work included in Mobilization shall be completed within Thirty (30) calendar days.
- B. **Construction Element (Base Bid).** Notice to Proceed with the Base Bid work shall be issued at the Agency's discretion after the Mobilization Element is complete. All work included in the Construction Base Bid shall be completed within Thirty-Eight (38) calendar days.

100-1.11 Liquidated Damages. Liquidated Damages in the amount of Two Thousand Dollars (\$2,000) per Calendar Day will be assessed for failure to complete any phase of the work (Mobilization and Construction) within the Contract Time allowed.

100-1.12 Barricades and Delineators. The City shall provide Ten (10), 8-foot long, low profile, barricades for use by the Contractor. The Contractor shall provide any additional barricades needed. The Contractor shall provide two solar flashing lights and one 18-inch by 18-inch orange vinyl flag for each of the barricades.

Additionally, the Contractor shall provide plastic delineators as required to barricade hazardous areas. Unless otherwise approved by the Engineer, delineators shall be 42-inch-high molded plastic. Delineators shall be four inches in diameter, fluorescent orange, supplied with a double-weighted base and reflective stripes. Lighting for delineators will be provided at night as approved by the Engineer. All costs associated with this item shall be included in Airfield Safety and Traffic Control.

The City shall determine the appropriate locations for the low profile barricades and the delineators with respect to the proximity to aircraft.

100-1.13 Aviation Radios. The Contractor is to provide at least two hand-held aviation radios to be used in communications as specified in the CSPP. On completion of the Project, the radios remain the property of the Contractor. Providing the radios shall be included under the Contract price for Airfield Safety and Traffic Control.

100-1.14 Access and Security.

A. Contractor Access. Contractor access to the various work areas shall be via the closest access routes indicated on the Construction Safety and Phasing Plan. Additional haul routes on Airport property shall be approved by the Airport. All access routes and haul routes shall be kept clean and free of debris. Dust control shall be maintained. Where haul routes cross active runways, taxiways, or aprons, radio-equipped flaggers shall be provided by the Contractor as required.

B. Access Security Control.

The Contractor shall be responsible for maintaining Airport security at all gates designated for his use. Gates must be locked or manned by the Contractor's personnel to ensure no unauthorized access to the air operations area. All access gates shall be kept clear of equipment and material.

100-1.15 Work Hour Limitations. The Airport's normal work hours are from 7:00 AM to 5:00 PM, Monday through Friday, excluding holidays. All work performed outside of this schedule shall be coordinated and approved in advance by the Engineer. The Contractor may be charged for work performed outside of this schedule that requires inspection or observation by Agency, City, or County staff.

100-1.16 Storm Water Discharge Permit (Construction NPDES). Construction activity under this Project is expected to disturb less than five acres of land surface and have a construction schedule such that the overall rainfall erosivity factor will be less than five. As such the project will not be subject to requirements of the State Water Resources Control Board (SWRCB), Division of Water Quality Order No. 2010-0014-DWG, National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) No. CAS000002, Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities.

The Best Management Practices (BMP) and Best Available Technology (BAT) measures called for in these Bid Documents and shown on the PLANS shall be considered as minimum requirements. The Contractor shall comply with all BMP and BAT provisions in the Contract.

Payment for the BMPs called for on the PLANS will be made under applicable pay items.

100-1.17 Project Site Access Route Improvements. Prior to construction, the Contractor will document the existing pavement condition for access and haul routes to be used. Travel on these pavements and routes will be controlled by the Airport, and the Contractor shall remain within specified

access routes. After construction is complete, all pavements in the vicinity of the construction site access location shall be repaired as directed by the City. This process may include surface removal, regrading and repaving; or other methods as determined acceptable by the City. The cost for this work shall be borne by the Contractor.

100-1.18 Construction Water Meter Requirements. The Contractor is responsible for contacting the City of Ukiah to apply for a construction water meter. Please contact:

City of Ukiah – Utility Services and Billing
300 Seminary Avenue, Ukiah, California 95482
(707) 463-6228

The Contractor shall be responsible for all fees and charges to obtain construction water.

No separate measurement and payment will be made for construction water. All costs shall be included in other items of work.

100-1.19 Hearing Protection. Contractor shall provide all necessary hearing protection for workers.

100-1.20 Cultural Resources Assessment. In the event that archaeological materials are encountered during construction, all construction work shall be halted, and a Mendocino County certified archaeologist shall be consulted to determine the appropriate treatment of the discovery.

In the event human remains are encountered, State Health and Safety Code – Section 7050.5 states that, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code – Section 5097.98. The County Coroner must be notified of the find immediately.

If the remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD will have the opportunity to offer recommendations for the disposition of the remains.

100-1.21 Environmental Requirements. The Contractor shall comply with NEPA and CEQA environmental requirements. Specific requirements that pertain to the Contractor are shown within the Project Plans.

100-1.22 Application for Payment and Required Items. Applications for payment shall follow the standard Agency format based on the schedule of items included in the proposal forms. The Contractor shall also supplement the pay application with amounts being paid to subcontractors and the amounts being paid to DBE firms. Subcontractor and DBE amounts shall be delineated by bid items in the proposal forms.

METHOD OF MEASUREMENT

100-2.1 Airfield Safety and Traffic Control will be measured as a lump sum item.

100-2.2 Construction Staking and Survey Layout will be measured as a lump sum item.

100-2.3 Implement BMPs as a lump sum item.

100-2.4 Remove and Salvage Existing Light Fixtures and Transformers, (MIRL, MITL, MITHL) Remove Existing Base Can and Conductors per each item.

100-2.5 Remove and Salvage Existing Light Fixtures and Transformers, (MIRL, MITHL) Cap Existing Base Cans With Blank Cover per each item.

100-2.6 Remove and Demolish Existing MITL, Cap Existing Base Cans with Blank Cover per each item.

100-2.7 Remove Existing Illuminated Signs per each item.

100-2.8 Remove and Salvage Existing REILS as a lump sum item.

BASIS OF PAYMENT

100-3.1 Airfield Safety and Traffic Control will be paid for at the Contract lump sum price. This price shall include full compensation for all labor, materials, tools, equipment, CSPP compliance, SPCD preparation and compliance, and incidentals necessary to complete the work as specified in this Specification and requirements shown on the Plans.

100-3.2 Construction Staking and Survey Layout will be paid for at the Contract lump sum price and shall include all staking and survey required to construct the Project to the lines and grades as indicated on the Plans to meet the specified tolerances.

100-3.3 Implement Best Management Practices (BMP) and Best Available Technology (BAT) measures called for in these Bid Documents and shown on the PLANS.

100-3.4 Remove and Salvage Existing Light Fixtures and Transformers, (MIRL, MITL, MITHL) Remove Existing Base Can and Conductors, measured as provided above, will be paid for at the Contract unit price of per each, which price will be payment in full for salvaging existing light fixtures, transformers and removing existing base can, conduit, conductors, and any miscellaneous component to complete the removal of the base can; backfilling; and furnishing all labor, tools, equipment and incidentals necessary to complete the Work as detailed herein and shown on the Plans.

100-3.5 Remove and Salvage Existing Light Fixtures and Transformers, (MIRL, MITHL) Cap Existing Base Cans With Blank Cover, measured as provided above, will be paid for at the Contract unit price of per each, which price will be payment in full for salvaging existing light fixtures, transformers and providing and installing blank covers for each existing base can; and furnishing all labor, tools, equipment and incidentals necessary to complete the Work as detailed herein and shown on the Plans.

100-3.6 Remove and Demolish Existing MITL, Cap Existing Base Cans with Blank, measured as provided above, will be paid for at the Contract unit price of per each, which price will be payment in full for salvaging existing light fixtures and providing and installing blank covers for each existing base can; and furnishing all labor, tools, equipment and incidentals necessary to complete the Work as detailed herein and shown on the Plans.

100-3.7 Remove Existing Illuminated Signs, measured as provided above, will be paid for at the Contract unit price of per each, which price will be payment in full for removal and disposal of existing illuminated signs, pad, conductors and base can, and any miscellaneous components to complete the

removal of the signs; backfilling; and furnishing all labor, tools, equipment and incidentals necessary to complete the Work as detailed herein and shown on the Plans.

100-3.8 Remove and Salvage Existing REILS, measured as provided above, will be paid for at the Contract unit price per lump sum, which price will be payment in full for removal and salvage of the existing FAA owned REILS. Removal will include removal of base can, backfilling and conductors. This includes any furnishing of labor, tools, equipment, and incidentals necessary to complete the Work as detailed herein and shown on the Plans.

Payment will be made under:

Item SP-100-3.1	Airfield Safety and Traffic Control – per lump sum
Item SP-100-3.2	Construction Staking and Survey Layout – per lump sum
Item SP-100-3.3	Implement Best Management Practices – per lump sum
Item SP-100-3.4	Remove and Salvage Existing Light Fixtures and Transformers, (MIRL, MITL, MITHL) Remove Existing Base Can and Conductors – per each item.
Item SP-100-3.5	Remove and Salvage Existing Light Fixtures and Transformers, (MIRL, MITHL) Cap Existing Base Cans With Blank Cover – per each item.
Item SP-100-3.6	Remove and Demolish Existing MITL, Cap Existing Base Cans with Blank Cover – per each
Item SP-100-3.7	Remove Existing Illuminated Signs – per each
Item SP-100-3.8	Remove and Salvage Existing REILS – per lump sum

END OF SECTION SP-100

Part 2

Construction Safety and Phasing Plan (CSPP)

UKIAH MUNICIPAL AIRPORT



CONSTRUCTION SAFETY AND PHASING PLAN FOR

RUNWAY 15-33 PAVEMENT REHABILITATION PHASE 1

AIP No. 3-06-0268-027-2019

Prepared by



www.meadhunt.com

June 2019

1. OVERVIEW

This document presents the Construction Safety and Phasing Plan (CSPP) for the proposed Runway 15-33 Pavement Rehabilitation, Construction of Taxiway A2, and Demolition of Taxiway B Project (Project) at Ukiah Municipal Airport (UKI). The anticipated construction duration is 38 Calendar Days. Specifically, the Project scope includes the following elements:

1.1 BASE BID

1.1.1 Runway Rehabilitation, Taxiway Connector Construction, and Demolition

The work for this Project consists of the following:

- a) Close runway and place barricades to bar access to the runway from the taxiway connectors and aprons.
- b) Remove markings and sawcut pavements.
- c) Demolish a 75-ft keel section of existing asphalt concrete (AC) pavement centered on the runway full depth for the full length of the runway.
- d) Prepare subgrade and place P-209 Crushed Aggregate Base on the 75-foot runway keel section and Taxiway Connector A2.
- e) Place P-401 Asphalt Mix Pavement on Runway 15-33 keel section and Taxiway Connector A2.
- f) Apply seal coat to remaining runway pavement outside the 75-foot keel section.
- g) Install new and salvaged taxiway lighting on Taxiway Connector A2 and salvaged runway threshold lights on Runway 15.
- h) Install new runway guidance and holding position signs.
- i) Demolish a portion of Taxiway Connector B.
- j) Apply pavement markings.

2. PURPOSE

The CSPP provides single source procedural information for all key Project personnel to use during construction and defines the specific responsibilities of the Airport Operator, the Contractor, Airport users/tenants, and the Project Engineer. The FAA's Safety and Phasing Plan Checklist was utilized in the preparation of this CSPP, which includes (but is not limited to) provisions for Airport safety and security, operational limitations on construction activities, identifying potential hazards and the impacts those hazards may have on airfield and construction activities, and construction phasing requirements to minimize impact on airfield operations.

Requirements for maintaining operational safety during construction are in conformance with FAA Advisory Circular 150/5370-2G, *Operational Safety on Airports During Construction*. The Project specific safety and phasing provisions for the Project elements are shown on Plan Sheet G-081 and detailed in the Project Specifications. The Plan Sheet is attached to this report as *Attachment 1*.

3. CONSTRUCTION SAFETY AND PHASING RESPONSIBILITIES

3.1 AIRPORT OPERATOR

The Airport Operator is responsible for operational safety on the Airport at all times. The City of Ukiah (City) is the Airport Operator. The City will issue Notice to Airmen (NOTAMS) whenever construction activities occur in the AOA. City staff will provide oversight of all construction activities and coordinate those activities with the Airport users (pilots) and Airport tenants. The City will hold weekly construction progress and safety meetings. During those meetings, operational safety will be reviewed, and an action plan will be developed, as needed, to address any discrepancies in safety that need to be corrected. The City will require the Contractor to submit a Safety Plan Compliance Document (SPCD) that details the Contractor's compliance with the CSPP. City approval of the SPCD will be required prior to issuance of the Notice to Proceed with Construction.

3.2 CONSTRUCTION CONTRACTOR

The Contractor will be determined by a competitive bidding process. The Contractor's responsibilities for safety and phasing are detailed and defined in the Contract Documents. The Contractor will be required to attend weekly progress and safety meetings and to correct any discrepancies found in safety. The Contractor is required to submit a completed SPCD to the City for approval before the Notice to Proceed for Construction can be issued. A sample SPCD is included as *Attachment 2*.

3.3 AIRPORT USERS AND TENANTS

The City will notify Airport users and tenants of all pending construction activities that impact them and advise the users and tenants of planned pavement closures and other activities in the AOA that will affect aircraft/Airport operations. Users and tenants will be permitted to attend weekly construction progress and safety meetings when appropriate.

3.4 PROJECT ENGINEER

As part of the Project construction management, observation, and quality assurance process, the Project Engineer will monitor construction safety on a daily basis, utilizing the "*Construction Project Daily Safety Inspection Checklist*" (see *Attachment 3*) to ensure an appropriate level of priority is given to safety. Any discrepancies in safety will be immediately brought to the attention of the Contractor and City for corrective action implementation.

4. CONSTRUCTION SAFETY AND PHASING

4.1 COORDINATION

4.1.1 Design Progress Meetings

Predesign conferences are held during the design development and design (Preliminary, 60%, 95%, and Final Bid Documents) phases. These meetings are held to help avoid possible conflicts between construction activities and the operation of the Airport. The CSPP will be formally submitted to the FAA for approval when the Project design is 95% complete and City comments can be incorporated.

MEAD & HUNT, Inc.

4.1.2 Pre-bid Conference

A pre-bid conference will be held to help clarify and explain construction methods, procedures, and safety measures required by the Contract. The pre-bid conference will be held a minimum of ten (10) days prior to the bid opening date.

4.1.3 Preconstruction Conference

A preconstruction conference will be held as soon as practicable after the Contract has been awarded and before issuance of the Notice to Proceed. The preconstruction conference participants should include, but not be limited to, the City; Project Engineer; Airport management; testing laboratory representative; Contractor and subcontractor(s); Contractor's project superintendent; Contractor's project clerk; Airport users; utility companies; emergency personnel; federal, state, or local agencies affected by the proposed construction; and FAA representative. The Contractor will distribute copies of the proposed construction schedule five (5) days prior to the preconstruction meeting to the Engineer for distribution. The schedule will be presented by the Contractor at the preconstruction meeting. Five (5) copies of Contract Documents will be provided to the Contractor by the City.

4.1.4 Badging Requirements

There are no badging requirements for this Project.

4.1.5 Contractor Progress Meetings

Contractor progress meetings will be held weekly for the duration of construction. Operational safety will be a standing agenda item for discussion during progress meetings throughout the Project. The Contractor's project superintendent, project manager, and project foreman are required to attend meetings. Date, time, and location of the progress meetings will be determined at the preconstruction meeting.

4.1.6 Scope or Schedule Changes

Scope or schedule changes for the Project may necessitate revisions to the CSPP and require review and approval by the City and the FAA.

4.1.7 FAA Air Traffic Organization (ATO) Coordination

The City will coordinate the construction schedule with the FAA ATO. The FAA ATO may take part in the coordination meetings if desired.

4.2 PHASING AND TIME LIMITATIONS

The Project has been divided into two Elements: 1) Mobilization and 2) Construction. The Construction Element has been divided into two (2) phases to define the sequence of the work associated with the Project. A separate Notice to Proceed will be issued for Mobilization Element and the Construction Element. The Notice to Proceed for the Construction Element will not be issued until the Mobilization Element is complete and the SPCD is approved by the City. The work efforts and affected airfield areas within the AOA are detailed within. The Mobilization Element will be completed as follows depending on the contract award:

Contract Award	Mobilization Element	Construction Element	Total
Base Bid	30 Calendar Days	38 Calendar Days	68 Calendar Days

If the Contractor fails to meet any of these time limitations, liquidated damages will be assessed as described in the Project Specifications.

4.2.1 Element 1 – Mobilization (30 Calendar Days)

During this Element of the Project, no work will be conducted that restricts Airport operations in any way. Mobilization work will include, but not be limited to, the following:

- a) Processing of required submittals, including the Contractor's work schedule.
- b) Preparation and submission of the SPCD.
- c) All prequalification testing, review, and approval.
- d) Mix design preparation, review, and approval.
- e) Airfield Safety Devices delivered/prepared at the site (construction flags, low profile barricades, airport radios, runway closure markers).
- f) Materials and equipment delivered to site, as applicable.
- g) Survey layout (optional).
- h) Underground utility investigation and potholing.
- i) All miscellaneous Mobilization efforts required to commence construction.

All preliminary work required to pursue construction to completion will be finalized during the Mobilization Element to minimize delays during construction.

4.2.2 Element 2 – Construction Phase 1

4.2.2.1 Construction Phase 1 (38 Calendar Days)

Construction Phase 1 work affects the Runway Safety Area of Runway 15-33 and the object free area of Taxiway Connectors B and A2. The Contractor will be responsible for placing closure devices (runway closure markers, low-profile barricades, flags and lights) and deactivating airfield lighting systems for areas closed.

4.2.2.2 Critical Airfield Areas Construction Phase 1

- a) Runway Safety Area (RSA). Work cannot be completed within the RSA while the runway is open.
 - Runway 15-33 RSA is 150 feet wide, centered on the runway centerline, and extends 300 feet beyond the runway threshold.
- b) Taxiway Object Free Area (TOFA). Work cannot be completed within the TOFA while the taxiway is open.
 - All Taxiways and Connectors have a TOFA that is 98 feet wide centered on the taxiway centerline.

4.2.2.3 Definition of Work Areas and Phasing Limitations

The following phasing restrictions apply:

The Work Area for this phase is defined as Runway 15-33 and Taxiway Connectors B and A2. Work within the Work Area includes the pulverization of existing pavements and suitable base rock; lime treating, shaping, grading, and compacting of existing subgrade; placement of new P-209 Aggregate Base Course; placement of P-401 Asphalt Mix Pavement; application of seal coat; relocation of existing taxiway lights; relocation of existing runway threshold lights; removal and salvaging of the existing FAA REILs on the Runway 15; and the first application of pavement markings. All remaining taxiways and connectors will be closed to aircraft. This work will be completed within the 38 calendar days allotted for Construction Phase 1.

4.2.2.4 Work Area 1 Summary

- a) Scope of Work – Pulverization of existing runway pavement section and Taxiway Connector B, lime treatment of subgrade, new P-209 base rock, new P-401 surface course and seal coat on the runway, construction of Taxiway Connector A2, installation of taxiway connector lights, relocation of runway threshold lights, and first application of pavement markings.
- b) Area closed to aircraft operations – Runway 15-33, portion of Taxiway A, and all Taxiway Connectors.
- c) Duration of closure – 38 Calendar Days.
- d) Alternate taxi route – None. Airport will be closed.
- e) Emergency access routes – Community fire and rescue services enter through existing gates off of South State Street to the Airport hangars and apron areas. Construction operations will not hinder access to the Airport.
- f) Construction staging area – Contractor's staging area is located at the northeast corner of the Airport and is accessed from the Airport service road leading from the north end of Taxiway A as shown on the Construction Safety and Phasing Plan (see *Attachment 1*).
- g) Construction access and haul route – Access will be from South State Street through the main gate adjacent to the Airport Administration Building and onto the apron. The route continues north to Taxiway Connectors B & A2 and south to the other Taxiway Connectors for Runway access. Plastic delineators (42-inch high) will be required when there is heavy construction traffic in the apron area, as directed by the City. Contractor shall coordinate use of the gate and apron area with the Airport Manager.
- h) Impacts to NAVAIDs – None.
- i) Lighting and marking changes – The Airport will be closed to operations during the construction. Runway and taxiway edge lights, REILs, and VASIs will be deactivated during the closure period.
- j) Required hazard marking and lighting – Contractor shall place runway closure markings (crosses) on runway designation markers as directed by the City. Low profile barricades and 42-inch high plastic delineators will be placed across the Taxiway A at the north end of the apron, across Taxiway Connector C near the middle of the apron and across both Taxiway A and Taxiway Connector D at the south end of the apron as shown on Sheet G-081, prior to

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beginning construction. The Contractor's access route will be separated from the remaining apron areas by 42-inch high plastic delineators, as directed by the City. All airfield lights and navigational and visual aids will be decommissioned during construction hours.

- k) Lead times for required notification – 5 working days.

4.2.3 Element 2 – Construction Phase 2

4.2.3.1 Construction Phase 2 (2 Calendar Days)

Construction Phase 2 work affects the RSA of Runway 15-33, the object free area of Taxiway A, and Taxiway Connector A2. The Contractor will be responsible for placing closure devices (runway closure markers, low-profile barricades, flags and lights).

4.2.3.2 Critical Airfield Areas for Construction Phase 2

- a) RSA. Work cannot be completed within the RSA while the runway is open.
- Runway 15-33 RSA is 150 feet wide, centered on the runway centerline, and extends 300 feet beyond the runway threshold.
- b) TOFA. Work cannot be completed within the TOFA while the taxiway is open.
- All Taxiways and Connectors have a TOFA that is 98 feet wide centered on the taxiway centerline.

4.2.3.3 Definition of Work Areas and Phasing Limitations

The following phasing restrictions apply:

The Work Area for this phase is defined as Runway 15-33, Taxiway A, Taxiway B, and Taxiway A2. Work within the Work Area is the second application of pavement markings. This work will take place on Runway 15-33 and Taxiway A and Taxiway Connector A2. All other Taxiways and Connectors will be closed to aircraft. This work will be completed within the two (2) calendar days allotted for Construction Phase 2.

4.2.3.4 Work Area 2 Summary

- a) Scope of Work – Second application of pavement markings on Runway 15-33 and Taxiway A and Taxiway Connector A2.
- b) Area closed to aircraft operations – Runway 15-33, most of Taxiway A, and all Taxiway Connectors.
- c) Duration of closure – Two (2) Calendar Days.
- d) Alternate taxi route – None. Airport will be closed.
- e) Emergency access routes – Community fire and rescue services enter through existing gates off of South State Street to the Airport hangars and apron areas. Construction operations will not hinder access to areas of the Airport.
- f) Construction staging area – Contractor's staging area is located at the northeast corner of the Airport and is accessed from the Airport service road leading from the north end of Taxiway A as shown on the Construction Safety and Phasing Plan (see *Attachment 1*).
- g) Construction access and haul route – Access will be from South State Street through the main gate adjacent to the Airport Administration Building and onto the apron. The route continues

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north to Taxiway Connectors B & A2 and south to the other Taxiway Connectors for Runway access. Plastic delineators (42-inch high) will be required when there is heavy construction traffic in the apron area, as directed by the City. Contractor shall coordinate use of the gate and apron area with the Airport Manager.

- h) Impacts to NAVAIDs – None.
- i) Lighting and marking changes – The Airport will be closed to operations during the construction. Runway and taxiway edge lights and VASIs will be deactivated during the closure period as directed by the City.
- j) Required hazard marking and lighting – Contractor shall place runway closure markings (crosses) on runway designation markers as directed by the City. Low profile barricades and 42-inch high plastic delineators will be placed across the Taxiway A at the north end of the apron, across Taxiway Connector C near the middle of the apron and across both Taxiway A and Taxiway Connector D at the south end of the apron as shown on Sheet G-081, prior to beginning construction. The Contractor's access route and staging area will be separated from the remaining apron areas by 42-inch high plastic delineators, as directed by the City. All airfield lights and navigational and visual aids will be decommissioned during construction hours.
- k) Lead times for required notification – Five (5) working days

4.2.4 Construction Safety and Phasing Plan Sheets

Drawings specifically indicating operational safety procedures and methods in affected areas have been developed for each construction phase and work area. These Drawings are included in the Contract Drawing Bid Package (Plan Sheets G-021, G-041 and G-081).

4.3 AREAS AND OPERATIONS AFFECTED BY CONSTRUCTION

4.3.1 Runways

Aircraft access to Runway 15-33 will not be allowed.

4.3.2 Taxiways and Taxilanes

Aircraft access to most of Taxiway A and all Taxiway Connectors will not be allowed.

4.4 NAVAID PROTECTION

No NAVAIDs will be impacted by this Project.

4.5 CONTRACTOR ACCESS

4.5.1 Location of Stockpiled Construction Materials and Equipment

Location of stockpiled materials and equipment storage will be in the staging areas as shown on Sheet G-081 or as approved by the City. Stockpiling materials and equipment outside the staging areas and within the AOA will require prior approval from the City and will be subjected to additional limitations depending on the height(s). Stockpiled material will meet the requirements of Section 4.6, *Wildlife Management*, to prevent the stockpile location(s) from becoming wildlife attractants.

4.5.2 Vehicle and Pedestrian Operations

4.5.2.1 Construction Site Parking

Employees' vehicles will be parked in the staging area designated on the plans or outside the AOA. No employee vehicles will be allowed beyond the staging area limits. In areas where the staging area is adjacent to the perimeter security fence, all vehicles will be positioned a minimum of 10 feet away from either side of the fence.

4.5.2.2 Construction Equipment Parking

All service and construction vehicles and/or equipment will be parked in the staging area when not in use and will be positioned a minimum of 10 feet away from either side of a perimeter security fence. See Section 4.17, *Protection of Runway and Taxiway Critical Areas*, for further parking restrictions within safety areas and object free areas. Unless a complex setup procedure makes movement of specialized equipment infeasible, inactive equipment will not be allowed to park on a closed taxiway or runway. If it is necessary to leave specialized equipment on a closed taxiway at night, the City must approve the request and the equipment will be lighted in accordance with Section 4.18, *Other Limitations on Construction*.

4.5.2.3 Access and Haul Roads

The Contractor will be restricted to use the Project security gates and haul routes shown on the plans. Phase specific haul routes are shown on the Construction Safety and Phasing Plan. Right-of-way will be given to all emergency vehicles and aircraft sharing the haul routes with the Contractor.

4.5.2.4 Marking and Lighting of Vehicles

Only marked Contractor-owned/operated vehicles required for the proper execution of the work will be allowed in the work area. Motor vehicles will be equipped with an omni-directional amber flashing light, head lights, taillights, and flashers that will be used between sunset and sunrise or when visibility is low. Vehicles within the airfield environment will display company identification markings on both sides of the vehicle. Non-motorized equipment will have reflective devices displayed on the front, back, and sides. Vehicles and equipment will have an FAA orange and white checkered flag, 3 feet by 3 feet minimum, attached to a pole mounted on the rear bumper and visible from 300 feet at all angles during daytime hours. All supervisory and survey personnel operating with a City escort within the airfield environment but outside the work area will have a company vehicle with an amber flashing light mounted on the roof of the cab and identifying markings visible from 300 feet mounted on both sides of the vehicle.

4.5.2.5 Training Requirement for Vehicle Drivers

The City will conduct an informal meeting with the Contractor to review driving requirements at the Airport.

4.5.2.6 Situational Awareness

Yield the right-of-way to moving aircraft (whether under tow or their own power) and pedestrians. While driving or working within the airfield environment, personnel will not wear any devices in or on their ears, other than those used to protect hearing or communicate company business. Yield right-of-way to emergency vehicles displaying rotating beacons (other than amber) and/or using

sirens, and other audible emergency signals. In the event of an emergency, be prepared to move workers, vehicles, and equipment immediately at the direction of the City.

Texting while driving anywhere on Airport property is strictly prohibited.

4.5.2.7 Two-Way Radio Communication Procedures

All radio communications with the Common Traffic Advisory Frequency (CTAF) will be performed by Airport Operations/City personnel and/or a trained Contractor-provided construction safety coordinator. All activities within aircraft movement areas will require two-way radio communication. The Contractor's on-site foremen/lead/superintendents will carry (or have immediately available) a VHF aviation radio. Additionally, if a sweeper is being used in the movement area and a flagger is not coordinating his/her movements, the sweeper operator will also carry a radio. Frequencies that will be used by City personnel are:

- CTAF – 123.0

4.5.2.8 Airport Security

In areas of work activities, the Contractor will maintain security against unauthorized access to the airfield area through the security gate(s). Gates will be locked or manned at all times. The gate will be closed and locked when not in use. Where the Contractor's lock is used for access through City gates, the lock will be marked to identify the ownership of the Contractor. Place the lock in series with existing locks. Failure to adhere to these requirements will result in the Contractor's lock being removed by the City.

4.6 WILDLIFE MANAGEMENT

Procedures to maintain existing wildlife mitigation devices, limit wildlife attractants, and notify City of wildlife encounters.

4.6.1 Trash

Receptacles will be provided by the Contractor and equipped with metal, canvas, or plastic covers. Food scraps or other trash may not be disposed on the ground and must be collected and placed in the covered receptacles so as not to attract wildlife.

4.6.2 Standing Water

Staging areas, stockpile areas, and the work area will be graded to drain to avoid attracting wildlife.

4.6.3 Tall Grass and Seeds

The use of low quality seed mixtures that contain seeds of plants (such as clover) that attract wildlife will not be used. Grass and weeds will be managed, or cut if necessary, within work areas to avoid attracting wildlife habitation.

4.6.4 Fencing and Gates

Fences and/or gates that are unmaintained and/or left open and unattended permit unwanted wildlife to enter inside the Airport perimeter fence. Refer to 4.5.2.8, *Airport Security*, for requirements of maintaining the secured area of the Airport. Contractor personnel will immediately notify the City if any unwanted wildlife is observed inside the Airport perimeter fence.

4.6.5 Disruption of Existing Wildlife Habitat

Not applicable for this Project.

4.7 FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT AND DUST CONTROL

The Contractor will be required to ensure the airfield environment is kept continuously free of construction debris, equipment and/or materials that might endanger or be ingested by an aircraft. Contractor will take extreme care to ensure that no work-related debris or other loose items are allowed to be blown by wind or aircraft engine blast. The Contractor will be responsible for any resulting damage to aircraft engines and/or other property arising from failure to secure and/or protect debris, tools, supplies, or other loose items. Following the requirements described herein will help eliminate the potential for FOD. In areas that may result in the tracking of soil, sediments, or hazardous materials on the wheels of hauling equipment outside the area that are enclosed by erosion and silt/sediment control devices, the Contractor will provide the means and methods to remove these materials prior to the vehicle exiting the controlled area. If water wash stations are used, the Contractor will provide systems for the collection, treatment, and disposal of wheel wash water and accumulated sediment. Equipment operated on haul routes over existing pavements will be kept free of material spillage and foreign matter at all times. Haul routes that are shared with aircraft operations will be cleaned continuously with regenerative air vacuum sweepers, or other City approved methods.

Dust control will be in conformance with "Dust Control" of the State Standard Specifications and these Special Provisions. The Contractor will provide the ways and means to prevent dust, grit, and other waste products from becoming a nuisance in and around the working areas. The Contractor will take action as necessary, with the approval of the City, to reduce or eliminate such nuisance. The Contractor will control dust during the entire Contract period, including holidays and weekends.

Application of water for controlling dust caused by construction operations or the passage of traffic through the work area(s) will be applied as directed by the City at the Contractor's expense.

4.8 HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

4.8.1 Shipments of Hazardous Materials

If shipments of hazardous material (including hazardous debris, contaminated soil or water, and hazardous waste) will be unloaded onto or loaded from City property, the Contractor will have a qualified person available onsite when shipments are received or prepared to ship who is current with U.S. Department of Transportation (DOT) approved training for the transportation of hazardous materials. Contractor will properly characterize and manifest waste material leaving the City property for disposal. When the waste reaches its final destination, the owner or operator of the designated and permitted treatment, storage, and disposal (TSD) facility will sign the manifest and return a copy to the City within 35 days to confirm receipt.

4.8.2 Spills

4.8.2.1 Minor Spills

Minor spills can be controlled by the first responder at the discovery of the spill. Use absorbent materials on small spills rather than hosing down or burying the spill. First responder should contain the spread of the spill, recover spilled materials, clean the contaminated area, and properly dispose of contaminated materials. For minor spills, consult the products Material Safety Data Sheets

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(MSDS) for recommended actions for spills or container leaks. Additionally, MSDSs will provide emergency phone numbers and occupational health hazard information.

4.8.2.2 Semi-significant Spills

Semi-significant spills can be controlled by the first responder along with the aid of other personnel such as laborers, the foreman, etc. Notify the City of semi-significant spills. Spills should be cleaned up immediately. Contain the spread of the spill and notify the Project foreman immediately. If the spill occurs on paved or impermeable surfaces, clean up by using dry methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely. If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil. If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

4.8.2.3 Significant / Hazardous Spills

Significant/Hazardous spills that cannot be controlled by personnel in the immediate vicinity must be reported to the local emergency response by dialing 911. In addition to 911, the Contractor will notify the City, proper City officials, and the state Emergency Services Warning Center. The services of a Spills Contractor or a HAZMAT team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staff arrives at the jobsite. Other agencies that may need to be consulted include, but are not limited to, the Fire Department, the Public Works Department, the Highway Patrol, the City Sheriff's Department, and the Department of Toxic Substance.

4.8.3 Delivery and Storage of Hazardous Goods

- a) Ensure that hazardous goods and material delivered to or from the construction site meet applicable DOT labeling and placarding requirements. Upon request from the City, supply MSDS for all hazardous material being delivered to the site.
- b) The storage and shipment of hazardous waste will also comply with the requirements of this section.
- c) It is emphasized, however, that although spills resulting from incidents or accidents should be responded to, securing the well-being of people will be the first priority.
- d) Good housekeeping practices should be utilized during equipment fueling and maintenance operations. Inspect fueling equipment for leaks prior to dispensing. Fueling operations will be continuously attended to while dispensing fuel. Fueling and maintenance operations will not be performed within 50 feet of a storm drain, inlet, ditch, surface water, wetland, etc. to allow adequate time for containment in the event of a spill.

4.9 NOTIFICATION OF CONSTRUCTION ACTIVITIES

4.9.1 Responsible Representatives / Points of Contact

Airports/Utility Staff Member	Title	Phone/Office	Cell
Greg Owen	Airport Manager	707-467-2855	

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Ken Ronk	Airport Assistant	707-467-2853	
Tim Eriksen	Director/City Engineer (Public Works)	707-463-6280	
Rick Seanor	Deputy Director (Public Works)	707-463-6296	

Additional points of contact will be provided at the Preconstruction Meeting.

4.9.2 Notices To Airmen (NOTAM)

Only the City may initiate or cancel a NOTAM on Airport conditions and is the only entity that can close or open a runway. Points of contact for issuing NOTAMs are as follows:

- Main Contact: Greg Owen – 707-467-2855
- Alternate Contact: Ken Ronk – 707-467-2853

4.9.3 Emergency Contact Information

- Emergency – Dial 911
- Airports Operations – 707-463-6200
- City of Ukiah Police Department – 707-463-6262
- Ukiah Valley Fire Authority – 707-462-7921
- Adventist Health Ukiah Valley (Hospital) – 707-462-3111
- California Poison Center – 1-(800)-222-1222

4.9.4 Coordination with Emergency Services Personnel

The proposed Project does not deactivate waterlines or hydrants, and the Airport will be closed to operations during construction. Emergency personnel will be briefed by the City as to the construction schedule. If additional notification of emergency personnel is required, the Contractor shall contact the City.

4.9.5 Notification of the FAA

4.9.5.1 Part 77

The Project will not affect navigable airspace while runway(s) are open; therefore, the City will not be required to submit an FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, for a specific element. The City will, however, submit Form 7460-1 for the proposed critical construction equipment within the Project work areas when the runways are open. Any equipment (cranes, graders, other equipment) used by the Contractor that exceeds the height limitation in Section 4.18, *Other Limitations on Construction*, must also have a Form 7460-1 airspace evaluation and determination prior to use.

4.9.5.2 Airport Owned/FAA Maintained NAVAIDS

For construction operations that will require a shutdown of more than 24 hours or more than 4 hours on consecutive days of a NAVAID owned by the Airport but maintained by the FAA, Contractor shall coordinate with the Airport to provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown.

4.9.5.3 FAA Owned NAVAIDS

The City must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDS. Impacts to FAA equipment covered by a Reimbursable Agreement (RA) do not have to be reported by the Airport Operator. The City must coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office including any necessary reimbursable agreements and flight checks. In the event of an unanticipated utility outage or cable cuts that impact FAA NAVAIDS, contact the Airport Manager immediately.

4.10 INSPECTION REQUIREMENTS

4.10.1 Daily Inspections

Inspections should be conducted by the Contractor at least daily, but more frequently if necessary, to ensure conformance with the CSPP. Special attention will be given to areas shared by construction traffic and air traffic. These areas will be maintained in accordance with Section 4.7, *Foreign Object Debris Management*. The City will have the final authority in determining if the area is suitable for aircraft use.

4.10.2 Final Inspections

A final inspection will be conducted by the City prior to the commissioning of any construction-impacted areas open to air traffic. The City will have the final authority in determining if the area is suitable for aircraft use. *Attachment 3* contains a Daily Safety Inspection Checklist that may be used by the Contractor or City.

4.11 UNDERGROUND UTILITIES AND NOTIFICATION RESPONSIBILITIES

Contractor must notify the Underground Service Alert (California Northern) by calling either 8-1-1 or 1-800-227-2600 (www.usanorth.org) and any other owners of underground utilities within the construction area or within affected public rights-of-way or easements in advance of the commencement of excavation activities. Also, the Contractor must notify the City when the call is being initiated so the City can provide information to Airport utilities as well.

Contractor will not cross electrical or communication cables unless protected by approved means. In the event of interruption to field-located utility services as a result of the work, promptly notify the City first and then the proper authority. Cooperate with said authority in restoring service as promptly as possible. If required, the Contractor will install suitable temporary service until permanent repair is completed.

4.12 PENALTIES

The Contractor is responsible for maintaining security during construction as detailed herein. The Airport is subject to fines up to \$20,000 for security violations. The Contractor will be responsible for any fines caused by his failure to observe the security requirements contained herein or required by the SPCD. Violations will be cause for the Project to be stopped and Project safety procedures evaluated. Contractor working days will continue to be charged, even if the City ceases construction operations. The City will decide if and when work will continue. Enforcement of these regulations will be by the City, Police, and/or Airport Operations Staff.

4.13 SPECIAL CONDITIONS, SAFETY ADHERENCE

During construction, the Airport Contractor must be aware of the following conditions and required actions.

- a) An aircraft in distress may require the Contractor to immediately move equipment away from an aircraft movement area. The City will notify the Contractor in the unlikely event of an aircraft in distress. The Contractor will be required to comply with all City instructions.
- b) Various circumstances, such as an aircraft accident, security breach, or other unforeseen events may require suspension of the construction. The City will notify the Contractor when suspension of the work will be required. See Section 4.9, *Notification of Construction Activities*, for emergency contact information.
- c) A VPD (vehicle / pedestrian deviation) is any entry or movement on the movement area by a vehicle or pedestrian that has not been authorized by ATC. In the event of a VPD, the City reserves the right to suspend the work or any portion thereof and continue suspension until the completion of any investigation or evaluation by the City and full compliance with any corrective measures which the City may reasonably require. In addition, the City may require the Contractor to provide to the City a written plan, satisfactory to the City, to demonstrate the Contractor's ability to prevent future violations. See Section 4.5, *Contractor Access*, for vehicle and pedestrian operations and two-way radio communication requirements.

4.14 RUNWAY AND TAXIWAY VISUAL AIDS

4.14.1 Temporary Signs or Visual NAVAIDS

The nature of this construction Project and the duration of the closures will not require the addition of temporary lighting, signs, or visual NAVAIDS to be incorporated into this Project.

4.14.2 Lighting

4.14.2.1 Temporarily Closed Taxiways

The taxiway lights will be disabled by the Airport for the duration of the taxiway closure.

4.14.2.2 Temporarily Closed Runways

The runway lights will be disabled by the Airport for the duration of the runway closure.

4.14.3 Airfield Signs

4.14.3.1 Temporarily Closed Taxiways

Taxiway airfield signs will be disabled by the Airport for the duration of the closure.

4.14.3.2 Temporarily Closed Runways

Runway airfield signs will be disabled by the Airport for the duration of the closure.

4.15 MARKING AND SIGNS FOR ACCESS ROUTES

The Contractor will place traffic control signs and/or devices as appropriate to advise the Airport users of construction operations and hauling. Signs and/or devices will conform to the California Manual on Uniform Traffic Control Devices (CAMUTCD), Current Edition.

4.16 HAZARD MARKING AND LIGHTING

- a) Before starting work, provide and have available all signs, barricades, closure crosses, and lights necessary for protection of the work. Install and maintain adequate warning signs and lighted barricades to protect property and personnel in the work area. Barricades will be weighted or anchored to prevent overturning from wind or aircraft engine blast.
- b) Barricades are not permitted in any active safety area. Barricades located within a runway or taxiway object free area and/or on aprons must be as low as possible to the ground and no more than 18 inches high, exclusive of supplementary lights. The Contractor will provide low-level barricades marked with diagonal, alternating orange and white stripes to separate all construction/maintenance areas from the movement areas listed above. For the barricades, the Contractor will provide red omni-directional flashers (2 per barricade) and an orange vinyl flag. Low-level barricades will be spaced a maximum of 5 feet apart unless directed otherwise by the City.
- c) Runway closure markers will be placed on runways whenever the runway is closed.
- d) The Contractor will 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 City. Lighting will be checked for proper operation at least once per day, preferably at dusk.
- e) Open trenches, excavations, or obstructions not being actively worked will be marked with lighted and weighted barricades that can be seen from a reasonable distance.
- f) Stakes will be used to delineate restricted areas as shown on the Drawings. Stakes will be wooden lath with a minimum 1 foot buried in the ground and 3 feet exposed above ground. The top one foot above ground will be painted fluorescent orange. No stakes are to be placed within the delineated wetlands areas.

4.17 PROTECTION OF RUNWAY AND TAXIWAY CRITICAL AREAS

4.17.1 Runway Safety Area (RSA)

This Project will require construction within the existing RSA. Construction personnel are not permitted to be within the RSA unless the runway is closed. The dimension for the Runway 15-33 RSA is 75 feet on each side of centerline and 300 feet beyond each runway end. The ground surface within the RSA shall not have edges exceeding 3 inches or slopes greater than 5 percent unless the runway is closed.

4.17.2 Runway Object Free Area (ROFA)

This Project will require construction within the existing ROFA. Construction personnel are not permitted to be within the ROFA unless the runway is closed, or they are escorted by City personnel. The dimensions for the Runway 15-33 ROFA is 250 feet on each side of centerline. The ROFA length beyond the runway end is 300 feet.

4.17.3 Taxiway Safety Area (TSA)

No construction may occur in the TSA while the taxiway is open to aircraft operations, unless otherwise specified. Open trenches or excavations are not permitted within the TSA while the taxiway is open. If possible, trenches should be backfilled 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 operations of the heaviest aircraft

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operating on the taxiway across the trench without damage to the aircraft. Contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the City, and light them with red lights during hours of restricted visibility or darkness. The ground surface within the TSA will not have edges exceeding 3 inches or slopes greater than 5 percent unless the taxiway is closed. Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and be capable, under dry conditions, of supporting the occasional passage of aircraft without causing structural damage to the aircraft. The TSA for all taxiways is 79 feet in width.

4.17.4 Taxiway Object Free Area (TOFA)

No construction will be allowed within the TOFA while the taxiway is open to aircraft operations. The TOFA is 98 feet in width.

4.17.5 Obstacle Free Zone (OFZ)

Personnel, material, and/or equipment may not penetrate the OFZ while the runway is open to aircraft operations. The dimension for Runway 15-33 OFZ is 200 feet on each side of centerline and 200 feet beyond each runway end.

4.17.6 Runway Approach/Departure Surfaces

When the runway is open, all personnel, material, and/or equipment must remain clear of the threshold siting surfaces (approach and departure surfaces).

4.17.6.1 Affected Approach Surface

The approach surfaces for Runway 15-33 will be unaffected by construction when the runways are open.

4.17.6.2 Affected Departure Surface

The departure surfaces for Runway 15-33 will be unaffected by construction when the runways are open.

4.18 OTHER LIMITATIONS ON CONSTRUCTION

4.18.1 Prohibitions

- a) Open flame welding or torches are prohibited unless fire safety precautions are provided, and the City has approved their use.
- b) Electrical blasting caps are prohibited on or within 1,000 feet of the Airport property.
- c) The use of flare pots is prohibited within the AOA.
- d) No smoking will be allowed within the airfield environment except as designated by the City.

4.18.2 Restrictions, Equipment

- a) Construction equipment that extends 15 feet or more above ground level will be cleared through the City prior to moving onto site. Equipment that may be lowered readily will be lowered at night, during reduced daytime visibility, and during other periods of storage to comply with the 15-foot height limitation.

- b) If directed by the City, construction equipment that cannot be lowered below the 15-foot height limitation will be lighted at night and during periods of reduced daytime visibility. The light will be mounted on the highest point of equipment, will be omni-directional, and will consist of, at a minimum, one 100-watt bulb enclosed within an aviation red lens. Also, for daytime operations, mount an FAA-approved, 3-foot square, orange and white checkered flag at the highest point.
- c) During daylight hours with severe visibility problems or heavy fog, cranes will not operate. The City will determine when visibility problems exist and will coordinate and designate requirements for position and location of flag and light.

4.19 SAFETY PLAN COMPLIANCE DOCUMENT (SPCD), INFORMATION

The SPCD will detail how the Contractor will comply with the CSPP. This will include all Project-specific Construction Safety Plan details not included in the CSPP, including construction equipment heights, any applicable hazard management requirements, and contact information for the Contractor's safety management staff responsible for monitoring the CSPP and SPCD during construction. The SPCD will be an attachment to, and enhancement of, the Project CSPP. See *Attachment 2* for an example of the SPCD.

The SPCD must include a statement that the Contractor understands the operational safety requirements of the CSPP and an assertion that the Contractor will not deviate from the approved CSPP and SPCD without written approval from the City. Any construction operation, activity, or practice proposed by the Contractor that does not conform to the CSPP and SPCD will require a revision to those documents. The revised CSPP and SPCD must be submitted to City for review and approval prior to performing any activities that are not in compliance with a previously approved CSPP.

Copies of the approved CSPP and SPCD must be available on-site at all times. The Contractor will ensure all construction personnel are familiar with safety procedures and regulations applicable to construction on the Airport. At least one of the Contractor's safety management staff must be on-site whenever active construction is ongoing to act as point of contact and immediate response coordinator to correct any construction-related activity that may adversely affect operational safety of the Airport.

ATTACHMENTS

REFER TO PROJECT PLAN SET

ATTACHMENT 2

Safety Plan Compliance Document

**CONTRACTOR'S
SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)
(AC 150/5370-2G)**

Project Information

Airport and Sponsor: City of Ukiah
Project ID: FAA AIP No.: 03-06-0268-0XX-2019
Description of Project: Ukiah Municipal Airport Runway 15-33 Rehabilitation
Type of Work: Pavement Rehabilitation and Taxiway Connector Construction
FAA Project Manager: _____ Phone: _____
Airport Operator Contact: _____ Phone: _____

Contractor's Information

Prime Contractor: _____
Address: _____
Contractor Contact: _____ Phone: _____

Contractor's Responsibility

In accordance with Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5370-2G, *Operational Safety on Airports During Construction*, a SPCD for a project must be submitted to the FAA and to the Airport Operator for review and approval prior to the issuance of a Notice-to-Proceed for Construction. The SPCD will be prepared in a detailed written and graphical format that identifies the timing and methodology for the Contractor's compliance with the project's Construction Safety and Phasing Plan (CSPP).

1.3.2 The Contractor will comply with all provisions contained herein and provide the following project-specific complementary and supplemental information to the FAA-approved Construction Safety and Phasing Plan:

1. Contractor will have copies of the CSPP and SPCD available at all times for reference by the Airport Operator and its representatives, and by Contractor's and subcontractor's employees.

Location(s) of CSPP and SPCD: _____

2. Provide contact information for the person responsible for initiating and coordinating an immediate response to correct any construction-related activity that may adversely affect the operational safety of the Airport. Project will require 24-hour coverage.

Point of Contact: _____ Phone: _____

3. Provide list of Contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD whenever active construction is ongoing.

Contact Person: _____	Phone: _____
Contact Person: _____	Phone: _____
Contact Person: _____	Phone: _____
Contact Person: _____	Phone: _____

4. Contractor will conduct inspections at least once daily, and more frequently if necessary to ensure construction personnel comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards. **A Construction Project Daily Safety Inspection Checklist is attached.**

5. Describe details of Contractor's plan to restrict movement of construction vehicles and personnel to permitted construction areas by flagging, barricading, erecting temporary fencing, or providing escorts, as appropriate and as specified in the CSPP. Include the appropriate plan sheets to identify timing and/or location of control measures: **[Contractor to insert detailed description.]**

6. Describe details of Contractor's plan to ensure that no employees of Contractor, subcontractors, suppliers, or other persons enter any part of the Air Operations Area (AOA) unless authorized. **[Contractor to insert detailed description.]**

7. Provide a description and schedule of anticipated operation for all Contractor equipment over 15 feet in height (e.g. cranes, concrete pumps, other similarly tall equipment) and heights of stockpiles and haul routes when different from what is shown on previously filed CSPP. **[Contractor to insert detailed equipment list/stockpile heights as applicable.]**

 (As necessary, the Contractor must coordinate with the Airport Operator for the purpose of filing a supplemental submittal of FAA Form 7460-1 to the FAA for determination of whether or not an aeronautical study must be conducted prior to allowing tall equipment operations to begin.)

8. Provide a description of Contractor's plan to ensure that construction personnel are familiar with the safety procedures and regulations on the Airport, the CSPP, and the SPCD. **[Contractor to insert detailed description.]**

SPCD Amendment

The SPCD will be amended when there is a construction practice proposed by the Contractor that does not conform to the CSPP and SPCD and may impact the Airport's operational safety. This will require a revision to the CSPP and SPCD and re-coordination with the Airport Operator and the FAA in advance.

Statement of Certification

I certify that we understand the operational safety requirements of the CSPP and assert that we will not deviate from the approved CSPP and SPCD unless written approval is granted by the Airport Operator and FAA.

Print Name: _____ Title: _____

Signature: _____ Date: _____

ATTACHMENT 3

Daily Safety Inspection Checklists

CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project.

Potentially Hazardous Conditions

Item	Action Required	or	None
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.			☐
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.			☐
Runway resurfacing projects resulting in lips exceeding 3 in (7.6 cm) from pavement edges and ends.			☐
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.			☐
Equipment or material near NAV AIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.			☐
Tall and especially relatively low visibility units (that is, equipment with slim profiles) – cranes, drills, and similar objects – located in critical areas, such as OFZ and approach zones.			☐
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area.			☐
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.			☐

Item	Action Required	or	None
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.			☐
Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards.			☐
Wildlife attractants – such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water – on or near airports.			☐
Obliterated or faded temporary markings on active operational areas.			☐
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.			☐
Failure to issue, update, or cancel NOT AMs about airport or runway closures or other construction related airport conditions.			☐
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.			☐
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport building.			☐
Lack of radio communications with construction vehicles in airport movement areas.			☐
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.			☐
Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.			☐
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.			☐

Item	Action Required	or	None
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).			☐
Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.			☐
Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf.			☐
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.			☐
Site burning, which can cause possible obscuration.			☐
Construction work taking place outside designated work areas and out of phase.			☐

ATTACHMENT 4
Definition of Terms

Definition of Terms

Term	Definition
7460-1	Notice Of Proposed Construction Or Alteration. For on-airport projects, the form submitted to the FAA regional or airports division office as formal written notification of any kind of construction or alteration of objects that affect navigable airspace, as defined in 14 CFR Part 77, safe, efficient use, and preservation of the navigable airspace. (See guidance available on the FAA web site at oeaaa.faa.gov .) The form may be downloaded at http://www.faa.gov/airports/resources/forms/ , or filed electronically at: https://oeaaa.faa.gov .
7480-1	Notice Of Landing Area Proposal. Form submitted to the FAA Airports Regional Division Office or Airports District Office as formal written notification whenever a project without an airport layout plan on file with the FAA 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 form may be downloaded at http://www.faa.gov/airports/resources/forms/ .
AC	Advisory Circular
ACRC	Aircraft Reference Code
ACSI	Airport Certification Safety Inspector
ADG	Airplane Design Group
AIP	Airport Improvement Program
ALECP	Airport Lighting Equipment Certification Program
ANG	Air National Guard
AOA	Air Operations Area. Any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runways, taxiways, or aprons.
ARFF	Aircraft Rescue and Fire Fighting
ARP	FAA Office of Airports
ASDA	Accelerate-Stop Distance Available
ATCT	Airport Traffic Control Tower
ATIS	Automatic Terminal Information Service
ATO	Air Traffic Organization
Certificated Airport	An airport that has been issued an Airport Operating Certificate by the FAA under the authority of 14 CFR Part 139, Certification of Airports.
CFR	Code of Federal Regulations
Construction	The presence and movement of construction-related personnel, equipment, and materials in any location that could infringe upon the movement of aircraft.
CSPP	Construction Safety And Phasing Plan. The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.

Term	Definition
CTAF	Common Traffic Advisory Frequency
Displaced Threshold	A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold is available for takeoffs in either direction or landing from the opposite direction.
DOT	Department of Transportation
EPA	Environmental Protection Agency
FOD	Foreign Object Debris
HAZMAT	Hazardous Materials
IFR	Instrument Flight Rules
ILS	Instrument Landing System
LDA	Landing Distance Available
LOC	Localizer antenna array
Movement Area	The runways, taxiways, and other areas of an airport that are used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading aprons and aircraft parking areas (reference 14 CFR Part 139).
MSDS	Material Safety Data Sheet
MUTCD	Manual on Uniform Traffic Control Devices
NAVAID	Navigation Aid
NAVAID Critical Area	An area of defined shape and size associated with a NAVAID that must remain clear and graded to avoid interference with the electronic signal.
Non-Movement Area	The area inside the airport security fence exclusive of the Movement Area. It is important to note that the non-movement area includes pavement traversed by aircraft.
NOTAM	Notices to Airmen
Obstruction	Any object/obstacle exceeding the obstruction standards specified by 14 CFR Part 77, subpart C.
OE / AAA	Obstruction Evaluation / Airport Airspace Analysis
OFA	Object Free Area. An area on the ground centered on the runway, taxiway, or taxi lane centerline provided to enhance safety of aircraft operations by having the area free of objects except for those objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. (See AC 150/5300-13, for additional guidance on OFA standards and wingtip clearance criteria.)
OFZ	Obstacle Free Zone. The airspace below 150 ft (45 m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches. The OFZ is subdivided as follows: Runway OFZ, Inner Approach OFZ, Inner Transitional OFZ, and Precision OFZ. Refer to AC 150/5300-13 for guidance on OFZ.
OSHA	Occupational Safety and Health Administration
P&R	Planning and Requirements Group

Term	Definition
PAPI	Precision Approach Path Indicators
PFC	Passenger Facility Charge
PLASI	Pulse Light Approach Slope Indicators
Project Proposal Summary	A clear and concise description of the proposed project or change that is the object of Safety Risk Management.
RE	Resident Engineer
REIL	Runway End Identifier Lights
RNAV	Area Navigation
ROFA	Runway Object Free Area
RSA	Runway Safety Area. A defined 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, in accordance with AC 150/5300-13.
SIDA	Security Identification Display Area
SMS	Safety Management System
SPCD	Safety Plan Compliance Document. Details developed and submitted by a contractor to the airport operator for approval providing details on how the performance of a construction project will comply with the CSPP.
SRM	Safety Risk Management
Taxiway Safety Area	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway, in accordance with AC 150/5300-13.
TDG	Taxiway Design Group
Temporary	Any condition that is not intended to be permanent.
Temporary Runway End	The beginning of that portion of the runway available for landing and taking off in one direction, and for landing in the other direction. Note the difference from a displaced threshold.
Threshold	The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.
TODA	Takeoff Distance Available
TOFA	Taxiway Object Free Area
TORA	Takeoff Run Available. The length of the runway less any length of runway unavailable and/or unsuitable for takeoff run computations. See AC 150/5300-13 for guidance on declared distances.
TSA	Taxiway Safety Area Transportation Security Administration
UNICOM	A radio communications system of a type used at small airports.
VASI	Visual Approach Slope Indicators

Term	Definition
VGSI	Visual Glide Slope Indicator. A device that provides a visual glide slope indicator to landing pilots. These systems include precision approach path indicators (PAPI), visual approach slope indicators (VASI), and pulse light approach slope indicators (PLASI).
VFR	Visual Flight Rules
VOR	VHF Omnidirectional Radio Range
VPD	Vehicle / Pedestrian Deviation

Section 13.03

FAA Standard Specifications for Construction of Airports (Advisory Circular 150-5370-10H)

PART 1

FAA General Contract Provisions

Part 1 – General Contract Provisions

Section 10 Definition of Terms

When the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be defined as follows:

Paragraph Number	Term	Definition
10-01	AASHTO	The American Association of State Highway and Transportation Officials.
10-02	Access Road	The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.
10-03	Advertisement	A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.
10-04	Airport	Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; airport buildings and facilities located in any of these areas, and a heliport.
10-05	Airport Improvement Program (AIP)	A grant-in-aid program, administered by the Federal Aviation Administration (FAA).
10-06	Air Operations Area (AOA)	The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering 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.
10-07	Apron	Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.
10-08	ASTM International (ASTM)	Formerly known as the American Society for Testing and Materials (ASTM).
10-09	Award	The Owner's notice to the successful bidder of the acceptance of the submitted bid.

Paragraph Number	Term	Definition
10-10	Bidder	Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.
10-11	Building Area	An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.
10-12	Calendar Day	Every day shown on the calendar.
10-13	Certificate of Analysis (COA)	The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.
10-14	Certificate of Compliance (COC)	The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.
10-15	Change Order	A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for work within the scope of the contract and necessary to complete the project.
10-16	Contract	A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment. The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.
10-17	Contract Item (Pay Item)	A specific unit of work for which a price is provided in the contract.

Paragraph Number	Term	Definition
10-18	Contract Time	The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.
10-19	Contractor	The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.
10-20	Contractors Quality Control (QC) Facilities	The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).
10-21	Contractor Quality Control Program (CQCP)	Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.
10-22	Control Strip	A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.
10-23	Construction Safety and Phasing Plan (CSPP)	The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
10-24	Drainage System	The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.
10-25	Engineer	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, inspection, and/or observation of the contract work and acting directly or through an authorized representative.
10-26	Equipment	All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work.

Paragraph Number	Term	Definition
10-27	Extra Work	An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.
10-28	FAA	The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.
10-29	Federal Specifications	The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.
10-30	Force Account	a. Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis. b. Owner Force Account - Work performed for the project by the Owner's employees.
10-31	Intention of Terms	Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer and/or Resident Project Representative (RPR) is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer and/or RPR, subject in each case to the final determination of the Owner. 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.
10-32	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.

Paragraph Number	Term	Definition
10-33	Major and Minor Contract Items	A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.
10-34	Materials	Any substance specified for use in the construction of the contract work.
10-35	Modification of Standards (MOS)	Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.
10-36	Notice to Proceed (NTP)	A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.
10-37	Owner	The term “Owner” shall mean the party of the first part or the contracting agency signatory to the contract. Where the term “Owner” is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is the City of Ukiah.
10-38	Passenger Facility Charge (PFC)	Per 14 Code of Federal Regulations (CFR) Part 158 and 49 United States Code (USC) § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls.
10-39	Pavement Structure	The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit.
10-40	Payment bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.
10-41	Performance bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.
10-42	Plans	The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications. Plans may also be referred to as 'contract drawings.'

Paragraph Number	Term	Definition
10-43	Project	The agreed scope of work for accomplishing specific airport development with respect to a particular airport.
10-44	Proposal	The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.
10-45	Proposal guaranty	The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner.
10-46	Quality Assurance (QA)	Owner's responsibility to assure that construction work completed complies with specifications for payment.
10-47	Quality Control (QC)	Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.
10-48	Quality Assurance (QA) Inspector	An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.
10-49	Quality Assurance (QA) Laboratory	The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory.
10-50	Resident Project Representative (RPR)	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor and acting directly or through an authorized representative.
10-51	Runway	The area on the airport prepared for the landing and takeoff of aircraft.
10-52	Runway Safety Area (RSA)	A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.

Paragraph Number	Term	Definition
10-53	Safety Plan Compliance Document (SPCD)	Details how the Contractor will comply with the CSPP.
10-54	Specifications	A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.
10-55	Sponsor	A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.
10-56	Structures	Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.
10-57	Subgrade	The soil that forms the pavement foundation.
10-58	Superintendent	The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.
10-59	Supplemental Agreement	A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%; (2) in scope work would increase or decrease the total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item.
10-60	Surety	The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.
10-61	Taxilane	A taxiway designed for low speed movement of aircraft between aircraft parking areas and terminal areas.

Paragraph Number	Term	Definition
10-62	Taxiway	The portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways, aircraft parking areas, and terminal areas.
10-63	Taxiway/Taxilane Safety Area (TSA)	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA.
10-64	Work	The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.
10-65	Working day	A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.
10-66	Owner Defined terms	None.

END OF SECTION 10

Section 20 Proposal Requirements and Conditions

20-01 Advertisement (Notice to Bidders). The Advertisement is included in the front of this Special Provisions 'Book' and has been published at such places and at such times as required by local law or ordinances and is made a part of the "Contract Documents."

The Bid Advertisement provides the following information for Bidders:

- time and place for submitting sealed proposals;
- description of the proposed work;
- instructions about obtaining proposal forms, plans, and specifications;
- pre-bid meeting information
- Contractor's requirements (license, registration, etc);
- required Federal Provisions solicitation language;
- the proposal guaranty required; and
- the Owner's right to reject any and all bids.

20-02 Qualification of bidders. Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Owner at the time of bid opening.

Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.

Each bidder shall furnish the Owner satisfactory evidence of their financial responsibility. Evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

Unless otherwise specified, a bidder may submit evidence that they are prequalified with the State Highway Division and are on the current "bidder's list" of the state in which the proposed work is located. Evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

20-03 Contents of proposal forms. The Owner's proposal forms state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals*.

Mobilization is limited to 10 percent of the total project cost.

A non-mandatory prebid conference will be held for this project to discuss as a minimum, the following items: material requirements; submittals; Quality Control/Quality Assurance requirements; the construction safety and phasing plan including airport access and staging areas; and unique airfield paving construction requirements. The prebid conference will be held as specified in the Bid Advertisement.

20-04 Issuance of proposal forms. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following reasons:

- a. Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.
- b. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.
- c. Documented record of Contractor default under previous contracts with the Owner.
- d. Documented record of unsatisfactory work on previous contracts with the Owner.

20-05 Interpretation of estimated proposal quantities. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities, without in any way invalidating the unit bid prices.

20-06 Examination of plans, specifications, and site. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from their own examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

20-07 Preparation of proposal. The bidder shall submit their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals which they propose for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern. Prices should be written in whole dollars and cents. The extended total amount of each item should not be rounded.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state where the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of their authority to do so and that the signature is binding upon the firm or corporation.

20-08 Responsive and responsible bidder. A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the

exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

20-09 Irregular proposals. Proposals shall be considered irregular for the following reasons:

- a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.
- b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.
- c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.
- d. If the proposal contains unit prices that are obviously unbalanced.
- e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.
- f. If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-10 Bid guarantee. Each separate proposal shall be accompanied by a bid bond, certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such bond, check, or collateral, shall be made payable to the Owner, as specified in these Special Provisions (see Advertisement).

20-11 Delivery of proposal. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-12 Withdrawal or revision of proposals. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner by email before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-13 Public opening of proposals. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-14 Disqualification of bidders. A bidder shall be considered disqualified for any of the following reasons:

- a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.
- b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

c. If the bidder is considered to be in “default” for any reason specified in paragraph 20-04, *Issuance of Proposal Forms*, of this section.

20-15 Discrepancies and Omissions. A Bidder who discovers discrepancies or omissions with the project bid documents shall immediately notify the Owner’s Engineer of the matter. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner’s Engineer a written request for interpretation no later than 7 days prior to bid opening.

Any interpretation of the project bid documents by the Owner’s Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications or interpretations of the bidding documents in any manner other than written addendum.

END OF SECTION 20

Section 30 Award and Execution of Contract

30-01 Consideration of proposals. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit bid price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

a. If the proposal is irregular as specified in Section 20, paragraph 20-09, *Irregular Proposals*.

b. If the bidder is disqualified for any of the reasons specified Section 20, paragraph 20-14, *Disqualification of Bidders*.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 Award of contract. The award of a contract, if it is to be awarded, shall be made within 120 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

30-03 Cancellation of award. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with paragraph 30-07 *Approval of Contract*.

30-04 Return of proposal guaranty. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the paragraph 30-01, *Consideration of Proposals*. Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in paragraph 30-05, *Requirements of Contract Bonds*.

30-05 Requirements of contract bonds. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

30-06 Execution of contract. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph 30-05, *Requirements of Contract Bonds*, of this section, within 15 calendar days from the date mailed or otherwise delivered to the successful bidder.

30-07 Approval of contract. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances and return the fully executed contract to the Contractor. Delivery of the

fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

30-08 Failure to execute contract. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the period specified in paragraph 30-06, *Execution of Contract*, of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidated damages to the Owner.

END OF SECTION 30

Section 40 Scope of Work

40-01 Intent of contract. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 Alteration of work and quantities. The Owner reserves the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, paragraph 90-03, *Compensation for Altered Quantities*.

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

40-03 Omitted items. The Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with Section 90, paragraph 90-04, *Payment for Omitted Items*.

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order and shall contain any adjustment to the contract time that, in the RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra Work*. Extra work that is necessary for acceptable completion of the project but is not within the general scope of the work covered by the original contract shall be covered by a supplemental agreement as defined in Section 10, paragraph 10-59, *Supplemental Agreement*.

If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available

to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

40-05 Maintenance of traffic. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, paragraph 80-04, *Limitation of Operations*. 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 while operating to, from, and upon the airport as specified in Section 70, paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others*.

b. With respect to their own operations and the operations of all 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, or maintenance vehicles at the airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

c. When the contract requires the maintenance of an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (<http://mutcd.fhwa.dot.gov/>), unless otherwise specified. 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 roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

40-06 Removal of existing structures. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly but shall be included in the various contract items.

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 Resident Project Representative (RPR) shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in Section 40, paragraph 40-07, *Rights in and Use of Materials Found in the Work*, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

40-07 Rights in and use of materials found in the work. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines,

grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:

- a. Use such material in another contract item, providing such use is approved by the RPR and is in conformance with the contract specifications applicable to such use; or,
- b. Remove such material from the site, upon written approval of the RPR; or
- c. Use such material for the Contractor's own temporary construction on site; or,
- d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., the Contractor shall request the RPR's approval in advance of such use.

Should the RPR approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at their expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.

Should the RPR approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of their own exercise of option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-08 Final cleanup. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of the property Owner.

END OF SECTION 40

Section 50 Control of Work

50-01 Authority of the Resident Project Representative (RPR). The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to specification requirements.

50-02 Conformity with plans and specifications. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.

If the RPR finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications, but that the portion of the work affected will, in their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the RPR's written orders.

The term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 Coordination of contract, plans, and specifications. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within

standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

50-04 List of Special Provisions.

ORDER OF PRECEDENCE

- 1. Permits issued by jurisdictional regulatory agencies**
- 2. Change Orders**
- 3. Contract/Agreement**
- 4. Addenda**
- 5. Bid/proposal**
- 6. Project-Specific Requirements for Airport Construction**
 - a. Special Provisions for Airport Construction, Section 13 (Part 1)**
 - b. Construction Safety and Phasing Plan, Section 13 (Part 2)**
- 7. Technical Specifications, Section 13-03 - Parts 2-13 as applicable**
- 8. Project Plans**
- 9. FAA General Contract Provisions, Section 13-03 – Part 1**
- 10. City General Conditions**
- 11. Standard Plans**
- 12. Standard Specifications**
- 13. Reference Specifications**

50-05 Cooperation of Contractor. The Contractor shall be supplied with two hard copies or an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof and shall cooperate with the RPR and their inspectors and with other Contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as their agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the RPR or their authorized representative.

50-06 Cooperation between Contractors. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-07 Construction layout and stakes. The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): electronic and hard copy, as coordinated with the RPR.

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost shall be included in the price of the bid for the various items of the Contract.

50-08 Authority and duties of Quality Assurance (QA) inspectors. QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the RPR for a decision.

50-09 Inspection of the work. All materials and each part or detail of the work shall be subject to inspection. The RPR shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the RPR requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said

portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract and shall in no way interfere with the rights of the parties to this contract.

50-10 Removal of unacceptable and unauthorized work. All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the RPR as provided in paragraph 50-02, *Conformity with Plans and Specifications*.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of Section 70, paragraph 70-14, *Contractor's Responsibility for Work*.

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against the Contractor.

50-11 Load restrictions. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

50-12 Maintenance during construction. The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 Failure to maintain the work. Should the Contractor at any time fail to maintain the work as provided in paragraph 50-12, *Maintenance during Construction*, the RPR shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the RPR's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be recovered as a liquidated damage against the Contractor.

50-14 Partial acceptance. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

50-15 Final acceptance. Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The RPR shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 Claims for adjustment and disputes. If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the RPR is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

END OF SECTION 50

Section 60 Control of Materials

60-01 Source of supply and quality requirements. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program and Addendum*, that is in effect on the date of advertisement.

60-02 Samples, tests, and cited specifications. All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

The Contractor shall employ a Quality Control (QC) testing organization to perform all Contractor required QC tests in accordance with Item C-100 Contractor Quality Control Program (CQCP).

60-03 Certification of compliance/analysis (COC/COA). The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified. The COA is the manufacturer's COC and includes all applicable test results.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the RPR.

When a material or assembly is specified by “brand name or equal” and the Contractor elects to furnish the specified “or equal,” the Contractor shall be required to furnish the manufacturer’s certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

- a. Conformance to the specified performance, testing, quality or dimensional requirements; and,
- b. Suitability of the material or assembly for the use intended in the contract work.

The RPR shall be the sole judge as to whether the proposed “or equal” is suitable for use in the work.

The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 Plant inspection. The RPR or their authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.

Should the RPR conduct plant inspections, the following conditions shall exist:

- a. The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.
- b. The RPR shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.
- c. If required by the RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 Engineer/ Resident Project Representative (RPR) field office. An Engineer/RPR field office is not required.

60-06 Storage of materials. Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans and/or CSPP, the storage of materials and the location of the Contractor’s plant and parked equipment or vehicles shall be as directed by the RPR. Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the RPR a copy of the property Owner’s permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at their expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

60-07 Unacceptable materials. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The

Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the RPR.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the RPR has approved its use in the work.

60-08 Owner furnished materials. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

END OF SECTION 60

Section 70 Legal Regulations and Responsibility to Public

70-01 Laws to be observed. The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all their officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

70-02 Permits, licenses, and taxes. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

70-03 Patented devices, materials, and processes. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

70-04 Restoration of surfaces disturbed by others. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) must be shown on the plans and is indicated as follows: None.

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 Federal Participation. The United States Government has agreed to reimburse the Owner for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

70-06 Sanitary, health, and safety provisions. The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

70-07 Public convenience and safety. The Contractor shall control their operations and those of their 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 and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, paragraph 40-05, *Maintenance of Traffic*, and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, paragraph 80-04, *Limitation of Operations*.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

70-08 Construction Safety and Phasing Plan (CSPP). The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is on sheet G-081 of the project plans.

70-09 Use of explosives. The use of explosives is not permitted on this project.

70-10 Protection and restoration of property and landscape. The Contractor shall be responsible for the preservation of all public and private property and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at their expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

70-11 Responsibility for damage claims. The Contractor shall indemnify and hold harmless the Engineer/RPR and the Owner and their officers, agents, and employees from all suits, actions, or claims, of any character, brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

70-12 Third party beneficiary clause. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third-party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 Opening sections of the work to traffic. If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such “phasing” of the work must be specified below and indicated on the approved Construction Safety and Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at their expense.

The Contractor shall make their own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor’s responsibility for work. Until the RPR’s final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 Contractor’s responsibility for utility service and facilities of others. As provided in paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities

during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and/or in the contract documents.

- FAA Air Traffic Organization (ATO)/ Technical Operations/System Support Center (SSC)
- Greg Owen, Airport Manager, 707-467-2855
- Airport Emergency Telephone No. 707-463-6200

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and paragraph 70-04, *Restoration of Surfaces Disturbed By Others*. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

70-15.1 FAA facilities and cable runs. The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the execution of the project work, shall comply with the following:

a. The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.

b. The Contractor shall provide notice to the FAA Air Traffic Organization (ATO)/Technical Operations/System Support Center (SSC) Point-of-Contact through the Owner a minimum of seven (7) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facility outages.

c. If execution of the project work requires a facility outage, the Contractor shall contact the FAA Point-of-Contact a minimum of 72 hours prior to the time of the required outage.

d. Any damage to FAA cables, access roads, or FAA facilities during construction caused by the Contractor's equipment or personnel whether by negligence or accident will require the Contractor to repair or replace the damaged cables, access road, or FAA facilities to FAA requirements. The Contractor shall not bear the cost to repair damage to underground facilities or utilities improperly located by the FAA.

e. If the project work requires the cutting or splicing of FAA owned cables, the FAA Point-of-Contact shall be contacted a minimum of 72 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA specifications and require approval by the FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA restricts the location of where splices may be installed. If a cable splice is required in a location that is not permitted by FAA, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice.

70-16 Furnishing rights-of-way. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 Personal liability of public officials. In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, RPR, their authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 No waiver of legal rights. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 Environmental protection. The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

70-20 Archaeological and historical findings. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, paragraph 40-04, *Extra Work*, and Section 90, paragraph 90-05, *Payment for Extra Work*. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, paragraph 80-07, *Determination and Extension of Contract Time*.

70-21 Insurance Requirements. See "*INSURANCE REQUIREMENTS FOR CONTRACTORS*" Section 5.

END OF SECTION 70

Section 80 Execution and Progress

80-01 Subletting of contract. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least 50 percent of the total contract cost.

Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

The Contractor shall provide copies of all subcontracts to the RPR 14 days prior to being utilized on the project. As a minimum, the information shall include the following:

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

80-02 Notice to proceed (NTP). The Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within 10 days of the NTP date. The Contractor shall notify the RPR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

80-03 Execution and progress. Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least 10 days prior to the start of work. The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

The project schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or another format, or as otherwise specified. It shall include information on the sequence of work activities, milestone dates, and activity duration. The schedule shall

show all work items identified in the project proposal for each work area and shall include the project start date and end date.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

80-04 Limitation of operations. The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport operations (through the RPR) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the RPR and until the necessary temporary marking, signage and associated lighting is in place as provided in Section 70, paragraph 70-08, *Construction Safety and Phasing Plan (CSPP)*.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) and as listed below, cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently as follows:

- Portions of Taxiway A and adjacent apron area

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

80-05 Character of workers, methods, and equipment. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall not cause injury to previously completed work, adjacent property, or existing airport facilities due to its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and 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 RPR 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 RPR 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 paragraph.

80-06 Temporary suspension of the work. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The RPR will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.

If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 Determination and extension of contract time. The number of calendar days shall be stated in the proposal and contract and shall be known as the Contract Time.

If the contract time requires extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

80-07.1 Contract time based on calendar days. Contract Time based on calendar days shall consist of the number of calendar days stated in the contract counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

80-08 Failure to complete on time. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in contract.

Refer to the Project Specific Requirements for Airport Construction, Part 1, Special Provisions for Airport Construction for Construction time allowed and liquidated damages.

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the Owner of any of its rights under the contract.

80-09 Default and termination of contract. The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

- a. Fails to begin the work under the contract within the time specified in the Notice to Proceed, or
- b. Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or
- c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or
- d. Discontinues the execution of the work, or
- e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

- f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or
- g. Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or
- h. Makes an assignment for the benefit of creditors, or
- i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason above, the Owner shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 Termination for national emergencies. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 Work area, storage area and sequence of operations. The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

END OF SECTION 80

Section 90 Measurement and Payment

90-01 Measurement of quantities. All work completed under the contract will be measured by the RPR, or their authorized representatives, using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

The term “lump sum” when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure or structural unit (in effect, “lump sum” work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Measurement and Payment Terms

Term	Description
Excavation and Embankment Volume	In computing volumes of excavation, the average end area method will be used unless otherwise specified.
Measurement and Proportion by Weight	The term “ton” will mean the short ton consisting of 2,000 pounds (907 kg) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the RPR directs, and each truck shall bear a plainly legible identification mark.
Measurement by Volume	Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.

Term	Description
Asphalt Material	Asphalt materials will be measured by the gallon (liter) or ton (kg). When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.
Cement	Cement will be measured by the ton (kg) or hundredweight (km).
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
Timber	Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
Plates and Sheets	The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.
Miscellaneous Items	When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.
Scales	Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end. Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one pound (454 grams). The use of spring balances will not be permitted. In the event inspection reveals the scales have been “overweighing” (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%.

Term	Description
	In the event inspection reveals the scales have been under-weighting (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded. Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them. Scale installations shall have available ten standard 50-pound (2.3 km) weights for testing the weighing equipment or suitable weights and devices for other approved equipment. All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.
Rental Equipment	Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 <i>Payment for Extra Work</i>.
Pay Quantities	When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 Scope of payment. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and

for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

When the “basis of payment” subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 Compensation for altered quantities. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Section 40, paragraph 40-02, *Alteration of Work and Quantities*, will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 Payment for omitted items. As specified in Section 40, paragraph 40-03, *Omitted Items*, the RPR shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the RPR omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the RPR’s order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR’s order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the RPR’s order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

90-05 Payment for extra work. Extra work, performed in accordance with Section 40, paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

90-06 Partial payments. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with paragraph 90-07, *Payment for Materials on Hand*. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

a. From the total of the amount determined to be payable on a partial payment, 5% percent of such total amount will be deducted and retained by the Owner for protection of the Owner’s interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:

(1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with Section 50-03. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Owner for partially accepted work.

(2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per paragraph 90-08.

b. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the

subcontractor within 30 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

c. When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done. The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in paragraph 90-09, *Acceptance and Final Payment*.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

90-07 Payment for materials on hand. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

- a. The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.
- b. The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.
- c. The Contractor has furnished the RPR with satisfactory evidence that the material and transportation costs have been paid.
- d. The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.
- e. The Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of their responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this paragraph.

90-08 Payment of withheld funds. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments*, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

- a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.
- b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.
- c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.
- d. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 Acceptance and final payment. When the contract work has been accepted in accordance with the requirements of Section 50, paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the RPR shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Section 50, paragraph 50-16, *Claims for Adjustment and Disputes*.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in paragraph 90-11, *Contractor Final Project Documentation*, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Section 50, paragraph 50-16, *Claims for Adjustments and Disputes*, or under the provisions of this paragraph, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

90-10 Construction warranty.

a. In addition to any other warranties in 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, except as noted. If the Owner 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 Owner takes possession.

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 Owner real or personal property, when that damage is the result of the Contractor's failure to conform to contract requirements; or 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 Owner 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, the Owner 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 Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

h. This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

90-11 Contractor Final Project Documentation. 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 RPR approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturer's 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 Section 40, paragraph 40-08, *Final Cleanup*.

d. Complete all punch list items identified during the Final Inspection.

e. Provide complete release of all claims for labor and material arising out of the Contract.

f. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.

g. When applicable per state requirements, return copies of sales tax completion forms.

h. Manufacturer's certifications for all items incorporated in the work.

i. All required record drawings, as-built drawings or as-constructed drawings.

j. Project Operation and Maintenance (O&M) Manual(s).

k. Security for Construction Warranty.

l. Equipment commissioning documentation submitted, if required.

END OF SECTION 90

PART 2

FAA General Construction Items

Item C-100 Contractor Quality Control Program (CQCP)

100-1 General. Quality is more than test results. Quality is the combination of proper materials, testing, workmanship, equipment, inspection, and documentation of the project. Establishing and maintaining a culture of quality is key to achieving a quality project. The Contractor shall establish, provide, and maintain an effective Contractor Quality Control Program (CQCP) that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified here 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. 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 not begin any construction or production of materials to be incorporated into the completed work until the CQCP has been reviewed and approved by the Resident Project Representative (RPR). No partial payment will be made for materials subject to specific quality control (QC) requirements until the CQCP has been reviewed and approved.

The QC requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the quality assurance (QA) testing requirements. QA testing requirements are the responsibility of the RPR or Contractor as specified in the specifications.

A Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Resident Project Representative (RPR), Contractor, subcontractors, testing laboratories, and Owner's representative must be held prior to start of construction. The QC/QA workshop will be facilitated by the Contractor. The Contractor shall coordinate with the Airport and the RPR on time and location of the QC/QA workshop. Items to be addressed, at a minimum, will include:

- a. Review of the CQCP including submittals, QC Testing, Action & Suspension Limits for Production, Corrective Action Plans, Distribution of QC reports, and Control Charts.
- b. Discussion of the QA program.
- c. Discussion of the QC and QA Organization and authority including coordination and information exchange between QC and QA.
- d. Establish regular meetings to discuss control of materials, methods and testing.
- e. Establishment of the overall QC culture.

100-2 Description of program.

a. General description. The Contractor shall establish a CQCP to perform QC inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. The CQCP shall ensure conformance to applicable specifications and plans with respect to materials, off-site fabrication, 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 that shall be reviewed and approved by the RPR prior to the start of any production, construction, or off-site fabrication. The written CQCP shall be submitted to the RPR for review and approval at least 10 calendar days before the CQCP Workshop. The Contractor's CQCP and QC testing laboratory must be approved in writing by the RPR prior to the Notice to Proceed (NTP).

The CQCP shall be organized to address, as a minimum, the following:

1. QC organization and resumes of key staff
2. Project progress schedule
3. Submittals schedule
4. Inspection requirements
5. QC testing plan
6. Documentation of QC activities and distribution of QC reports
7. Requirements for corrective action when QC and/or QA acceptance criteria are not met
8. 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 must add any additional elements to the CQCP that is necessary to adequately control all production and/or construction processes required by this contract.

100-3 CQCP organization. The CQCP shall be implemented by the establishment of a QC organization. An organizational chart shall be developed to show all QC personnel, their authority, 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 used 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 paragraphs 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The QC organization shall, as a minimum, consist of the following personnel:

a. Program Administrator. The Contractor Quality Control Program Administrator (CQCPA) must be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The CQCPA must have a minimum of five (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 five (5) years of paving/QC experience, the CQCPA must meet at least one of the following requirements:

- (1) Professional Engineer with one (1) year of airport paving experience.
- (2) Engineer-in-training with two (2) years of airport paving experience.
- (3) National Institute for Certification in Engineering Technologies (NICET) Civil Engineering Technology Level IV with three (3) years of airport paving experience.

(4) An individual with four (4) years of airport paving experience, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

The CQCPA must 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 must include the ability to immediately stop production until materials and/or processes are in compliance with contract specifications. The CQCPA must report directly to a principal officer of the construction firm. The CQCPA may supervise the Quality Control Program on more than one project provided that person can be at the job site within two (2) hours after being notified of a problem.

b. QC technicians. A sufficient number of QC technicians necessary to adequately implement the CQCP must be provided. These personnel must 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 two (2) years of experience in their area of expertise.

The QC technicians must 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 paragraph 100-6.
- (2) Performance of all QC tests as required by the technical specifications and paragraph 100-8.
- (3) Performance of tests for the RPR when required by the technical specifications.

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

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.

100-4 Project progress schedule. Critical QC activities must be shown on the project schedule as required by Section 80, paragraph 80-03, *Execution and Progress*.

100-5 Submittals schedule. The Contractor shall submit a detailed listing of all submittals (for example, 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. Specification item number
- b. Item description
- c. Description of submittal
- d. Specification paragraph requiring submittal
- e. Scheduled date of submittal

100-6 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 100-9.

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 used 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 used 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 used.

b. During field operations, QC test results and periodic inspections shall be used to ensure the quality of all materials and workmanship. All equipment used 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 used.

100-7 Contractor QC testing facility.

a. For projects that include Item P-401, Item P-403, and Item P-404, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM D3666, *Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials*:

8.1.3 Equipment Calibration and Checks;

8.1.9 Equipment Calibration, Standardization, and Check Records;

8.1.12 Test Methods and Procedures

b. For projects that include P-501, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM C1077, *Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation*:

7 Test Methods and Procedures

8 Facilities, Equipment, and Supplemental Procedures

100-8 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 each technical specification 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. Specification item number (e.g., P-401)
- b. Item description (e.g., Hot Mix Asphalt Pavements)
- c. Test type (e.g., gradation, grade, asphalt content)
- d. Test standard (e.g., ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable)
- e. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated)
- f. Responsibility (e.g., plant technician)
- 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 in accordance with ASTM D3665. The RPR 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 100-9.

100-9 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 RPR 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. 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) Technical specification 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
- (7) Safety inspection.
- (8) Photographs

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 RPR 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 must be archived.

b. Daily test reports. The Contractor shall be responsible for establishing a system that will record all QC test results. Daily test reports shall document the following information:

- (1) Technical specification 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
- (9) Retests

Test results from each day's work period shall be submitted to the RPR 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 must 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 use statistical QC charts for individual QC tests. The requirements for corrective action shall be linked to the control charts.

100-11 Inspection and/or observations by the RPR. All items of material and equipment are subject to inspection and/or observation by the RPR 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 here and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to inspection and/or observation by the RPR at the site for the same purpose.

Inspection and/or observations by the RPR 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 Resident Project Representative (RPR) will provide written notice to the Contractor of any noncompliance with their CQCP. After receipt of such notice, the Contractor must 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 RPR will recommend the Owner take the following actions:

- (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 actions are taken.

METHOD OF MEASUREMENT

100-13 Basis of measurement and payment. No separate measurement for payment shall be made for the Contractor Quality Control Program (CQCP). CQCP shall be considered necessary and incidental to the work of this Contract.

BASIS OF PAYMENT

100-14 Payment. No payment will be made separately or directly for Contractor Quality Control Program (CQCP). CQCP shall be considered necessary and incidental to the work of this Contract.

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.

National Institute for Certification in Engineering Technologies (NICET)

ASTM International (ASTM)

ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

END OF ITEM C-100

Item C-105 Mobilization

105-1 Description. This item of work shall consist of, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-2 Mobilization limit. Mobilization shall be limited to 10 percent of the total project cost.

105-3 Posted notices. Prior to commencement of construction activities, the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster “Equal Employment Opportunity is the Law” in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL “Notice to All Employees” Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

105-4 Engineer/RPR field office. An Engineer/RPR field office is not required.

METHOD OF MEASUREMENT

105-5 Basis of measurement and payment. Based upon the contract lump sum price for “Mobilization” partial payments will be allowed as follows:

- a. With first pay request, 50%.
- b. With second pay request, an additional 20%.
- c. With third pay request, an additional 20%.
- d. After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials as required by Section 90, paragraph 90-11, *Contractor Final Project Documentation*, the final 10%.

BASIS OF PAYMENT

105-6 Payment will be made under:

Item C-105-6.1 Mobilization – per lump 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.

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246, as amended

EEOC-P/E-1 – Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)

WH 1321 – Employee Rights under the Davis-Bacon Act Poster

END OF ITEM C-105

Item C-110 Method of Estimating Percentage of Material Within Specification Limits (PWL)

110-1 General. When the specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined in accordance with this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average ($\bar{X}$) and sample standard deviation (S_n) of the specified number (n) of sublots for the lot and the specification tolerance limits, L for lower and U for upper, for the particular acceptance parameter. From these values, the respective Quality index, Q_L for Lower Quality Index and/or Q_U for Upper Quality Index, is computed and the PWL for the lot for the specified n is determined from Table 1. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at the acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at the rejectable quality level is accepted.

It is the intent of this section to inform the Contractor that, in order to consistently offset the Contractor's risk for material evaluated, production quality (using population average and population standard deviation) must be maintained at the acceptable quality specified or higher. In all cases, it is the responsibility of the Contractor to produce at quality levels that will meet the specified acceptance criteria when sampled and tested at the frequencies specified.

110-2 Method for computing PWL. The computational sequence for computing PWL is as follows:

- a. Divide the lot into n sublots in accordance with the acceptance requirements of the specification.
- b. Locate the random sampling position within the subplot in accordance with the requirements of the specification.
- c. Make a measurement at each location, or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.
- d. Find the sample average ($\bar{X}$) for all subplot test values within the lot by using the following formula:

$$\bar{X} = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

Where: $\bar{X}$ = Sample average of all subplot test values within a lot

$x_1, x_2, \dots, x_n$ = Individual subplot test values

n = Number of subplot test values

- e. Find the sample standard deviation (S_n) by use of the following formula:

$$S_n = [(d_1^2 + d_2^2 + d_3^2 + \dots + d_n^2)/(n-1)]^{1/2}$$

Where: S_n = Sample standard deviation of the number of subplot test values in the set

$d_1, d_2, \dots, d_n$ = Deviations of the individual subplot test values $x_1, x_2, \dots$ from the average value $\bar{X}$

that is: $d_1 = (x_1 - \bar{X}), d_2 = (x_2 - \bar{X}) \dots d_n = (x_n - \bar{X})$

n = Number of subplot test values

f. For single sided specification limits (i.e., L only), compute the Lower Quality Index Q_L by use of the following formula:

$$Q_L = (X - L) / S_n$$

Where: L = specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with Q_L , using the column appropriate to the total number (n) of measurements. If the value of Q_L falls between values shown on the table, use the next higher value of PWL.

g. For double-sided specification limits (i.e., L and U), compute the Quality Indexes Q_L and Q_U by use of the following formulas:

$$Q_L = (X - L) / S_n$$

and

$$Q_U = (U - X) / S_n$$

Where: L and U = specification lower and upper tolerance limits

Estimate the percentage of material between the lower (L) and upper (U) tolerance limits (PWL) by entering Table 1 separately with Q_L and Q_U , using the column appropriate to the total number (n) of measurements, and determining the percent of material above P_L and percent of material below P_U for each tolerance limit. If the values of Q_L fall between values shown on the table, use the next higher value of P_L or P_U . Determine the PWL by use of the following formula:

$$PWL = (P_U + P_L) - 100$$

Where: P_L = percent within lower specification limit

P_U = percent within upper specification limit

EXAMPLE OF PWL CALCULATION

Project: Example Project

Test Item: Item P-401, Lot A.

A. PWL Determination for Mat Density.

1. Density of four random cores taken from Lot A.

A-1 = 96.60

A-2 = 97.55

A-3 = 99.30

A-4 = 98.35

n = 4

2. Calculate average density for the lot.

$$X = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

$$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$$

$$X = 97.95\% \text{ density}$$

3. Calculate the standard deviation for the lot.

$$S_n = [((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2) / (4 - 1)]^{1/2}$$

$$S_n = [(1.82 + 0.16 + 1.82 + 0.16) / 3]^{1/2}$$

$$S_n = 1.15$$

4. Calculate the Lower Quality Index Q_L for the lot. ($L=96.3$)

$$Q_L = (X - L) / S_n$$

$$Q_L = (97.95 - 96.30) / 1.15$$

$$Q_L = 1.4348$$

5. Determine PWL by entering Table 1 with $Q_L = 1.44$ and $n = 4$.

$$PWL = 98$$

B. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.

$$A-1 = 5.00$$

$$A-2 = 3.74$$

$$A-3 = 2.30$$

$$A-4 = 3.25$$

2. Calculate the average air voids for the lot.

$$X = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

$$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$$

$$X = 3.57\%$$

3. Calculate the standard deviation S_n for the lot.

$$S_n = [((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)]^{1/2}$$

$$S_n = [(2.04 + 0.03 + 1.62 + 0.10) / 3]^{1/2}$$

$$S_n = 1.12$$

4. Calculate the Lower Quality Index Q_L for the lot. ($L = 2.0$)

$$Q_L = (X - L) / S_n$$

$$Q_L = (3.57 - 2.00) / 1.12$$

$$Q_L = 1.3992$$

5. Determine P_L by entering Table 1 with $Q_L = 1.41$ and $n = 4$.

$$P_L = 97$$

6. Calculate the Upper Quality Index Q_U for the lot. ($U = 5.0$)

$$Q_U = (U - X) / S_n$$

$$Q_U = (5.00 - 3.57) / 1.12$$

$$Q_U = 1.2702$$

7. Determine P_U by entering Table 1 with $Q_U = 1.29$ and $n = 4$.

$$P_U = 93$$

8. Calculate Air Voids PWL

$$PWL = (P_L + P_U) - 100$$

$$PWL = (97 + 93) - 100 = 90$$

EXAMPLE OF OUTLIER CALCULATION (REFERENCE ASTM E178)

Project: Example Project

Test Item: Item P-401, Lot A.

A. Outlier Determination for Mat Density.

1. Density of four random cores taken from Lot A arranged in descending order.

$$A-3 = 99.30$$

$$A-4 = 98.35$$

$$A-2 = 97.55$$

$$A-1 = 96.60$$

2. From ASTM E178, Table 1, for $n=4$ an upper 5% significance level, the critical value for test criterion = 1.463.

3. Use average density, standard deviation, and test criterion value to evaluate density measurements.

- a. For measurements greater than the average:

If (measurement - average)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-3, check if $(99.30 - 97.95) / 1.15$ is greater than 1.463.

Since 1.174 is less than 1.463, the value is not an outlier.

- b. For measurements less than the average:

If (average - measurement)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-1, check if $(97.95 - 96.60) / 1.15$ is greater than 1.463.

Since 1.435 is less than 1.463, the value is not an outlier.

Note: In this example, a measurement would be considered an outlier if the density were:

Greater than $(97.95 + 1.463 \times 1.15) = 99.63\%$

OR

less than $(97.95 - 1.463 \times 1.15) = 96.27\%$.

Table 1. Table for Estimating Percent of Lot Within Limits (PWL)

Percent Within Limits (P _L and P _U)	Positive Values of Q (Q _L and Q _U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420
96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4717	1.4829	1.4914
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653
87	1.0597	1.1100	1.1173	1.1192	1.1199	1.1204	1.1208	1.1212
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990
83	0.9939	0.9900	0.9785	0.9715	0.9671	0.9643	0.9624	0.9610
82	0.9749	0.9600	0.9452	0.9367	0.9315	0.9281	0.9258	0.9241
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686
70	0.6787	0.6000	0.5719	0.5582	0.5504	0.5454	0.5419	0.5394
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5130	0.5105
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537
66	0.5563	0.4800	0.4545	0.4424	0.4355	0.4310	0.4280	0.4257
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4030	0.4001	0.3980
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2093
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829
56	0.2164	0.1800	0.1688	0.1636	0.1607	0.1588	0.1575	0.1566
55	0.1806	0.1500	0.1406	0.1363	0.1338	0.1322	0.1312	0.1304
54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1049	0.1042
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0793	0.0786	0.0781
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Percent Within Limits (P _L and P _U)	Negative Values of Q (Q _L and Q _U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0793	-0.0786	-0.0781
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042
45	-0.1806	-0.1500	-0.1406	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304
44	-0.2164	-0.1800	-0.1688	-0.1636	-0.1607	-0.1588	-0.1575	-0.1566
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4030	-0.4001	-0.3980
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4355	-0.4310	-0.4280	-0.4257
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537
32	-0.6187	-0.5400	-0.5129	-0.4999	-0.4924	-0.4877	-0.4844	-0.4820
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105
30	-0.6787	-0.6000	-0.5719	-0.5582	-0.5504	-0.5454	-0.5419	-0.5394
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282
26	-0.7904	-0.7200	-0.6921	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8245	-0.8214	-0.8192
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.8533
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9315	-0.9281	-0.9258	-0.9241
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9671	-0.9643	-0.9624	-0.9610
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789
13	-1.0597	-1.1100	-1.1173	-1.1192	-1.1199	-1.1204	-1.1208	-1.1212
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115
10	-1.0982	-1.2000	-1.2290	-1.2419	-1.2492	-1.2541	-1.2576	-1.2602
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265
6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4717	-1.4829	-1.4914
5	-1.1405	-1.3500	-1.4407	-1.4887	-1.5181	-1.5381	-1.5525	-1.5635
4	-1.1456	-1.3800	-1.4897	-1.5497	-1.5871	-1.6127	-1.6313	-1.6454
3	-1.1496	-1.4100	-1.5427	-1.6181	-1.6661	-1.6993	-1.7235	-1.7420
2	-1.1524	-1.4400	-1.6016	-1.6982	-1.7612	-1.8053	-1.8379	-1.8630
1	-1.1541	-1.4700	-1.6714	-1.8008	-1.8888	-1.9520	-1.9994	-2.0362

REFERENCES

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

ASTM International (ASTM)

ASTM E178 Standard Practice for Dealing with Outlying Observations

END OF ITEM C-110

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PARTS 3-13

FAA Technical Specifications

Item P-101 Preparation/Removal of Existing Pavements

DESCRIPTION

101-1 This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable plans.

EQUIPMENT AND MATERIALS

101-2 All equipment and materials shall be specified here and in the following paragraphs or approved by the Resident Project Representative (RPR). The equipment shall not cause damage to the pavement to remain in place.

CONSTRUCTION

101-3.1 Removal of existing pavement.

The Contractor's removal operation shall be controlled to not damage adjacent pavement structure, and base material, cables, utility ducts, pipelines, or drainage structures which are to remain under the pavement.

a. Concrete pavement removal. *Not used.*

b. Asphalt pavement removal. Asphalt pavement to be removed shall be cut to the full depth of the asphalt pavement around the perimeter of the area to be removed. If the material is to be incorporated into embankment, it shall meet the following gradation:

Recycled Pavement (RAP)

Sieve designation	Percentage by weight passing sieves
1 1/2 inch	100
3/4 inch	70-100
No. 10	20-100
No. 40	5-60
No. 200	0-10

c. Repair or removal of Base, Subbase, and/or Subgrade. All failed material including surface, base course, subbase course, and subgrade shall be removed and repaired as shown on the plans or as directed by the RPR. Materials and methods of construction shall comply with the applicable sections of these specifications. Any damage caused by Contractor's removal process shall be repaired at the Contractor's expense.

101-3.2 Preparation of joints and cracks prior to overlay/surface treatment. Remove all vegetation and debris from cracks to a minimum depth of 1 inch (25 mm). If extensive vegetation exists, treat the

specific area with a concentrated solution of a water-based herbicide approved by the RPR. Fill all cracks greater than 1/4 inch (6 mm) wide) with a crack sealant per ASTM D6690. 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 sealer shall be removed from the pavement surface.

101-3.3 Removal of Foreign Substances/contaminates prior to seal-coat. Removal of foreign substances/contaminates from existing pavement that will affect the bond of the new treatment shall consist of removal of rubber, fuel spills, oil, crack sealer, at least 90% of paint, and other foreign substances from the surface of the pavement. Areas that require removal are designated on the plans and as directed by the RPR in the field during construction.

High-pressure water may be used. Removal methods used shall not cause major damage to the pavement, or to any structure or utility within or adjacent to the work area. Major damage is defined as changing the properties of the pavement, removal of asphalt causing the aggregate to ravel, or removing pavement over 1/8 inch deep. If it is deemed by the RPR that damage to the existing pavement is caused by operational error, such as permitting the application method to dwell in one location for too long, the Contractor shall repair the damaged area without compensation and as directed by the RPR.

Removal of foreign substances shall not proceed until approved by the RPR. Water used for high-pressure water equipment shall be provided by the Contractor at the Contractor's expense. No material shall be deposited on the pavement shoulders. All wastes shall be disposed of in areas indicated in this specification or shown on the plans.

101-3.4 Concrete spall or failed asphaltic concrete pavement repair.

a. Repair of concrete spalls in areas to be overlaid with asphalt. Not required for this project.

b. Asphalt pavement repair. Not required for this project.

101-3.5 Cold milling. Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed and disposed in areas designated on the plans. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material removed with new material at the Contractor's Expense.

a. Patching. The milling machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the remaining pavement and it shall have a positive method of controlling the depth of cut. The RPR shall layout the area to be milled with a straightedge in increments of 1-foot widths. The area to be milled shall cover only the failed area. Any excessive area that is milled because the Contractor doesn't have the appropriate milling machine, or areas that are damaged because of his negligence, shall be repaired by the Contractor at the Contractor's Expense.

b. Profiling, grade correction, or surface correction. The milling machine shall have a minimum width of 7 feet and it shall be equipped with electronic grade control devices that will cut the surface to the grade specified. The tolerances shall be maintained within +0 inch and -1/4 inch of the specified grade. The machine must cut vertical edges and have a positive method of dust control. The machine must have the ability to remove the millings or cuttings from the pavement and load them into a truck. All millings shall be removed and disposed of off the airport and/or in areas designated on the plans.

c. Clean-up. The Contractor shall sweep the milled surface daily and immediately after the milling until all residual materials are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep and/or blow the surface to remove loose residual

material. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. Waste materials shall be removed and disposed off Airport property.

101-3.6. Preparation of asphalt pavement surfaces prior to surface treatment. Existing asphalt pavements to be treated with a surface treatment shall be prepared as follows:

- a. Repair joints and cracks in accordance with paragraph 101-3.2.
- b. Remove oil or grease that has not penetrated the asphalt pavement by scrubbing with a detergent and washing thoroughly with clean water. After cleaning, treat these areas with an oil spot primer.
- c. Clean pavement surface immediately prior to placing the surface treatment so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film.

101-3.7 Maintenance. The Contractor shall perform all maintenance work necessary to keep the pavement in a satisfactory condition until the full section is complete and accepted by the RPR. The surface shall be kept clean and free from foreign material. The pavement shall be properly drained at all times. If cleaning is necessary or if the pavement becomes disturbed, any work repairs necessary shall be performed at the Contractor's expense.

101-3.8 Preparation of Joints in Rigid Pavement prior to resealing. Not required for this project.

101-3.9 Preparation of Cracks in Flexible Pavement prior to sealing. Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method used cleans the cracks and does not damage the pavement.

101-3.9.1 Preparation of Crack. Widen crack with router or random crack saw by removing a minimum of 1/16 inch (2 mm) from each side of crack. Immediately before sealing, cracks will be blown out with a hot air lance combined with oil and water-free compressed air.

101-3.9.2 Removal of Existing Crack Sealant. Existing sealants will be removed by routing or random crack saw. Following routing or sawing any remaining debris will be removed by use of a hot lance combined with oil and water-free compressed air.

101-3.9.3 Crack Sealant. Crack sealant material and installation will be in accordance with Item P-605.

101-3.9.4 Removal of Pipe and other Buried Structures.

- a. **Removal of Existing Pipe Material.** *Not used.*
- b. **Removal of Inlets/Manholes.** *Not used.*

METHOD OF MEASUREMENT

101-4.1 Pavement removal. The unit of measurement for pavement removal shall be the number of square yards removed by the Contractor. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment. No direct measurement or payment shall be made for saw cutting. Saw cutting shall be incidental to pavement removal. Dowel bar installation shall be incidental to pavement removal.

101-4.2 Joint and crack repair. The unit of measurement for joint and crack repair shall be the linear foot of joint and crack.

101-4.3 Cold milling, Full Depth. The unit of measure for cold milling shall be full depth of milling per square yard. The location and average depth of the cold milling shall be as shown on the plans. If the initial cut does not correct the condition, the Contractor shall re-mill the area and will be paid for the total depth of milling.

101-4.4 Cold milling, 4-inch Depth. The unit of measure for cold milling shall be 4 inches of milling per square yard. The location and average depth of the cold milling shall be as shown on the plans. If the initial cut does not correct the condition, the Contractor shall re-mill the area and will be paid for the total depth of milling.

101.4.5 Saw Cut Asphalt Concrete Pavement. Saw cutting of existing AC pavement shall be measured by the linear foot.

BASIS OF PAYMENT

101-5.1 Payment. Payment shall be made at contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials and for all preparation, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.

Item P 101-5.1	Pavement Removal - per square yard
Item P 101-5.2	Joint and Crack Repair – per linear foot
Item P 101-5.3	Cold Milling, Full Depth – per square yard
Item P-101-5.4	Cold Milling, 4-inch Depth – per square yard
Item P-101-5.5	Sawcut Asphalt Concrete Pavement – per linear foot

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.

Advisory Circulars (AC)

AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements.
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ASTM International (ASTM)

ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
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END OF ITEM P-101

Item P-151 Clearing and Grubbing

DESCRIPTION

151-1.1 This item shall consist of clearing or clearing and grubbing, including the disposal of materials, for all areas within the limits designated on the plans or as required by the Resident Project Representative (RPR).

a. Clearing. *Not used.*

b. Clearing and grubbing shall consist of clearing the surface of the ground of the designated areas of all trees, stumps, down timber, logs, snags, brush, undergrowth, hedges, heavy growth of grass or weeds, fences, structures, debris, and rubbish of any nature, natural obstructions or such material which in the opinion of the RPR is unsuitable for the foundation of strips, pavements, or other required structures, including the grubbing of stumps, roots, matted roots, foundations, and the disposal from the project of all spoil materials resulting from clearing and grubbing.

c. Tree Removal. *Not used.*

CONSTRUCTION METHODS

151-2.1 General. The areas denoted on the plans to be cleared and grubbed shall be staked on the ground by the Contractor as indicated on the plans.

The removal of existing structures and utilities required to permit orderly progress of work shall be accomplished by local agencies, unless otherwise shown on the plans. Whenever a telephone pole, pipeline, conduit, sewer, roadway, or other utility is encountered and must be removed or relocated, the Contractor shall advise the RPR who will notify the proper local authority or owner to secure prompt action.

151-2.1.1 Disposal. All materials removed by clearing or by clearing and grubbing shall be disposed of outside the Airport's limits at the Contractor's responsibility, except when otherwise directed by the RPR. As far as practicable, waste concrete and masonry shall be placed on slopes of embankments or channels. When embankments are constructed of such material, this material shall be placed in accordance with requirements for formation of embankments. Any broken concrete or masonry that cannot be used in construction and all other materials not considered suitable for use elsewhere, shall be disposed of by the Contractor. In no case, shall any discarded materials be left in windrows or piles adjacent to or within the airport limits. The manner and location of disposal of materials shall be subject to the approval of the RPR and shall not create an unsightly or objectionable view. When the Contractor is required to locate a disposal area outside the airport property limits, the Contractor shall obtain and file with the RPR permission in writing from the property owner for the use of private property for this purpose.

151-2.1.2 Blasting. Blasting shall not be allowed.

151-2.2 Clearing. *Not used.*

151-2.3 Clearing and grubbing. In areas designated to be cleared and grubbed, all stumps, roots, buried logs, brush, grass, and other unsatisfactory materials as indicated on the plans, shall be removed, except where embankments exceeding 3-1/2 feet in depth will be constructed outside of paved areas. For embankments constructed outside of paved areas, all unsatisfactory materials shall be removed, but sound trees, stumps, and brush can be cut off flush with the original ground and allowed to remain. Tap roots and other projections over 1-1/2 inches in diameter shall be grubbed out to a depth of at least 18 inches below the finished subgrade or slope elevation.

All holes in embankment areas remaining after the grubbing operation shall have the sides of the holes flattened to facilitate filling with acceptable material and compacting as required in Item P-152. The same procedure shall be applied to all holes remaining after grubbing in areas where the depth of holes exceeds the depth of the proposed excavation.

METHOD OF MEASUREMENT

151-3.1 No measurement will be made separately or directly for clearing and grubbing. Clearing and grubbing shall be considered necessary and incidental to the work of this Contract..

BASIS OF PAYMENT

151-4.1 No payment will be made separately or directly for clearing and grubbing. Clearing and grubbing shall be considered necessary and incidental to the work of this Contract.

END OF ITEM P-151

Item P-152 Excavation, Subgrade, and Embankment

DESCRIPTION

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, aprons, and intermediate areas as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

152-1.2 Classification. All material excavated shall be classified as defined below:

a. Unclassified excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature.

152-1.3 Unsuitable excavation. Unsuitable material shall be disposed in designated waste areas as shown on the plans. Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used on the embankment slope when approved by the RPR.

CONSTRUCTION METHODS

152-2.1 General. Before beginning excavation, grading, and embankment operations in any area, the area shall be cleared or cleared and grubbed in accordance with Item P-151.

The suitability of material to be placed in embankments shall be subject to approval by the RPR. All unsuitable material shall be disposed of in waste areas as shown on the plans. All waste areas shall be graded to allow positive drainage of the area and adjacent areas. The surface elevation of waste areas shall be specified on the plans or approved by the RPR.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the RPR notified per Section 70, paragraph 70-20. At the direction of the RPR, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches, to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches in their greatest dimension will not be permitted in the top 6 inches of the subgrade.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the RPR, who shall arrange for their removal if necessary. The Contractor, at their own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

a. Blasting. Blasting shall not be allowed.

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the RPR has obtained from the Contractor, the survey notes of the elevations and measurements of

the ground surface. The Contractor and RPR shall agree that the original ground lines shown on the original topographic mapping are accurate or agree to any adjustments made to the original ground lines.

Digital terrain model (DTM) files of the existing surfaces, finished surfaces and other various surfaces were used to develop the design plans.

Volumetric quantities were calculated by comparing DTM files of the applicable design surfaces and generating Triangle Volume Reports. Electronic copies of DTM files and a paper copy of the original topographic map will be issued to the successful bidder.

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor shall verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within 0.1 foot of the stated elevations for ground surfaces, or within 0.04 foot for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the RPR in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

All areas to be excavated shall be stripped of vegetation and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or by the RPR. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes as shown on the plans. All unsuitable material shall be disposed of as shown on the plans.

The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be used to grade the areas of ultimate development or disposed as directed by the RPR. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

a. Selective grading. When selective grading is indicated on the plans, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping the pavement subgrade. 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 until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

b. Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed of off the airport. The cost is incidental to this item. This excavated material shall be paid for at the contract unit price per cubic yard for *unclassified excavation*. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow

areas and compacted to specified densities. The necessary backfill will constitute a part of the embankment. Where rock cuts are made, backfill with select material. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans. Undercutting will be paid as unclassified excavation.

c. Over-break. Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the RPR. All over-break shall be graded or removed by the Contractor and disposed of as directed by the RPR. The RPR shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the RPR determines as avoidable. Unavoidable over-break will be classified as "Unclassified Excavation."

d. Removal of utilities. The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by the Contractor as indicated on the plans. All existing foundations shall be excavated at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed of *as directed by the RPR*. All foundations thus excavated shall be backfilled with suitable material and compacted as specified for embankment or as shown on the plans.

152-2.3 Borrow excavation. Borrow areas are not required.

152-2.4 Drainage excavation. *Not used.*

152-2.5 Preparation of cut areas or areas where existing pavement has been removed. In those areas on which a subbase or base course is to be placed, the top 8 inches of subgrade shall be compacted to not less than 100% of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM D698. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

152-2.6 Preparation of embankment area. All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches and shall then be compacted per paragraph 152-2.10.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill.

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.

152-2.7 Control Strip. The first half-day of construction of subgrade and/or embankment shall be considered as a control strip for the Contractor to demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of this specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

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 begin until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

152-2.8 Formation of embankments. The material shall be constructed in lifts as established in the control strip, but not less than 6 inches nor more than 12 inches of compacted thickness.

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.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the RPR. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in 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 surface drainage at all times.

The material in each lift shall be within $\pm 2\%$ of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

The RPR will take samples of excavated materials which will be used in embankment for testing and develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with ASTM D698. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the RPR for every 1,000 square yards of compacted embankment for each lift which is required to be compacted, or other appropriate frequencies as determined by the RPR.

If the material has greater than 30% retained on the 3/4-inch sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.

Rolling operations shall be continued until the embankment is compacted to not less than 100% of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM D698. Under all areas to be paved, the embankments shall be compacted to a depth of 8 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D698. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

The in-place field density shall be determined in accordance with ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. The Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance. If the specified density is not attained, the area represented by the test or as designated by the RPR shall be reworked and/or re-compact and additional random tests made. This procedure shall be followed until the specified density is reached.

Compaction areas shall be kept separate, and no lift shall be covered by another lift until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones, fragmentary rock, and recycled pavement larger than 4 inches in their greatest dimensions will not be allowed in the top 12 inches of the subgrade. Rockfill shall be brought up in lifts as specified or as directed by the RPR and the finer material shall be used to fill the voids forming a dense, compact mass. Rock, cement concrete pavement, asphalt pavement, and other embankment material shall not be disposed of except at places and in the manner designated on the plans or by the RPR.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in lifts of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in lifts not exceeding 2 feet in thickness. Each lift shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The lift shall not be constructed above an elevation 4 feet below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for unclassified excavation or other items.

152-2.9 Proof rolling. The purpose of proof rolling the subgrade is to identify any weak areas in the subgrade and not for compaction of the subgrade. After compaction is completed, the subgrade area shall be proof rolled with a 15 ton Proof Roller with tires spaced not more than 32 inches on-center with tires inflated to 125 psi in the presence of the RPR. Apply a minimum of 2 coverage, or as specified by the RPR, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch or show permanent deformation greater than 1 inch shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. Removal and replacement of soft areas is incidental to this item.

152-2.10 Compaction requirements. The subgrade under areas to be paved shall be compacted to a depth of 8 inches and to a density of not less than 95 percent of the maximum dry density as determined by ASTM D698. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of 6 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D698.

The material to be compacted shall be within $\pm 2\%$ of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the $\frac{3}{4}$ inch (19.0 mm) sieve, follow the methods in ASTM D698. Tests for moisture content and compaction will be taken at a minimum of 1,000 S.Y. of subgrade. All quality assurance testing shall be done by the RPR.

The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

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 RPR and the finished subgrade shall be maintained.

152-2.11 Finishing and protection of subgrade. Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, re-compacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the RPR.

152-2.12 Haul. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining and removing haul roads or routes.

152-2.13 Surface Tolerances. In those areas on which a subbase or base course is to be placed, the surface shall be tested 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 re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. 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 $\pm 1/2$ inch when tested with a *Contractor-provided* 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 ± 0.05 feet of the specified grade.

On safety areas, turfed areas and other designated areas within the grading limits where no subbase or base is to be placed, grade shall not vary more than 0.10 feet from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.14 Topsoil. *Not used.*

METHOD OF MEASUREMENT

152-3.1 Measurement for payment specified by the cubic yard shall be computed by the comparison of digital terrain model (DTM) surfaces. The end area is that bound by the original ground line established

by field cross-sections and the final theoretical pay line established by cross-sections shown on the plans, subject to verification by the RPR.

152-3.2 The quantity of unclassified excavation to be paid for shall be the number of cubic yards measured in its original position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

152-3.2 The quantity of embankment in place shall be the number of cubic yards measured in its final position.

152-3.3 Stockpiled material shall not be measured for payment in the stockpiled position

BASIS OF PAYMENT

152-4.1 Unclassified excavation payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-152-4.1	Unclassified Excavation - per cubic yard
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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.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO T-180	Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop
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ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft ³ (600 kN-m/m ³))
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ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
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ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
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Advisory Circulars (AC)

AC 150/5370-2	Operational Safety on Airports During Construction Software Software
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FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

U.S. Department of Transportation

FAA RD-76-66

Design and Construction of Airport Pavements on Expansive Soils

END OF ITEM P-152

Item P-153 Controlled Low-Strength Material (CLSM)

DESCRIPTION

153-1.1 This item shall consist of furnishing, transporting, and placing a controlled low-strength material (CLSM) as flowable backfill in trenches or at other locations shown on the plans or as directed by the Resident Project Representative (RPR).

MATERIALS

153-2.1 Materials.

a. Cement. Cement shall conform to the requirements of ASTM C150 Type II.

b. Fly ash. Fly ash shall conform to ASTM C618, Class C or F.

c. Fine aggregate (sand). Fine aggregate shall conform to the requirements of ASTM C33 except for aggregate gradation. Any aggregate gradation which produces the specified performance characteristics of the CLSM and meets the following requirements, will be accepted.

Sieve Size	Percent Passing by weight
3/4 inch	100
No. 200	0 - 12

d. Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

MIX DESIGN

153-3.1 Proportions. The Contractor shall submit, to the RPR, a mix design including the proportions and source of aggregate, fly ash, cement, water, and approved admixtures. No CLSM mixture shall be produced for payment until the RPR has given written approval of the proportions. The proportions shall be prepared by a laboratory and shall remain in effect for the duration of the project. The proportions shall establish a single percentage or weight for aggregate, fly ash, cement, water, and any admixtures proposed. Laboratory costs are incidental to this item.

a. Compressive strength. CLSM shall be designed to achieve a 28-day compressive strength of 100 to 200 psi when tested in accordance with ASTM D4832, with no significant strength gain after 28 days.

b. Consistency. Design CLSM to achieve a consistency that will produce an approximate 8-inch diameter circular-type spread without segregation. CLSM consistency shall be determined per ASTM D6103.

CONSTRUCTION METHODS

153-4.1 Placement.

a. Placement. CLSM may be placed by any reasonable means from the mixing unit into the space to be filled. Agitation is required during transportation and waiting time. Placement shall be performed so structures or pipes are not displaced from their final position and intrusion of CLSM into unwanted areas is avoided. The material shall be brought up uniformly to the fill line shown on the plans or as directed by

the RPR. Each placement of CLSM shall be as continuous an operation as possible. If CLSM is placed in more than one lift, the base lift shall be free of surface water and loose foreign material prior to placement of the next lift.

b. Contractor Quality Control. The Contractor shall collect all batch tickets to verify the CLSM delivered to the project conforms to the mix design. The Contractor shall verify daily that the CLSM is consistent with 153-3.1a and 153-3.1b. Adjustments shall be made as necessary to the proportions and materials as needed. The Contractor shall provide all batch tickets to the RPR.

c. Limitations of placement. CLSM shall not be placed on frozen ground. Mixing and placing may begin when the air or ground temperature is at least 35°F and rising. Mixing and placement shall stop when the air temperature is 40°F and falling or when the anticipated air or ground temperature will be 35°F or less in the 24-hour period following proposed placement. At the time of placement, CLSM shall have a temperature of at least 40°F.

153-4.2 Curing and protection

a. Curing. The air in contact with the CLSM shall be maintained at temperatures above freezing for a minimum of 72 hours. If the CLSM is subjected to temperatures below 32°F, the material may be rejected by the RPR if damage to the material is observed.

b. Protection. The CLSM shall not be subject to loads and shall remain undisturbed by construction activities for a period of 48 hours or until a compressive strength of 15 psi is obtained. The Contractor shall be responsible for providing evidence to the RPR that the material has reached the desired strength. Acceptable evidence shall be based upon compressive tests made in accordance with paragraph 153-3.1a.

153-4.3 Quality Assurance (QA) Acceptance. CLSM QA acceptance shall be based upon batch tickets provided by the Contractor to the RPR to confirm that the delivered material conforms to the mix design.

METHOD OF MEASUREMENT

153-5.1 Measurement.

No separate measurement for payment shall be made for controlled low strength material (CLSM). CLSM shall be considered necessary and incidental to the work of this Contract.

BASIS OF PAYMENT

153-6.1 Payment.

No payment will be made separately or directly for controlled low strength material (CLSM). CLSM shall be considered necessary and incidental to the work of this Contract.

REFERENCES

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

ASTM International (ASTM)

ASTM C33	Standard Specification for Concrete Aggregates
ASTM C150	Standard Specification for Portland Cement

ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C595	Standard Specification for Blended Hydraulic Cements
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D4832	Standard Test Method for Preparation and Testing of Controlled Low-Strength Material (CLSM) Test Cylinders
ASTM D6103	Flow Consistency of Controlled Low Strength Material (CLSM)

END OF ITEM P-153

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 in accordance with 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, recycled asphalt pavement (RAP). The material may be obtained from gravel pits, stockpiles, or may be produced from a crushing and screening plant with proper blending. The materials from these sources shall meet the requirements for gradation, quality, and consistency. The material shall be free from vegetative matter, excessive amounts of clay, and other objectionable substances; uniformly blended; and be capable of being compacted into a dense, stable subbase.

The subbase material shall exhibit a California Bearing Ratio (CBR) value of at least 20 when tested in accordance with ASTM D1883. The subbase material shall meet the gradation specified in the table below.

Subbase Gradation Requirements

Sieve designation	Percentage by weight passing sieves		Contractor's Final Gradation	Job Control Grading Band Tolerances ¹ (Percent)
	Subbase Aggregate	Recycled pavement (RAP)		
3 inch	100			0
1 1/2 inch		100		0
3/4 inch	70-100	70-100		±10
No. 10	20-100	20-100		±10
No. 40	5-60	5-60		±5
No. 200	0-10	0-10		±5

¹The "Job Control Grading Band Tolerances" shall be applied to "Contractor's Final Gradation" to establish the job control grading band.

The portion of the material passing the No. 40 (425 µm) sieve shall have a liquid limit of not more than 25 and a plasticity index of not more than six (6) when tested in accordance with ASTM D4318.

154-2.2 Sampling and testing.

a. Aggregate base materials. Samples shall be taken by the Contractor per ASTM D75 for initial aggregate subbase requirements and gradation. Material shall meet the requirements in paragraphs 154-2.1. The Contractor shall submit to the Resident Project Representative (RPR) certified test results showing that the aggregate meets the Material requirements of this section. Tests shall be representative of the material to be used for the project.

b. Gradation requirements. The Contractor shall take at least one aggregate subbase sample per day in the presence of the RPR to check the final gradation. Samples shall be taken from the in-place, un-compacted material at sampling locations determined by the RPR on a random basis per ASTM D3665. Sampling shall be per ASTM D75 and tested per ASTM C136 and ASTM C117. Results shall be furnished to the RPR by the Contractor each day during construction. Material shall meet the requirements in paragraph 154-2.1.

154-2.3 Separation Geotextile. *Not used.*

154-2.4 Geogrid. *Not used.*

CONSTRUCTION METHODS

154-3.1 General. The subbase course shall be placed where designated on the plans or as directed by the RPR. 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 construction equipment without movement, shall be mechanically modified to the depth necessary to provide stability as directed by the RPR. The mechanical modification shall include the addition of a fine-grained medium to bind the particles of the subbase material sufficiently to furnish a bearing strength, so the course will not deform under construction equipment traffic.

154-3.2 Preparing underlying course. Prior to constructing the subbase course, clean the underlying course or subgrade of all foreign substances. The surface of the underlying course or subgrade shall meet specified compaction and surface tolerances in accordance with Item P-152. Correct ruts, soft yielding spots in the underlying courses, and subgrade areas having inadequate compaction and/or deviations of the surface from the specified requirements, by loosening and removing soft or unsatisfactory material, adding approved material, reshaping to line and grade, and recompacting to specified density requirements. For cohesionless underlying courses or subgrades containing sands or gravels, as defined in ASTM D2487, the surface shall be stabilized prior to placement of the overlying course by mixing the overlying course material into the underlying course and compacting by approved methods. The stabilized material shall be considered as part of the underlying course and shall meet all requirements for the underlying course. The finished underlying course shall not be disturbed by traffic or other operations and shall be maintained in a satisfactory condition until the overlying course is placed. The underlying course shall be checked and accepted by the RPR before placing and spreading operations are started.

To protect the subgrade and to ensure proper drainage, 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 Control Strip. The first half-day of subbase construction shall be considered as a control strip for the Contractor to demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of this specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

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 begin until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

154-3.4 Placement. The material shall be placed and spread on the prepared underlying layer by spreader boxes or other devices as approved by the RPR, to a uniform thickness and width. The equipment shall have positive thickness controls to minimize the need for additional manipulation of the material. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted. The material shall not be placed when the underlying course is soft or yielding.

The material shall meet gradation and moisture requirements prior to compaction. Material may be free-draining, and the minimum moisture content shall be established for placement and compaction of the material.

The material shall be constructed in lifts as established in the control strip, but not less than 4 inches nor more than 12 inches of compacted thickness.

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.

154-3.5 Compaction. The subbase material shall be compacted, adjusting moisture as necessary, to be within $\pm 2\%$ of optimum moisture. The field density of the compacted material shall be at least 100% of the maximum density as specified in paragraph 154-3.9a. If the specified density is not attained, the area of the lift represented by the test shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

154-3.6 Weather limitation. Material shall not be placed unless the ambient air temperature is at least 40°F and rising. Work on subbase course shall not be conducted when the subgrade is wet or frozen or the subbase material contains frozen material.

154-3.7 Maintenance. No base or surface course shall be placed on the subbase until the subbase has been accepted by the RPR. The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, the Contractor shall verify that materials still meet all specification requirements before placement of additional material. Equipment may be routed over completed sections of subbase course, provided the equipment does not damage the subbase course and the equipment is routed over the full width of the completed subbase course. Any damage to the subbase course from routing equipment over the subbase course shall be repaired by the Contractor at their expense.

154-3.8 Surface tolerance. In those areas on which a subbase or base course is to be placed, the surface shall be tested 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 re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. 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 $\pm \frac{1}{2}$ inch when tested with a Contractor-provided 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 ± 0.05 feet of the specified grade.

154-3.9 Acceptance sampling and testing. The aggregate base course shall be accepted for density and thickness on an area basis. Two test shall be made for density and thickness for each 1200 square yards. Sampling locations will be determined on a random basis per ASTM D3665.

a. Density. The RPR shall perform all density tests.

Each area shall be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens compacted and tested per ASTM D698. The in-place field density shall be determined per ASTM D1556 or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the area represented by the failed test shall be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

When the material has greater than 30 percent retained on the $\frac{3}{4}$ inch sieve, use methods in ASTM D698 and the procedures in AASHTO T180 Annex for correction of maximum dry density and optimum moisture for oversized particles.

b. Thickness. The thickness of the base course shall be within $+0$ and $-1/2$ inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. 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

154-4.1 RAP shoulder material shall be measured by the number of cubic yards of RAP material placed and compacted to specified density and plan thickness requirements in the completed course. The quantity of RAP material shall be measured in final position based upon survey of the completed work computed from elevations to the nearest 0.01 foot. On individual depth measurements, thicknesses more than $1/2$ inch in excess of that shown on the plans shall be considered as the specified thickness plus $1/2$ inch in computing the yardage for payment. RAP materials shall not be included in any other excavation quantities.

BASIS OF PAYMENT

154-5.1 Payment shall be made at the contract unit price per square yard for subbase course. This price shall be full compensation for furnishing all materials; for all preparation, hauling, and placing of these materials; and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-154-5.1	RAP Shoulder Material - per cubic yard
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REFERENCES

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

ASTM International (ASTM)

ASTM C117	Standard Test Method for Materials Finer than 75- μm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft ³ (600 kN-m/m ³))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³ (2,700 kN-m/m ³))
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D4253	Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
ASTM D4759	Practice for Determining the Specification Conformance of Geosynthetics
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

American Association of State Highway and Transportation Officials (AASHTO)

M 288	Geotextile Specification for Highway Applications
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END OF ITEM P-154

Item P-155 Lime-Treated Subgrade

DESCRIPTION

155-1.1 This item shall be used for soil modification that require strength gain to a specific level. This item shall consist of constructing one or more courses of a mixture of soil, lime, and water in accordance with this specification, and in conformity with the lines, grades, thicknesses, and typical cross-sections shown on the plans.

MATERIALS

155-2.1 Lime. Quicklime, hydrated lime, and either high-calcium dolomitic, or magnesium lime, as defined by ASTM C51, shall conform to the requirements of ASTM C977. Lime not produced from calcining limestone is not permitted.

155-2.2 Commercial lime slurry. Commercial lime slurry shall be a pumpable suspension of solids in water. The water or liquid portion of the slurry shall not contain dissolved material injurious or objectionable for the intended purpose. The solids portion of the mixture, when considered on the basis of “solids content,” shall consist principally of hydrated lime of a quality and fineness sufficient to meet the following chemical composition and residue requirements.

a. Chemical composition. The “solids content” of the lime slurry shall consist of a minimum of 70%, by weight, of calcium and magnesium oxides.

b. Residue. The percent by weight of residue retained in the “solids content” of lime slurry shall conform to the following requirements:

- Residue retained on a No. 6 sieve = maximum 0.0%
- Residue retained on a No. 10 sieve = maximum 1.0%
- Residue retained on a No. 30 sieve = maximum 2.5%

c. Grade. Commercial lime slurry shall conform to one of the following two grades:

- Grade 1. The “dry solids content” shall be at least 31% by weight, of the slurry.
- Grade 2. The “dry solids content” shall be at least 35%, by weight, of the slurry.

155-2.3 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

155-2.4 Soil. The soil for this work shall consist of on-site materials free of roots, sod, weeds, and stones larger than 2-1/2 inches and have a sulfate content of less than 0.3%.

COMPOSITION

155-3.1 Soil-lime mixture. Lime shall be applied at a dry unit weight of soil that will be sufficient to lower the Liquid Limit to less than 30 and the Plasticity Index to less than 10 for the depth of subgrade treatment as shown on the plans.

155-3.2 Tolerances. At final compaction, the lime and water content for each course of subgrade treatment shall conform to the following tolerances:

Tolerances

Material	Tolerance
Lime	+ 0.5%
Water	+ 2%, -0%

WEATHER LIMITATIONS

155-4.1 Weather limitation. Subgrade shall not be constructed when weather conditions detrimentally affect the quality of the materials. Lime shall not be applied unless the air temperature is at least 40°F and rising. Lime shall not be applied to soils that are frozen or contain frost. Protect completed lime-treated areas by approved methods against the detrimental effects of freezing if the air temperature falls below 35°F. Remove and replace any damaged portion of the completed soil-lime treated area with new soil-lime material in accordance with this specification.

EQUIPMENT

155-5.1 Equipment. All equipment necessary to grade, scarify, spread, mix and compact the material shall be provided. The Resident Project Representative (RPR) must approve the Contractor's proposed equipment prior to the start of the treatment.

CONSTRUCTION METHODS

155-6.1 General. This specification is to construct a subgrade consisting of a uniform lime mixture which shall be free from loose or segregated areas. The subgrade shall be of uniform density and moisture content, well mixed for its full depth, and have a smooth surface suitable for placing subsequent lifts. The Contractor shall be responsible to meet the above requirements.

Prior to any treatment, the subgrade shall be constructed as specified in Item P-152, Excavation, Subgrade and Embankment, and shaped to conform to the typical sections, lines, and grades as shown on the plans.

The mixing equipment must give visible indication at all times that it is cutting, pulverizing and mixing the material uniformly to the proper depth over the full width of the cut.

155-6.2 Application. Lime shall be uniformly spread only over an area where the initial mixing operations can be completed during the same work day. Lime shall not be applied when wind conditions are detrimental to proper application. A motor grader shall not be used to spread the lime. Adequate moisture shall be added to the cement/soil mixture to maintain the proper moisture content. Materials shall be handled, stored, and applied in accordance with all federal, state, and local requirements.

155-6.3 Mixing. The mixing procedure shall be as described below:

a. Preliminary mixing. The full depth of the treated subgrade shall be mixed with an approved mixing machine. Lime shall not be left exposed for more than six (6) hours. The mixing machine shall make two coverages. Water shall be added to the subgrade during mixing to provide a moisture content approximately 3% to 5% above the optimum moisture of the material and to ensure chemical reaction of the lime and subgrade. After mixing, the subgrade shall be lightly rolled to seal the surface and help

prevent evaporation of moisture. The water content of the subgrade mixture shall be maintained at a moisture content above the optimum moisture content for a minimum of 4 to 24 hours or until the material becomes friable. During the mellowing period, the material shall be sprinkled as directed by the RPR.

b. Final mixing. After the required mellowing time, the material shall be uniformly mixed by approved methods. Any clods shall be reduced in size by blading, discing, harrowing, scarifying, or by the use of other approved pulverization methods. After curing, pulverize lime treated material until 100% of soil particles pass a one-inch sieve and 60% pass the No. 4 sieve when tested dry by laboratory sieves. If resultant mixture contains clods, reduce their size by scarifying, remixing, or pulverization to meet specified gradation.

155-6.4 Control Strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, 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 RPR. Upon acceptance of the control strip by the RPR, the Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

155-6.5 Treatment Application and Depth Checks. The depth and amount of stabilization shall be measured by the Contractor with no less than 2 tests per day of material placed; test shall be witnessed by the RPR. Measurements shall be made in test holes excavated to show the full depth of mixing and the pH checked by spraying the side of the test hole with a pH indicator such as phenolphthalein. Phenolphthalein changes from clear to red between pH 8.3 and 10. The color change indicates the location of the bottom of the mixing zone. pH indicators other than phenolphthalein can be used to measure pH levels. If the pH is not at least 8.3 and/or if the depth of the treated subgrade is more than 1/2 inch deficient, additional lime treatment shall be added and the material remixed. The Contractor shall correct all such areas in a manner satisfactory to the RPR.

155-6.6 Compaction. Compaction of the mixture shall immediately follow the final mixing operation with the mixture compacted within 1 to 4 hours after final mixing. The material shall be at the moisture content specified in paragraph 155-3.2 during compaction. The field density of the compacted mixture shall be at least 95% of the maximum density as specified in paragraph 155-6.10. Perform in-place density test to determine degree of compaction between 24 and 72 hours after final compaction and the 24-hour moist cure period. If the material fails to meet the density requirements, it shall be reworked to meet the density requirements. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

155-6.7 Finishing and curing. After the final lift or course of lime-treated subgrade has been compacted, it shall be brought to the required lines and grades in accordance with the typical sections. The completed section shall then be finished by rolling, as directed by the RPR, with a pneumatic or other suitable roller sufficiently light to prevent hairline cracking. 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 pavement centerline. Any variations in excess of this tolerance shall be corrected by the Contractor at the Contractor's expense in a manner satisfactory to the RPR.

The completed section shall be moist-cured for a minimum of seven (7) days before further courses are added or any traffic is permitted, unless otherwise directed by the RPR. The final lift should not be exposed for more than 14 days without protection or the placement of a base course material.

155-6.8 Maintenance. The Contractor shall protect and maintain the lime-treated subgrade from yielding until the lime-treated subgrade is covered by placement of the next lift. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meets all specification requirements. The maintenance cost shall be incidental to this item.

155-6.9 Surface tolerance. In those areas on which a subbase or base course is to be placed, the surface shall be tested 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 re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. 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 $\pm 1/2$ inch when tested with a *Contractor-provided* 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 ± 0.05 feet of the specified grade.

155-6.10 Acceptance sampling and testing. The lime treated subgrade shall be accepted for density and thickness on an area basis. Testing frequency shall be a minimum of one compaction and thickness test per 1000 square yards of lime treated subgrade, but not less than four (4) tests per day of production. Sampling locations will be determined on a random basis per ASTM D3665.

a. Density. All testing shall be done by the RPR.

The field density of the compacted mixture shall be at least 95% of the maximum density of laboratory specimens prepared from samples taken from the material in place. The specimens shall be compacted and tested in accordance with ASTM D698 to determine maximum density and optimum moisture content. The in-place field density shall be determined in accordance with ASTM D1556 or ASTM D6938, Procedure A, direct transmission method. If the material fails to meet the density requirements, the area represented by the failed test shall be reworked to meet the density requirements. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. The thickness of the course shall be within $+0$ and $-1/2$ inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than $1/2$ -inch, the Contractor shall correct such areas at no additional cost. The Contractor shall replace, at his expense, material where depth tests have been taken.

155-6.11 Handling and safety. The Contractor shall obtain and enforce the lime supplier's instructions for proper safety and handling of the lime to prevent physical eye or skin contact with lime during transport or application.

METHOD OF MEASUREMENT

155-7.1 Lime-treated subgrade shall be paid for by the square yard in the completed and accepted work.

BASIS OF PAYMENT

155-8.1 Payment shall be made at the contract unit price per square yard for the lime-treated subgrade at the thickness specified. The price shall be full compensation for furnishing all material, *including* the lime, and for all preparation, delivering, placing and mixing these materials, and all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

Item P-155-8.1	Lime-treated subgrade - per square yard
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REFERENCES

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

ASTM International (ASTM)

ASTM C51	Standard Terminology Relating to Lime and Limestone (as used by the Industry)
ASTM C977	Standard Specification for Quicklime and Hydrated Lime for Soil Stabilization
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft ³)
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

END OF ITEM P-155

Item P-209 Crushed Aggregate Base Course

DESCRIPTION

209-1.1 This item consists of a base course composed of crushed aggregate base constructed on a prepared course in accordance with these specifications and in conformity 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, crushed gravel, and shall be free from coatings of clay, silt, organic material, clay lumps or balls or other deleterious materials or coatings. 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 portion, defined as the portion passing the No. 4 sieve shall consist of fines from the coarse aggregate crushing operation. The fine aggregate shall be produced by crushing stone or gravel that meet the coarse aggregate requirements for wear and soundness. Aggregate base material requirements are listed in the following table.

Crushed Aggregate Base Material Requirements

Material Test	Requirement	Standard
Coarse Aggregate		
Resistance to Degradation	Loss: 45% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
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	ASTM D5821
Flat Particles, Elongated Particles, or Flat and Elongated Particles	10% maximum, by weight, of flat, elongated, or flat and elongated particles ²	ASTM D4791
Clay lumps and friable particles	Less than or equal to 3 percent	ASTM C142
Fine Aggregate		
Liquid limit	Less than or equal to 25	ASTM D4318
Plasticity Index	Not more than five (5)	ASTM D4318

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 aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136. 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.

Gradation of Aggregate Base

Sieve Size	Design Range Percentage by Weight passing	Contractor's Final Gradation	Job Control Grading Band Tolerances ¹ (Percent)
2 inch	100		0
1-1/2 inch	95-100		±5
1 inch	70-95		±8
3/4 inch	55-85		±8
No. 4	30-60		±8
No. 40 ²	10-30		±5
No. 200 ²	0-10		±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 40 sieve.

209-2.3 Sampling and Testing.

a. Aggregate base materials. The Contractor shall take samples of the aggregate base in accordance with ASTM D75 to verify initial aggregate base requirements and gradation. Material shall meet the requirements in paragraph 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 Resident Project Representative (RPR) to check the final gradation. Sampling shall be per ASTM D75. Material shall meet the requirements in paragraph 209-2.2. The samples shall be taken from the in-place, un-compacted material at sampling points and intervals designated by the RPR.

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 RPR, 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. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

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 RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved by the RPR.

209-3.2 Preparing underlying subgrade and/or subbase. The underlying subgrade and/or subbase shall be checked and accepted by the RPR before base course placing and spreading operations begin. Re-proof rolling of the subgrade or proof rolling of the subbase in accordance with Item P-152, at the Contractor's expense, may be required by the RPR if the Contractor fails to ensure proper drainage or protect the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected 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.

209-3.3 Production. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 209-3.5, the approved material may be transported directly to the placement.

209-3.4 Placement. The aggregate shall be placed and spread on the prepared underlying layer by spreader boxes or other devices as approved by the RPR, to a uniform thickness and width. The equipment shall have positive thickness controls to minimize the need for additional manipulation of the material. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

The aggregate shall meet gradation and moisture requirements prior to compaction. The base course shall be constructed in lifts as established in the control strip, but not less than 4 inches nor more than 12 inches of compacted thickness.

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, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade.

The field density of each compacted lift of material shall be at least 100% of the maximum density of laboratory specimens prepared from samples of the subbase material delivered to the jobsite. The laboratory specimens shall be compacted and tested in accordance with ASTM D698. The moisture content of the material during placing operations shall be within ± 2 percentage points of the optimum moisture content as determined by ASTM D698. 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. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meet all specification requirements. 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. 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 shall be tested 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 recompact to grade until the required smoothness and accuracy are obtained and approved by the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

a. Smoothness. The finished surface shall not vary more than 3/8-inch when tested with a *Contractor-provided* 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 yds. Sampling locations will be determined on a random basis per ASTM D3665

a. Density. The RPR shall perform all density tests.

Each area shall be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens compacted and tested per ASTM 1557. The in-place field density shall be determined per ASTM D1556 or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the area represented by the failed test must be reworked and/or recompact and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. Depth tests shall be made by test holes at least 3 inches in diameter that extend through the base. The thickness of the base course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. 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 recompact 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 measurement of the number of cubic yards of material actually constructed and accepted by the RPR as complying with the plans and specifications. Base materials shall not be included in any other excavation quantities.

BASIS OF PAYMENT

209-5.1 Payment shall be made at the contract unit price per cubic yard for crushed aggregate base course. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-209-5.1	Crushed Aggregate Base Course - per cubic yard
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REFERENCES

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

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft ³ (600 kN-m/m ³))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³ (2700 kN-m/m ³))
ASTM D2167	Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity

ASTM D4643	Standard Test Method for Determination of Water Content of Soil and Rock by Microwave Oven Heating
ASTM D4751	Standard Test Methods for Determining Apparent Opening Size of a Geotextile
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D7928	Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis
American Association of State Highway and Transportation Officials (AASHTO)	
M288	Standard Specification for Geosynthetic Specification for Highway Applications

END OF ITEM P-209

Item P-401 Asphalt Mix Pavement

DESCRIPTION

401-1.1 This item 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.

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 asphalt material and free from organic matter and other deleterious substances. Coarse aggregate material requirements are given in the table below.

Coarse Aggregate Material Requirements

Material Test	Requirement	Standard
Resistance to Degradation	Loss: 40% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Clay lumps and friable particles	0.3% maximum	ASTM C142
Percentage of Fractured Particles	For pavements designed for aircraft gross weights of 60,000 pounds or more: Minimum 75% by weight of particles with at least two fractured faces and 85% with at least one fractured face ¹	ASTM D5821
	For pavements designed for aircraft gross weights less than 60,000 pounds: 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	ASTM D4791
Bulk density of slag ³	Weigh not less than 70 pounds per cubic foot	ASTM C29.

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).

³ Only required if slag is specified.

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. Natural (non-manufactured) sand may be used to obtain the gradation of the fine aggregate blend or to improve the workability of the mix. Fine aggregate material requirements are listed in the table below.

Fine Aggregate Material Requirements

Material Test	Requirement	Standard
Liquid limit	25 maximum	ASTM D4318
Plasticity Index	4 maximum	ASTM D4318
Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	Loss after 5 cycles: 10% maximum using Sodium sulfate - or - 15% maximum using magnesium sulfate	ASTM C88
Clay lumps and friable particles	0.3% maximum	ASTM C142
Sand equivalent	45 minimum	ASTM D2419
Natural Sand	0% to 15% maximum by weight of total aggregate	ASTM D1073

c. Sampling. ASTM D75 shall be used in sampling coarse and fine aggregate.

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 ASTM D242.

Mineral Filler Requirements

Material Test	Requirement	Standard
Plasticity Index	4 maximum	ASTM D4318

401-2.3 Asphalt binder. Asphalt binder shall conform to ASTM D6373 Performance Grade (PG) 76-22 PM (polymer modified binder).

Asphalt Binder PG Plus Test Requirements

Material Test	Requirement	Standard
Elastic Recovery	75% minimum	ASTM D6084

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 an approved material of the Department of Transportation of the State in which the project is located.

COMPOSITION

401-3.1 Composition of mixture(s). The asphalt mix shall be composed of a mixture of aggregates, filler and anti-strip agent 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 formula (JMF).

401-3.2 Job mix formula (JMF) laboratory. The laboratory used to develop the JMF shall possess a current certificate of accreditation, listing D3666 from a national accrediting authority and all test methods required for developing the JMF; 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 Resident Project Representative (RPR) prior to start of construction.

401-3.3 Job mix formula (JMF). No asphalt mixture shall be placed until an acceptable mix design has been submitted to the RPR for review and accepted in writing. The RPR's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

When the project requires asphalt mixtures of differing aggregate gradations and/or binders, a separate JMF shall be submitted for each mix. Add anti-stripping agent to meet tensile strength requirements.

The JMF shall be prepared by an accredited laboratory that meets the requirements of paragraph 401-3.2. The asphalt mixture shall be designed using procedures contained in Asphalt Institute MS-2 Mix Design Manual, 7th Edition. Samples shall be prepared and compacted using a Marshall compactor in accordance with ASTM D6926.

Should a change in sources of materials be made, a new JMF must be submitted to the RPR for review and accepted in writing before the new material is used. After the initial production JMF has been approved by the RPR and a new or modified JMF is required for whatever reason, the subsequent cost of the new or modified JMF, including a new control strip when required by the RPR, will be borne by the Contractor.

The RPR may request samples at any time for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

The JMF shall be submitted in writing by the Contractor at least 30 days prior to the start of paving operations. The JMF shall be developed within the same construction season using aggregates proposed for project use.

The JMF shall be dated, and stamped or sealed by the responsible professional Engineer of the laboratory and shall include the following items as a minimum:

- Manufacturer's Certificate of Analysis (COA) for the asphalt binder used in the JMF in accordance with paragraph 401-2.3. Certificate of asphalt performance grade is with modifier already added, if used and must indicate compliance with ASTM D6373. For plant modified asphalt binder, certified test report indicating grade certification of modified asphalt binder.
- Manufacturer's Certificate of Analysis (COA) for the anti-stripping agent if used in the JMF in accordance with paragraph 401-2.4.
- Certified material test reports for the course and fine aggregate and mineral filler in accordance with paragraphs 401-2.1.
- 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 JMF.
- Specific Gravity and absorption of each coarse and fine aggregate.
- Percent natural sand.
- Percent fractured faces.
- Percent by weight of flat particles, elongated particles, and flat and elongated particles (and criteria).
- Percent of asphalt.
- Number of blows

- Laboratory mixing and compaction temperatures.
- Supplier-recommended field mixing and compaction temperatures.
- Plot of the combined gradation on a 0.45 power gradation curve.
- Graphical plots of air voids, voids in the mineral aggregate (VMA), and unit weight versus asphalt content. To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.
- Tensile Strength Ratio (TSR).
- Type and amount of Anti-strip agent when used.
- Asphalt Pavement Analyzer (APA) results.
- Date the JMF was developed. Mix designs that are not dated, or which are from a prior construction season shall not be accepted.

Asphalt Design Criteria

Test Property	Value	Test Method
Number of blows	50	
Air voids (%)	3.5	ASTM D3203
Percent voids in mineral aggregate (VMA), minimum	See Table 2	ASTM D6995
Tensile Strength Ratio (TSR) ¹	not less than 80 at a saturation of 70-80%	ASTM D4867
Asphalt Pavement Analyzer (APA) ²	Less than 10 mm @ 4000 passes	AASHTO T340 at 250 psi hose pressure at 64°C test temperature

¹ Test specimens for TSR shall be compacted at 7 ± 1.0 % air voids. In areas subject to freeze-thaw, use freeze-thaw conditioning in lieu of moisture conditioning per ASTM D4867.

² AASHTO T340 at 100 psi hose pressure at 64°C test temperature may be used in the interim. If this method is used the required Value shall be less than 5 mm @ 8000 passes

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 2 when tested in accordance with ASTM C136 and ASTM C117.

The gradations in Table 2 represent the limits that shall determine the suitability of aggregate for use from the sources of supply; 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 sieve, or vice versa.

Aggregate - Asphalt Pavements

Sieve Size	Percentage by Weight Passing Sieve
1 inch	--
3/4 inch	100
1/2 inch	90-100
3/8 inch	72-88
No. 4	53-73
No. 8	38-60
No. 16	26-48
No. 30	18-38
No. 50	11-27
No. 100	6-18
No. 200	3-6
Minimum Voids in Mineral Aggregate (VMA)¹	15.0
Asphalt Percent:	
Stone or gravel	5.0-7.5
Slag	6.5-9.5
Recommended Minimum Construction Lift Thickness	2 inch

¹To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.

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.

401-3.4 Reclaimed asphalt pavement (RAP). RAP shall not be used.

401-3.5 Control Strip. Full production shall not begin until an acceptable control strip has been constructed and accepted in writing by the RPR. The Contractor shall prepare and place a quantity of asphalt according to the JMF. 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 paragraph 401-5.1, has been accepted, in writing, by the RPR.

The control strip will consist of at least 250 tons or 1/2 subplot, whichever is greater. 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 paragraph 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 will be considered acceptable by the RPR if the gradation, asphalt content, and VMA are within the action limits specified in paragraph 401-5.5a; and Mat density, air voids, and joint density meet the requirements specified in paragraphs 401-6.2.

If the control strip is unacceptable, necessary adjustments to the JMF, 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.

Payment will only be made for an acceptable control strip in accordance with paragraph 401-8.1 using a lot pay factor equal to 100.

CONSTRUCTION METHODS

401-4.1 Weather limitations. The asphalt shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 4. The temperature requirements may be waived by the RPR, if requested; however, all other requirements including compaction shall be met.

Surface Temperature Limitations of Underlying Course

Mat Thickness	Base Temperature (Minimum)	
	°F	°C
3 inches or greater	40 ¹	4
Greater than 2 inches but less than 3 inches	45	7

401-4.2 Asphalt plant. Plants used for the preparation of asphalt shall conform to the requirements of American Association of State Highway and Transportation Officials (AASHTO) M156 including the following items.

a. Inspection of plant. The RPR, or RPR'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. The asphalt mixture stored in storage and/or surge bins shall meet the same requirements as asphalt mixture loaded directly into trucks. Asphalt mixture shall not be stored in storage and/or surge bins for a period greater than twelve (12) hours. If the RPR determines there is an excessive heat loss, segregation, or oxidation of the asphalt mixture due to temporary storage, temporary storage shall not 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 asphalt shall have tight, clean, and smooth metal beds. To prevent the asphalt 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). Material transfer vehicles used to transfer the material from the hauling equipment to the paver, shall use a self-propelled, material transfer vehicle 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 Material Transfer Vehicle will have remixing and storage capability to prevent physical and thermal segregation.

401-4.5 Asphalt pavers. Asphalt pavers shall be self-propelled with an activated heated screed, capable of spreading and finishing courses of asphalt 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 paragraph 401-4.12.

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 RPR 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 asphalt 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 Asphalt mixture. The aggregates and the asphalt binder shall be weighed or metered and mixed in the amount specified by the JMF. 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 ASTM D2489, 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 asphalt upon discharge shall not exceed 0.5%.

401-4.11 Application of Prime and Tack Coat. Immediately before placing the asphalt mixture, the underlying course shall be cleaned of all dust and debris.

A prime coat in accordance with Item P-602 shall be applied to aggregate base prior to placing the asphalt mixture.

A tack coat shall be applied in accordance with Item P-603 to all vertical and horizontal asphalt and concrete surfaces prior to placement of the first and each subsequent lift of asphalt mixture.

401-4.12 Laydown plan, transporting, placing, and finishing. Prior to the placement of the asphalt, 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 RPR.

Deliveries shall be scheduled so that placing and compacting of asphalt is uniform with minimum stopping and starting of the paver. 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 asphalt surface course and certify to RPR that every lot of each lift meets the grade tolerances of paragraph 401-6.2d 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 asphalt mix 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 RPR. The asphalt mix shall be placed in consecutive adjacent lanes having a minimum width of 12.5 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 asphalt mixture 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 RPR 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 asphalt mixture. 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 RPR, and if it can be demonstrated in the laboratory, in the presence of the RPR, 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 RPR, 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 as specified in paragraph 401-3.3, Table 2 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.

401-4.13 Compaction of asphalt mixture. After placing, the asphalt mixture 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 approved power tampers.

Any asphalt 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 area. 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. In both methods, all contact surfaces shall be coated with an asphalt tack coat before placing any fresh asphalt against the joint.

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 maximum of 3 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.

401-4.15 Saw-cut grooving. Saw-cut grooving is not required.

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. Contractor shall demonstrate to the RPR 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 P-608 to all areas that have been subject to grinding.

401-4.17 Nighttime paving requirements. The Contractor shall provide adequate lighting during any nighttime construction. A lighting plan shall be submitted by the Contractor and approved by the RPR prior to the start of any nighttime work. All work shall be in accordance with the approved CSPP and lighting plan.

CONTRACTOR QUALITY CONTROL (CQC)

401-5.1 General. The Contractor shall develop a Contractor Quality Control Program (CQCP) in accordance with Item C-100. No partial payment will be made for materials without an approved CQCP.

401-5.2 Contractor quality control (QC) facilities. The Contractor shall provide or contract for testing facilities in accordance with Item C-100. The RPR shall be permitted unrestricted access to inspect the Contractor's QC facilities and witness QC activities. The RPR 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 Contractor 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 ASTM D6307 or ASTM D2172 for determination of asphalt content. When using ASTM D6307, 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 day from mechanical analysis of extracted aggregate in accordance with ASTM D5444, ASTM C136, and ASTM C117.

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 ASTM C566.

d. Moisture content of asphalt. The moisture content shall be determined once per day in accordance with AASHTO T329 or ASTM D1461.

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 ASTM D2950.

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 ¼ 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 RPR. 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, 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 RPR. 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 ft or greater.

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 paragraph 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 paragraph 401-6.1d(3). 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 gradeline 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 RPR 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 paragraph 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 RPR, 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 content, and VMA. The VMA for each day will be calculated and monitored by the QC laboratory.

Control charts shall be posted in a location satisfactory to the RPR 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 RPR 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 content, and VMA. The control charts shall use the job mix formula target values as indicators of central tendency for the following test parameters with associated Action and Suspension Limits:

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 Content	±0.45%	±0.70%
Minimum VMA	-0.5%	-1.0%

b. Range. Control charts shall be established to control gradation process variability. The range shall be plotted 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 $n = 4$.

Control Chart Limits Based on Range

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 QC reports. The Contractor shall maintain records and shall submit reports of QC activities daily in accordance with Item C-100.

MATERIAL ACCEPTANCE

401-6.1 Acceptance sampling and testing. Unless otherwise specified, all acceptance sampling and testing necessary to determine conformance with the requirements specified in this section will be performed by the RPR at no cost to the Contractor except that coring **as** required in this section shall be completed and paid for by the Contractor.

a. Quality assurance (QA) testing laboratory. The QA testing laboratory performing these acceptance tests will be accredited in accordance with ASTM D3666. The QA laboratory accreditation will be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing will be listed on the lab accreditation.

b. Lot size. A standard lot will be equal to one day's production divided into approximately equal sublots of between 400 to 600 tons. When only one or two sublots are produced in a day's production, the sublots will be combined with the production lot from the previous or next day.

Where more than one plant is simultaneously producing asphalt for the job, the lot sizes will apply separately for each plant.

c. Asphalt air voids. Plant-produced asphalt will be tested for air voids on a subplot basis.

(1) Sampling. Material from each subplot shall be sampled in accordance with ASTM D3665. Samples shall be taken from material deposited into trucks at the plant or at the job site in accordance with ASTM D979. The sample of asphalt may be put in a covered metal tin and placed in an oven for not less than 30 minutes nor more than 60 minutes to maintain the material at or above the compaction temperature as specified in the JMF.

(2) Testing. Air voids will be determined for each subplot in accordance with ASTM D3203 for a set of compacted specimens prepared in accordance with ASTM D6926.

d. In-place asphalt mat and joint density. Each subplot will be tested for in-place mat and joint density as a percentage of the theoretical maximum density (TMD).

(1) Sampling. The Contractor will cut minimum 5 inch diameter samples in accordance with ASTM D5361. The Contractor shall furnish all tools, labor, and materials for cleaning, and filling the cored pavement. Laitance produced by the coring operation shall be removed immediately after coring, and core holes shall be filled within one day after sampling in a manner acceptable to the RPR.

(2) Bond. Each lift of asphalt shall be bonded to the underlying layer. If cores reveal that the surface is not bonded, additional cores shall be taken as directed by the RPR to determine the extent of unbonded areas. Unbonded areas shall be removed by milling and replaced at no additional cost as directed by the RPR.

(3) Thickness. Thickness of each lift of surface course will be evaluated by the RPR for compliance to the requirements shown on the plans after any necessary corrections for grade. Measurements of thickness will be made using the cores extracted for each subplot 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 subplot 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 RPR to circumscribe the deficient area.

(4) Mat density. One core shall be taken from each subplot. Core locations will be determined by the RPR in accordance with ASTM D3665. Cores for mat density shall not be taken closer than one foot from a transverse or longitudinal joint. The bulk specific gravity of each cored sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each subplot sample by the TMD for that subplot.

(5) Joint density. One core centered over the longitudinal joint shall be taken for each subplot that has a longitudinal joint. Core locations will be determined by the RPR in accordance with ASTM D3665. The bulk specific gravity of each core sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each joint density sample by the average TMD for the lot. The TMD used to determine the joint density at joints formed between lots will be the lower of the average TMD values from the adjacent lots.

401-6.2 Acceptance criteria.

a. General. Acceptance will be based on the implementation of the Contractor Quality Control Program (CQCP) and the following characteristics of the asphalt and completed pavements: air voids, mat density, joint density, grade and Profilograph roughness.

b. Air Voids and Mat density. Acceptance of each lot of plant produced material for mat density and air voids will be based on the percentage of material within specification limits (PWL). If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment will be determined in accordance with paragraph 401-8.1.

c. Joint density. Acceptance of each lot of plant produced asphalt for joint density will be based on the PWL. If the PWL of the lot is equal to or exceeds 90%, the lot will be considered acceptable. If the PWL is less than 90%, the Contractor shall evaluate the reason and act accordingly. If the PWL is less than 80%, the Contractor shall cease operations and until the reason for poor compaction has been determined. If the PWL is less than 71%, the pay factor for the lot used to complete the joint will be reduced by five (5) percentage points. This lot pay factor reduction will be incorporated and evaluated in accordance with paragraph 401-8.1.

d. Grade. The final finished surface of the pavement shall be surveyed to verify that the grade elevations and cross-sections shown on the plans do not deviate more than 1/2 inch vertically or 0.1 feet laterally.

Cross-sections of the pavement shall be taken at a minimum 50-foot longitudinal spacing and at all longitudinal grade breaks. Minimum cross-section grade points shall include grade at centerline, ± 10 feet of centerline, and edge of runway and taxiway pavement.

The survey and documentation shall be stamped and signed by a licensed surveyor. Payment for sublots that do not meet grade for over 25% of the sublot shall not be more than 95%.

e. Profilograph roughness for QA Acceptance. The final profilograph shall be the full length of the project to facilitate testing of roughness between lots. The Contractor, in the presence of the RPR shall 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 hrs 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 State DOT 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. Any areas that indicate “must grind” shall be corrected with diamond grinding per paragraph 401-4.16 or by removing and replacing full depth of surface course, as directed by the RPR. 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.

401-6.3 Percentage of material within specification limits (PWL). The PWL will be determined in accordance with procedures specified in Item C-110. The specification tolerance limits (L) for lower and (U) for upper are contained in Table 5.

Table 5. Acceptance Limits for Air Voids and Density

Test Property	Pavements Specification Tolerance Limits	
	L	U
Air Voids Total Mix (%)	2.0	5.0
Surface Course Mat Density (%)	92.8	-
Base Course Mat Density (%)	92.0	-
Joint density (%)	90.5	--

a. Outliers. All individual tests for mat density and air voids will be checked for outliers (test criterion) in accordance with ASTM E178, at a significance level of 5%. Outliers will be discarded, and the PWL will be determined using the remaining test values. The criteria in Table 5 is based on production processes which have a variability with the following standard deviations: Surface Course Mat Density (%), 1.30; Base Course Mat Density (%), 1.55; Joint Density (%), 1.55.

The Contractor should note that (1) 90 PWL is achieved when consistently producing a surface course with an average mat density of at least 94.5% with 1.30% or less variability, (2) 90 PWL is achieved

when consistently producing a base course with an average mat density of at least 94.0% with 1.55% or less variability, and (3) 90 PWL is achieved when consistently producing joints with an average joint density of at least 92.5% with 1.55% or less variability.

401-6.4 Resampling pavement for mat density.

a. General. Resampling of a lot of pavement will only be allowed for mat density, and then, only if the Contractor requests same, in writing, within 48 hours after receiving the written test results from the RPR. A retest will consist of all the sampling and testing procedures contained in paragraphs 401-6.1d and 401-6.2b. Only one resampling per lot will be permitted.

(1) A redefined PWL will be calculated for the resampled lot. The number of tests used to calculate the redefined PWL will include the initial tests made for that lot plus the retests.

(2) The cost for resampling and retesting shall be borne by the Contractor.

b. Payment for resampled lots. The redefined PWL for a resampled lot will be used to calculate the payment for that lot in accordance with Table 6.

c. Outliers. Check for outliers in accordance with ASTM E178, at a significance level of 5%.

METHOD OF MEASUREMENT

401-7.1 Measurement. Asphalt shall be measured by the number of tons of asphalt used in the accepted work. Batch weights or truck scale weights will be used to determine the basis for the tonnage.

BASIS OF PAYMENT

401-8.1 Payment. Payment for a lot of asphalt meeting all acceptance criteria as specified in paragraph 401-6.2 shall be made based on results of tests for mat density and air voids. Payment for acceptable lots shall be adjusted according to paragraph 401-8.1c for mat density and air voids; and paragraph 401-6.2c for joint density, subject to the limitation that:

a. The total project payment for plant mix asphalt pavement shall not exceed 100 percent of the product of the contract unit price and the total number of tons of asphalt used in the accepted work.

b. 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.

c. Basis of adjusted payment. The pay factor for each individual lot shall be calculated in accordance with Table 6. A pay factor shall be calculated for both mat density and air voids. The lot pay factor shall be the higher of the two values when calculations for both mat density and air voids are 100% or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either mat density or air voids is 100% or higher. The lot pay factor shall be the lower of the two values when calculations for both mat density and air voids are less than 100%. If PWL for joint density is less than 71% then the lot pay factor shall be reduced by 5% but be no higher than 95%.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 401-8.1a. Payment in excess of 100% for accepted lots of asphalt shall be used to offset payment for accepted lots of asphalt pavement that achieve a lot pay factor less than 100%.

Payment for sublots which do not meet grade in accordance with paragraph 401-6.2d after correction for over 25% of the subplot shall be reduced by 5%.

Price adjustment schedule¹

Percentage of material within specification limits (PWL)	Lot pay factor (percent of contract unit price)
96 – 100	106
90 – 95	PWL + 10
75 – 89	0.5 PWL + 55
55 – 74	1.4 PWL – 12
Below 55	Reject ²

¹ Although it is theoretically possible to achieve a pay factor of 106% for each lot, actual payment above 100% shall be subject to the total project payment limitation specified in paragraph 401-8.1a.

² The lot shall be removed and replaced. However, the RPR may decide to allow the rejected lot to remain. In that case, if the RPR and Contractor agree in writing that the lot shall not be removed, it shall be paid for at 50% of the contract unit price and the total project payment shall be reduced by the amount withheld for the rejected lot.

d. Profilograph Roughness. The Contractor will receive full payment when the profilograph average profile index is in accordance with paragraph 401-6.2e. When the final average profile index for the entire length of pavement does not exceed 15 inches per mile per 1/10 mile, payment will be made at the contract unit price for the completed pavement.

401-8.1 Payment.

Payment will be made under:

Item P-401-8.1 Asphalt Surface Course - per ton

REFERENCES

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

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than 75-μm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C127	Standard Test Method for Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates

ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D242	Standard Specification for Mineral Filler for Bituminous Paving Mixtures
ASTM D946	Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction
ASTM D979	Standard Practice for Sampling Asphalt Paving Mixtures
ASTM D1073	Standard Specification for Fine Aggregate for Asphalt Paving Mixtures
ASTM D1188	Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples
ASTM D2172	Standard Test Method for Quantitative Extraction of Bitumen from Asphalt Paving Mixtures
ASTM D1461	Standard Test Method for Moisture or Volatile Distillates in Asphalt Paving Mixtures
ASTM D2041	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D2489	Standard Practice for Estimating Degree of Particle Coating of Bituminous-Aggregate Mixtures
ASTM D2726	Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
ASTM D2950	Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods
ASTM D3203	Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
ASTM D3381	Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4552	Standard Practice for Classifying Hot-Mix Recycling Agents
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D4867	Standard Test Method for Effect of Moisture on Asphalt Concrete Paving Mixtures

ASTM D5361	Standard Practice for Sampling Compacted Asphalt Mixtures for Laboratory Testing
ASTM D5444	Standard Test Method for Mechanical Size Analysis of Extracted Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6084	Standard Test Method for Elastic Recovery of Bituminous Materials by Duclilometer
ASTM D6307	Standard Test Method for Asphalt Content of Hot Mix Asphalt by Ignition Method
ASTM D6373	Standard Specification for Performance Graded Asphalt Binder
ASTM D6752	Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing Method
ASTM D6926	Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
ASTM D6927	Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
ASTM D6995	Standard Test Method for Determining Field VMA based on the Maximum Specific Gravity of the Mix (Gmm)
ASTM E11	Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves
ASTM E178	Standard Practice for Dealing with Outlying Observations
ASTM E1274	Standard Test Method for Measuring Pavement Roughness Using a Profilograph
ASTM E950	Standard Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference
ASTM E2133	Standard Test Method for Using a Rolling Inclinator to Measure Longitudinal and Transverse Profiles of a Traveled Surface
American Association of State Highway and Transportation Officials (AASHTO)	
AASHTO M156	Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
AASHTO T329	Standard Method of Test for Moisture Content of Hot Mix Asphalt (HMA) by Oven Method
AASHTO T324	Standard Method of Test for Hamburg Wheel-Track Testing of Compacted Asphalt Mixtures
AASHTO T 340	Standard Method of Test for Determining the Rutting Susceptibility of Hot Mix Asphalt (APA) Using the Asphalt Pavement Analyzer (APA)
Asphalt Institute (AI)	
Asphalt Institute Handbook MS-26, Asphalt Binder	

Asphalt Institute MS-2 Mix Design Manual, 7th Edition
AI State Binder Specification Database
Federal Highway Administration (FHWA)
Long Term Pavement Performance Binder Program
Advisory Circulars (AC)
AC 150/5320-6 Airport Pavement Design and Evaluation
FAA Orders
5300.1 Modifications to Agency Airport Design, Construction, and Equipment
Standards
Software
FAARFIELD

END OF ITEM P-401

Item P-608 Emulsified Asphalt Seal Coat

DESCRIPTION

608-1.1 This item shall consist of the application of a emulsified asphalt surface treatment composed of an emulsion of natural and refined asphalt materials, water and a polymer additive, for taxiways and runways with the application of a suitable aggregate to maintain adequate surface friction; and airfield secondary and tertiary pavements including low-speed taxiways, 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 emulsified asphalt means an emulsion of natural and refined asphalt materials.

MATERIALS

608-2.1 Aggregate. The aggregate material shall be a dry, clean, dust and dirt free, sound, durable, angular shaped manufactured specialty sand, such as that used as an abrasive, with a Mohs hardness of 6 to 8. The Contractor shall submit the specialty sand manufacturer's technical data and a manufacturer's Certificate of Analysis (COA) indicating that the specialty sand meets the requirements of the specification to the RPR prior to start of construction. The sand must be approved for use by the RPR and shall meet the following gradation limits when tested in accordance with ASTM C136 and ASTM C117:

Aggregate Material Gradation Requirements¹

Sieve Designation (square openings)	Individual Percentage Retained by Weight
No. 10	0
No. 14	0-4
No. 16	0-8
No. 20	0-35
No. 30	20-50
No. 40	10-45
No. 50	0-20
No. 70	0-5
No. 100	0-2
No. 200	0-2

¹ Locally available sand or abrasive material that is slightly outside of the gradation requirements may be approved by the RPR with concurrence by the seal coat manufacturer for the use of locally available sand or abrasive material. The RPR and manufacturer's field representative should verify acceptance during application of Control strips indicated under paragraph 608-3.2.

The Contractor shall provide a certification showing particle size 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.

608-2.2 Asphalt Emulsion. The asphalt emulsion shall meet the properties in the following table:

Concentrated Asphalt Emulsion Properties

Properties	Specification	Limits
Viscosity, Saybolt Furol at 77°F	ASTM D7496	20 – 100 seconds
Residue by Distillation or Evaporation	ASTM D6997 or ASTM D6934	57% minimum
Sieve Test	ASTM D6933	0.1% maximum
24-hour Stability	ASTM D6930	1% maximum
5-day Settlement Test	ASTM D6930	5.0% maximum
Particle Charge ¹	ASTM D7402	Positive 6.5 maximum pH

¹ pH may be used in lieu of the particle charge test which is sometimes inconclusive in slow setting, asphalt emulsions.

The asphalt material base residue shall contain not less than 20% gilsonite, or uitaite and shall not contain any tall oil pitch or coal tar material and shall contain no less than one percent (1%) polymer.

Tests on Residue from Distillation or Evaporation

Properties	Specification	Limits
Viscosity at 275°F	ASTM D4402	1750 cts maximum
Solubility in 1, 1, 1 trichloroethylene	ASTM D2042	97.5% minimum
Penetration	ASTM D5	50 dmm maximum
Asphaltenes	ASTM D2007	15% minimum
Saturates	ASTM D2007	15% maximum
Polar Compounds	ASTM D2007	25% minimum
Aromatics	ASTM D2007	15% minimum

The asphalt emulsion, when diluted in the volumetric proportion of two parts concentrated asphalt material to one part hot water shall have the following properties:

Two-to-One Dilution Emulsion Properties

Properties	Specification	Limits
In Ready-to-Apply Form, two parts concentrate to one part water, by volume		
Viscosity, Saybolt Furol at 77°F	ASTM D7496	5 – 50 seconds
Residue by Distillation or Evaporation	ASTM D6997 or ASTM D6934	38% minimum
Pumping Stability ¹		Pass

¹ Pumping stability is tested by pumping one pint of seal coat diluted one (1) part concentrate to one (1) part water, at 77°F, through a 1/4-inch gear pump operating 1750 rpm for 10 minutes with no significant separation or coagulation.

The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the emulsified asphalt delivered to the project. If the asphalt emulsion is diluted at other than the manufacturer's facility, the Contractor shall provide a supplemental COA from an independent laboratory verifying the asphalt emulsion properties.

The COA shall be provided to and approved by the RPR before the emulsified asphalt 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 material storage and handling temperature shall be between 50°F - 160°F and the material shall be protected from freezing, or whenever outside temperature drops below 40°F for prolonged time periods.

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.

608-2.3 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use. Water used in making and diluting the emulsion shall be potable, with a maximum hardness of 90ppm calcium and 15ppm magnesium; deleterious iron, sulfates, and phosphates maximum 7ppm, and less than 1ppm of organic byproducts. Water shall be a minimum of 140°F prior to adding to emulsion.

608-2.4 Polymer. The polymer shall meet the properties in the following table:

Polymer Properties

Properties	Limits
Solids Content	47% to 65%, Percent by Weight
Weight	8.0 to 9.0 pounds/gallon
pH	3.0 to 8.0
Particle Charge	Nonionic/Cationic
Mechanical Stability	Excellent
Film Forming Temperature, °C	+5°C, minimum
Tg, °C	22°C, maximum

The manufacturer shall provide a copy of the Certificate of Analysis (COA) for the polymer used in the seal coat; and the Contractor shall include the COA with the emulsified asphalt COA when submitting to the RPR.

608-2.5 Seal Coat with Aggregate. The Contractor shall submit friction test data from no less than one of the airport projects identified under 608-2.2. 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 AC 150/5320-12, at 40 or 60 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

608-3.1 Application Rate. The approximate amounts of materials per square yard for the asphalt surface treatment shall be as provided in the table for the treatment area(s) at the specified dilution 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 and approved by the RPR from the test area/sections evaluation.

Application Rate

Dilution Rate	Quantity of Emulsion gal/yd ²	Quantity of Aggregate lb/yd ²
2:1	0.08-0.17	0.20-0.50

608-3.2 Control areas and control strips. Prior to full application, the control strip must be accepted by the RPR. The surface preparation, personnel, equipment, and method of operation used on the test area(s) and control strip(s) shall be the same as used on the remainder of the work.

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 emulsion and aggregate to be approved by the RPR.

A test area(s) and control strip(s) shall be applied for each differing asphalt pavement surface identified in the project. The test area(s) and control strip(s) shall be used to determine the material application rate(s) of both emulsion and sand prior to full production.

a. For taxiway, taxilane and apron surfaces. *Not used.*

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 RPR 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 RPR. The control strips should be placed under similar field conditions as anticipated for the actual application. 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, generally 8 to 36 hours after application of the control strips depending on site and environmental conditions. 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.

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 RPR's approval of an appropriate application rate(s). Acceptable control strips shall be paid for in accordance with paragraph 608-8.1.

CONSTRUCTION METHODS

608-4.1 Worker safety. The Contractor shall obtain a Safety Data Sheet (SDS) for both the asphalt emulsion product and sand and require workmen to follow the manufacturer's recommended safety precautions.

608-4.2 Weather limitations. The asphalt emulsion 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 in strong winds that interfere with the uniform application of the material(s), or when dust or sand is blowing or when rain is anticipated within eight (8) hours of application completion. The atmospheric temperature and the pavement surface temperature shall both be at, or above 60°F and rising. Seal coat shall not be applied when pavement temperatures are expected to exceed 130°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 emulsion. Should emulsion get on any light or marker fixture, promptly clean the fixture. If cleaning is not satisfactory to the RPR, the Contractor shall replace any light, sign or marker with equivalent equipment at no cost to the Owner.

608-4.3 Equipment and tools. The Contractor shall furnish all equipment, tools, and machinery necessary for the performance of the work.

a. Pressure distributor. The emulsion 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 emulsion. 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 eight (8) miles per hour or seven hundred (700) feet per minute. The equipment will be tested under pressure for leaks and to ensure proper set-up before use. 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 emulsion, and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy.

The distributor truck shall effectively heat and mix the material to the required temperature prior to application in accordance with the manufacturer's recommendations.

The distributor shall be equipped with a hand sprayer to spray the emulsion 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 sand to the emulsion in a single pass operation without driving through wet emulsion. The aggregate spreader shall be equipped with a variable control system capable of uniformly distributing the sand 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 RPR 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 sander shall have a minimum hopper capacity of 3,000 pounds of sand. Push-type hand sanders 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 RPR.

608-4.4 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 then treat these areas with a spot primer. Any additional surface preparation, such as crack repair, shall be in accordance with Item P-101, paragraph 101-3.6.

a. New asphalt pavement surfaces. *Not used.*

608-4.5 Emulsion mixing. The application emulsion shall be obtained by blending asphalt material concentrate, water and polymer, if specified. Always add heated water to the asphalt material concentrate, never add asphalt material concentrate to heated water. Mix one part heated water to two parts asphalt material concentrate, by volume.

Add 1% polymer, by volume, to the emulsion mix. If the polymer is added to the emulsion mix at the plant, submit weight scale tickets to the RPR. As an option, the polymer may be added to the emulsion mix at the job site provided the polymer is added slowly while the asphalt distributor truck circulating pump is running. The mix must be agitated for a minimum of 15 minutes or until the polymer is mixed to the satisfaction of the RPR.

608-4.6 Application of asphalt emulsion. The asphalt emulsion 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 RPR from the test area/sections evaluation for each designated treatment area. The asphalt emulsion should be applied at a temperature between 130°F and 160°F or in accordance with the manufacturer's recommendation.

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 until the pavement surface is free of any pools of excess material.

During all applications, the surfaces of adjacent structures shall be protected to prevent their being spattered or marred.

608-4.7 Application of aggregate material. Immediately following the application of the asphalt emulsion, friction sand at the rate recommended by the manufacturer's representative and approved by the RPR from the test area/sections evaluation for each designated application area, shall be spread uniformly over the asphalt emulsion in a single-pass operation simultaneous with the sealer application. 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 sand 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)

608-5.1 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 RPR 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 RPR 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.

608-5.2 Contractor qualifications. The Contractor shall provide documentation to the RPR that the seal coat Contractor is qualified to apply the seal coat, including personnel, and equipment, and has made at least three (3) applications similar to this project in the past two (2) years.

MATERIAL ACCEPTANCE

608-6.1 Application rate. The rate of application of the asphalt emulsion shall be verified at least twice per day.

608-6.2 Friction tests. Friction tests in accordance with AC 150/5320-12, Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces, shall be performed on all runway and high-speed taxiways that received a seal coat. Each test includes performing friction tests at 40 mph and 60 mph both wet, 15 feet to each side of runway centerline with approved continuous friction measuring equipment (CFME). The Contractor shall coordinate testing with the RPR and provide the RPR a written report of friction test results. The RPR shall be present for testing.

METHOD OF MEASUREMENT

608-7.1 Asphalt surface treatment. The quantity of asphalt surface treatment shall be measured by the square yards of material applied in accordance with the plans and specifications and accepted by the RPR.

The Contractor must furnish the RPR 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.

BASIS OF PAYMENT

608-8.1 Payment shall be made at the contract unit price per square yard for the asphalt surface treatment applied and accepted by the RPR. 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, and any costs associated with furnishing a qualified manufacturer's representative to assist with control strips.

Payment will be made under:

Item P-608-8.1	Asphalt Surface Treatment – per square yard
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REFERENCES

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

ASTM International (ASTM)

ASTM C117	Standard Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D5	Standard Test Method for Penetration of Asphalt Materials
ASTM D244	Standard Test Methods and Practices for Emulsified Asphalts
ASTM D2007	Standard Test Method for Characteristic Groups in Rubber Extender and Processing Oils and Other Petroleum-Derived Oils by the Clay-Gel Absorption Chromatographic Method
ASTM D2042	Standard Test Method for Solubility of Asphalt Materials in Trichloroethylene
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 D5340	Standard Test Method for Airport Pavement Condition Index Surveys

Advisory Circulars (AC)

AC 150/5320-12	Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces
AC 150/5320-17	Airfield Pavement Surface Evaluation and Rating (PASER) Manuals
AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements

END OF ITEM P-608

Item P-602 Emulsified Asphalt Prime Coat

DESCRIPTION

602-1.1 This item shall consist of an application of emulsified asphalt material on the prepared base course in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

MATERIALS

602-2.1 Emulsified Asphalt material. The emulsified asphalt material shall be as specified in ASTM D3628 for use as a prime coat appropriate to local conditions. The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the emulsified asphalt material. The COA shall be provided to and approved by the Resident Project Representative (RPR) before the emulsified asphalt material is applied. The furnishing of the COA for the emulsified 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.

CONSTRUCTION METHODS

602-3.1 Weather limitations. The emulsified asphalt prime coat shall be applied only when the existing surface is dry; the atmospheric temperature is 50°F or above, and the temperature has not been below 35°F for the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the RPR.

602-3.2 Equipment. The equipment shall include a self-powered pressure asphalt material distributor and equipment for heating asphalt material.

Provide a distributor with pneumatic tires of such size and number that the load produced on the base surface does not exceed 65.0 psi of tire width to prevent rutting, shoving or otherwise damaging the base, surface or other layers in the pavement structure. Design and equip the distributor to spray the asphalt material in a uniform coverage at the specified temperature, at readily determined and controlled rates from 0.05 to 1.0 gallons per square yard, with a pressure range of 25 to 75 psi and with an allowable variation from the specified rate of not more than $\pm 5\%$, and at variable widths. Include with the distributor equipment a separate power unit for the bitumen pump, full-circulation spray bars, tachometer, pressure gauges, volume-measuring devices, adequate heaters for heating of materials to the proper application temperature, a thermometer for reading the temperature of tank contents, and a hand hose attachment suitable for applying asphalt material manually to areas inaccessible to the distributor. Equip the distributor to circulate and agitate the asphalt material during the heating process. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

A power broom and power blower suitable for cleaning the surfaces to which the asphalt coat is to be applied shall be provided.

Asphalt distributors must be calibrated annually 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 RPR.

602-3.3 Application of emulsified asphalt material. Immediately before applying the prime coat, the full width of the surface to be primed shall be swept with a power broom to remove all loose dirt and other objectionable material.

The asphalt emulsion material shall be uniformly applied with an asphalt distributor at the rate of 0.15 to 0.30 gallons per square yard depending on the base course surface texture. The type of asphalt material and application rate shall be approved by the RPR prior to application.

Following application of the emulsified asphalt material and prior to application of the succeeding layer of pavement, allow the asphalt coat to cure and to obtain evaporation of any volatiles or moisture. Maintain the coated surface until the succeeding layer of pavement is placed, by protecting the surface against damage and by repairing and recoating deficient areas. Allow the prime coat to cure without being disturbed for a period of at least 48 hours or longer, as may be necessary to attain penetration into the treated course. Furnish and spread sand to effectively blot up and cure excess asphalt material. The Contractor shall remove blotting sand prior to asphalt concrete lay down operations at no additional expense to the Owner. Keep traffic off surfaces freshly treated with asphalt material. Provide sufficient warning signs and barricades so that traffic will not travel over freshly treated surfaces.

602-3.4 Trial application rates. The Contractor shall apply a minimum of three lengths of at least 100 feet for the full width of the distributor bar to evaluate the amount of emulsified asphalt material that can be satisfactorily applied with the equipment. Apply three different application rates of emulsified asphalt materials within the application range specified in paragraph 602-3.3. Other trial applications can be made using various amounts of material as directed by the RPR. The trial application is to demonstrate the equipment can uniformly apply the emulsified asphalt material within the rates specified and determine the application rate for the project.

602-3.5 Freight and waybills. The Contractor shall submit waybills and delivery tickets during the progress of the work. Before the final estimate is allowed, file with the RPR certified waybills and certified delivery tickets for all emulsified asphalt materials used in the construction of the pavement covered by the contract. Do not remove emulsified asphalt material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

METHOD OF MEASUREMENT

602-4.1 The emulsified asphalt material for prime coat shall be measured by the ton. Volume shall be corrected to the volume at 60°F in accordance with ASTM D4311. The emulsified asphalt material paid for will be the measured quantities used in the accepted work, provided that the measured quantities are not 10% over the specified application rate. Any amount of emulsified asphalt material more than 10% over the specified application rate for each application will be deducted from the measured quantities, except for irregular areas where hand spraying of the emulsified asphalt material is necessary. Water added to emulsified asphalt will not be measured for payment.

BASIS OF PAYMENT

602-5.1 Payment shall be made at the contract unit price per ton for emulsified asphalt prime coat. This price shall be full compensation for furnishing all materials and for all preparation, delivering, and applying the materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item P-602-5.1	Emulsified Asphalt Prime Coat – per ton
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REFERENCES

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

ASTM International (ASTM)

ASTM D2995	Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributors
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

END OF ITEM P-602

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Item P-603 Emulsified Asphalt Tack Coat

DESCRIPTION

603-1.1 This item shall consist of preparing and treating an asphalt or concrete surface with asphalt material in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

MATERIALS

603-2.1 Asphalt materials. The asphalt material shall be an emulsified asphalt as specified in ASTM D3628 as an asphalt application for tack coat appropriate to local conditions. The emulsified asphalt shall not be diluted. The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the asphalt material to the Resident Project Representative (RPR) before the asphalt material is applied for review and acceptance. The furnishing of COA 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.

CONSTRUCTION METHODS

603-3.1 Weather limitations. The tack coat shall be applied only when the existing surface is dry and the atmospheric temperature is 50°F or above; the temperature has not been below 35°F for the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the RPR.

603-3.2 Equipment. The Contractor shall provide equipment for heating and applying the emulsified asphalt material. The emulsion 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 emulsion. 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 eight (8) miles per hour or seven hundred (700) feet per minute.

The equipment will be tested under pressure for leaks and to ensure proper set-up before use to verify truck set-up (via a test-shot area), including but not limited to, nozzle tip size appropriate for application, spray-bar height and pressure and pump speed, 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 minimum 12-foot spreader spray bar with individual nozzle control with computer-controlled application rates. The distributor truck shall have an easily accessible thermometer that constantly monitors the temperature of the emulsion and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

The distributor truck shall be equipped to effectively heat and mix the material to the required temperature prior to application as required. Heating and mixing shall be done in accordance with the manufacturer's recommendations. Do not overheat or over mix the material.

The distributor shall be equipped with a hand sprayer.

Asphalt distributors must be calibrated annually 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 RPR.

A power broom and/or power blower suitable for cleaning the surfaces to which the asphalt tack coat is to be applied shall be provided.

603-3.3 Application of emulsified asphalt material. The emulsified asphalt shall not be diluted. Immediately before applying the emulsified asphalt tack coat, the full width of surface to be treated shall be swept with a power broom and/or power blower to remove all loose dirt and other objectionable material.

The emulsified asphalt material shall be uniformly applied with an asphalt distributor at the rates appropriate for the conditions and surface specified in the table below. The type of asphalt material and application rate shall be approved by the RPR prior to application.

Emulsified Asphalt

Surface Type	Residual Rate, gal/SY	Emulsion Application Bar Rate, gal/SY
New asphalt	0.02-0.05	0.03-0.07
Existing asphalt	0.04-0.07	0.06-0.11
Milled Surface	0.04-0.08	0.06-0.12
Concrete	0.03-0.05	0.05-0.08

After application of the tack coat, the surface shall be allowed to cure without being disturbed for the period of time necessary to permit drying and setting of the tack coat. This period shall be determined by the RPR. The Contractor shall protect the tack coat and maintain the surface until the next course has been placed. When the tack coat has been disturbed by the Contractor, tack coat shall be reapplied at the Contractor's expense.

603-3.4 Freight and waybills The Contractor shall submit waybills and delivery tickets, during progress of the work. Before the final statement is allowed, file with the RPR certified waybills and certified delivery tickets for all emulsified asphalt materials used in the construction of the pavement covered by the contract. Do not remove emulsified asphalt material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

METHOD OF MEASUREMENT

603-4.1 The emulsified asphalt material for tack coat shall be measured by the ton. Volume shall be corrected to the volume at 60°F in accordance with ASTM D1250. The emulsified asphalt material paid for will be the measured quantities used in the accepted work, provided that the measured quantities are not 10% over the specified application rate. Any amount of emulsified asphalt material more than 10% over the specified application rate for each application will be deducted from the measured quantities, except for irregular areas where hand spraying of the emulsified asphalt material is necessary. Water added to emulsified asphalt will not be measured for payment.

BASIS OF PAYMENT

603.5-1 Payment shall be made at the contract unit price per ton of emulsified asphalt material. This price shall be full compensation for furnishing all materials, for all preparation, delivery, and application of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-603-5.1	Emulsified Asphalt Tack Coat – per ton
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REFERENCES

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

ASTM International (ASTM)

ASTM D1250	Standard Guide for Use of the Petroleum Measurement Tables
ASTM D2995	Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributors
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

END ITEM P-603

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Item P-605 Joint Sealants for Pavements

DESCRIPTION

605-1.1 This item shall consist of providing and installing a resilient and adhesive joint sealing material capable of effectively sealing joints in pavement; joints between different types of pavements; and cracks in existing pavement.

MATERIALS

605-2.1 Joint sealants. Joint sealant materials shall meet the requirements of ASTM D6690.

Each lot or batch of sealant shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the sealant meets the requirements of this specification.

605-2.2 Backer rod. The material furnished shall be a compressible, non-shrinking, non-staining, non-absorbing material that is non-reactive with the joint sealant in accordance with ASTM D5249. The backer-rod material shall be $25\% \pm 5\%$ larger in diameter than the nominal width of the joint.

605-2.3 Bond breaking tapes. Provide a bond breaking tape or separating material that is a flexible, non-shrinkable, non-absorbing, non-staining, and non-reacting adhesive-backed tape. The material shall have a melting point at least 5°F (3°C) greater than the pouring temperature of the sealant being used when tested in accordance with ASTM D789. The bond breaker tape shall be approximately 1/8 inch (3 mm) wider than the nominal width of the joint and shall not bond to the joint sealant.

CONSTRUCTION METHODS

605-3.1 Time of application. Joints shall be sealed as soon after completion of the curing period as feasible and before the pavement is opened to traffic, including construction equipment. The pavement temperature shall be 50°F (10°C) and rising at the time of application of the poured joint sealing material. Do not apply sealant if moisture is observed in the joint.

605-3.2 Equipment. Machines, tools, and equipment used in the performance of the work required by this section shall be approved before the work is started and maintained in satisfactory condition at all times. Submit a list of proposed equipment to be used in performance of construction work including descriptive data, 10 days prior to use on the project.

a. Hand tools. Hand tools may be used, when approved, for removing defective sealant from a crack and repairing or cleaning the crack faces. Hand tools should be carefully evaluated for potential spalling effects prior to approval for use.

b. Hot-poured sealing equipment. The unit applicators used for heating and installing ASTM D6690 joint sealant materials shall be mobile and shall be equipped with a double-boiler, agitator-type kettle with an oil medium in the outer space for heat transfer; a direct-connected pressure-type extruding

device with a nozzle shaped for inserting in the joint to be filled; positive temperature devices for controlling the temperature of the transfer oil and sealant; and a recording type thermometer for indicating the temperature of the sealant. The applicator unit shall be designed so that the sealant will circulate through the delivery hose and return to the inner kettle when not in use.

605-3.3 Preparation of joints. See Item P-101 for preparation of joints and cracks in existing pavement.

605-3.4 Installation of sealants. Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the RPR before sealing is allowed. Sealants shall be installed in accordance with the following requirements:

Immediately preceding, but not more than 50 feet ahead of the joint sealing operations, perform a final cleaning with compressed air. Fill the joints from the bottom up to 1/4 inch) $\pm 1/16$ inch below the top of pavement surface; or bottom of groove for grooved pavement. Remove and discard excess or spilled sealant from the pavement by approved methods. Install the sealant in such a manner as to prevent the formation of voids and entrapped air. In no case shall gravity methods or pouring pots be used to install the sealant material. Traffic shall not be permitted over newly sealed pavement until authorized by the RPR. When a primer is recommended by the manufacturer, apply it evenly to the joint faces in accordance with the manufacturer's instructions. Check the joints frequently to ensure that the newly installed sealant is cured to a tack-free condition within the time specified.

605-3.5 Inspection. The Contractor shall inspect the joint sealant for proper rate of cure and set, bonding to the joint walls, cohesive separation within the sealant, reversion to liquid, entrapped air and voids. Sealants exhibiting any of these deficiencies at any time prior to the final acceptance of the project shall be removed from the joint, wasted, and replaced as specified at no additional cost to the airport.

605-3.6 Clean-up. Upon completion of the project, remove all unused materials from the site and leave the pavement in a clean condition.

METHOD OF MEASUREMENT

605-4.1 No separate measurement for payment shall be made for joint sealing material. Joint sealing material shall be considered necessary and incidental to the work of this Contract.

BASIS OF PAYMENT

605-5.1 No payment will be made separately or directly for joint sealing material. Joint sealing material shall be considered necessary and incidental to the work of this Contract.

REFERENCES

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

ASTM International (ASTM)

ASTM D789	Standard Test Method for Determination of Relative Viscosity of Polyamide (PA)
ASTM D5249	Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints
ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt

Ukiah Municipal Airport
Ukiah, California
AIP No. 3-06-0268-027-2019

Item P-605 Joint Sealants for Pavements
Runway 15-33 Pavement Rehabilitation Phase 1
Issued for Bid

Advisory Circulars (AC)

AC 150/5340-30

Design and Installation Details for Airport Visual Aids

END ITEM P-605

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.

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 Resident Project Representative (RPR) 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 RPR. 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 aggregate 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 ASTM C33 and the requirements of Table 4, Class Designation 5S; and the grading requirements shown below, as required for the project.

Coarse Aggregate Grading Requirements

Maximum Aggregate Size	ASTM C33, Table 3 Grading Requirements (Size No.)
1 1/2 inch	467 or 4 and 67
1 inch	57
3/4 inch	67
1/2 inch	7

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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 ASTM C33.

610-2.4 Cement. Cement shall conform to the requirements of C150 Type II.

610-2.5 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, 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 ASTM C311. 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 ASTM C618 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 RPR.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, 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. 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 RPR 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 RPR 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 ASTM C260 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 ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

c. Other chemical admixtures. The use of set retarding and set-accelerating admixtures shall be approved by the RPR. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, 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 ASTM D1751 or ASTM D1752.

610-2.9 Joint filler. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.10 Steel reinforcement. Reinforcing shall consist of reinforcing steel or welded steel wire fabric conforming to the requirements of ASTM A615 or ASTM A1064.

610-2.11 Materials for curing concrete. Curing materials shall conform to ASTM C309.

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 RPR.

610-3.2 Concrete Mixture. The concrete shall develop a compressive strength of 4,000 psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard. The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.2% as determined by ASTM C231 and shall have a slump of not more than 4 inches as determined by ASTM C143.

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 ASTM C94 or ASTM C685.

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 RPRs 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 RPR. 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 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.

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 ASTM C143.

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 RPR. 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 in hot weather greater than 85°F, follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

QUALITY ASSURANCE (QA)

610-4.1 Quality Assurance sampling and testing. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The RPR will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; test air content in accordance with ASTM C231; make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The QA testing agency 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 RPR, 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 shall be considered incidental and no separate measurement shall be made.

BASIS OF PAYMENT

610-6.1 Concrete shall be considered incidental and no separate payment shall be made.

REFERENCES

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

ASTM International (ASTM)

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing

ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1157	Standard Performance Specification for Hydraulic Cement
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
<u>ASTM C1365</u>	<u>Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis</u>
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
American Concrete Institute (ACI)	
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

END OF ITEM P-610

Item P-620 Runway and Taxiway Marking

DESCRIPTION

620-1.1 This item shall consist 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 Resident Project Representative (RPR). The terms “paint” and “marking material” as well as “painting” and “application of markings” are interchangeable throughout this specification.

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 Resident Project Representative (RPR) prior to the initial application of markings. The reports can be used for material acceptance or the RPR may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the RPR 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 RPR.

620-2.2 Marking materials.

Table 1. Marking Materials

Paint ¹				Glass Beads ²	
Type	Color	Fed Std. 595 Number	Application Rate Maximum	Type	Application Rate Minimum
Waterborne Type II Coat 1 of 2	Yellow	33538 or 33655	230 ft ² /gal	No beads	No beads
Waterborne Type II Coat 1 of 2	White	37925	230 ft ² /gal	Type III	10 lb/gal
Waterborne Type II Coat 2 of 2	Yellow	33538 or 33655	115 ft ² /gal	Type III	10 lb/gal
Waterborne Type II Coat 2 of 2	White	37925	115 ft ² /gal	Type III	10 lb/gal
Waterborne Type II	Black	37038	115 ft ² /gal	No beads	No beads

¹ See paragraph 620-2.2a

² See paragraph 620-2.2b

a. Paint. Paint shall be waterborne in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595.

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.

b. Reflective media. Glass beads for white and yellow paint shall meet the requirements for Federal Specification TT-B-1325D II.

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.

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 paragraph 620-2.1. Painting operations shall be discontinued when the ambient or surface temperatures does not meet the manufacturer's recommendations. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns. Markings shall not be applied when weather conditions are forecasts 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. The marking equipment for both paint and 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 contaminants that would reduce the bond between the paint and the pavement. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the RPR. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process.

a. Preparation of new pavement surfaces. The area to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to remove all contaminants, including PCC curing compounds, minimizing damage to the pavement surface.

b. Preparation of pavement to remove existing markings. Existing pavement markings shall receive 95% removal by rotary grinding, water blasting, or by other methods approved by the RPR minimizing damage to the pavement surface. The removal area may need to be larger than the area of the markings to eliminate ghost markings. 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 RPR. After removal, the surface shall be cleaned of all residue or debris.

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 manufactures application and surface preparation requirements must be submitted to the RPR 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. The locations of markings to receive glass beads shall be shown on the plans

620-3.5 Application. A period of 30 days 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 RPR.

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 following tolerances:

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 1. The addition of thinner will not be permitted.

Glass beads shall be distributed 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 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.

620-3.6 Application--preformed thermoplastic airport pavement markings. Preformed thermoplastic pavement markings 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 RPR. 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 (per Table 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. 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 shall be equal to or above the minimum levels of all readings which are within 30% of each other.

Minimum Retro-Reflectance Values

Material	Retro-reflectance mcd/m ² /lux		
	White	Yellow	Red
Initial Type III	600	300	N/A
Initial Thermoplastic	225	100	N/A

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 RPR. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and federal environmental statutes and regulations.

METHOD OF MEASUREMENT

620-4.1a The quantity of surface preparation shall be measured by the number of square feet for each type of surface preparation specified in paragraph 620-3.3.

620-4.1b The quantity of markings shall be paid for shall be measured by the number of square feet of painting.

BASIS OF PAYMENT

620-5.1 This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item complete in place and accepted by the RPR in accordance with these specifications.

620-5.1a Payment for surface preparation shall be made at the contract price for the number of square feet for each type of surface preparation specified in paragraph 620-3.3.

620-5.1b Payment for markings shall be made at the contract price for the number of square feet of painting including reflective media where indicated.

Payment will be made under:

Item P-620-5.1a	Surface Preparation - per square foot
Item P-620-5.1b.1	Runway and Taxiway Marking, White - per square foot
Item P-620-5.1b.2	Runway and Taxiway Marking, Yellow - per square foot
Item P-620-5.1b.3	Runway and Taxiway Marking, Black - per square foot

REFERENCES

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

ASTM International (ASTM)

ASTM D476	Standard Classification for Dry Pigmentary Titanium Dioxide Products
ASTM D968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D1652	Standard Test Method for Epoxy Content of Epoxy Resins
ASTM D2074	Standard Test Method for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D2240	Standard Test Method for Rubber Property - Durometer Hardness
ASTM D7585	Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
ASTM E303	Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester
ASTM E1710	Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer
ASTM E2302	Standard Test Method for Measurement of the Luminance Coefficient Under Diffuse Illumination of Pavement Marking Materials Using a Portable Reflectometer
ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

Code of Federal Regulations (CFR)

40 CFR Part 60, Appendix A-7, Method 24	Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings
29 CFR Part 1910.1200 Hazard Communication	

Federal Specifications (FED SPEC)

FED SPEC TT-B-1325D	Beads (Glass Spheres) Retro-Reflective
FED SPEC TT-P-1952F	Paint, Traffic and Airfield Marking, Waterborne
FED STD 595	Colors used in Government Procurement

Commercial Item Description

A-A-2886B	Paint, Traffic, Solvent Based
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Advisory Circulars (AC)

AC 150/5340-1	Standards for Airport Markings
AC 150/5320-12	<u>Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces</u>

END OF ITEM P-620

Item T-901 Seeding

DESCRIPTION

901-1.1 This item shall consist of soil preparation and seeding the areas shown on the plans or as directed by the RPR in accordance with these specifications.

MATERIALS

901-2.1 Seed. The species and application rates of grass, legume, and cover-crop seed furnished shall be those stipulated herein. Seed shall conform to the requirements of Federal Specification JJJ-S-181, Federal Specification, Seeds, Agricultural.

Seed shall be furnished separately or in mixtures in standard containers labeled in conformance with the Agricultural Marketing Service (AMS) Seed Act and applicable state seed laws with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the RPR duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six (6) months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed. Wet, moldy, or otherwise damaged seed will be rejected.

Seeds shall be applied as follows:

Seed (Scientific)	Seed (Common)	Minimum Seed Purity (Percent)	Minimum Germination (Percent)	Rate of Application lb/acre
<i>Melica californica</i>	California melicgrass	98	90	10
<i>Elymus glaucus</i>	Blue Wildrye	98	90	12
<i>Hordeum brachyantherum</i>	Meadow Barley	98	90	18
<i>Festuca rubra</i>	Red (molate) Fescue	98	90	20

Seeding shall be performed during the period between October 1 and November 15 inclusive, unless otherwise approved by the RPR.

901-2.2 Lime. Not required.

901-2.3 Fertilizer. Not required.

901-2.4 Soil for repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the RPR before being placed.

CONSTRUCTION METHODS

901-3.1 Advance preparation and cleanup. After grading of areas has been completed and before applying fertilizer and ground limestone, areas to be seeded shall be raked or otherwise cleared of stones larger than 2 inches (50 mm) in any diameter, sticks, stumps, and other debris that might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after the completion of grading and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage include filling gullies, smoothing irregularities, and repairing other incidental damage.

An area to be seeded shall be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches (125 mm) as a result of grading operations and, if immediately prior to seeding, the top 3 inches (75 mm) of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and if shaped to the required grade.

When the area to be seeded is sparsely sodded, weedy, barren and unworked, or packed and hard, any grass and weeds shall first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches (125 mm). Clods shall be broken and the top 3 inches (75 mm) of soil shall be worked into a satisfactory seedbed by discing, or by use of cultipackers, rollers, drags, harrows, or other appropriate means.

901-3.2 Dry application method.

a. Seeding. Grass seed shall be sown at the rate specified in paragraph 901-2.1 immediately after fertilizing. The fertilizer and seed shall be raked within the depth range stated in the special provisions. Seeds of legumes, either alone or in mixtures, shall be inoculated before mixing or sowing, in accordance with the instructions of the manufacturer of the inoculant. When seeding is required at other than the seasons shown on the plans or in the special provisions, a cover crop shall be sown by the same methods required for grass and legume seeding.

b. Rolling. After the seed has been properly covered, the seedbed shall be immediately compacted by means of an approved lawn roller, weighing 40 to 65 pounds per foot (60 to 97 kg per meter) of width for clay soil (or any soil having a tendency to pack), and weighing 150 to 200 pounds per foot (223 to 298 kg per meter) of width for sandy or light soils.

901-3.3 Wet application method.

a. General. The Contractor may elect to apply seed and fertilizer (and lime, if required) by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as specified in the special provisions.

b. Spraying equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons (190 liters) over the entire range of the tank capacity, mounted so as to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

The unit shall also be equipped with a pressure pump capable of delivering 100 gallons (380 liters) per minute at a pressure of 100 lb / sq inches. The pump shall be mounted in a line that will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipe lines shall be capable of providing clearance for 5/8 inch solids. The power unit for the pump and agitator shall have controls mounted so as to be accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

The nozzle pipe shall be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There shall be a quick-acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture delivered to the nozzle. At least three different types of nozzles shall be supplied so that mixtures may be properly sprayed over distance varying from 20 to 100 feet. One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-range jet nozzle. For ease of removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick-release couplings.

In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet in length shall be provided to which the nozzles may be connected.

c. Mixtures. Lime, if required, shall be applied separately, in the quantity specified, prior to the fertilizing and seeding operations. Not more than 220 pounds of lime shall be added to and mixed with each 100 gallons of water. Seed and fertilizer shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds of these combined solids shall be added to and mixed with each 100 gallons of water.

All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. The Contractor shall identify to the RPR all sources of water at least two (2) weeks prior to use. The RPR may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source that is disapproved by the RPR following such tests.

All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within two (2) hours from the time they were mixed, or they shall be wasted and disposed of at approved locations.

d. Spraying. Lime, if required, shall be sprayed only upon previously prepared seedbeds. After the applied lime mixture has dried, the lime shall be worked into the top 3 inches, after which the seedbed shall again be properly graded and dressed to a smooth finish.

Mixtures of seed and fertilizer shall only be sprayed upon previously prepared seedbeds on which the lime, if required, shall already have been worked in. The mixtures shall be applied by means of a high-pressure spray that shall always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner as might produce erosion or runoff.

Particular care shall be exercised to ensure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area.

Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

On surfaces that are to be mulched as indicated by the plans or designated by the RPR, seed and fertilizer applied by the spray method need not be raked into the soil or rolled. However, on surfaces on which mulch is not to be used, the raking and rolling operations will be required after the soil has dried.

901-3.4 Maintenance of seeded areas. The Contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the RPR. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

When either the dry or wet application method outlined above is used for work done out of season, it will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the RPR. A grass stand shall be considered adequate when bare spots are one square foot or less, randomly dispersed, and do not exceed 3% of the area seeded.

METHOD OF MEASUREMENT

901-4.1 The quantity of seeding to be paid for shall be the number of acres, or portion thereof, measured on the ground surface, completed and accepted.

BASIS OF PAYMENT

901-5.1 Payment shall be made at the contract unit price per acre or fraction thereof, which price and payment shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

Payment will be made under:

Item 901-5.1	Seeding - per acre
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REFERENCES

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

ASTM International (ASTM)

ASTM C602	Standard Specification for Agricultural Liming Materials
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Federal Specifications (FED SPEC)

FED SPEC	JJJ-S-181, Federal Specification, Seeds, Agricultural
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Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports
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FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-901

Item L-108 Underground Power Cable for Airports

DESCRIPTION

108-1.1 This item shall consist of furnishing and installing power cables that are direct buried and furnishing and/or installing power cables within conduit or duct banks per these specifications at the locations shown on the plans. It includes excavation and backfill of trench for direct-buried cables only. Also included are the installation of counterpoise wires, ground wires, ground rods and connections, cable splicing, cable marking, cable testing, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the RPR. This item shall not include the installation of duct banks or conduit, trenching and backfilling for duct banks or conduit, or furnishing or installation of cable for FAA owned/operated facilities.

EQUIPMENT AND MATERIALS

108-2.1 General.

a. Airport lighting equipment and materials covered by advisory circulars (AC) shall be approved under the Airport Lighting Equipment Certification Program per AC 150/5345-53, current version.

b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the RPR.

c. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

d. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

e. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section or electronically submitted in pdf format. The RPR reserves the right to reject any and all equipment, materials, or procedures that do not meet the system design and the standards and codes, specified in this document.

f. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner. The Contractor shall maintain a minimum insulation resistance in accordance with paragraph 108-3.10e with isolation transformers connected in new circuits and new segments of existing circuits through the end of the contract warranty period when tested in

accordance with AC 150/5340-26, *Maintenance Airport Visual Aid Facilities*, paragraph 5.1.3.1, Insulation Resistance Test.

108-2.2 Cable. Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits latest edition. Conductors for use on 6.6 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #8 American wire gauge (AWG), L-824 Type C, 5,000 volts, non-shielded, with cross-linked polyethylene insulation. Conductors for use on 20 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #6 AWG, L-824 Type C, 5,000 volts, non-shielded, with cross-linked polyethylene insulation. L-824 conductors for use on the L-830 secondary of airfield lighting series circuits shall be sized in accordance with the manufacturer's recommendations. All other conductors shall comply with FAA and National Electric Code (NEC) requirements. Conductor sizes noted above shall not apply to leads furnished by manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 and/or Commercial Item Description A-A-59544A and shall be type THWN-2, 75°C for installation in conduit and RHW-2, 75°C for direct burial installations. Conductors for parallel (voltage) circuits shall be type and size and installed in accordance with NFPA-70, National Electrical Code.

Unless noted otherwise, all 600-volt and less non-airfield lighting conductor sizes are based on a 75°C, THWN-2, 600-volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit/duct sizes are based on the use of THWN-2, 600-volt insulated conductors. The Contractor shall make the necessary increase in conduit/duct sizes for other types of wire insulation. In no case shall the conduit/duct size be reduced. The minimum power circuit wire size shall be #12 AWG.

Conductor sizes may have been adjusted due to voltage drop or other engineering considerations. Equipment provided by the Contractor shall be capable of accepting the quantity and sizes of conductors shown in the Contract Documents. All conductors, pigtails, cable step-down adapters, cable step-up adapters, terminal blocks and splicing materials necessary to complete the cable termination/splice shall be considered incidental to the respective pay items provided.

Cable type, size, number of conductors, strand and service voltage shall be as specified in the Contract Document.

108-2.3 Bare copper wire (counterpoise, bare copper wire ground and ground rods). Wire for counterpoise or ground installations for airfield lighting systems shall be No. 6 AWG bare solid copper wire for counterpoise and/or No. 6 AWG insulated stranded for grounding bond wire per ASTM B3 and ASTM B8, and shall be bare copper wire. For voltage powered circuits, the equipment grounding conductor shall comply with NEC Article 250.

Ground rods shall be copper-clad steel. The ground rods shall be of the length and diameter specified on the plans, but in no case be less than 8 feet long and 5/8 inch in diameter.

108-2.4 Cable connections. In-line connections or splices of underground primary cables shall be of the type called for on the plans and shall be one of the types listed below. No separate payment will be made for cable connections.

a. The cast splice. *Not used.*

b. The field-attached plug-in splice. Field attached plug-in splices shall be installed as shown on the plans. The Contractor shall determine the outside diameter of the cable to be spliced and furnish appropriately sized connector kits and/or adapters. Tape or heat shrink tubing with integral sealant shall

be in accordance with the manufacturer's requirements. Primary Connector Kits manufactured by Amerace, "Super Kit", Integro "Complete Kit", or approved equal is acceptable.

c. The factory-molded plug-in splice. Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable.

d. The taped or heat-shrink splice. *Not used.*

108-2.5 Splicer qualifications. Every airfield lighting cable splicer shall be qualified in making airport cable splices and terminations on cables rated at or above 5,000 volts AC. The Contractor shall submit to the RPR proof of the qualifications of each proposed cable splicer for the airport cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable.

108-2.6 Concrete. Concrete shall be proportioned, placed, and cured per state department of transportation structural concrete with minimum 25% Type F fly ash, and a minimum allowable compressive strength of 4,000 psi.

108-2.7 Flowable backfill. Flowable material used to backfill trenches for power cable trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

108-2.8 Cable identification tags. Cable identification tags shall be made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type as detailed on the plans.

108-2.9 Tape. Electrical tapes shall be Scotch™ Electrical Tapes –Scotch™ 88 (1-1/2 inch wide) and Scotch™ 130C® linerless rubber splicing tape (2-inch wide), as manufactured by the Minnesota Mining and Manufacturing Company (3M™), or an approved equivalent.

108-2.10 Electrical coating. Electrical coating shall be Scotchkote™ as manufactured by 3M™, or an approved equivalent.

108-2.11 Existing circuits. Whenever the scope of work requires connection to an existing circuit, the existing circuit's insulation resistance shall be tested, in the presence of the RPR. The test shall be performed per this item and prior to any activity that will affect the respective circuit. The Contractor shall record the results on forms acceptable to the RPR. When the work affecting the circuit is complete, the circuit's insulation resistance shall be checked again, in the presence of the RPR. The Contractor shall record the results on forms acceptable to the RPR. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs to the existing circuit to bring the second reading above the first reading. All repair costs including a complete replacement of the L-823 connectors, L-830 transformers and L-824 cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance (O&M) Manual.

108-2.12 Detectable warning tape. Plastic, detectable, American Public Works Association (APWA) Red (electrical power lines, cables, conduit and lighting cable) with continuous legend tape shall be polyethylene film with a metalized foil core and shall be 3-6 inches wide. Detectable tape is incidental to the respective bid item. Detectable warning tape for communication cables shall be orange. Detectable warning tape color code shall comply with the APWA Uniform Color Code.

CONSTRUCTION METHODS

108-3.1 General. The Contractor shall install the specified cable at the approximate locations indicated on the plans. Unless otherwise shown on the plans, all cable required to cross under pavements expected to carry aircraft loads shall be installed in concrete encased duct banks. Cable shall be run without splices, from fixture to fixture.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual isolation transformers. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections unless otherwise authorized in writing by the RPR or shown on the plans.

In addition to connectors being installed at individual isolation transformers, L-823 cable connectors for maintenance and test points shall be installed at locations shown on the plans. Cable circuit identification markers shall be installed on both sides of the L-823 connectors installed and on both sides of slack loops where a future connector would be installed.

Provide not less than 3 feet of cable slack on each side of all connections, isolation transformers, light units, and at points where cable is connected to field equipment. Where provisions must be made for testing or for future above grade connections, provide enough slack to allow the cable to be extended at least one foot vertically above the top of the access structure. This requirement also applies where primary cable passes through empty light bases, junction boxes, and access structures to allow for future connections, or as designated by the RPR.

Primary airfield lighting cables installed shall have cable circuit identification markers attached on both sides of each L-823 connector and on each airport lighting cable entering or leaving cable access points, such as manholes, hand holes, pull boxes, junction boxes, etc. Markers shall be of sufficient length for imprinting the cable circuit identification legend on one line, using letters not less than 1/4 inch in size. The cable circuit identification shall match the circuits noted on the construction plans.

108-3.2 Installation in duct banks or conduits. This item includes the installation of the cable in duct banks or conduit per the following paragraphs. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be per the latest version of the National Electric Code, or the code of the local agency or authority having jurisdiction.

The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.

Unless otherwise designated in the plans, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. Check duct routes prior to construction to obtain assurance that the shortest routes are selected and that any potential interference is avoided.

Duct banks or conduits shall be installed as a separate item per Item L-110, Airport Underground Electrical Duct Banks and Conduit. The Contractor shall run a mandrel through duct banks or conduit prior to installation of cable to ensure that the duct bank or conduit is open, continuous and clear of debris. The mandrel size shall be compatible with the conduit size. The Contractor shall swab out all conduits/ducts and clean light bases, manholes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed, the light bases and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, light bases, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be re-cleaned at the Contractor's expense. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

The cable shall be installed in a manner that prevents harmful stretching of the conductor, damage to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch

or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall not exceed the cable manufacturer's recommendations. A non-hardening cable-pulling lubricant recommended for the type of cable being installed shall be used where required.

The Contractor shall submit the recommended pulling tension values to the RPR prior to any cable installation. If required by the RPR, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the RPR. Cable pull tensions shall be recorded by the Contractor and reviewed by the RPR. Cables exceeding the maximum allowable pulling tension values shall be removed and replaced by the Contractor at the Contractor's expense.

The manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the RPR, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer's minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or use other appropriate means to prevent abrasion to the cable jacket.

108-3.3 Installation of direct-buried cable in trenches. *Not used.*

108-3.4 Cable markers for direct-buried cable. *Not used.*

108-3.5 Splicing. Connections of the type shown on the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

a. Cast splices. *Not used.*

b. Field-attached plug-in splices. These shall be assembled per the manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches on each side of the joint or (3) On connector kits equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

c. Factory-molded plug-in splices. These shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) Wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint. (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches on each side of the joint. or (3) On connector kits so equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

d. Taped or heat-shrink splices. *Not used.*

Heat shrinkable tubing shall be installed following manufacturer's instructions. Direct flame heating shall not be permitted unless recommended by the manufacturer. Cable surfaces within the limits of the heat-shrink application shall be clean and free of contaminants prior to application.

e. Assembly. Surfaces of equipment or conductors being terminated or connected shall be prepared in accordance with industry standard practice and manufacturer's recommendations. All surfaces to be connected shall be thoroughly cleaned to remove all dirt, grease, oxides, nonconductive films, or other foreign material. Paints and other nonconductive coatings shall be removed to expose base metal. Clean

all surfaces at least 1/4 inch beyond all sides of the larger bonded area on all mating surfaces. Use a joint compound suitable for the materials used in the connection. Repair painted/coated surface to original condition after completing the connection.

108-3.6 Bare counterpoise wire installation for lightning protection and grounding. If shown on the plans or included in the job specifications, bare solid #6 AWG copper counterpoise wire shall be installed for lightning protection of the underground cables. The RPR shall select one of two methods of lightning protection for the airfield lighting circuit based upon sound engineering practice and lightning strike density.

a. Equipotential. *Not used.*

b. Isolation – used in areas where lightning strikes are not common. Counterpoise size is selected by the RPR. The isolation method is an alternate method for use only with edge lights installed in turf and stabilized soils and raceways installed parallel to and adjacent to the edge of the pavement. NFPA 780 uses 15 feet to define “adjacent to”.

The counterpoise conductor shall be installed halfway between the pavement edge and the light base, mounting stake, raceway, or cable being protected.

The counterpoise conductor shall be installed 8 inches (203 mm) minimum below grade. The counterpoise is not connected to the light base or mounting stake. An additional grounding electrode is required at each light base or mounting stake. The grounding electrode is bonded to the light base or mounting stake with a 6 AWG solid copper conductor.

See AC 150/5340-30, Design and Installation Details for Airport Visual Aids and NFPA 780, Standard for the Installation of Lightning Protection Systems, Chapter 11, for a detailed description of the Isolation Method of lightning protection.

c. Common Installation requirements. When a metallic light base is used, the grounding electrode shall be bonded to the metallic light base or mounting stake with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

Grounding electrodes may be rods, ground dissipation plates, radials, or other electrodes listed in the NFPA 70 (NEC) or NFPA 780.

The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the plans but not more than 500 feet (150 m) apart around the entire circuit. The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode-grounding system. The connections shall be made as shown on the plans and in the specifications.

Where an existing airfield lighting system is being extended or modified, the new counterpoise conductors shall be interconnected to existing counterpoise conductors at each intersection of the new and existing airfield lighting counterpoise systems.

d. Parallel Voltage Systems. Provide grounding and bonding in accordance with NFPA 70, National Electrical Code.

108-3.7 Counterpoise installation above multiple conduits and duct banks. Counterpoise wires shall be installed above multiple conduits/duct banks for airfield lighting cables, with the intent being to provide a complete area of protection over the airfield lighting cables. When multiple conduits and/or duct banks for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete area of protection measured 45 degrees each side of vertical.

Where duct banks pass under pavement to be constructed in the project, the counterpoise shall be placed above the duct bank. Reference details on the construction plans.

108-3.8 Counterpoise installation at existing duct banks. *Not used.*

108-3.9 Exothermic bonding. Bonding of counterpoise wire shall be by the exothermic welding process or equivalent method accepted by the RPR. Only personnel experienced in and regularly engaged in this type of work shall make these connections.

Contractor shall demonstrate to the satisfaction of the RPR, the welding kits, materials and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the manufacturer's recommendations and the following:

a. All slag shall be removed from welds.

b. Using an exothermic weld to bond the counterpoise to a lug on a galvanized light base is not recommended unless the base has been specially modified. Consult the manufacturer's installation directions for proper methods of bonding copper wire to the light base. See AC 150/5340-30 for galvanized light base exception.

c. If called for in the plans, all buried copper and weld material at weld connections shall be thoroughly coated with 6 mm of 3M™ Scotchkote™, or approved equivalent, or coated with coal tar Bitumastic® material to prevent surface exposure to corrosive soil or moisture.

108-3.10 Testing. The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the RPR. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the RPR. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor must maintain the test results throughout the entire project as well as during the warranty period that meet the following:

a. Earth resistance testing methods shall be submitted to the RPR for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the RPR. All such testing shall be at the sole expense of the Contractor.

b. Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter. The conductors shall be isolated such that no parallel path exists and tested for continuity. The RPR shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

After installation, the Contractor shall test and demonstrate to the satisfaction of the RPR the following:

c. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.

d. That all affected circuits (existing and new) are free from unspecified grounds.

e. That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than 500 megohms. Verify continuity of all series airfield lighting circuits prior to energization.

f. That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments is not less than 100 megohms.

g. That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.

h. That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.

i. That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the RPR prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the RPR. Where connecting new cable to existing cable, insulation resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved “repair” procedures for items that have failed testing other than complete replacement.

METHOD OF MEASUREMENT

108-4.1 The cost of all excavation, backfill, dewatering and restoration regardless of the type of material encountered shall be included in the unit price bid for the work.

108-4.2 Cable or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet installed and grounding connectors, and trench marking tape ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item shall not include additional quantities required for slack.

108-4.3 No separate payment will be made for ground rods.

BASIS OF PAYMENT

108-5.1 Payment will be made at the contract unit price for trenching, cable and bare counterpoise wire installed in trench (direct-buried), or cable and equipment ground installed in duct bank or conduit, in place by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals, including ground rods and ground connectors and trench marking tape, necessary to complete this item.

Payment will be made under:

Item L-108-5.1	No. 8 AWG, 5kV, L-824, Type C Cable, Installed in Trench, Duct Bank or Conduit – per linear foot
Item L-108-5.2	No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Installed Above the Duct Bank or Conduit, Including Ground Rods/Connections/Terminations - per linear foot
Item L-108-5.3	No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Installed in Trench, Including Ground Rods/Connections/Terminations - per linear foot

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.

Advisory Circulars (AC)

AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description

A-A-59544A	Cable and Wire, Electrical (Power, Fixed Installation)
A-A-55809	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic

ASTM International (ASTM)

ASTM B3	Standard Specification for Soft or Annealed Copper Wire
ASTM B8	Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM B33	Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes
ASTM D4388	Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes

Mil Spec

MIL-PRF-23586F	Performance Specification: Sealing Compound (with Accelerator), Silicone Rubber, Electrical
MIL-I-24391	Insulation Tape, Electrical, Plastic, Pressure Sensitive

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)
NFPA-780	Standard for the Installation of Lightning Protection Systems

American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System
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Federal Aviation Administration Standard

FAA STD-019E	Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment
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END OF ITEM L-108

Item L-110 Airport Underground Electrical Duct Banks and Conduits

DESCRIPTION

110-1.1 This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete or buried in sand) installed per this specification at the locations and per the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground conduits and removal of existing duct banks. It shall also include all turfing trenching, backfilling, removal, and restoration of any paved or turfed areas; concrete encasement, mandrelling, pulling lines, duct markers, plugging of conduits, and the testing of the installation as a completed system ready for installation of cables per the plans and specifications. This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

EQUIPMENT AND MATERIALS

110-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, that comply with these specifications, at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in project that accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

110-2.2 Steel conduit. Rigid galvanized steel (RGS) conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standards 6, 514B, and

1242. All RGS conduits or RGS elbows installed below grade, in concrete, permanently wet locations or other similar environments shall be painted with a 10-mil thick coat of asphaltum sealer or shall have a factory-bonded polyvinyl chloride (PVC) cover. Any exposed galvanizing or steel shall be coated with 10 mils of asphaltum sealer. When using PVC coated RGS conduit, care shall be exercised not to damage the factory PVC coating. Damaged PVC coating shall be repaired per the manufacturer's written instructions. In lieu of PVC coated RGS, corrosion wrap tape shall be permitted to be used where RGS is in contact with direct earth."

110-2.3 Plastic conduit. Plastic conduit and fittings shall conform to the following requirements:

- UL 514B covers W-C-1094-Conduit fittings all types, classes 1 thru 3 and 6 thru 10.
- UL 514C covers W-C-1094- all types, Class 5 junction box and cover in plastic (PVC).
- UL 651 covers W-C-1094-Rigid PVC Conduit, types I and II, Class 4.
- UL 651A covers W-C-1094-Rigid PVC Conduit and high-density polyethylene (HDPE) Conduit type III and Class 4.

Underwriters Laboratories Standards UL-651 and Article 352 of the current National Electrical Code shall be one of the following, as shown on the plans:

- a. Type I—Schedule 40 and Schedule 80 PVC suitable for underground use either direct-buried or encased in concrete.
- b. Type II—Schedule 40 PVC suitable for either above ground or underground use.
- c. Type III – Schedule 80 PVC suitable for either above ground or underground use either direct-buried or encased in concrete.
- d. Type III –HDPE pipe, minimum standard dimensional ratio (SDR) 11, suitable for placement with directional boring under pavement.

The type of solvent cement shall be as recommended by the conduit/fitting manufacturer.

110-2.4 Split conduit. Split conduit shall be pre-manufactured for the intended purpose and shall be made of steel or plastic.

110-2.5 Conduit spacers. Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads. They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.6 Concrete. Concrete shall be proportioned, placed, and cured per state department of transportation structural concrete with minimum 25% Type F fly ash, and a minimum allowable compressive strength of 4,000 psi.

110-2.7 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program. Precast concrete structures shall conform to ASTM C478.

110-2.8 Flowable backfill. Flowable material used to back fill conduit and duct bank trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

110-2.9 Detectable warning tape. Plastic, detectable, American Public Works Association (APWA) red (electrical power lines, cables, conduit and lighting cable), orange (telephone/fiber optic cabling) with continuous legend magnetic tape shall be polyethylene film with a metallized foil core and shall be 3-6 inches wide. Detectable tape is incidental to the respective bid item.

CONSTRUCTION METHODS

110-3.1 General. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The RPR shall indicate specific locations as the work progresses, if required to differ from the plans. Duct banks and conduits shall be of the size, material, and type indicated on the plans or specifications. Where no size is indicated on the plans or in the specifications, conduits shall be not less than 2 inches inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3 inches per 100 feet. On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where moisture may accumulate shall be avoided. Under pavement, the top of the duct bank shall not be less than 18 inches below the subgrade; in other locations, the top of the duct bank or underground conduit shall be not less than 18 inches below finished grade.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. An iron-shod mandrel, not more than 1/4 inch smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed the light bases, manholes, pull boxes, etc., and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor's expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 200-pound test polypropylene pull rope. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminants from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5 feet.

Unless otherwise shown on the plans, concrete encased duct banks shall be used when crossing under pavements expected to carry aircraft loads, such as runways, taxiways, taxilanes, ramps and aprons. When under paved shoulders and other paved areas, conduit and duct banks shall be encased using flowable fill for protection.

All conduits within concrete encasement of the duct banks shall terminate with female ends for ease in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching

equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches below the required conduit or duct bank depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. Flowable backfill may alternatively be used

Underground electrical warning (Caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the RPR. If not shown on the plans, the warning tape shall be located 6 inches above the duct/conduit or the counterpoise wire if present.

Joints in plastic conduit shall be prepared per the manufacturer's recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2 feet.

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the RPR, the unsuitable material shall be removed per Item P-152 and replaced with suitable material. Additional duct bank supports shall be installed, as approved by the RPR.

All excavation shall be unclassified and shall be considered incidental to Item L-110. Dewatering necessary for duct installation, and erosion per federal, state, and local requirements is incidental to Item L-110.

Unless otherwise specified, excavated materials that are deemed by the RPR to be unsuitable for use in backfill or embankments shall be removed and disposed of offsite.

Any excess excavation shall be filled with suitable material approved by the RPR and compacted per Item P-152.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

- a. Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred

- b. Trenching, etc., in cable areas shall then proceed with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair.

110-3.2 Duct banks. Unless otherwise shown in the plans, duct banks shall be installed so that the top of the concrete envelope is not less than 18 inches below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least 3 feet beyond the edges of the pavement or 3 feet beyond any under drains that may be installed alongside the paved area. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, provisions can be made to avoid them. Unless otherwise shown on the plans, all duct banks shall be placed on a layer of concrete not less than 3 inches thick prior to its initial set. The Contractor shall space the conduits not less than 3 inches apart (measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3 inches thick unless otherwise shown on the plans. All conduits shall terminate with female ends for ease of access in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

When specified, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the ground is soft and boggy, where ducts cross under roadways, or where shown on the plans. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5-foot intervals.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract with price for the duct.

Install a plastic, detectable, color as noted, 3 to 6 inches wide tape, 8 inches minimum below grade above all underground conduit or duct lines not installed under pavement. Utilize the 3-inch wide tape only for single conduit runs. Utilize the 6-inch wide tape for multiple conduits and duct banks. For duct banks equal to or greater than 24 inches in width, utilize more than one tape for sufficient coverage and identification of the duct bank as required.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the RPR shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as required by the RPR.

110-3.3 Conduits without concrete encasement. Trenches for single-conduit lines shall be not less than 6 inches nor more than 12 inches wide. The trench for 2 or more conduits installed at the same level shall be proportionately wider. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length.

Unless otherwise shown on the plans, a layer of fine earth material, at least 4 inches thick (loose measurement) shall be placed in the bottom of the trench as bedding for the conduit. The bedding material shall consist of soft dirt, sand or other fine fill, and it shall contain no particles that would be retained on a 1/4-inch sieve. The bedding material shall be tamped until firm. Flowable backfill may alternatively be used.

Unless otherwise shown on plans, conduits shall be installed so that the tops of all conduits within the Airport's secured area where trespassing is prohibited are at least 18 inches below the finished grade. Conduits outside the Airport's secured area shall be installed so that the tops of the conduits are at least 24 inches below the finished grade per National Electric Code (NEC), Table 300.5.

When two or more individual conduits intended to carry conductors of equivalent voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 3 inches apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches apart in a vertical direction. Where two or more individual conduits intended to carry conductors of differing voltage insulation rating are installed in the same trench without concrete encasement, they shall be placed not less than 3 inches apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches apart in a vertical direction.

Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.

Conduits shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches to anchor the assembly into the earth while backfilling. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

110-3.4 Markers. The location of each end and of each change of direction of conduits and duct banks shall be marked by a concrete slab marker 2 feet square and 4 - 6 inches thick extending approximately one inch above the surface. The markers shall also be located directly above the ends of all conduits or duct banks, except where they terminate in a junction/access structure or building. Each cable or duct run from a line of lights and signs to the equipment vault must be marked at approximately every 200 feet along the cable or duct run, with an additional marker at each change of direction of cable or duct run.

The Contractor shall impress the word "DUCT" or "CONDUIT" on each marker slab. Impression of letters shall be done in a manner, approved by the RPR, for a neat, professional appearance. All letters and words must be neatly stenciled. After placement, all markers shall be given one coat of high-visibility orange paint, as approved by the RPR. The Contractor shall also impress on the slab the number and size of conduits beneath the marker along with all other necessary information as determined by the RPR. The letters shall be 4 inches high and 3 inches wide with width of stroke 1/2 inch and 1/4 inch deep or as large as the available space permits. Furnishing and installation of duct markers is incidental to the respective duct pay item.

110-3.5 Backfilling for conduits. For conduits, 8 inches of sand, soft earth, or other fine fill (loose measurement) shall be placed around the conduits ducts and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled and compacted per Item P-152 except that material used for back fill shall be select material not larger than 4 inches in diameter.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during back filling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.6 Backfilling for duct banks. After the concrete has cured, the remaining trench shall be backfilled and compacted per Item P-152 "Excavation and Embankment" except that the material used for backfill shall be select material not larger than 4 inches in diameter. In addition to the requirements of Item P-152, where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250 linear feet of duct bank or one work period's construction, whichever is less.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.7 Restoration. Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the work shall be restored to its original condition. The restoration shall include sodding, topsoiling, fertilizing, seeding, and/or mulching as shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. All restoration shall be considered incidental to the respective L-110 pay item. Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

110-3.8 Ownership of removed cable. The Contractor retains ownership and shall be responsible for removal and proper disposal of cable.

METHOD OF MEASUREMENT

110-4.1 Underground conduits and duct banks shall be measured by the linear feet of conduits and duct banks installed, including encasement, locator tape, trenching and backfill with designated material, and restoration, and for drain lines, the termination at the drainage structure, all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material, and, for drain lines, the termination at the drainage structure. This price shall be full compensation for removal and disposal of existing duct banks and conduits as shown on the plans, furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item per the provisions and intent of the plans and specifications.

Payment will be made under:

Item L-110-5.1	Concrete Encased Electrical Duct Bank, 2-Way 2-inch - per linear foot
Item L-110-5.2	Non-Encased Electrical Conduit, 1-Way 2-inch - per linear foot
Item L-110-5.3	Concrete Encased Electrical Duct Bank, 1-Way 2-inch - per linear foot

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.

Advisory Circular (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids
Ukiah Municipal Airport Ukiah, Ca AIP No. 3-06-0268-027-2019	Item L-110 Airport Underground Electrical Duct Banks and Conduits Runway 15-33 Pavement Rehabilitation Phase 1 Issued for Bid

AC 150/5345-53	Airport Lighting Equipment Certification Program
ASTM International (ASTM)	
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
National Fire Protection Association (NFPA)	
NFPA-70	National Electrical Code (NEC)
Underwriters Laboratories (UL)	
UL Standard 6	Electrical Rigid Metal Conduit - Steel
UL Standard 514B	Conduit, Tubing, and Cable Fittings
UL Standard 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
UL Standard 1242	Electrical Intermediate Metal Conduit Steel
UL Standard 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
UL Standard 651A	Type EB and A Rigid PVC Conduit and HDPE Conduit

END OF ITEM L-110

Item L-115 Electrical Manholes and Junction Structures

DESCRIPTION

115-1.1 This item shall consist of electrical manholes and junction structures (hand holes, pull boxes, junction cans, etc.) installed per this specification, at the indicated locations and conforming to the lines, grades and dimensions shown on the plans or as required by the RPR. This item shall include the installation of each electrical manhole and/or junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the RPR including removal of existing manholes and junction structures as shown on the plans. The Contractor is responsible for removal and proper disposal of all materials from the airport property.

EQUIPMENT AND MATERIALS

115-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

115-2.2 Concrete structures. *Not used.*

115-2.3 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another engineer approved third party certification program. Provide precast concrete structures where shown on the plans.

Precast concrete structures shall be an approved standard design of the manufacturer. Precast units shall have mortar or bitumastic sealer placed between all joints to make them watertight. The structure shall be designed to withstand HS-20 loads, unless otherwise shown on the plans. Openings or knockouts shall be provided in the structure as detailed on the plans.

Threaded inserts and pulling eyes shall be cast in as shown on the plans.

If the Contractor chooses to propose a different structural design, signed and sealed shop drawings, design calculations, and other information requested by the RPR shall be submitted by the Contractor to allow for a full evaluation by the RPR. The RPR shall review per the process defined in the General Provisions.

115-2.4 Junction boxes. Junction boxes shall be L-867 Class 1 (non-load bearing) or L-868 Class 1 (load bearing) airport light bases that are encased in concrete. The light bases shall have a L-894 blank cover, gasket, and stainless steel hardware. All bolts, studs, nuts, lock washers, and other similar fasteners used for the light fixture assemblies must be fabricated from 316L (equivalent to EN 1.4404), 18-8, 410, or 416 stainless steel. If 18-8, 410, or 416 stainless steel is utilized it shall be passivated and be free from any discoloration. Covers shall be 3/8-inch thickness for L-867 and 3/4-inch thickness for L-868. All junction boxes shall be provided with both internal and external ground lugs.

115-2.5 Mortar. The mortar shall be composed of one part of cement and two parts of mortar sand, by volume. The cement shall be per the requirements in ASTM C150, Type I. The sand shall be per the requirements in ASTM C144. Hydrated lime may be added to the mixture of sand and cement in an amount not to exceed 15% of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C206. Water shall be potable, reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product.

115-2.6 Concrete. Concrete shall be proportioned, placed, and cured per state department of transportation structural concrete with minimum 25% Type F fly ash, and a minimum allowable compressive strength of 4,000 psi.

115-2.7 Frames and covers. *Not used.*

115-2.8 Ladders. *Not used.*

115-2.9 Reinforcing steel. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A615, Grade 60.

115-2.10 Bedding/special backfill. Bedding or special backfill shall be as shown on the plans.

115-2.11 Flowable backfill. Flowable material used to backfill shall conform to the requirements of Item P-153, Controlled Low Strength Material.

115-2.12 Cable trays. *Not used.*

115-2.13 Plastic conduit. Plastic conduit shall comply with Item L-110, Airport Underground Electrical Duct Banks and Conduits.

115-2.14 Conduit terminators. Conduit terminators shall be pre-manufactured for the specific purpose and sized as required or as shown on the plans.

115-2.15 Pulling-in irons. *Not used.*

115-2.16 Ground rods. Ground rods shall be one piece, copper clad steel. The ground rods shall be of the length and diameter specified on the plans, but in no case shall they be less than 8 feet long nor less than 5/8 inch in diameter.

CONSTRUCTION METHODS

115-3.1 Unclassified excavation. It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the RPR without additional expense to the Owner.

The Contractor shall perform excavation for structures and structure footings to the lines and grades or elevations shown on the plans or as staked by the RPR. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown.

All excavation shall be unclassified and shall be considered incidental to Item L-115. Dewatering necessary for structure installation and erosion per federal, state, and local requirements is incidental to Item L-115.

Boulders, logs and all other objectionable material encountered in excavation shall be removed. All rock and other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the RPR. All seams, crevices, disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

The Contractor shall provide all bracing, sheeting and shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheeting and shoring shall be included in the unit price bid for the structure.

Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner that will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the RPR. Structures shall be placed after the RPR has approved the depth of the excavation and the suitability of the foundation material.

Prior to installation the Contractor shall provide a minimum of 6 inches of sand or a material approved by the RPR as a suitable base to receive the structure. The base material shall be compacted and graded level and at proper elevation to receive the structure in proper relation to the conduit grade or ground cover requirements, as indicated on the plans.

115-3.2 Concrete structures. Concrete structures shall be built on prepared foundations conforming to the dimensions and form indicated on the plans. The concrete and construction methods shall conform to the requirements specified in Section 2.6. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the RPR before the concrete is placed.

115-3.3 Precast unit installations. *Not used.*

115-3.4 Placement and treatment of castings, frames and fittings. All castings, frames and fittings shall be placed in the positions indicated on the Plans or as directed by the RPR and shall be set true to line and to correct elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

Field connections shall be made with bolts, unless indicated otherwise. Welding will not be permitted unless shown otherwise on the approved shop drawings and written approval is granted by the casting manufacturer. Erection equipment shall be suitable and safe for the workman. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and fitting of

parts shall be reported immediately to the RPR and approval of the method of correction shall be obtained. Approved corrections shall be made at Contractor's expense.

Anchor bolts and anchors shall be properly located and built into connection work. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

Pulling-in irons shall be located opposite all conduit entrances into structures to provide a strong, convenient attachment for pulling-in blocks when installing cables. Pulling-in irons shall be set directly into the concrete walls of the structure.

115-3.5 Installation of ladders. *Not used.*

115-3.6 Removal of sheeting and bracing. In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than 6 inches of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The RPR may direct the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

115-3.7 Backfilling. After a structure has been completed, the area around it shall be backfilled in horizontal layers not to exceed 6 inches in thickness measured after compaction to the density requirements in Item P-152. Each layer shall be deposited all around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the RPR.

Backfill shall not be placed against any structure until approval is given by the RPR. In the case of concrete, such approval shall not be given until tests made by the laboratory under supervision of the RPR establish that the concrete has attained sufficient strength to provide a factor of safety against damage or strain in withstanding any pressure created by the backfill or the methods used in placing it.

Where required, the RPR may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to conduits, duct banks, structures, property or persons due to improper placing or compacting of backfill.

115-3.8 Connection of duct banks. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be formed and tied into duct bank reinforcement at the time the duct bank is installed.

115-3.9 Grounding. A ground rod shall be installed in the floor of all concrete structures so that the top of rod extends 6 inches above the floor. The ground rod shall be installed within one foot of a corner of the concrete structure. Ground rods shall be installed prior to casting the bottom slab. Where the soil condition does not permit driving the ground rod into the earth without damage to the ground rod, the Contractor shall drill a 4-inch diameter hole into the earth to receive the ground rod. The hole around the ground rod shall be filled throughout its length, below slab, with Portland cement grout. Ground rods shall be installed in precast bottom slab of structures by drilling a hole through bottom slab and installing the ground rod. Bottom slab penetration shall be sealed watertight with Portland cement grout around the ground rod.

A grounding bus of 4/0 bare stranded copper shall be exothermically bonded to the ground rod and loop the concrete structure walls. The ground bus shall be a minimum of one foot above the floor of the structure and separate from other cables. No. 2 American wire gauge (AWG) bare copper pigtails shall bond the grounding bus to all cable trays and other metal hardware within the concrete structure.

Connections to the grounding bus shall be exothermic. If an exothermic weld is not possible, connections to the grounding bus shall be made by using connectors approved for direct burial in soil or concrete per UL 467. Hardware connections may be mechanical, using a lug designed for that purpose.

115-3.10 Cleanup and repair. After erection of all galvanized items, damaged areas shall be repaired by applying a liquid cold-galvanizing compound per MIL-P-21035. Surfaces shall be prepared and compound applied per the manufacturer's recommendations.

Prior to acceptance, the entire structure shall be cleaned of all dirt and debris.

115-3.11 Restoration. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. The Contractor shall restore all disturbed areas equivalent to or better than their original condition. All sodding, grading and restoration shall be considered incidental to the respective Item L-115 pay item.

The Contractor shall grade around structures as required to provide positive drainage away from the structure.

Areas with special surface treatment, such as roads, sidewalks, or other paved areas shall have backfill compacted to match surrounding areas, and surfaces shall be repaired using materials comparable to original materials.

Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

115-3.12 Inspection. Prior to final approval, the electrical structures shall be thoroughly inspected for conformance with the plans and this specification. Any indication of defects in materials or workmanship shall be further investigated and corrected. The earth resistance to ground of each ground rod shall not exceed 25 ohms. Each ground rod shall be tested using the fall-of-potential ground impedance test per American National Standards Institute / Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81. This test shall be performed prior to establishing connections to other ground electrodes.

115-3.13 Manhole elevation adjustments. *Not used.*

115-3.14 Duct extension to existing ducts. Where existing concrete encased ducts are to be extended, the duct extension shall be concrete encased plastic conduit. The fittings to connect the ducts together shall be standard manufactured connectors designed and approved for the purpose. The duct extensions shall be installed according to the concrete encased duct detail and as shown on the plans.

METHOD OF MEASUREMENT

115-4.1 Electrical manholes and junction structures shall be measured by each unit completed in place and accepted. The following items shall be included in the price of each unit: All required excavation and dewatering;; sheeting and bracing; all required backfilling with on-site materials; restoration of all surfaces and finished grading and turfing; all required connections; temporary cables and connections; and ground rod testing

BASIS OF PAYMENT

115-5.1 The accepted quantity of electrical manholes and junction structures will be paid for at the Contract unit price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials, furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

Item L-115-5.1	Electrical Junction Structure, L-868, Size D - Per Each
Item L-115-5.2	Electrical Pullbox, Size 1 (24"x36"x30"), Spring Loaded Lid – Per Each

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.

American National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System
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Advisory Circular (AC)

AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description (CID)

A-A 59544	Cable and Wire, Electrical (Power, Fixed Installation)
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ASTM International (ASTM)

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C206	Standard Specification for Finishing Hydrated Lime
FAA Engineering Brief (EB)	
EB #83	In Pavement Light Fixture Bolts
Mil Spec	
MIL-P-21035	Paint High Zinc Dust Content, Galvanizing Repair
National Fire Protection Association (NFPA)	
NFPA-70	National Electrical Code (NEC)

END OF ITEM L-115

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Item L-125 Installation of Airport Lighting Systems

DESCRIPTION

125-1.1 This item shall consist of airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

125-2.1 General.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not perform as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.

b. Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

c. All materials and equipment used shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be submitted in electronic PDF format, tabbed by specification section. The RPR reserves the right to reject any or all equipment, materials or procedures, which, in the RPR's opinion, does not meet the system design and the standards and codes, specified herein.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

EQUIPMENT AND MATERIALS

125-2.2 Conduit/Duct. Conduit shall conform to Specification Item L-110 Airport Underground Electrical Duct Banks and Conduits.

125-2.3 Cable and Counterpoise. Cable and Counterpoise shall conform to Item L-108 Underground Power Cable for Airports.

125-2.4 Tape. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88 respectively, as manufactured by 3M Company or an approved equal.

125-2.5 Cable Connections. Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

125-2.6 Retroreflective Markers. Not required.

125-2.7 Runway and Taxiway Lights. Runway and taxiway lights shall conform to the requirements of AC 150/5345-46. Lamps shall be of size and type indicated, or as required by fixture manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced.

Lights

Type	Class	Mode	Style	Option	Base	Filter	Transformer	Notes
L-861E	2	1	N/A	N/A	L-867	G/R	L-830	14" Height
L-861T	2	1	N/A	N/A	L-867	B	L-830	14" Height

125-2.8 Runway and Taxiway Signs. Runway and Taxiway Guidance Signs should conform to the requirements of AC 150/5345-44.

Signs

Type	Size	Style	Class	Mode	Notes
L-858	1	2	2	2	N/A

125-2.9 Runway End Identifier Light (REIL). Not required.

125-2.10 Precision Approach Path Indicator (PAPI). Not required.

125-2.11 Circuit Selector Cabinet. Not used.

125-2.12 Light Base and Transformer Housings. Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be Type L-867, Class 1A, Size B shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures.

125-2.13 Isolation Transformers. Isolation Transformers shall be Type L-830, size as required for each installation. Transformer shall conform to AC 150/5345-47.

125-3.1 Installation. The Contractor shall furnish, install, connect and test all equipment, accessories, conduit, cables, wires, buses, grounds and support items necessary to ensure a complete and operable airport lighting system as specified here and shown in the plans.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction.

The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

125-3.2 Testing. All lights shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in

each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.

125-3.3 Shipping and Storage. Equipment shall be shipped in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage. Any equipment and materials, in the opinion of the RPR, damaged during construction or storage shall be replaced by the Contractor at no additional cost to the owner. Painted or galvanized surfaces that are damaged shall be repaired in accordance with the manufacturer's recommendations.

125-3.4 Elevated and In-pavement Lights. Water, debris, and other foreign substances shall be removed prior to installing fixture base and light.

A jig or holding device shall be used when installing each light fixture to ensure positioning to the proper elevation, alignment, level control, and azimuth control. Light fixtures shall be oriented with the light beams parallel to the runway or taxiway centerline and facing in the required direction. The outermost edge of fixture shall be level with the surrounding pavement. Surplus sealant or flexible embedding material shall be removed. The holding device shall remain in place until sealant has reached its initial set.

METHOD OF MEASUREMENT

125-4.1 Runway and taxiway lights will be measured by the number of each type installed as completed units in place, ready for operation, and accepted by the RPR. Guidance signs will be measured by the number of each type and size installed as completed units, in place, ready for operation, and accepted by the RPR. Runway End Identifier Lights shall be measured by each system installed as a completed unit in place, ready for operation, and accepted by the RPR.

BASIS OF PAYMENT

125-5.1 Payment will be made at the Contract unit price for each complete runway or taxiway light, guidance sign, reflective marker, runway end identification light, precision approach path indicator, or abbreviated precision approach path indicator installed by the Contractor and accepted by the RPR. This payment will be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

Item L-125-5.1	Relocate Existing L-861E Elevated Threshold Light and transformer assembly to New L-867 Base Can. – per each
Item L-125-5.2	Relocate Existing L-861 Elevated Runway Light and transformer assembly to New L-867 Base Can. – per each
Item L-125-5.3	L-861T Medium Intensity Elevated Taxiway Edge Light and Base Can, Complete
Item L-125-5.4	L-858 Sign Size 1, 2 Module on New Base. – per each
Item L-125-5.5	L-858 Sign Size 1, 3 Module on New Base. – per each

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.

Advisory Circulars (AC)

AC 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-28	Precision Approach Path Indicator (PAPI) Systems
AC 150/5345-39	Specification for L-853, Runway and Taxiway Retroreflective Markers
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Runway and Taxiway Signs
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
AC 150/5345-51	Specification for Discharge-Type Flashing Light Equipment
AC 150/5345-53	Airport Lighting Equipment Certification Program

Engineering Brief (EB)

EB No. 67	Light Sources Other than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures
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END OF ITEM L-125

Section 4

Additional Related Specifications

Not Used

Section 5

Supplemental Documents

Document 1

Geotechnical Report

TECHNICAL MEMORANDUM

Geotechnical Exploration
Runway Rehabilitation Project
Ukiah Airport
Ukiah, California

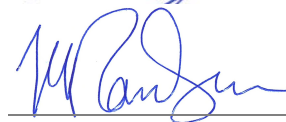
Date: October 19, 2017
Project No.: 7403.05

Prepared For: Mead & Hunt
1360 19th Hole Drive, Suite 200
Windsor, California

Prepared By: Robert Voeks, E.I.T., G.I.T.
Staff Geologist



Reviewed By: J. Erich Rauber, P.E., G.E.
Senior Geotechnical Engineer



Attachments: Figures:

Appendix 1:
Appendix 2:

Figure 1 – Site Vicinity Map
Figure 2 – Site Plan
Boring Logs
Laboratory Test Results



1.0 INTRODUCTION

This memorandum presents the results of a geotechnical exploration performed by LACO Associates (LACO) for the planned rehabilitation and taxiway realignment of Runway 15-33 at the Ukiah Airport in Ukiah, California (the Runway). A Site Vicinity Map and Site Map are presented in Figures 1 and 2 respectively.

The rehabilitation and taxiway realignment effort will consist of reducing the width of 4,415 foot long runway from 150 feet to 75 feet, demolishing taxiways B and D, constructing new taxiways A2 and A4. Rehabilitation is anticipated to consist of cold-in-place recycling with a 2-inch asphalt top lift. The import of additional aggregate base (AB) material to supplement the recycled material may be required depending on the existing structural section.

LACO's scope of services was limited to performing a subsurface investigation, laboratory testing, engineering evaluations, and preparing a report that summarized the results of our services.

2.0 FIELD EXPLORATION

On May 1, 2017, LACO explored subsurface conditions along the Runway by drilling ten test borings (B1-B10), 4.5 to 6 feet deep, at the approximate locations shown in Figure 2. Test borings were drilled by Pearson Drilling of Forestville, California, using a drill rig equipped with an 8-inch diameter solid flight auger. A LACO geologist logged the soils in general accordance with the American Society for Testing and Materials (ASTM) Test Procedure D2488, and obtained both disturbed and relatively undisturbed soil samples for laboratory testing. Boring logs are presented in Appendix 1. Composite samples were collected from the following: B2 at 1.5 to 6 feet, B6 at 1.5 to 6 feet, B8 from 1 to 5 feet, and B10 from 1 to 5 feet.

Soil samples were transported to LACO's materials testing laboratory in Santa Rosa, California, where they were observed to confirm field classifications and to select samples for laboratory testing. The following laboratory tests were performed on selected soil samples; test results are presented in Appendix 2.

- Moisture Content and Unit Weight (ASTM D2216 and 2937);
- Particle Size Analysis (ASTM D422);
- Atterberg Limits (ASTM D4318);
- Maximum Density of Soil using Standard Effort (ASTM D-698); and
- California Bearing Ratio (ASTM D1883).

California Bearing Ratio (CBR) tests were performed on the four composite samples to provide the necessary bearing ratio for pavement design. CBR tests performed on composite samples from borings B2 and B6 were compacted in the CBR mold to match the in-place densities derived from unit weight test results. This was performed to assess the bearing ratio of the in-situ soils for consideration of not reworking the subgrade soils. CBR tests performed on composite samples from B8 and B10 were compacted to approximately 95% relative compaction from the maximum dry density using standard effort (ASTM D698) test results.

3.0 RESULTS

3.1.1 Surface Conditions

Runway 15-33 is 4,415 feet long, 150 feet wide, asphalt concrete (AC) paved, and oriented in the northwest direction. The ground surface slopes gently in a southeast direction with elevations ranging from 615 to 593 feet above mean sea level.

3.1.2 Subsurface Conditions

3.1.2.1 Site Geology

The site is located on the west side of the Russian River Valley, in the Mendocino Mountain Range which forms part of the Coast Ranges Geomorphic Province of Northern California (CGS, 2006). According to

published geologic maps (Jennings, 1960) the site is underlain by recent alluvial deposits associated with the Russian River floodplain. These deposits are described as unconsolidated lenticular deposits of clay, sand, and gravel, of moderate to high permeability. The area west of the site is mapped as underlain by Quaternary (approximately 11,700 to 2.6 million years old) non-marine terrace deposits. These deposits are described as unconsolidated silty sand and gravel, silt, and clay, of moderate to low permeability.

3.1.2.2 Pavement Section

The results of our exploration indicate that the Runway surface consists of AC paving that is underlain by AB. Pavement section component thicknesses at our boring locations are summarized in Table 1 and presented in the borings logs (Appendix 2).

Table 1. Thickness of Pavement Section Components and Fill at Test Boring Locations

Boring Number	Asphalt Concrete Thickness (inches)	Aggregate Base Thickness (inches)
B1	7	9.5
B2	6	11
B3	7	8.5
B4	7	8.5
B5	8	7
B6	8	8.5
B7	4	20
B9	5	16

3.1.2.3 Soil Conditions

Beneath the runway pavement section in borings B1 through B4, we encountered yellowish brown, loose to medium dense clayey sand with gravel (SC) up to 4.5 feet thick. Below pavement section in B5 we encountered 2.5 feet of olive, medium stiff, sandy lean clay (CL) overlying 2 feet of yellowish brown, dense, silty sand with gravel (SM). Beneath pavement section in B6 we encountered 1.5 feet of olive, medium stiff, sandy lean clay (CL), underlain by approximately 2 feet of yellowish brown, very stiff, sandy lean clay with gravel. (CL). Beneath the pavement in B7, we encountered approximately 3 feet of yellowish brown, stiff, sandy lean clay (CL). In B8, we encountered 5 feet of yellowish brown, medium dense, silty sand. Beneath the pavement in B9, we encountered approximately 3 feet of yellowish brown, very dense clayey sand with gravel. Lastly, in B9 we encountered 2 feet of yellowish brown, medium dense, silty sand (SM), overlying 3 feet of yellowish brown, medium dense, silty sand with gravel (SM).

3.1.2.4 Groundwater Conditions

Free groundwater was not encountered in our borings during our field exploration.

4.0 CONCLUSIONS

Our exploration indicates the project is feasible from a geotechnical engineering standpoint. On the basis of the above observations and our experience, we conclude that the rehabilitation of the Runway can proceed as planned.

5.0 RECOMMENDATIONS

5.1 Runway Rehabilitation

As described above, the existing pavement section will be pulverized in place. This effort will result in a blend of pulverized AC and the underlying AB material. We recommend that the resulting blend be moisture conditioned, either wetted or dried back, to near the optimum moisture content and compacted to at least 95 percent relative compaction or per Federal Aviation Administration (FAA) requirements (FAA, 2009). The resulting subgrade surface should be kept wet until covered with hot mix asphalt.

Pavement should be designed using a CBR value of 14 for recycled soils compacted to 95% relative compaction of the maximum dry density using standard effort (ASTM D698). If soils are not reworked and compacted, we recommend designing the pavement using a CBR value of 1.

5.2 Subgrade Preparation

New pavement and/or shoulder areas should be cleared and stripped to remove vegetation and surface soil containing organic matter. This material is unsuitable for use in compacted fill by may be stockpiled for later use in landscape areas. We estimate the required depth of stripping in areas with topsoil will generally be about 3 inches.

The exposed subgrade soils should be scarified to a minimum depth of 6 inches, moisture conditioned to wet of the optimum moisture content and compacted at least 95 percent relative compaction of maximum dry density using standard effort (ASTM D698) or per FAA requirements (FAA, 2009).

In areas of heavy deflection or pumping, we recommend over-excavation and replacement of soil with select fill placed and compacted as recommended below. As an alternative, the application of a geotextile fabric (such as Tensar® TX170, or equivalent) may be placed over the affected area in accordance with the manufacturer's recommendations.

The soil subgrade should be observed by the Geotechnical Engineer (or qualified representative) and density test performed to check that it is smooth and unyielding prior to placement of AB. Site grading work should be performed during the summer months to avoid complications related to potential perched groundwater and saturated soils.

5.3 Fill Placement

If fill material is needed to achieve planned subgrade elevations, it should meet or exceed the requirements for select fill. Select fill should be free of organic material and satisfy the following criteria:

Liquid Limit	40 percent or less
Plasticity Index	15 percent or less
Material passing No. 200 sieve	10 to 60 Percent
Maximum rock size	2 inches

Select fill should be placed in layers not exceeding 8 inches in loose thickness, moisture conditioned to wet of the optimum moisture content and compacted to a least 95 percent relative compaction of maximum dry density using standard effort (ASTM D698) or per FAA requirements (FAA, 2009).

5.4 Aggregate Base Quality and Compaction Standard

Aggregate base (for use in constructing new shoulders or to supplement the AC-AB blend described above) should be free of organic matter, and other deleterious material, and conform to the requirements described in Item P-209 (FAA, 2014). It should be spread in loose lifts of 6 to 8 inches thick, moisture conditioned to near optimum moisture content, and compacted to at least 100 percent relative compaction or per FAA requirements (FAA, 2009). The resulting subgrade should be maintained near its optimum moisture contents until covered by asphalt.

6.0 FUTURE GEOTECHNICAL SERVICES

During the design phase, we recommend that LACO review the construction drawings and specifications, to check that they conform to the intent of the recommendations presented in this report. During construction, LACO should observe subgrade preparation, observe fill placement and compaction, and perform field and laboratory tests to check that the work is performed in accordance with the project construction drawings and specifications.

7.0 LIMITATIONS

This memorandum has been prepared for the exclusive use of Mead & Hunt, its contractors and subconsultants, and appropriate public authorities for specific application to the project development. LACO has endeavored to comply with the generally accepted geotechnical engineering standard of care common to the local area, and makes no other warranty, express or implied.

The findings, analyses, and recommendations contained in this memorandum are based on data obtained from subsurface exploration and/or laboratory tests. The exploration methods used indicate subsurface conditions only at specific locations, only at the time they were observed, and only to the depths penetrated. Exploration locations cannot always be relied upon to accurately reflect stratigraphic variations, nor do they necessarily represent conditions at any other time or location.

The recommendations included in this memorandum are based in part on assumptions about subsurface conditions that may only be confirmed during earthwork. Accordingly, the validity of these recommendations is contingent upon LACO being retained to provide additional professional services during project design and construction. LACO cannot assume responsibility or liability for the adequacy of the Report recommendations when they are applied in the field unless LACO is retained to observe

construction. Please contact us to further discuss the extent of such observations required to check the validity of our recommendations.

This memorandum's findings, conclusions, or recommendations should not be used if the nature, design, or location of the proposed project development is changed. If changes are contemplated, LACO should be consulted to review their impact on the applicability of the findings, conclusions, or recommendations contained in this memorandum. Also, LACO will not be responsible for any claims, damages, or liability associated with any other party's interpretation of the subsurface data or reuse of this memorandum for other projects or at other locations without the express written authorization of LACO.

8.0 REFERENCES

- California Division of Mines and Geology (CDMG) Map Sheet9, scale 1:62,500, 1968, Geology of the Kelseyville quadrangle, Sonoma, Lake, and Mendocino Counties, California.
- California Geological Survey (CGS), 2006, Simplified Geologic Map of California.
- Jennings, C.W., and Strand, R.G., compilers, (1960), Geologic map of California, Ukiah Sheet: California Division of Mines & Geology, Olaf P. Jenkins edition, scale 1:250,000.
- United States Department of Transportation, Federal Aviation Administration (FAA), 2009, Airport Pavement Design and Evaluation, Advisory Circular No. 150/5320-6E, Sept 30.
- United States Department of Transportation, Federal Aviation Administration (FAA), 2014, Standards for Specifying Construction of Airports, CAN, 150/5370-10G, July 21.

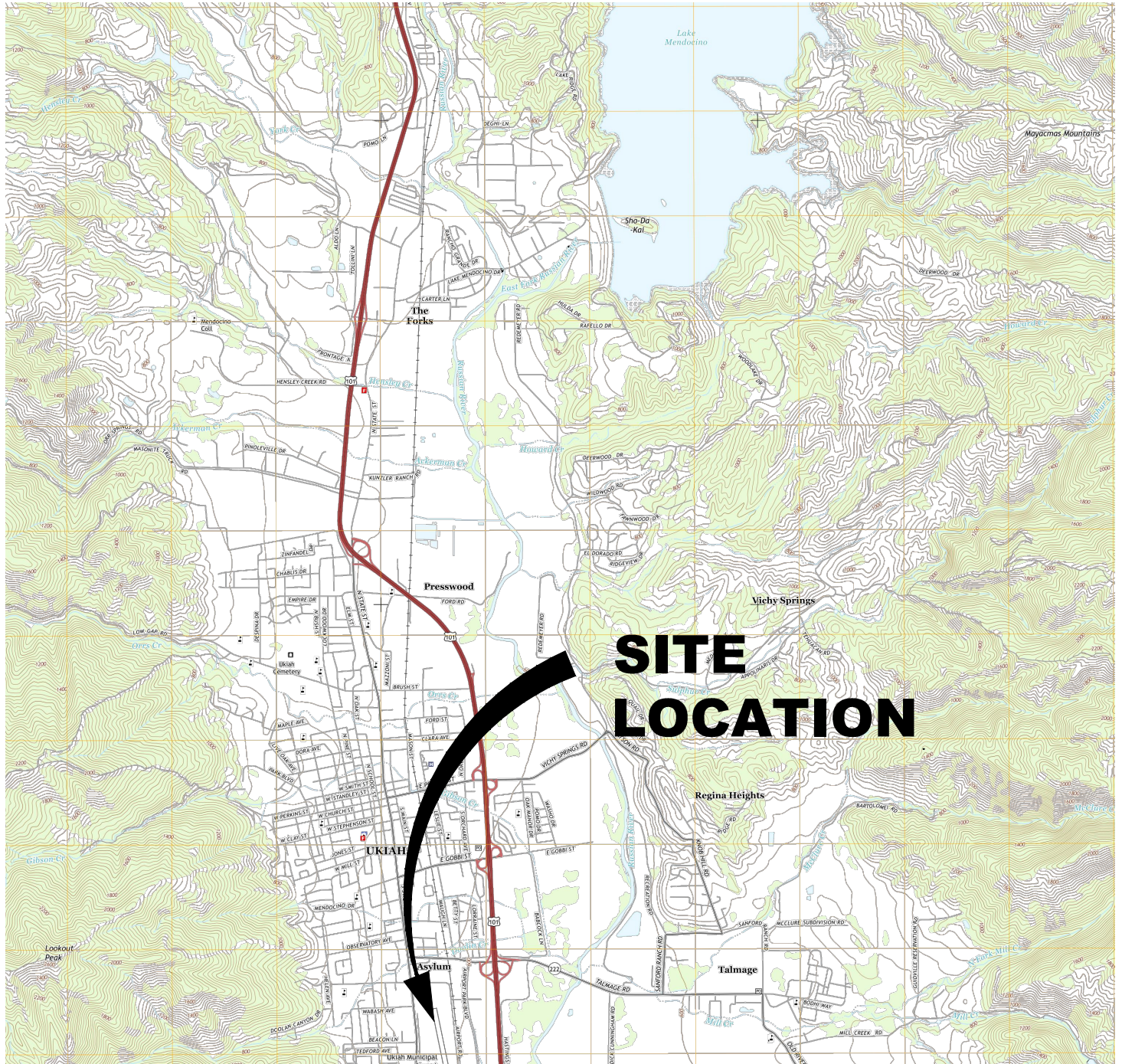
FIGURES

Figure 1 Site Vicinity Map

Figure 2 Site Map

PROJECT	UKIAH AIRPORT RUNWAY REHABILITATION	BY	SJM	FIGURE	1
CLIENT	MEAD & HUNT	DATE	5/18/17		
LOCATION	1475 S. STATE UKIAH, CA	CHECK	BAV	JOB NO.	7403.05
	SITE VICINITY MAP	SCALE	AS SHOWN		

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LEGEND:

THE MAP HEREIN WAS PROVIDED BY THE USGS NATIONAL MAP DATABASE.



SCALE: 1"=10000'



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PROJECT	UKIAH AIRPORT RUNWAY REHABILITATION	BY	SJM	FIGURE	2
CLIENT	MEAD & HUNT	DATE	5/18/17		
LOCATION	1475 S. STATE UKIAH, CA	CHECK	BAV	JOB NO.	7403.05
	SITE MAP	SCALE	AS SHOWN		

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Aug 04, 2017 - 9:01am
T:\Cadfiles\7400\7403.05 UKIAH AIRPORT\DWG\ Figure 2 - Site Map.dwg

APPENDIX 1

Boring Logs

BORING NUMBER B1

PAGE 1 OF 1



21 W. 4th Street, Eureka, California 95501 707 443-5054 Fax 707 443-0553
 311 Main Street, Ukiah, California 95482 707 462-0222 Fax 707 462-0223
 3450 Regional Parkway, Suite B2, Santa Rosa, California 95403 707 443-5054 Fax 707 443-0553
 www.lacoassociates.com

CLIENT <u>Mead & Hunt</u>	PROJECT NAME <u>Ukiah Runway Rehabilitation</u>
PROJECT NUMBER <u>7403.05</u>	PROJECT LOCATION <u>1475 S State St, Ukiah, CA</u>
DATE STARTED <u>5/1/17</u> COMPLETED <u>5/1/17</u>	GROUND ELEVATION <u>614 ft</u> HOLE SIZE <u>4 inches</u>
DRILLING CONTRACTOR <u>Pearson Drilling Co.</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>Solid Flight Auger</u>	AT TIME OF DRILLING <u>--- No Free Water Encountered</u>
LOGGED BY <u>BAV</u> CHECKED BY <u>JER</u>	AT END OF DRILLING <u>---</u>
NOTES <u>Surface: asphalt</u>	AFTER DRILLING <u>---</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION (in. = inches)	
0							
						0.6 7 in. AC-Asphalt Concrete	613.4
						1.4 9.5 in. AB-Aggregate Base	612.6
	MC	0	4-3-3 (6)	SC		(SC) Light Brown Clayey Sand with Gravel moist, loose fine to medium sand	
	MC	100	3-5-4 (9)				
						4.5	609.5

Bottom of borehole at 4.5 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 5/19/17 09:47 - P:\GINT FILES\PROJECTS\7403.05 UKIAH RUNWAY.GPJ

BORING NUMBER B2

PAGE 1 OF 1



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 3450 Regional Parkway, Suite B2, Santa Rosa, California 95403 707 443-5054 Fax 707 443-0553
 www.lacoassociates.com

CLIENT <u>Mead & Hunt</u>	PROJECT NAME <u>Ukiah Runway Rehabilitation</u>
PROJECT NUMBER <u>7403.05</u>	PROJECT LOCATION <u>1475 S State St, Ukiah, CA</u>
DATE STARTED <u>5/1/17</u> COMPLETED <u>5/1/17</u>	GROUND ELEVATION <u>609 ft</u> HOLE SIZE <u>4 inches</u>
DRILLING CONTRACTOR <u>Pearson Drilling Co.</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>Solid Flight Auger</u>	AT TIME OF DRILLING <u>--- No Free Water Encountered</u>
LOGGED BY <u>BAV</u> CHECKED BY <u>JER</u>	AT END OF DRILLING <u>---</u>
NOTES <u>Surface: asphalt</u>	AFTER DRILLING <u>---</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION (in. = inches)
0						
						0.5 6 in. AC-Asphalt Concrete 608.5
						1.4 11 in. AB-Aggregate Base 607.6
	MC	89	3-7-11 (18)	SC		(SC) Light Yellow Brown Clayey Sand with Gravel moist, medium dense fine to coarse sand, fine subrounded gravel
5						
						6.0 603.0

Bottom of borehole at 6.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 5/19/17 09:48 - P:\GINT FILES\PROJECTS\7403.05 UKIAH RUNWAY.GPJ

BORING NUMBER B3

PAGE 1 OF 1



21 W. 4th Street, Eureka, California 95501 707 443-5054 Fax 707 443-0553
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 www.lacoassociates.com

CLIENT <u>Mead & Hunt</u>	PROJECT NAME <u>Ukiah Runway Rehabilitation</u>
PROJECT NUMBER <u>7403.05</u>	PROJECT LOCATION <u>1475 S State St, Ukiah, CA</u>
DATE STARTED <u>5/1/17</u> COMPLETED <u>5/1/17</u>	GROUND ELEVATION <u>605 ft</u> HOLE SIZE <u>4 inches</u>
DRILLING CONTRACTOR <u>Pearson Drilling Co.</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>Solid Flight Auger</u>	AT TIME OF DRILLING <u>--- No Free Water Encountered</u>
LOGGED BY <u>BAV</u> CHECKED BY <u>JER</u>	AT END OF DRILLING <u>---</u>
NOTES <u>Surface: asphalt</u>	AFTER DRILLING <u>---</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION (in. = inches)	
0							
						0.6 7 in. AC-Asphalt Concrete	604.4
						1.3 8.5 in. AB-Aggregate Base	603.7
	MC	89	3-3-3 (6)	SC		(SC) Light Brown Clayey Sand with Gravel moist, loose fine to medium sand	
5						5.0	600.0

Bottom of borehole at 5.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 5/19/17 09:48 - P:\GINT FILES\PROJECTS\7403.05 UKIAH RUNWAY.GPJ

BORING NUMBER B4

PAGE 1 OF 1



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 3450 Regional Parkway, Suite B2, Santa Rosa, California 95403 707 443-5054 Fax 707 443-0553
 www.lacoassociates.com

CLIENT <u>Mead & Hunt</u>	PROJECT NAME <u>Ukiah Runway Rehabilitation</u>
PROJECT NUMBER <u>7403.05</u>	PROJECT LOCATION <u>1475 S State St, Ukiah, CA</u>
DATE STARTED <u>5/1/17</u> COMPLETED <u>5/1/17</u>	GROUND ELEVATION <u>602 ft</u> HOLE SIZE <u>4 inches</u>
DRILLING CONTRACTOR <u>Pearson Drilling Co.</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>Solid Flight Auger</u>	AT TIME OF DRILLING <u>--- No Free Water Encountered</u>
LOGGED BY <u>BAV</u> CHECKED BY <u>JER</u>	AT END OF DRILLING <u>---</u>
NOTES <u>Surface: asphalt</u>	AFTER DRILLING <u>---</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION (in. = inches)	
0							
						0.6 7 in. AC-Asphalt Concrete	601.4
						1.4 8.5 in. AB-Aggregate Base	600.6
	MC	89	4-4-4 (8)	SC		(SC) Light Brown Clayey Sand with Gravel moist, loose fine to medium sand	
5						5.0	597.0

Bottom of borehole at 5.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 5/19/17 09:48 - P:\GINT FILES\PROJECTS\7403.05 UKIAH RUNWAY.GPJ

BORING NUMBER B5

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 www.lacoassociates.com

CLIENT <u>Mead & Hunt</u>	PROJECT NAME <u>Ukiah Runway Rehabilitation</u>
PROJECT NUMBER <u>7403.05</u>	PROJECT LOCATION <u>1475 S State St, Ukiah, CA</u>
DATE STARTED <u>5/1/17</u> COMPLETED <u>5/1/17</u>	GROUND ELEVATION <u>600 ft</u> HOLE SIZE <u>4 inches</u>
DRILLING CONTRACTOR <u>Pearson Drilling Co.</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>Solid Flight Auger</u>	AT TIME OF DRILLING <u>--- No Free Water Encountered</u>
LOGGED BY <u>BAV</u> CHECKED BY <u>JER</u>	AT END OF DRILLING <u>---</u>
NOTES <u>Surface: asphalt</u>	AFTER DRILLING <u>---</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION (in. = inches)	
0							
						0.7 8 in. AC-Asphalt Concrete	599.3
						1.3 7 in. AB-Aggregate Base	598.8
	MC	89	3-7-11 (18)	CL		(CL) Olive Sandy Lean Clay moist, medium stiff	
						2.8 fine sand	597.3
				SM		(SM) Yellow Brown Silty Sand with Gravel (Old Alluvium) moist, dense	
5						5.0 fine to coarse sand, fine subrounded gravel	595.0
Bottom of borehole at 5.0 feet.							

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 5/19/17 09:48 - P:\GINT FILES\PROJECTS\7403.05 UKIAH RUNWAY.GPJ

BORING NUMBER B6

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CLIENT Mead & HuntPROJECT NAME Ukiah Runway RehabilitationPROJECT NUMBER 7403.05PROJECT LOCATION 1475 S State St, Ukiah, CADATE STARTED 5/1/17COMPLETED 5/1/17GROUND ELEVATION 601 ftHOLE SIZE 4 inchesDRILLING CONTRACTOR Pearson Drilling Co.

GROUND WATER LEVELS:

DRILLING METHOD Solid Flight AugerAT TIME OF DRILLING --- No Free Water EncounteredLOGGED BY BAVCHECKED BY JERAT END OF DRILLING ---NOTES Surface: asphaltAFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION (in. = inches)	
0							
						0.7 8 in. AC-Asphalt Concrete	600.3
						1.4 8.5 in. AB-Aggregate Base	599.6
	MC	89	3-4-8 (12)	CL		(CL) Olive Sandy Lean Clay moist, medium stiff fine sand	
	MC	89	8-17-24 (41)	CL		3.8 (CL) Yellow Brown Sandy Lean Clay with Gravel (Old Alluvium) moist, very stiff	597.3
5				CL		6.0 fine to coarse sand, fine subrounded gravel	595.0

Bottom of borehole at 6.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 5/19/17 09:48 - P:\GINT FILES\PROJECTS\7403.05 UKIAH RUNWAY.GPJ

BORING NUMBER B7

PAGE 1 OF 1



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 3450 Regional Parkway, Suite B2, Santa Rosa, California 95403 707 443-5054 Fax 707 443-0553
 www.lacoassociates.com

CLIENT <u>Mead & Hunt</u>	PROJECT NAME <u>Ukiah Runway Rehabilitation</u>
PROJECT NUMBER <u>7403.05</u>	PROJECT LOCATION <u>1475 S State St, Ukiah, CA</u>
DATE STARTED <u>5/1/17</u> COMPLETED <u>5/1/17</u>	GROUND ELEVATION <u>606 ft</u> HOLE SIZE <u>4 inches</u>
DRILLING CONTRACTOR <u>Pearson Drilling Co.</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>Solid Flight Auger</u>	AT TIME OF DRILLING <u>--- No Free Water Encountered</u>
LOGGED BY <u>BAV</u> CHECKED BY <u>JER</u>	AT END OF DRILLING <u>---</u>
NOTES <u>Surface: asphalt</u>	AFTER DRILLING <u>---</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION (in. = inches)
0						
						0.3 4 in. AC-Asphalt Concrete 605.7
						20 in. AB-Aggregate Base
						2.0 603.7
	MC	89	6-7-12 (19)	CL		(CL) Yellow Brown Sandy Lean Clay (Old Alluvium) moist, stiff
5						5.0 fine to medium sand, fine subrounded gravel 601.0

Bottom of borehole at 5.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 5/19/17 09:48 - P:\GINT FILES\PROJECTS\7403.05 UKIAH RUNWAY.GPJ

BORING NUMBER B8

PAGE 1 OF 1



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 311 Main Street, Ukiah, California 95482 707 462-0222 Fax 707 462-0223
 3450 Regional Parkway, Suite B2, Santa Rosa, California 95403 707 443-5054 Fax 707 443-0553
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CLIENT Mead & HuntPROJECT NAME Ukiah Runway RehabilitationPROJECT NUMBER 7403.05PROJECT LOCATION 1475 S State St, Ukiah, CADATE STARTED 5/1/17 COMPLETED 5/1/17GROUND ELEVATION 604 ft HOLE SIZE 4 inchesDRILLING CONTRACTOR Pearson Drilling Co.

GROUND WATER LEVELS:

DRILLING METHOD Solid Flight AugerAT TIME OF DRILLING --- No Free Water EncounteredLOGGED BY BAV CHECKED BY JERAT END OF DRILLING ---NOTES Surface: grassAFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0						
	MC	89	2-4-5 (9)	SM		(SM) Yellow Brown Silty Sand moist, medium dense fine to medium sand
5						

5.0

599.0

Bottom of borehole at 5.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 5/19/17 09:48 - P:\GINT FILES\PROJECTS\7403.05 UKIAH RUNWAY.GPJ

BORING NUMBER B9

PAGE 1 OF 1



21 W. 4th Street, Eureka, California 95501 707 443-5054 Fax 707 443-0553
 311 Main Street, Ukiah, California 95482 707 462-0222 Fax 707 462-0223
 3450 Regional Parkway, Suite B2, Santa Rosa, California 95403 707 443-5054 Fax 707 443-0553
 www.lacoassociates.com

CLIENT <u>Mead & Hunt</u>	PROJECT NAME <u>Ukiah Runway Rehabilitation</u>
PROJECT NUMBER <u>7403.05</u>	PROJECT LOCATION <u>1475 S State St, Ukiah, CA</u>
DATE STARTED <u>5/1/17</u> COMPLETED <u>5/1/17</u>	GROUND ELEVATION <u>611 ft</u> HOLE SIZE <u>4 inches</u>
DRILLING CONTRACTOR <u>Pearson Drilling Co.</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>Solid Flight Auger</u>	AT TIME OF DRILLING <u>--- No Free Water Encountered</u>
LOGGED BY <u>BAV</u> CHECKED BY <u>JER</u>	AT END OF DRILLING <u>---</u>
NOTES <u>Surface: asphalt</u>	AFTER DRILLING <u>---</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION (in. = inches)
0						
						0.4 5 in. AC-Asphalt Concrete 610.6
						1.8 16 in. AB-Aggregate Base 609.3
						(SC) Yellow Brown Clayey Sand with Gravel (Old Alluvium) moist, very dense fine to medium sand, fine subrounded gravel
5	MC	89	8-15-24 (39)	SC		5.0 606.0

Bottom of borehole at 5.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 5/19/17 09:48 - P:\GINT FILES\PROJECTS\7403.05 UKIAH RUNWAY.GPJ

BORING NUMBER B10

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 3450 Regional Parkway, Suite B2, Santa Rosa, California 95403 707 443-5054 Fax 707 443-0553
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CLIENT Mead & HuntPROJECT NAME Ukiah Runway RehabilitationPROJECT NUMBER 7403.05PROJECT LOCATION 1475 S State St, Ukiah, CADATE STARTED 5/1/17 COMPLETED 5/1/17GROUND ELEVATION 615 ft HOLE SIZE 4 inchesDRILLING CONTRACTOR Pearson Drilling Co.

GROUND WATER LEVELS:

DRILLING METHOD Solid Flight AugerAT TIME OF DRILLING --- No Free Water EncounteredLOGGED BY BAV CHECKED BY JERAT END OF DRILLING ---NOTES Surface: grassAFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0							
	MC	89	6-6-7 (13)	SC		(SC) Yellow Brown Silty Sand moist, medium dense fine to coarse sand	613.0
				SC		(SC) Yellow Brown Silty Sand with Gravel moist, medium dense fine to coarse sand, fine subrounded gravel	
5							610.0

Bottom of borehole at 5.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 5/19/17 09:48 - P:\GINT FILES\PROJECTS\7403.05 UKIAH RUNWAY.GPJ

APPENDIX 2

Laboratory Test Results

Laboratory Test Results

Project: Runway rehab
Project No.: 7403.05
Project Location: Ukiah Ca.
Client: Mead & Hunt

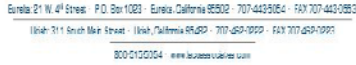
Sample Number	B1	B2	B3	B4	B5	B6	B6	B7	B8	
Depth, ft.	3.5	2.0	2.5	2.5	2.0	2.0	4.0	2.5	2.0	
Wet Soil	847.5	922.4	674.3	799.3	856.5	853.9	921.2	787.0	465.4	
Wet Soil + Tare(moisture)	1001.1	1078.3	828.4	872.4	928.6	926.4	993.3	860.3	543.0	
Dry Soil + Tare	886.8	927.9	730.8	764.2	802.5	772.4	870.8	754.1	483.0	
Tare Weight	153.3	156.1	154.1	72.9	72.5	72.1	72.0	73.6	77.7	
Moisture Content, %	15.6	19.5	16.9	15.7	17.3	22.0	15.3	15.6	14.8	
Sample Diameter, in.	2.41	2.42	2.40	2.38	2.37	2.43	2.40	2.42	2.38	
Cross-Sectional Area, in. ²	4.56	4.60	4.52	4.44	4.41	4.64	4.54	4.59	4.43	
Sample Height, in.	5.35	5.83	4.48	5.27	5.59	5.51	5.65	4.94	2.99	
Sample Volume, in. ³	24.40	26.81	20.26	23.41	24.64	25.54	25.63	22.66	13.24	
Unit Weight, Wet, pcf	132.3	131.1	126.8	130.0	132.3	127.4	136.9	132.3	133.9	
Unit Weight, Dry, pcf	114.5	109.7	108.4	112.4	112.9	104.5	118.7	114.4	116.6	

*

*

NOTE: * = Disturbed Sample

			Moisture Content and Unit Weight of Soil (ASTM D 2216 & D 2937)			PLATE
						1
PROJECT NUMBER	7403.05		DATE	5/8/2017		



Page	Project No.
1	7403.05

5/22/17

9/13/2017

Mead & Hunt, Inc.



GRAVEL=	6.8%
SAND=	37.5%
SILT=	34.9%
CLAY=	20.8%



Eureka 21 W. 4th Street P.O. Box 1023 Eureka, California 95502 707-443-5054 FAX 707-443-0853
 Ukiah 311 South Main Street Ukiah, California 95501 707-459-1999 FAX 707-459-1991
 800-512-0054 www.lacountywater.com

PARTICLE SIZE ANALYSIS WORKSHEET (ASTM D422)

Page

1

Project No.

7403.05

Project

Runway 15-33 Rehabilitation and
Taxiway Realignment Design

Tested By

BC

Date

5/22/17

Sample ID

B6 Comp

Client

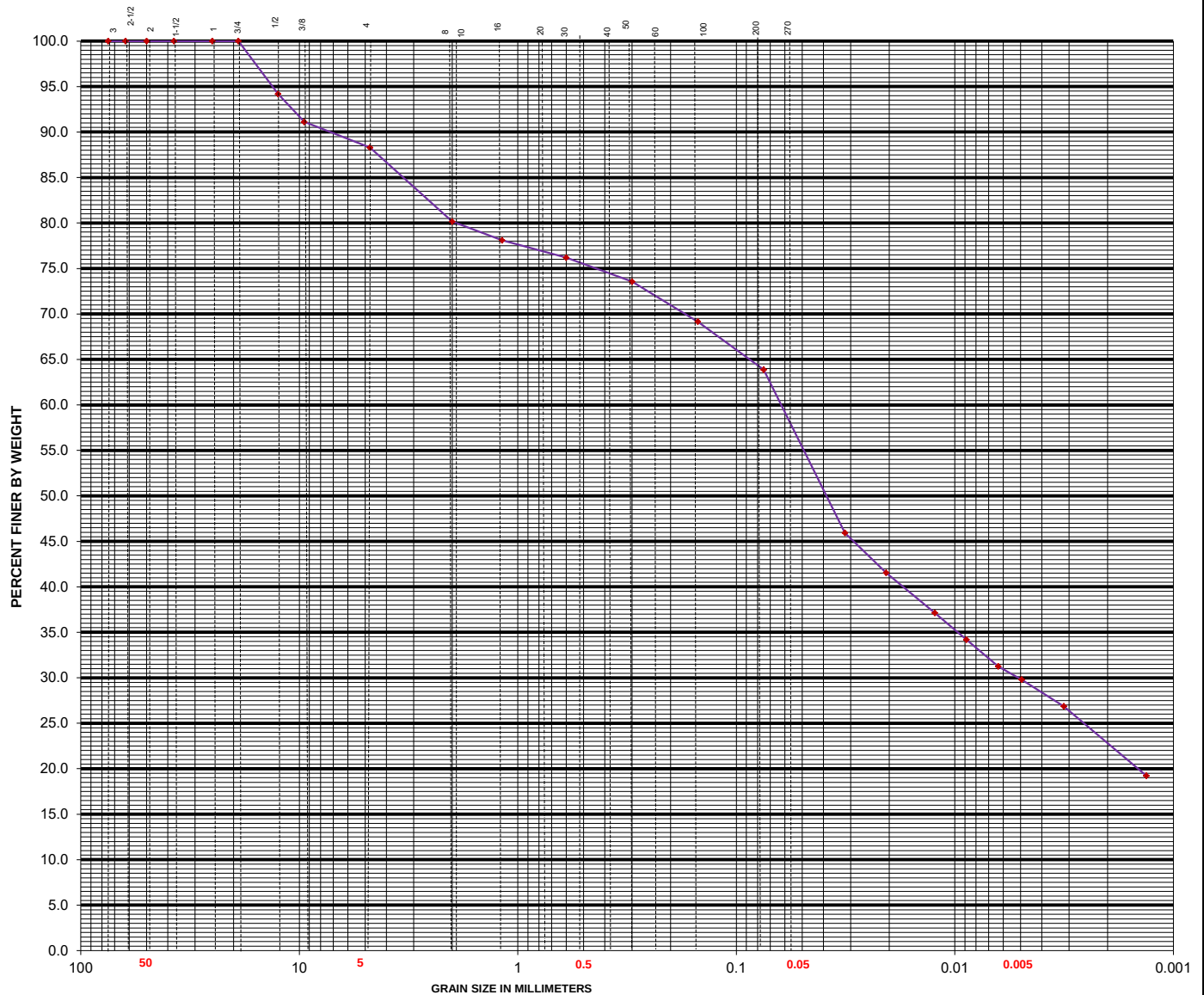
Mead & Hunt, Inc.

Checked By

BAV

Date

9/13/2017



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		
SAMPLE LOCATION					SOIL CLASSIFICATION		
<u>Ukiah Airport</u>							
GRAVEL= 11.7%					GRAVEL= passing 3" and retained on #4 sieve		
SAND= 24.4%					SAND= passing #4 sieve and retained on #200 sieve		
SILT= 34.1%					SILT= 0.074mm to 0.005mm		
CLAY= 29.8%					CLAY= smaller than 0.005mm		



Eureka 21 W. 4th Street P.O. Box 1023 Eureka, California 95502 707-443-9554 FAX 707-443-0993
 Ukiah 311 South Main Street Ukiah, California 95482 707-462-0222 FAX 707-462-0223
 800-515-0154 www.lacoinc.com

PARTICLE SIZE ANALYSIS WORKSHEET (ASTM D422)

Page

1

Project No.

7403.05

Project

Runway 15-33 Rehabilitation and
Taxiway Realignment Design

Tested By

BC

Date

5/22/17

Sample ID

B8 Comp

Client

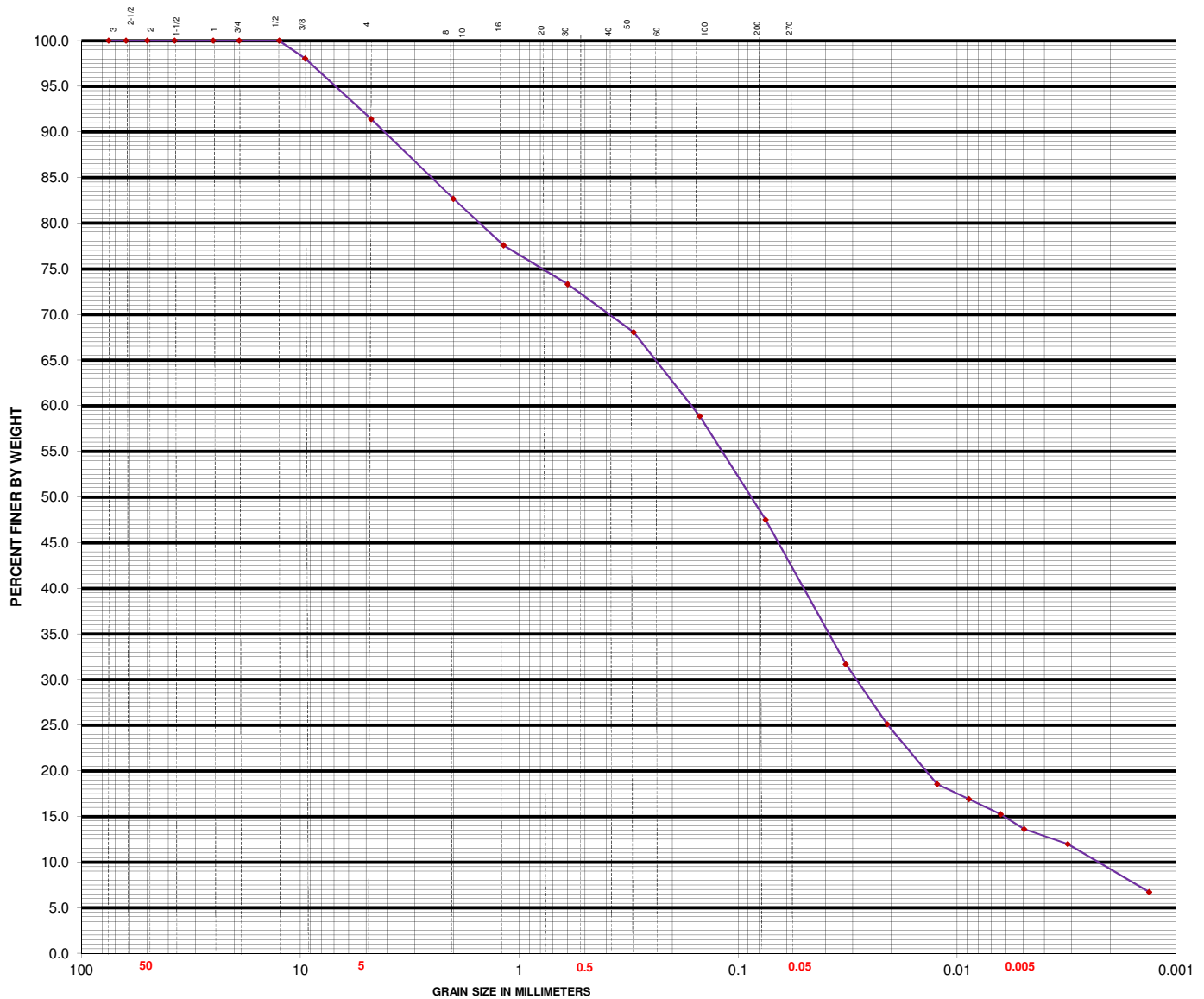
Mead & Hunt, Inc.

Checked By

BAV

Date

9/13/2017



ATTERBERG LIMITS ASTM D-4318

PROJECT	Runway 15-33 Rehabilitation and Taxiway Realignment Design	JOB NO.	7403.05	SHEET
CLIENT	Mead & Hunt, Inc	SAMPLE ID	B2 Comp	1 of 1
LOCATION	Ukiah Airport, Ukiah, California	TEST BY	BC	DATE 5/22/17
SOIL TYPE	Sandy Lean Clay	CHECKED BY	BAV	CHECK DATE 9/20/17

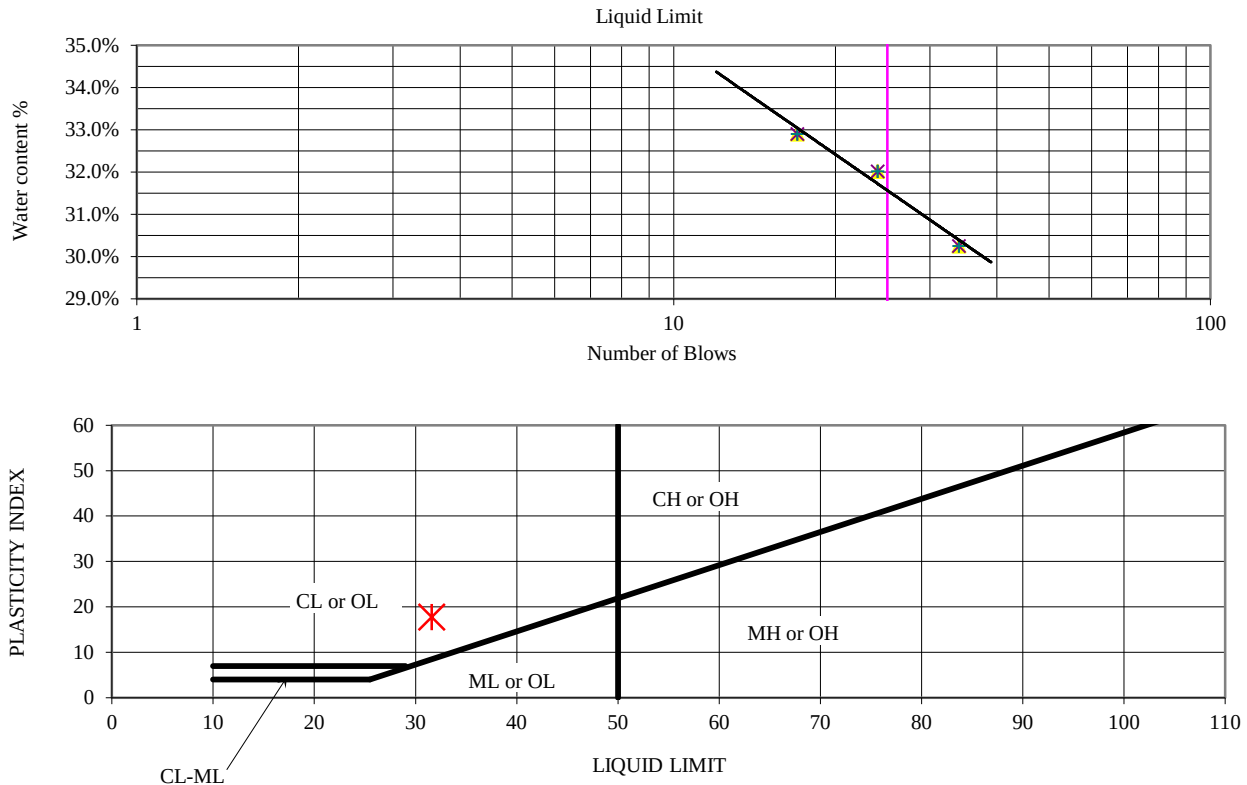
PLASTIC LIMIT

	Point 1	Point 2	Point 3
Tare + Wet Soil (gm)	27.71	26.83	26.34
Tare + Dry Soil (gm)	24.57	23.76	23.33
Water (gm)	3.14	3.07	3.01
Tare (gm)	14.19	14.17	14.18
Dry Soil (gm)	10.38	9.59	9.15
Water Content (%)	30%	32%	33%
* Number of Blows	34	24	17

* Groove closure = 13mm

Run 1	Run 2	Run 3
14.03	15.01	
13.19	14.04	
0.84	0.97	
7.10	7.05	
6.09	6.99	
14%	14%	

LIQUID LIMIT = 31.6
PLASTIC LIMIT = 13.8
PLASTICITY INDEX = 17.8



ATTERBERG LIMITS ASTM D-4318

PROJECT	Runway 15-33 Rehabilitation and Taxiway Realignment Design	JOB NO.	7403.05	SHEET
CLIENT	Mead & Hunt, Inc	SAMPLE ID	B6 Comp	1 of 1
LOCATION	Ukiah Airport, Ukiah, California	TEST BY	BC	DATE 5/22/17
SOIL TYPE	Sandy Lean Clay (CL)	CHECKED BY	SJM	CHECK DATE 8/4/17

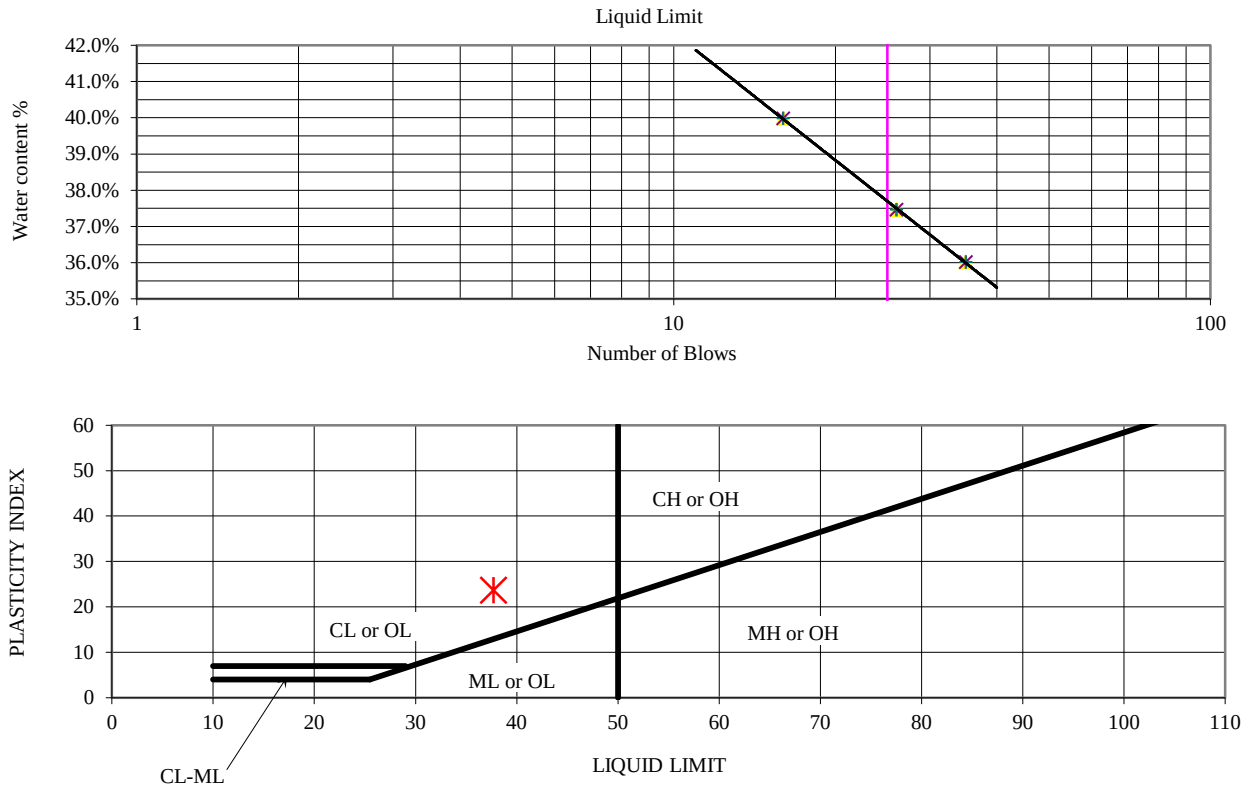
PLASTIC LIMIT

	Point 1	Point 2	Point 3
Tare + Wet Soil (gm)	26.33	26.31	26.99
Tare + Dry Soil (gm)	23.02	22.95	23.32
Water (gm)	3.31	3.36	3.67
Tare (gm)	13.83	13.98	14.14
Dry Soil (gm)	9.19	8.97	9.18
Water Content (%)	36%	37%	40%
* Number of Blows	35	26	16

* Groove closure = 13mm

Run 1	Run 2	Run 3
13.07	12.31	
12.33	11.67	
0.74	0.64	
7.09	7.08	
5.24	4.59	
14%	14%	

LIQUID LIMIT = 37.7
PLASTIC LIMIT = 14.0
PLASTICITY INDEX = 23.7



ATTERBERG LIMITS ASTM D-4318

PROJECT	Runway 15-33 Rehabilitation and Taxiway Realignment Design	JOB NO.	7403.05	SHEET
CLIENT	Mead & Hunt, Inc	SAMPLE ID	B8 Comp	1 of 1
LOCATION	Ukiah Airport, Ukiah, California	TEST BY	BC	DATE 5/22/17
SOIL TYPE	Silty Sand (SM)	CHECKED BY	BAV	CHECK DATE 9/19/17

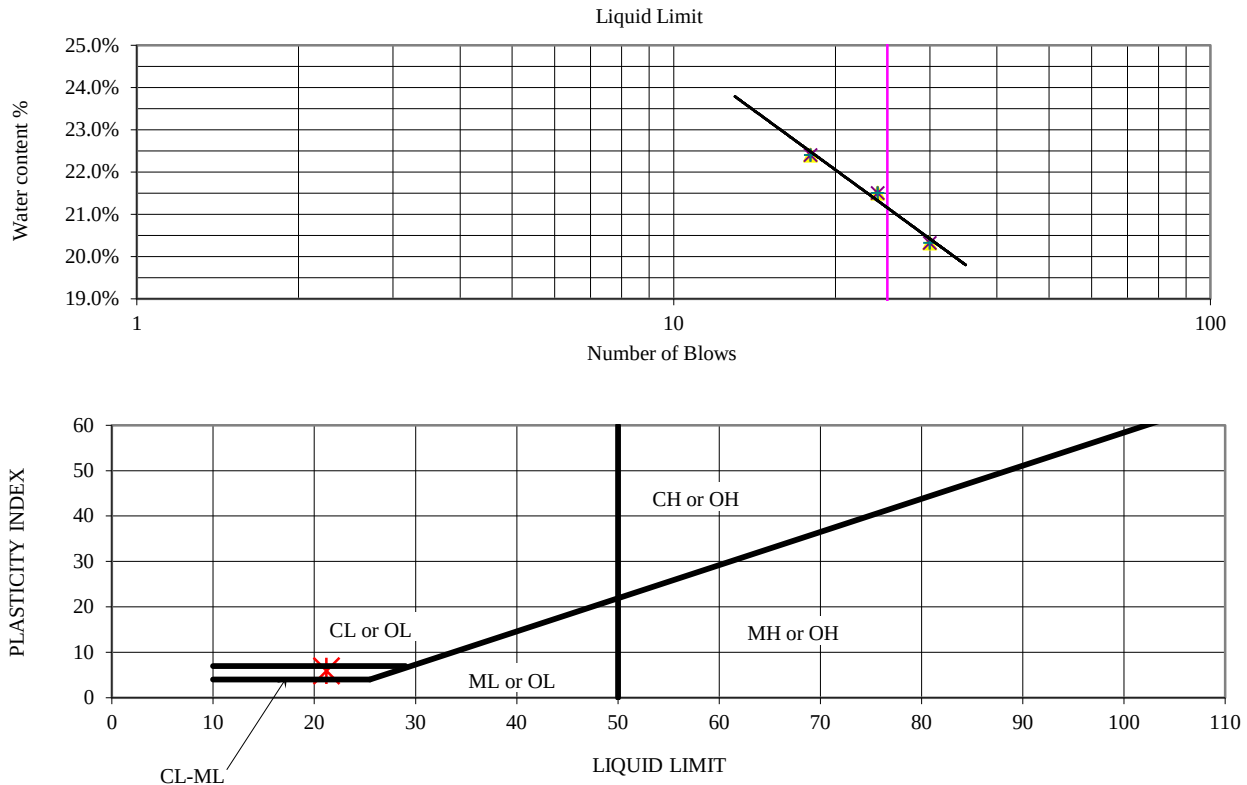
PLASTIC LIMIT

	Point 1	Point 2	Point 3
Tare + Wet Soil (gm)	24.36	25.03	25.00
Tare + Dry Soil (gm)	22.60	23.08	22.93
Water (gm)	1.76	1.95	2.07
Tare (gm)	13.94	14.01	13.69
Dry Soil (gm)	8.66	9.07	9.24
Water Content (%)	20%	21%	22%
* Number of Blows	30	24	18

* Groove closure = 13mm

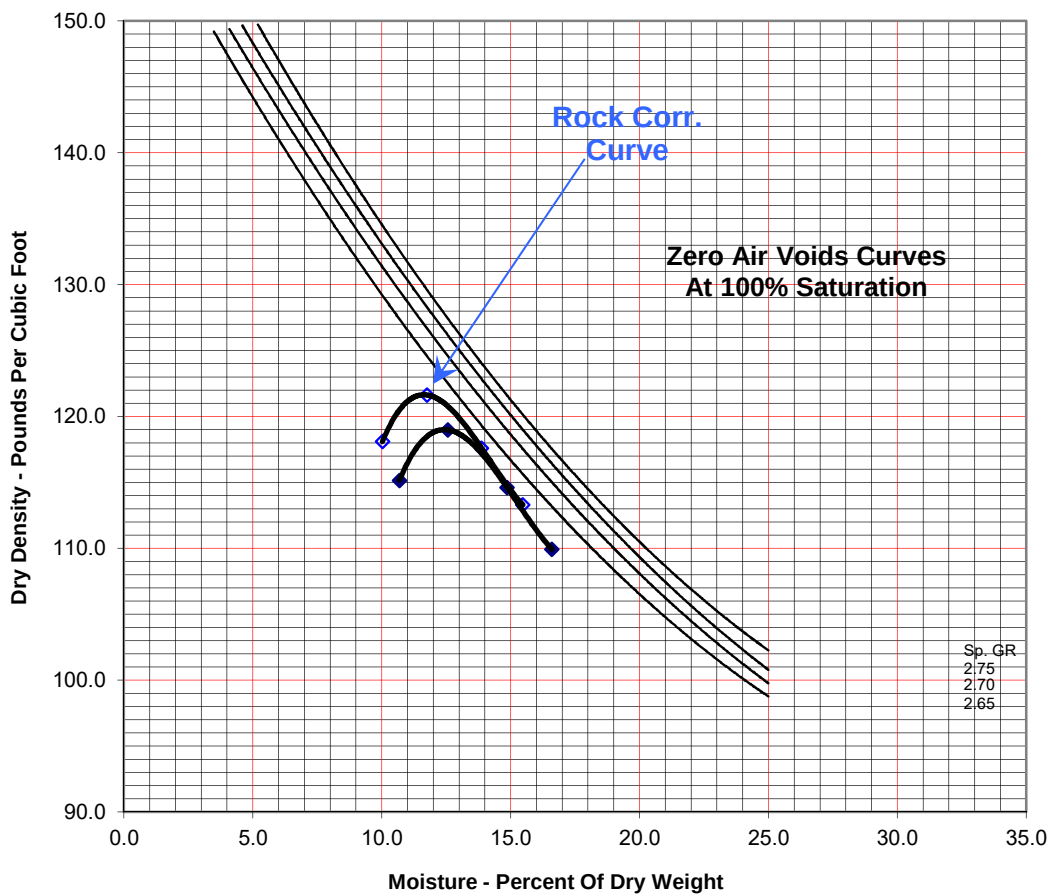
Run 1	Run 2	Run 3
14.32	15.35	
13.36	14.26	
0.96	1.09	
7.06	7.12	
6.30	7.14	
15%	15%	

LIQUID LIMIT = 21.2
PLASTIC LIMIT = 15.3
PLASTICITY INDEX = 5.9



Project Name: Runway Rehabilitation
Project No.: 7403.05
Sample No.: B8 Comp
Date Sampled.: 5/2/17
Material Description: Silty Sand with Gravel
Location: Ukiah Airport
Report Date: 5/10/2017

MAXIMUM DRY DENSITY(PCF)	121.5
OPTIMUM MOISTURE CONTENT (%)	11.5



Reviewed by: BAV

Note : Test performed in accordance with ASTM D 698 Method C

LACO

LABORATORY COMPACTION TEST DATA

PLATE

PROJECT NUMBER 7403.05

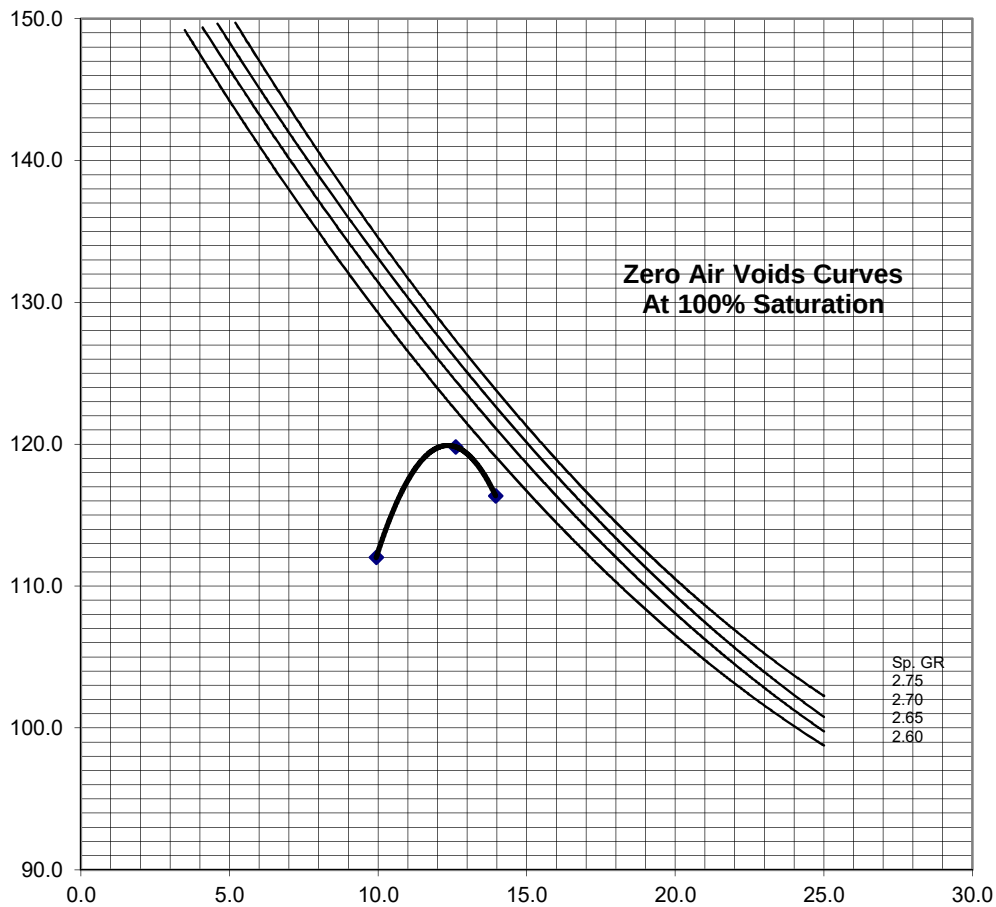
DATE 5/10/2017

Runway Rehabilitation

1

Project Name: Runway Rehabilitation
Project No.: 7403.05
Sample No.: B10 Comp
Date Sampled.: 5/2/2017
Material Description: native
Location: Ukiah Airport
Report Date: 5/11/2017

MAXIMUM DRY DENSITY(PCF)	120.0
OPTIMUM MOISTURE CONTENT (%)	12.0



Note : Test performed in accordance with ASTM D 698

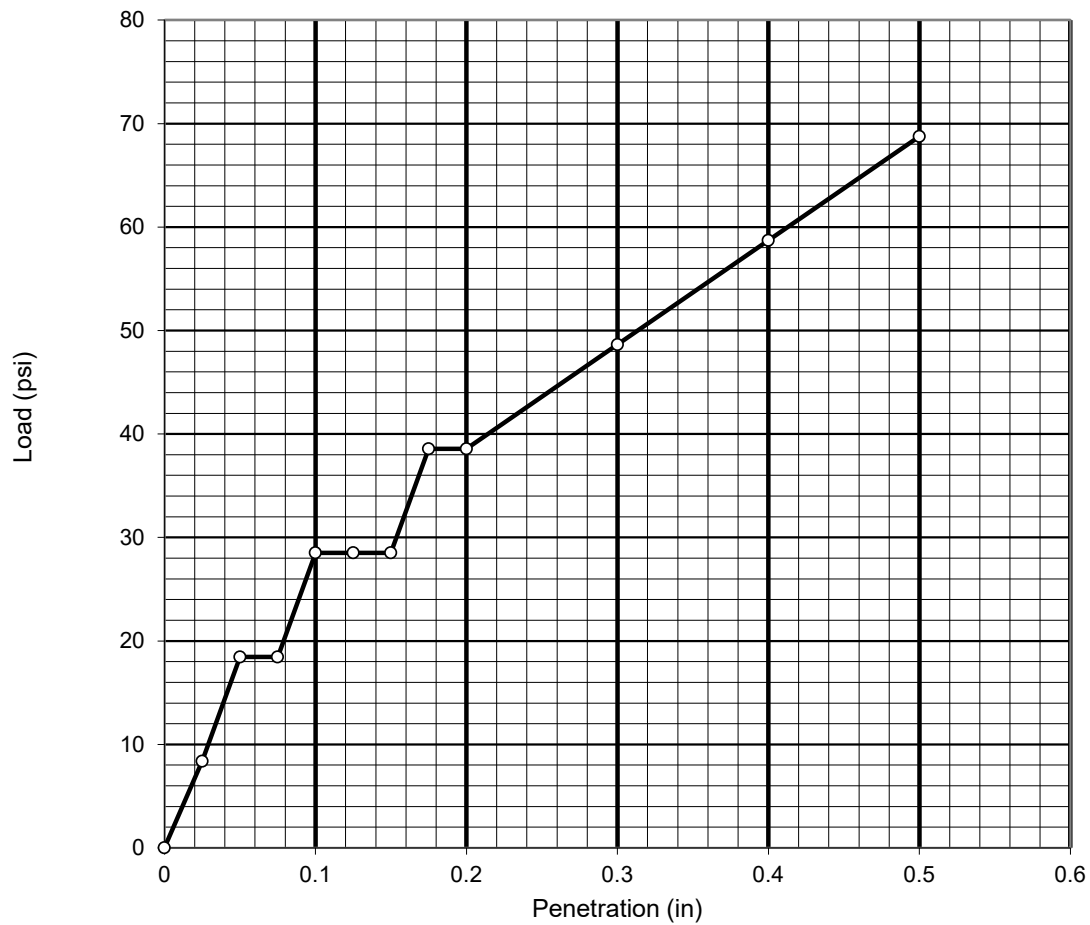
LACO		COMPACTION TEST DATA	PLATE
PROJECT NUMBER 7403.05 DATE 11-May-17		Runway Rehabilitation	1



CALIFORNIA BEARING RATIO TEST REPORT

ASTM D1883

Project No.	7403.05	Date Tested	9/11/2017
Project name	Runway Rehab	Material Type	Sandy Lean Clay with Gravel
Client	Mead and Hunt	Target Dry Density	109.7 pcf
Sample ID.	B2 Comp	Sample Dry Density	104.4 pcf
Reviewed by	BAV	Review Date	7/26/2017



Penetration	(in)	0.1	0.2
Std. Load	(psi)	28.5	38.6
Corr. Load	(psi)	N/A	N/A
CBR	%	1.0	0.9

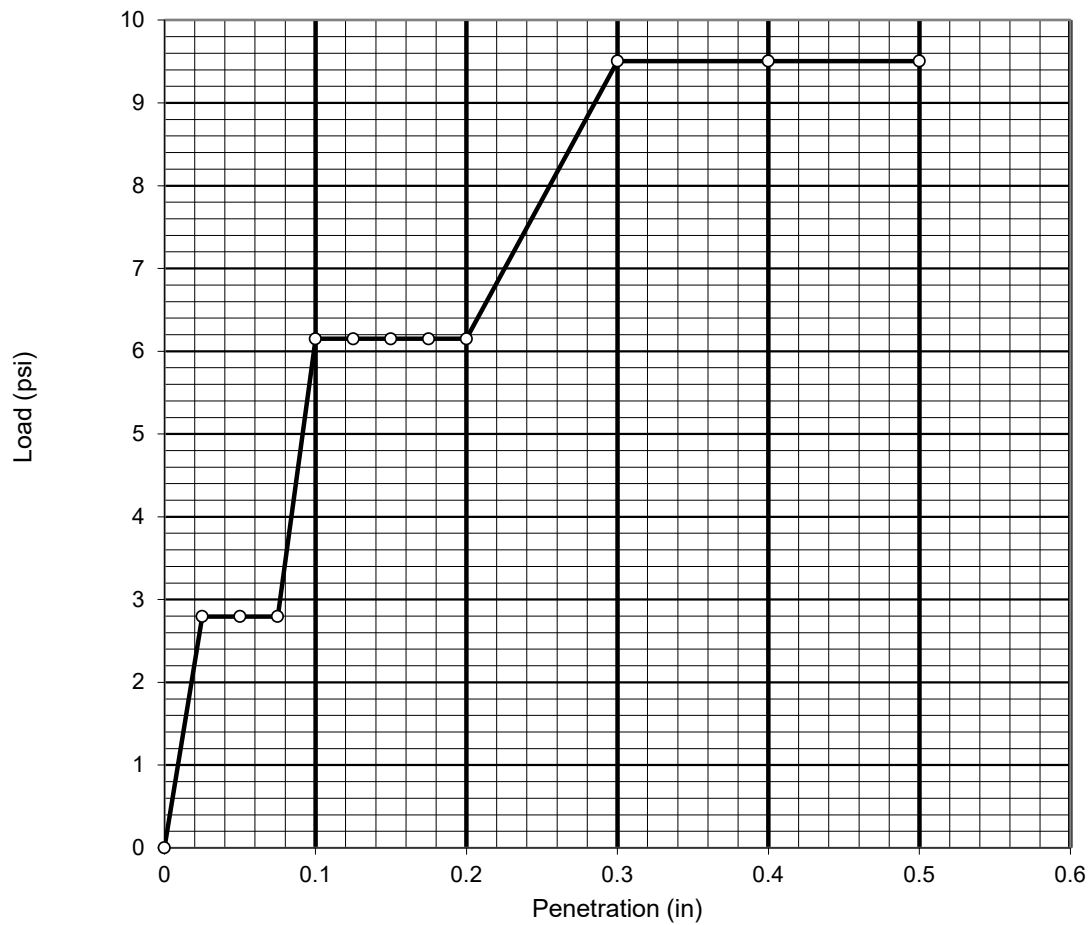
Swell	(%)	0.5
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CALIFORNIA BEARING RATIO TEST REPORT

ASTM D1883

Project No.	7403.05	Date Tested	8/23/2017
Project name	Runway Rehab	Material Type	Sandy Lean Clay
Client	Mead and Hunt	Target Dry Density	104.5 pcf
Sample ID.	B6 Comp	Sample Dry Density	90.6 pcf
Reviewed by	BAV	Review Date	9/19/2017



Penetration	(in)	0.1	0.2
Std. Load	(psi)	6.2	6.2
Corr. Load	(psi)	N/A	N/A
CBR	%	0.6	0.4

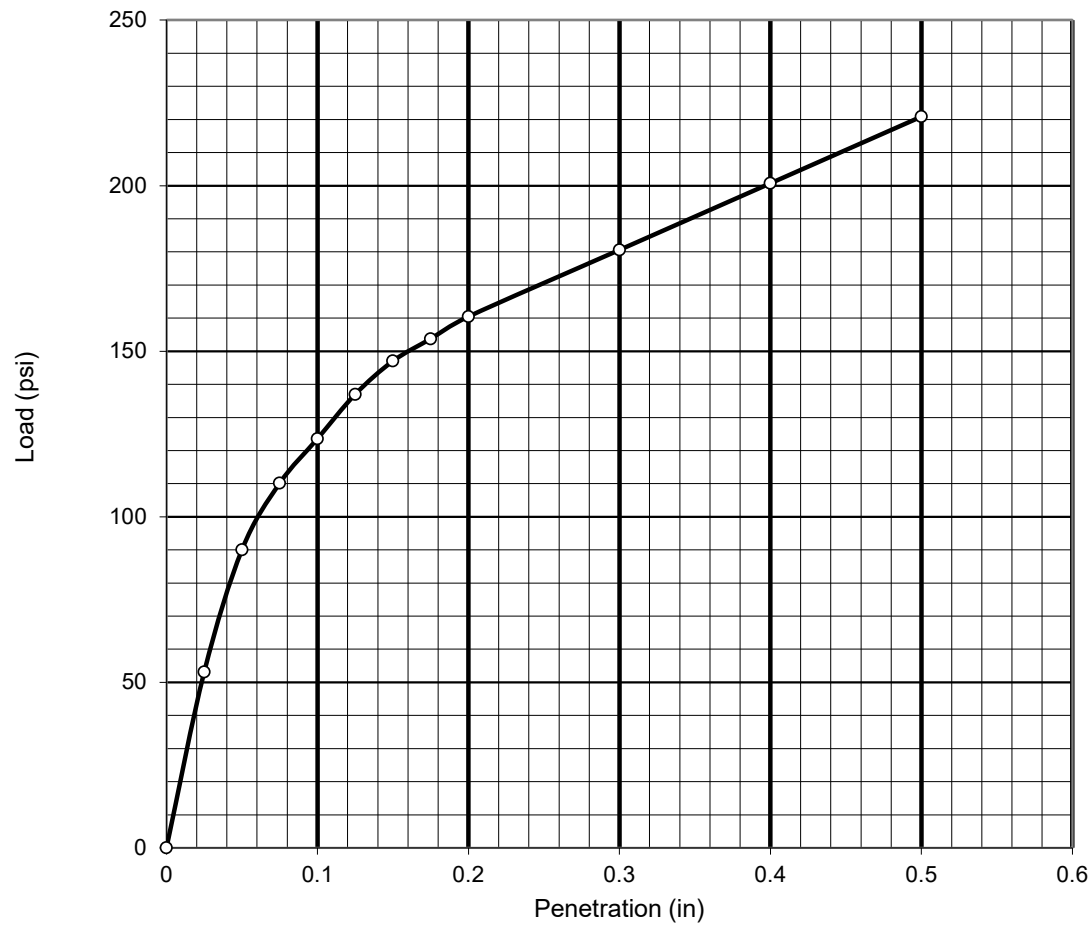
Swell	(%)	1.1
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CALIFORNIA BEARING RATIO TEST REPORT

ASTM D1883

Project No.	7403.05	Date Tested	5/23/2017
Project name	Runway Rehab	Material Type	Silty Sand
Client	Mead and Hunt	Target Dry Density	115.4 pcf
Sample ID.	B8 Comp	Sample Dry Density	114.3 pcf
Reviewed by	BAV	Review Date	7/26/2017



Penetration	(in)	0.1	0.2
Std. Load	(psi)	123.6	160.5
Corr. Load	(psi)	N/A	N/A
CBR	%	12	11

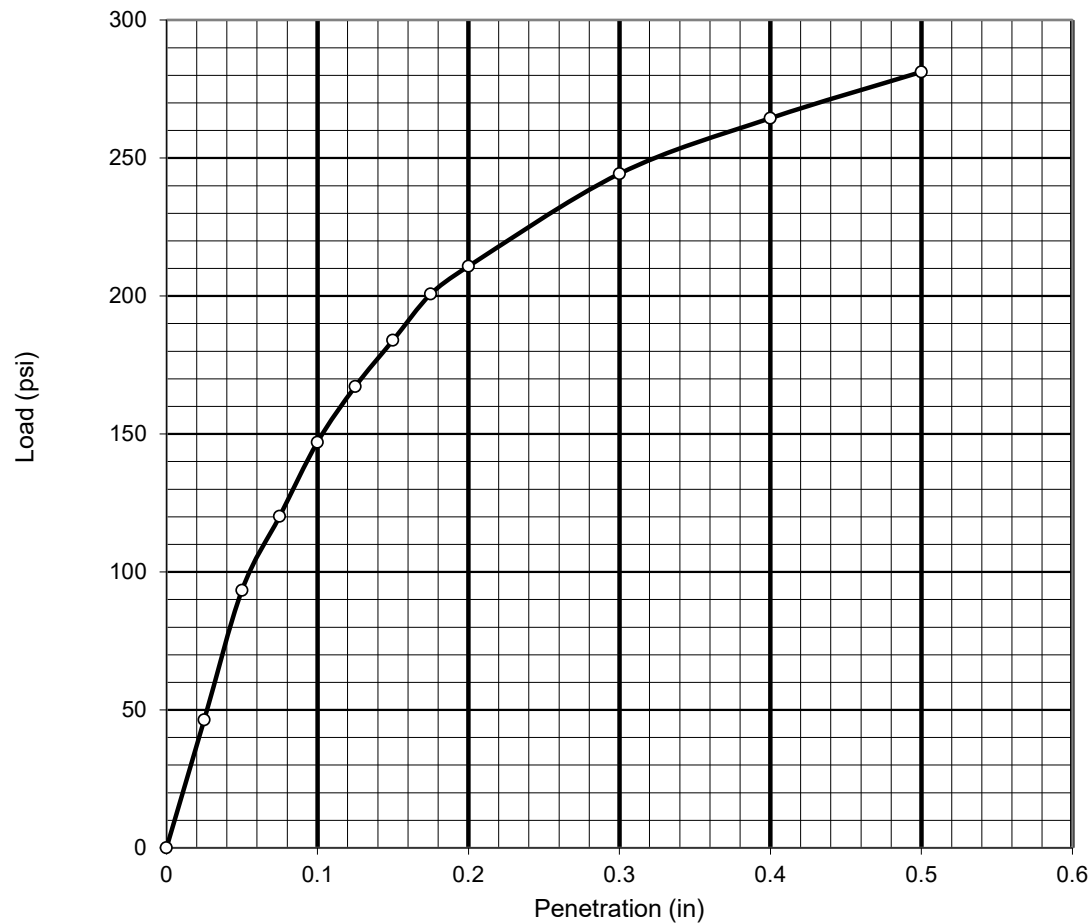
Swell	(%)	1.0
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CALIFORNIA BEARING RATIO TEST REPORT

ASTM D1883

Project No.	7403.05	Date Tested	5/2/2017
Project name	Runway Rehab	Material Type	Sandy Lean Clay
Client	Mead and Hunt	Target Dry Density	114.0 pcf
Sample ID.	B10 Comp	Sample Dry Density	117.3 pcf
Reviewed by	BAV	Review Date	7/26/2017



Penetration	(in)	0.1	0.2
Std. Load	(psi)	147.0	210.8
Corr. Load	(psi)	N/A	N/A
CBR	%	15	14

Swell	(%)	1.0
-------	-----	-----

SECTION 14. EXCLUSIONS FROM GENERAL CONDITIONS

14-01. Provisions to be Excluded from General Conditions. The following designated provisions of the General Conditions are hereby determined to be inapplicable to the proposed work and, therefore, are hereby excluded from the terms of the Notice to Bidders, Proposal, Agreement and other contract documents as though entirely omitted from said General Conditions:

- (1) Section 6-02. Office at the Site
- (2) Section 7-03. Surveys

No other exclusions.

SECTION 15. AMENDMENTS TO GENERAL CONDITIONS

15-01. Sections of General Conditions to be Amended.

The following designated sections of the Special Provisions are hereby amended to read as follows:

No amendments.

Proposal Forms

BID SUBMITTAL CHECKLIST

- _____ Proposal Form
- _____ Bidding Schedule (with amounts written in both figures and words)
- _____ Acknowledgment of receipt of addendum (at end of bid schedule)
Check the City website for any addenda issued: www.cityofukiah.com/purchasing
- _____ Fair Employment Practices Certification
- _____ Worker's Compensation Certificate
- _____ Certification of Nondiscrimination in Employment
- _____ List of Subcontractors
- _____ Statement of Experience
- _____ Signature of Bidder page
- _____ Bidder's Bond
- _____ Non-Collusion Declaration
- _____ Prohibition of Segregated Facilities
- _____ Certification of Bidder Regarding Affirmative Action Program
- _____ Certification Regarding Foreign Trade Restrictions
- _____ Certificate of Buy American d for Manufactured Products
- _____ Non-lobbying Certification
- _____ Suspension and Debarment Requirements Certification
- _____ Public Contract Code Sections 10285.1 Statement 10162 Questionnaire 10232 Statement
- _____ Drug-free Workplace Certification
- _____ Certification of Offerer/Bidder Regarding Tax Delinquency and Felony Convictions

BIDDER IS ALSO REQUIRED TO SUBMIT THE FOLLOWING WRITTEN STATEMENTS OF QUALIFICATIONS AT TIME OF BID:

_____ EVIDENCE OF COMPETENCY

Each bidder shall submit "evidence of competency" to the Owner at the time of bid opening (See FAA General Provisions Section 20-02 of the project Special Provisions for details).

_____ EVIDENCE OF FINANCIAL RESPONSIBILITY

Each bidder shall submit "evidence of financial responsibility" to the Owner at the time of bid opening (See FAA General Provisions Section 20-02 of the project Special Provisions for details).

**CITY OF UKIAH
MENDOCINO COUNTY, CALIFORNIA**

PROPOSAL

FOR

**UKIAH MUNICIPAL AIRPORT
RUNWAY 15-33 PAVEMENT REHABILITATION, PHASE 1**

Specification No. 19-11

FAA AIP No. 3-06-0268-0xx-2019

The undersigned, as bidder, declares that he or she has examined thoroughly all of the contract documents herein contained, that this proposal is made without collusion with any other person, firm or corporation and that all laws and ordinances relating to the interest of public officers in this contract have been complied with in every respect.

AND he or she proposes and agrees, if this proposal is accepted,

- 1) that he or she will contract with the City of Ukiah, Mendocino County, California, in the form of the copy of the agreement herein contained
 - a) to provide all necessary machinery, tools, apparatus and other means of construction;
 - b) to furnish all materials;
 - c) to provide all superintendence, overhead expenses and all labor and expenses of whatever nature necessary to complete the job in conformity with the specifications and drawings and other contract provisions herein or reasonably implied hereby or as necessary to complete the work in the manner and within the time named herein and according to the requirements and to the reasonable satisfaction of the City Engineer;
 - d) to pay all charges of freight transportation and hauling;
- 2) that he or she indemnifies the City against any loss or damage arising from any act of the undersigned as Contractor; and
- 3) that he or she will accept as full payment therefor the following sums:

BIDDING SCHEDULE

The bidder shall set forth a Unit price or Lump Sum Price for each item of Work for "Base Bid" and "Bid Alternates" (if applicable) as listed on the Bid Schedule in clearly legible figures and words, in the respective spaces provided for this purpose. This price shall include all materials, labor, mobilization efforts, and all incidentals required to complete the work for this Project.

If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit price written in words shall govern.

In the case of any discrepancy between the unit price and the total set forth for the item, the unit price shall prevail; provided, however, that if the amount set forth as a unit price is ambiguous, unintelligible or uncertain for any reason, or is omitted, or in the case of lump sum items, is not the same amount as the entry in the "Total" column, then the amount set forth in the "Total" column for the item shall prevail in accordance with the following:

1. As to lump sum items, the amount set forth in the "Total" column shall be the unit price;
2. As to unit basis items, the amount set forth in the "Total" column shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price.

The Total Base Bid shall be the sum of the items in the "Total" column. In case of discrepancy between the sum of the items in the "Total" column and the amount entered as Total Base Bid, the sum of the "Total" column items shall prevail. The bid comparison will be based on the sum of the items in the "total" column for each bidder.

The Unit prices for the various Construction Items below include all costs associated with the General Conditions, Special Provisions, Requirements of the Construction Contract, and represent the total, complete, in-place cost for each specific Construction Item in accordance with the Construction Documents, including all elements, work components, accessories, and connections, shown in applicable details or required to yield a complete, sound and functional component or system appropriate for its intended function, whether or not such is specifically described or listed in any description of measurement or payment. The total amount of the Construction items below shall represent the total and complete cost of the fully functional Project. All work not specifically listed below be required to complete the work of the various construction items and the cost of such shall be considered as included throughout the various unit prices indicated.

BID SCHEDULE
UKIAH MUNICIPAL AIRPORT
RUNWAY 15-33 PAVEMENT REHABILITATION PHASE 1
AIP NO. 3-06-0268-027-2019

BASE BID

ITEM NO.	SPEC REF.	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE		TOTAL Price (Figures)
					Figures	In Words (dollars & cents)	
1	SP-100-3.1	Airfield Safety and Traffic Control	LS	1	\$		\$
2	C-105-6.1	Mobilization	LS	1	\$		\$
3	SP-100-3.2	Construction Surveys	LS	1	\$		\$
4	SP-100-3.3	Implement Best Management Practices	LS	1	\$		\$
5	P-101-5.1	Pavement Removal	SY	900	\$		\$
6	P-101-5.2	Joint and Crack Repair	LF	26,700	\$		\$
7	P-101-5.3	Cold Milling, Full Depth	SY	36,200	\$		\$
8	P-101-5.4	Cold Milling, 4" Depth	SY	1,200	\$		\$

ITEM NO.	SPEC REF.	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE		TOTAL Price (Figures)
					Figures	In Words (dollars & cents)	
9	P-101-5.5	Recycled Shoulder Base	CY	140	\$		\$
10	P-101-5.6	Sawcut Asphalt Concrete Pavement	LF	9,700	\$		\$
11	P-620-5.1a	Surface Preparation	SF	25,500	\$		\$
12	T-901-5.1	Hydroseeding	ACRE	1	\$		\$
13	P-152-4.1	Unclassified Excavation	CY	340	\$		\$
14	P-155-8.1	Lime-Treated Subgrade	SY	36,900	\$		\$
15	P-209-5.1	Crushed Aggregate Base Course	CY	6,530	\$		\$
16	P-401-8.1	Asphalt Surface Course	TON	10,100	\$		\$
17	P-602-5.1	Emulsified Asphalt Prime Coat	TON	84	\$		\$
18	P-603-5.1	Emulsified Asphalt Tack Coat	TON	12	\$		\$

ITEM NO.	SPEC REF.	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE		TOTAL Price (Figures)
					Figures	In Words (dollars & cents)	
19	P-608-8.1	Emulsified Asphalt Seal Coat, P-608	SY	45,900	\$		\$
20	P-620-5.1b.1	Runway and Taxiway Marking, White	SF	26,900	\$		\$
21	P-620-5.1b.2	Runway and Taxiway Marking, Yellow	SF	4,800	\$		\$
22	P-620-5.1b.3	Runway and Taxiway Marking, Black	SF	7,400	\$		\$
23	SP-100-3.4	Remove and Salvage Existing Light Fixtures, (MIRL, MITL, MITHL) Remove Existing Base Can, Transformers and Conductors	EA	12	\$		\$
24	SP-100-3.5	Remove and Salvage Existing Light Fixtures, (MIRL, MITHL) Cap Existing Base Cans With Blank Cover	EA	14	\$		\$
25	SP-100-3.6	Remove and Demolish Existing MITL, Cap Existing Base Cans with Blank Cover	EA	15	\$		\$
26	SP-100-3.7	Remove Existing Illuminated Signs	EA	2	\$		\$
27	SP-100-3.8	Remove and Salvage Existing REILS	LS	1	\$		\$
28	L-108-5.1	No. 8 AWG, 5kV, L-824, Type C Cable, Installed in Trench, Duct Bank or Conduit	LF	3,450	\$		\$

ITEM NO.	SPEC REF.	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE		TOTAL Price (Figures)
					Figures	In Words (dollars & cents)	
29	L-108-5.2	No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Installed Above the Duct Bank or Conduit, Including Ground Rods/Connections/Terminations	LF	300	\$		\$
30	L-108-5.3	No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Installed in Trench, Including Ground Rods/Connections/Terminations	LF	520	\$		\$
31	L-110-5.1	Concrete Encased Electrical Duct Bank, 2-Way 2-inch	LF	125	\$		\$
32	L-110-5.2	Non-Encased Electrical Conduit, 1-Way 2-inch	LF	875	\$		\$
33	L-110-5.3	Concrete Encased Electrical Duct Bank, 1-Way 2-inch	LF	175	\$		\$
34	L-115-5.1	Electrical Junction Structure, L-868, Size D	EA	4	\$		\$
35	L-115-5.2	Electrical Pullbox, Size 1 (24"x36"x30"), Spring Loaded Lid	EA	2	\$		\$
36	L-125-5.1	Relocate Existing L-861E Elevated Threshold Light and transformer assembly to New L-867 Base Can	EA	8	\$		\$
37	L-125-5.2	Relocate Existing L-861 Elevated Runway Edge Light and Base Can, Complete	EA	4	\$		\$
38	L-125-5.3	L-861T Medium Intensity Elevated Taxiway Edge Light and Base Can, Complete	EA	21	\$		\$

ITEM NO.	SPEC REF.	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE		TOTAL Price (Figures)
					Figures	In Words (dollars & cents)	
39	L-125-5.4	L-858 Sign Size 1, 2 Module on New Base	EA	1	\$		\$
40	L-125-5.5	L-858 Sign Size 1, 3 Module on New Base	EA	1	\$		\$
TOTAL Base Bid in Figures							\$
Total Base Bid in Words:							

TOTAL BASE BID IN WORDS: _____

Acknowledgment of Addenda

Addendum No. Initial

Signature/Title

Company

Contractor's License Number/Expiration Date

NOTE: Contractor License Number and Expiration Date stated herein are made under penalty of perjury.

We, the undersigned, acknowledge that the City Council has reserved the right to reject any or all bids and to determine which proposal is, in its opinion, the lowest responsive bid from a responsible bidder and that which it deems in the best interest of the City to accept. We, the undersigned, further agree, if this proposal shall be accepted, to sign the agreement and to furnish the required bonds with satisfactory surety, or sureties, within fifteen (15) calendar days after written notice that the contract is ready for signature; and, if the undersigned shall fail to contract, as aforesaid, it shall be understood that he or she has abandoned the contract and that, therefore, this proposal shall be null and void and the proposal guaranty accompanying this proposal, or the amount of said guaranty, shall be forfeited to and become the property of the City. Otherwise, the proposal guaranty accompanying this proposal shall be returned to the undersigned.

Witness our hands this day of _____, 20____.

Licensed in accordance with an act providing for the registration of California Contractors License No. _____, expiration date _____.

THE CONTRACTOR'S LICENSE NUMBER AND EXPIRATION DATE STATED HEREIN ARE MADE UNDER PENALTY OF PERJURY.

Department of Industrial Relations Public Works Contractor Registration Number: _____

Signature of bidder or bidders, with business name, address, phone number and fax number:

Notice: In the case of a corporation, give below the addresses of the principal office thereof and names and addresses of the President, Secretary, Treasurer.

FAIR EMPLOYMENT PRACTICES CERTIFICATION

TO: _____

The undersigned, in submitting a bid for performing the following work by Contract, hereby certifies that he or she has or will meet the standards of affirmative compliance with the Fair Employment Practices requirements of the Special Provisions contained herein.

RUNWAY 15-33 PAVEMENT REHABILITATION, PHASE 1

(Signature of Bidder)

Business Mailing Address:

Business Location:

(The bidder shall execute the certification of this page prior to submitting his or her proposal.)

WORKER'S COMPENSATION CERTIFICATE

I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for Worker's Compensation or undertake self-insurance in accordance with the provisions of that code and I will comply with such provisions before commencing the performance of the work of this contract.

Witness my hand this _____ day of _____, 200_____

Signature of Bidder, with Business Address:

CERTIFICATION OF NONDISCRIMINATION IN EMPLOYMENT

Bidder's Statement On Previous Contracts Subject to EEO Clause (Reference 41 CFR § 60-1.4, Executive Order 11246)

Each bidder, prospective prime contractor, and proposed subcontractor must complete the following form:

The Bidder (Proposer) shall complete the following statement by checking the appropriate boxes.

The Bidder (Proposer) has ____ has not ____ participated in a previous contract subject to the equal opportunity clause prescribed by Executive Order 10925, or Executive Order 11114, or Executive Order 11246.

The Bidder (Proposer) has ____ has not ____ submitted all compliance reports in connection with any such contract due under the applicable filing requirements; and that representations indicating submission of required compliance reports signed by proposed subcontractors will be obtained prior to award of subcontracts.

If the Bidder (Proposer) has participated in a previous contract subject to the equal opportunity clause and has not submitted compliance reports due under applicable filing requirements, the Bidder (Proposer) shall submit a compliance report on Standard Form 100, "Employee Information Report EEO 1", prior to the award of contract.

Date

Signature and Title

LIST OF PROPOSED SUBCONTRACTORS

In compliance with the provisions of Sections 4100-4108 of the California Public Contract Code and any amendments thereof, each bidder shall set forth (a) the name and location of the place of business of each subcontractor who will perform work or labor or render service in or about the construction site or a subcontractor licensed by the State of California who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications in an amount in excess of one-half of 1 percent of the total bid and (b) the California Contractor License Number for each subcontractor, and (c) the portion of the work to be done by each subcontractor. (See General Conditions Section 1-09.) Include with the name of each sub-contractor their Department of Industrial Relations Public Works Contractor Registration Number.

SUBCONTRACTOR NAME	SUBCONTRACTOR LICENSE NUMBER	SUBCONTRACTOR DIR REGISTRATION NUMBER	SUBCONTRACTOR BUSINESS ADDRESS	DESCRIPTION OF WORK

The bidder is required to state below what work of similar magnitude or character he or she has done and to give references that will enable the City Council to judge of his or her experience, skill and business standing and his or her ability to conduct work as completely and rapidly as required under the terms of the contract.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

SIGNATURE(S) OF BIDDER

Accompanying this proposal is _____
(insert the words "cash (\$)", "cashier's check" or "bidder's bond", as the case may be) in an amount equal to at least 10 percent of the bid.

The names of all persons interested in the foregoing proposal as principals are as follows:

IMPORTANT NOTICE: If bidder or other interested person is a corporation, provide the legal name of corporation and also the names of the president, secretary, treasurer and manager thereof. If a co-partnership, provide the true name of firm and also the names of all individual co-partners composing the firm. If bidder or other interested person is an individual, provide the first and last names in full.

Licensed in accordance with an act providing for the registration of Contractors:

License No. _____, License Expiration Date _____.

Signature(s) of Bidder: _____

NOTE: If bidder is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation; if bidder is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts in behalf of the co-partnership; and if bidder is an individual, his or her signature shall be placed above. If a member of a partnership, a Power of Attorney must be on file with the Department prior to opening bids or submitted with the bid; otherwise, the bid will be disregarded as irregular and unauthorized.

Business address: _____

Place of residence: _____

Dated: _____

CITY OF UKIAH
Mendocino County, California

BIDDER'S BOND

KNOW ALL MEN BY THESE PRESENTS,

That we, _____

_____, as PRINCIPAL and

_____, as SURETY,

are held and firmly bound unto the City of Ukiah in the penal sum of 10 PERCENT OF THE TOTAL AMOUNT OF THE BID of the Principal above named, submitted by said Principal to the City of Ukiah, as the case may be, for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, to the City Clerk to which said bid was submitted, we bind ourselves, our heirs, executors, administrators and successors jointly and severally, firmly by these presents. In no case shall the liability of the surety hereunder exceed the sum of \$_____

THE CONDITION OF THIS OBLIGATION IS SUCH,

That whereas the Principal has submitted the above mentioned bid to the City of Ukiah, as aforesaid, for certain construction specifically described as follows, for which bids are to be opened at the Office of the City Clerk, Ukiah Civic Center, Ukiah, California, on July 10, 2019 for RUNWAY 15-33 PAVEMENT REHABILITATION, PHASE 1

NOW, THEREFORE, If the aforesaid Principal is awarded the contract and, within the time and manner required under the specifications, after the prescribed forms are presented to him or her for signatures, enters into a written contract, in the prescribed form, in accordance with the bid and files two bonds with the City of Ukiah, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this _____ day of _____, A.D. 20_____.

_____(Seal)

_____(Seal)

_____(Seal)

Principal

_____(Seal)

_____(Seal)

_____(Seal)

Surety

Address: _____

NON-COLLUSION AFFIDAVIT

Note: Bidder shall execute the affidavit on this page prior to submitting his or her bid.

To City Council, City of Ukiah:

The undersigned in submitting a bid for performing RUNWAY 15-33 PAVEMENT REHABILITATION, PHASE 1 by contract, being duly sworn, deposes and says:

that he or she has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract.

Signature(s) of Bidder

Business Address: _____

Place of Residence: _____

NOTARIZATION

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public in and for the County of _____, State of California.

My Commission Expires _____, 20 ____.

PROHIBITION of SEGREGATED FACILITIES

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(b) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

Date

Signature and Title

IRS Employer Identification Number

CERTIFICATION OF BIDDER REGARDING

AFFIRMATIVE ACTION PROGRAM

(REFERENCE: 41 CFR PART 60-4, EXECUTIVE ORDER 11246)

The bidder hereby certifies that he is in compliance with the Civil Rights Act of 1964, Executive Order No. 11246, Employment Practices Act, and any other applicable Federal and State laws and regulations relating to equal opportunity employment.

Bidder's Name: _____

Address: _____

Name and Title of Signer: _____

Date

Signature

NOTE: The contractor to whom the Contract is awarded shall submit a statement each month certifying that he is in conformance with the Affirmative Action Program.

CERTIFICATION REGARDING FOREIGN TRADE RESTRICTIONS

The contractor or subcontractor, 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 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 person 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;
- 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 in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor 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 said list for use on the project, the Federal Aviation Administration may direct through the Sponsor cancellation of the contract at no cost to the Government.

Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The contractor shall provide immediate written notice to the sponsor 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. The subcontractor agrees to provide written notice to the contractor if at any time it learns that its certification was 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 Federal Aviation Administration may direct through the Sponsor cancellation of the contract or subcontract for default at no cost to the 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 States 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.

Date

Signature

CERTIFICATE OF BUY AMERICAN COMPLIANCE FOR MANUFACTURED PRODUCTS

(Type 2 - Non-building construction projects, equipment acquisition projects)

PROJECT NAME:	
AIRPORT NAME:	
AIP NUMBER:	

This solicitation and any resulting contract(s) are subject to the Buy America requirements of 49 U.S.C. Section 50101. The bidder certifies it and all associated subcontractors will comply with the Buy American preferences established under Title 49 U.S.C. Section 50101 as follows:

U.S.C. Section 50101 - Buying goods produced in the United States

The contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP-funded projects are produced in the United States, unless the FAA has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

A bidder or offeror must submit the appropriate Buy America certification (below) with all bids or offers on AIP funded projects. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive.

Type of Certification is based on Type of Project:

There are two types of Buy American certifications.

- For projects for a facility, the Certificate of Compliance Based on Total Facility (Terminal or Building Project) must be submitted.
- For all other projects, the Certificate of Compliance Based on Equipment and Materials Used on the Project (Non-building construction projects such as runway or roadway construction; or equipment acquisition projects) must be submitted.

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101 by selecting one on the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by inserting a checkmark (✓) or the letter "X".

- ☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101 by:
- a) Only installing steel and manufactured products produced in the United States, or;
 - b) Installing manufactured products for which the FAA has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing, or;
 - c) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

1. To provide to the Owner evidence that documents the source and origin of the steel and manufactured product.
2. To faithfully comply with providing US domestic product

3. To furnish US domestic product for any waiver request that the FAA rejects
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

☐ The bidder or offeror hereby certifies it cannot comply with the 100% Buy American Preferences of 49 USC § 50101(a) but may qualify for either a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

1. To submit to the Owner within 15 calendar days of the bid opening, a formal waiver request and required documentation that support the type of waiver being requested.
2. That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination may result in rejection of the proposal.
3. To faithfully comply with providing US domestic products at or above the approved US domestic content percentage as approved by the FAA.
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 3 Waiver - The cost of the item components and subcomponents produced in the United States is more than 60% of the cost of all components and subcomponents of the "item". The required documentation for a type 3 waiver is:

- a) Listing of all product components and subcomponents that are not comprised of 100% US domestic content (Excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety)
- b) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly at place of manufacture.
- c) Percentage of non-domestic component and subcomponent cost as compared to total "item" component and subcomponent costs, excluding labor costs associated with final assembly at place of manufacture.

Type 4 Waiver – Total cost of project using US domestic source product exceeds the total project cost using non-domestic product by 25%. The required documentation for a type 4 of waiver is:

- a) Detailed cost information for total project using US domestic product
- b) Detailed cost information for total project using non-domestic product

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Signature _____
(Name of Bidder)

Date

(Name and Title of Signing Official)

**NON-LOBBYING CERTIFICATION
FOR FEDERAL AID CONTRACTS**

The bidder or offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- 1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the bidder or offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- 2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

**SUSPENSION AND DEBARMENT REQUIREMENTS
FOR ALL CONTRACTS OVER \$25,000
49 CFR PART 29**

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that at the time the bidder or offeror submits its proposal that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: <http://www.sam.gov>
2. Collecting a certification statement similar to the Certificate Regarding Debarment and Suspension (Bidder or Offeror), above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract

If the FAA later determines that a lower tier participant failed to tell a higher tier that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedy, including suspension and debarment.

Signature (Name of Bidder)

Date (Name and Title of Signing Official)

Business Address

PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT

In accordance with Public Contract Code Section 10285.1 (Chapter 376, Stats.1985), the Bidder hereby declares under penalty of perjury under the laws of the State of California that the

Bidder has _____ has not _____

been convicted within the preceding three years of any offenses referred to in that section including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "Bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The Bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE

In accordance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the Bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the Bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No _____ If the answer is yes, explain the circumstances in the following space.

PUBLIC CONTRACT SECTION 10232 STATEMENT

In accordance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

Note: The above Statement and Questionnaire are part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

STATE OF CALIFORNIA
DRUG-FREE WORKPLACE CERTIFICATION
STD. 21 (REV 12/93) Automated)

CERTIFICATION

I, the official named below, herby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

CONTRACTOR/BIDDER FIRM NAME	FEDERAL ID NUMBER
(Authorized Signature)	DATE EXECUTED
PRINTED NAME AND TITLE OF PERSON SIGNING	TELEPHONE NUMBER (Include Area Code)
TITLE	
CONTRACTOR/BIDDER FIRM'S MAILING ADDRESS	

The contractor or grant recipient named above hereby certifies with Government Code Section 8355 in matters relating to providing a drug-free workplace. The above named contractor or grant recipient will:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of controlled substance is prohibited and specifying actions to be taken against employees for violations, as required by Government Code Section 8355(a).
2. Establish a Drug-Free Awareness Program as required by Government Code 8355(b), to inform employees about all of the following:
 - (a) The Dangers of drug abuse in the workplace,
 - (b) The person's or organization's policy in maintaining a drug-free workplace,
 - (c) Any available counseling, rehabilitation and employee assistance programs, and
 - (d) Penalties that may be imposed upon employees for drug abuse violations.
3. Provide as required by Government Code 8355(c), that everyone who works on the proposed contract or grant:
 - (a) Will receive a copy of the company's drug-free policy statement, and
 - (b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract or grant.
4. At the election of the contractor or grantee, from and after the "Date Executed" and until _____ (NOT TO EXCEED 36 MONTHS), the state will regard this certificate as valid for all contracts or grants entered into between the contractor or grantee and this state agency without requiring the contractor or grantee to provide a new individual certificate for each contract or grant. If the contractor or grantee elects to fill in the blank date, then the terms of this certificate shall have the same force, meaning, effect and enforceability as if a certificate were separately, specifically, and individually provided for each contract or grant between the contractor or grantee and this state agency.

ADA Notice For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

CERTIFICATION OF OFFERER/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The applicant must complete the following two certification statements. The applicant must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

- 1) The applicant represents that it is (☐) is not (☐) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.
- 2) The applicant represents that it is (☐) is not (☐) is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twentyfour (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 U.S.C. § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

Date

Signature

Company Name

Title

Sample Forms

CITY OF UKIAH
Mendocino County, California

AGREEMENT

FOR

RUNWAY 15-33 PAVEMENT REHABILITATION, PHASE 1

Specification No. 19-11

THIS AGREEMENT, made this _____ day of _____, 20____, by and between the City of Ukiah, Mendocino County, California, hereinafter called the City and _____ hereinafter called the Contractor,

WITNESSETH:

WHEREAS, the City has caused to be prepared in accordance with law, specifications, drawings and other contract documents for the work herein described and shown and has approved and adopted these contract documents, specifications and drawings and has caused to be published in the manner and for the time required by law a notice to bidders inviting sealed proposals for doing the work in accordance with the terms of this contract and

WHEREAS, the Contractor, in response to the notice to bidders, has submitted to the City a sealed proposal accompanied by a proposal guaranty in an amount of not less than 10 percent of the bid price for the construction of the proposed work in accordance with the terms of this contract and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined and canvassed the proposals submitted and as a result has determined and declared the Contractor to be the lowest and best regular responsible bidder for the work and for the sums named in the proposal,

NOW, THEREFORE, THIS AGREEMENT WITNESSETH:

Article 1. Work to be Done and Contract Days Allowed.

That the Contractor shall provide all necessary machinery, tools, apparatus and other means of construction; shall furnish all materials, superintendence, overhead, expenses, all labor and expenses of whatever nature necessary for completion of the work in conformity with the Special Provisions and other contract documents hereto attached and according to such instructions as may be given by the Engineer. The Contractor shall complete the work within Sixty-Eight (68) calendar days. Contract days shall be counted starting with the 10th day following receipt of notice that the contract has been executed by the City. Contractor, at his or her option, may begin work prior to start of counting contract days, however, in no event shall the Contractor start work without giving notification to the Engineer at least 72 hours prior to the start of work, without obtaining an encroachment permit from the City, or without having submitted certificates of insurance that have been accepted and approved by the Engineer

Article II. Contract Prices.

That the City shall pay the Contractor the prices stated in the proposal submitted by the Contractor, for complete performance of the contract by the Contractor. The Contractor hereby agrees to accept the prices as full compensation for all material and appliances necessary to the work, for all labor and use of tools and other implements necessary to execute the work contemplated in this contract; for all loss or damage arising out of the nature of the work or from the action of the elements, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the work; for all risks of every description connected therewith; for all expenses of the work, as herein specified; for all liability and other insurance, for all overhead and other

expenses incident to the work; all according to the Contract Drawings, the Special Provisions, the Details, the instructions and the requirements of the City.

Article III. Labor Discrimination.

Attention is directed to Section 1735 of the Labor Code, which reads as follows:

"No discrimination shall be made in the employment of persons upon public works because of the race, color, national origin or ancestry, or religion of such persons and every contractor for public works violating this section is subject to all the penalties imposed for a violation of this chapter."

In connection with the performance of work under this contract, the Contractor agrees as follows:

- (a) The Contractor will not willfully discriminate against any employee or an applicant for employment because of race, color, religion, ancestry, or national origin. The Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, ancestry, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the awarding authority setting forth the provisions of this Fair Employment Practice section.
- (b) The Contractor will send to each labor union or representative of workers with which he or she has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the awarding authority, advising the said labor union or worker's representative of the Contractor's commitments under this section, to employees and applicants for employment.
- (c) The Contractor will permit access to his or her records of employment, employment advertisements, application forms and other pertinent data and records by the Fair Employment Practices Commission, City of Ukiah or any other appropriate agency of the State of California designated by the awarding authority, for the purposes of investigation to ascertain compliance with the Fair Employment Practices section of this contract.
- (d) A finding of willful violation of the Fair Employment Practices section of this Contract or of the Fair Employment Practices Act shall be regarded by the awarding authority as a basis for determining the Contractor to be not a "responsible bidder" as to future contracts for which such Contractor may submit bids, for revoking the Contractor's pre-qualification rating, if any and for refusing to establish, reestablish or renew a pre-qualification rating for the Contractor.

The City of Ukiah shall deem a finding of willful receipt of written notice from the Fair Employment Practices Act to have occurred upon that it has investigated and determined that the Contractor has violated the Fair Employment Practices Act and has issued an order under Labor Code Section 1426 or obtained an injunction under Labor Code Section 1429.

Upon receipt of such written notice from the Fair Employment Practices Commission, the City shall notify the Contractor that unless he or she demonstrates to the satisfaction of the awarding authority within a stated period that the violation has been corrected, his or her pre-qualification rating will be revoked at the expiration of such period.

- (e) The Contractor agrees that should the City determine that the Contractor has not complied with the Fair Employment Practices section of this Contract, then pursuant to Labor Code Section 1735 and 1775 the Contractor shall, as a penalty to the City, forfeit for each calendar day or portion thereof, for each person who was denied employment as a result of such non-compliance, the penalties provided in the Labor Code for violation of prevailing wage rates. Such monies may be recovered from the Contractor. The City may deduct any such damages from any monies due the Contractor.

- (f) Nothing contained in this Fair Employment Practices section shall be construed in any manner of fashion so as to prevent the City or the State of California from pursuing any other remedies that may be available at law.
- (g) Prior to awarding the Contract, the Contractor shall certify to the awarding authority that he or she has or will meet the following standards for affirmative compliance, which shall be evaluated in each case by the awarding authority:
 - (1) The Contractor shall provide evidence, as required by the City that he or she has notified all supervisors, foremen and other personnel officers in writing of the content of the anti-discrimination clause and their responsibilities under it.
 - (2) The Contractor shall provide evidence, as required by the City, that he or she has notified all sources of employees' referrals (including unions, employment agencies, advertisements, Department of Employment) of the content of the anti-discrimination clause.
 - (3) The Contractor shall file a basic compliance report, as required by the City. Willfully false statements made in such reports shall be punishable as provided by law. The compliance report shall also spell out the sources of the work force and who has the responsibility for determining whom to hire, or whether or not to hire.
 - (4) Personally, or through his or her representatives, the Contractor shall, through negotiations with the unions with whom he or she has agreements, attempt to develop an agreement which will:
 - a. Spell out responsibilities for nondiscrimination in hiring, referral, upgrading and training.
 - b. Otherwise implement an affirmative anti-discrimination program in terms of the unions' specific areas of skill and geography to the end that qualified minority workers will be available and given and equal opportunity for employment.
 - (5) The Contractor shall notify the City of opposition to the anti-discrimination clause by individuals, firms or organizations during the period of its pre-qualification.
- (h) The Contractor will include the provisions of the foregoing paragraphs 1 through 5 in every first tier subcontract so that such provisions will be binding upon each such subcontractor.
- (i) The "Fair Employment Practices Certification" must be completed and signed prior to the time of submitting the bid.

Article IV. Parts of the Contract.

That the complete contract consists of the following documents, all of which shall be considered a part of this agreement.

- 1. Notice to Bidders
- 2. Wage Rates
- 3. General Conditions
- 4. Technical Specifications
- 5. Proposal
- 6. Fair Employment Practices Certification
- 7. Agreement
- 8. Contract Bonds
- 9. Contract Drawings and Construction Details
- 10. Standard Drawings
- 11. Indemnification Agreement

IN WITNESS WHEREOF, this contract being executed in duplicate and the parties having caused their names to be signed by authority of their duly authorized office this ____ day of _____, 20 ____.

CITY OF UKIAH, MENDOCINO COUNTY, CALIFORNIA

By: _____
CITY MANAGER, CITY OF UKIAH

Attest: _____
CITY CLERK, CITY OF UKIAH

By: _____
CONTRACTOR

Attest: _____

Title: _____

The foregoing contract is approved as to form and legality this ____ day of _____, 20 ____.

CITY ATTORNEY, CITY OF UKIAH

INDEMNIFICATION AGREEMENT

This Indemnification Agreement is made and entered in Ukiah, California, on _____, 20____,
by and between the City of Ukiah (Ukiah) and _____ (Contractor).

Contractor is

_____ for Ukiah.

As a condition of issuing the work order, attached hereto, Ukiah requires assurance that Contractor will protect Ukiah from damage or damage claims which arise from its performance of the work.

Accordingly, Contractor agrees as follows:

1. **Indemnification.** Contractor shall indemnify and hold harmless Ukiah and its officers, agents, and employees from and against any claim, loss, or damage, including the legal and other costs of defending against any claim of damage or loss which arises out of the Contractor's negligent or wrongful performance under the work order attached hereto, except for claims, losses, or damages resulting from the sole and exclusive negligence or other wrongful conduct of Ukiah or its officers, agents and employees.

CONTRACTOR

BY: _____

TITLE: _____

CITY OF UKIAH
Mendocino County, California

FAITHFUL PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS,

That we the undersigned, _____

AS PRINCIPAL, and

AS SURETY,

are held firmly bound unto **THE CITY OF UKIAH**, hereinafter called the "City", in the penal sum of

_____dollars (\$_____) for the payment of which sum we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally.

WHEREAS, the Principal has entered into a certain Contract with the City, dated _____, 20____, a copy of which is hereto attached and made a part hereof,

NOW, THEREFORE, the condition of this obligation is such that if the Principal shall in all respects fully perform the Contract and all duly authorized modifications thereof, during its original term and any extensions thereof that may be granted and during any guaranty period for which the Contract provides, and if the Principal shall fully satisfy all claims, arising out of the prosecution of the work under the Contract and shall fully indemnify the City for all expenses which it may incur by reason of such claims, including its attorney's fees and court costs, and if the Principal shall make full payment to all persons supplying labor, services, materials, or equipment in the prosecution of the work under the Contract, in default of which such persons shall have a direct right of action hereupon; and if the Principal shall pay or cause to be paid all sales and use taxes payable as a result of the performance of the Contract as well as payment of gasoline and special motor fuels taxes in the performance of the Contract and all motor vehicle fees required for commercial motor vehicles used in connection with the performance of the Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect. No modification of the Contract or extension of the term thereof, nor any forbearance on the part of the City shall in any way release the Principal or the Surety from liability hereunder. Notice to the Surety of any such modification, extension, or forbearance is hereby waived.

IN WITNESS WHEREOF, the aforesaid Principal and Surety have executed this instrument and affixed their seals hereto, this _____ day of _____, 20_____.

In the presence of:

WITNESS:

(Individual Principal) (SEAL)

(Business Address)

(City/State/Zip Code)

WITNESS:

_____(SEAL)
(Corporate Principal)

(Business Address)

(City/State/Zip Code)

ATTEST:

(Corporate Principal)

Affix
Corporate
Seal

(Business Address)

(City/State/Zip Code)

ATTEST:

(Corporate Surety)

Affix
Corporate
Seal

(Business Address)

(City/State/Zip Code)

The rate of premium on this bond is \$ _____ per thousand.

The total amount of premium charges is \$ _____.

(The above is to be filled in by Surety Company). (Power of Attorney of person signing for Surety Company must be attached).

(CERTIFICATE AS TO CORPORATE PRINCIPAL)

I, _____, certify that I am the
_____ Secretary of the corporation named as Principal in the foregoing bond;
that _____, who signed the said bond on behalf of the Principal, was
then _____ of said corporation; that I know his signature, and
that his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in
behalf of said corporation by authority of its governing body.

_____ Affix Corporate Seal

CITY OF UKIAH
Mendocino County, California

MATERIAL AND LABOR BOND

KNOW ALL MEN BY THESE PRESENTS,

That we the undersigned, _____

_____, **AS PRINCIPAL,**
and

_____, **AS SURETY,**

are held firmly bound unto **THE CITY OF UKIAH**, hereinafter called the "City" in the penal sum of

dollars (\$_____)

for the payment of which sum we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally.

WHEREAS, the Principal has entered into a certain Contract with the City, dated _____, 20_____, a copy of which is hereto attached and made a part hereof,

NOW, THEREFORE, the condition of this obligation is such that if the Principal shall in all respects fully perform the Contract and all duly authorized modifications thereof, during its original term and any extensions thereof that may be granted and during any guaranty period for which the Contract provides, and if the Principal shall fully satisfy all claims, arising out of the prosecution of the work under the Contract and shall fully indemnify the City for all expenses which it may incur by reason of such claims, including its attorney's fees and court costs, and if the Principal shall make full payment to all persons supplying labor, services, materials, or equipment in the prosecution of the work under the Contract, in default of which such persons shall have a direct right of action hereupon; and if the Principal shall pay or cause to be paid all sales and use taxes payable as a result of the performance of the Contract as well as payment of gasoline and special motor fuels taxes in the performance of the Contract and all motor vehicle fees required for commercial motor vehicles used in connection with the performance of the Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect. No modification of the Contract or extension of the term thereof, nor any forbearance on the part of the City shall in any way release the Principal or the Surety from liability hereunder. Notice to the Surety of any such modification, extension, or forbearance is hereby waived.

IN WITNESS WHEREOF, the aforesaid Principal and Surety have executed this instrument and affixed their seals hereto, this _____ day of _____, 20_____.

In the presence of:

WITNESS:

_____(SEAL)
(Individual Principal)

(Business Address)

(City/State/Zip Code)

WITNESS:

_____(SEAL)
(Corporate Principal)

(Business Address)

(City/State/Zip Code)

ATTEST:

(Corporate Principal)

Affix
Corporate
Seal

(Business Address)

(City/State/Zip Code)

ATTEST:

(Corporate Surety)

Affix
Corporate
Seal

(Business Address)

(City/State/Zip Code)

The rate of premium on this bond is \$ _____ per thousand.

The total amount of premium charges is \$ _____

(The above is to be filled in by Surety Company). (Power of Attorney of person signing for Surety Company must be attached).

(CERTIFICATE AS TO CORPORATE PRINCIPAL)

I, _____, certify that I am the
_____ Secretary of the corporation named as Principal in the foregoing bond;
that _____, who signed the said bond on behalf of the Principal, was
then _____ of said corporation; that I know his signature, and
that his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in
behalf of said corporation by authority of its governing body.

_____ Affix Corporate Seal

DIRECTIONS FOR PREPARATION OF PERFORMANCE AND MATERIAL AND LABOR BOND

1. Individual sureties, partnerships, or corporations not in the surety business will not be acceptable.
2. The name of the Principal shall be shown exactly as it appears in the Contract.
3. The penal sum shall not be less than required by the Specifications.
4. If the Principals are partners or joint venturers, each member shall execute the bond as an individual and state his place of residence.
5. If the Principal is a corporation, the bond shall be executed under its corporate seal.
If the corporation has no corporate seal, it shall so state and affix a scroll or adhesive seal following the corporate name.
6. The official character and authority of the person(s) executing the bond for the Principal, if a corporation, shall be certified by the Secretary or Assistant Secretary thereof under the corporate seal, or copies attached to such records of the corporation as will evidence the official character and authority of the officer signing, duly certified by the Secretary or Assistant Secretary, under the corporate seal, to be true copies.
7. The current power-of-attorney of the person signing for the surety company must be attached to the bond.
8. The date of the bond must not be prior to the date of the Contract.
9. The following information must be placed on the bond by the surety company:
 - a. The rate of premium in dollars per thousand; and
 - b. The total dollar amount of premium charged.
10. The signature of a witness shall appear in the appropriate place attending to the signature of each party of the bond.
11. Type or print the name underneath each signature appearing on the bond.
12. An executed copy of the bond must be attached to each copy of the Contract (original counterpart) intended for signing.

CITY OF UKIAH
Mendocino County, California

DEFECTIVE MATERIAL AND WORKMANSHIP (MAINTENANCE) BOND

KNOW ALL MEN BY THESE PRESENTS,

That we, _____,
_____, as **PRINCIPAL**
and _____

_____, as **SURETY**,
are held and firmly bound unto the **City of Ukiah** as Obligee, in the penal sum of

_____, (\$ _____),
(5 PERCENT OF THE FINAL CONTRACT AMOUNT)

to which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators successors and assigns jointly and severally, firmly by these presents.

WHEREAS, the said Principal entered into a Contract with the City Of Ukiah
dated _____
for _____

WHEREAS, said Contract has been completed, and was approved on the _____ day of _____,
_____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal shall guarantee that the work will be free of any defective materials or workmanship which become apparent during the period of one (1) year following completion of the Contract, then this obligation shall be void, otherwise to remain in full force and effect, provided however, any additional warranty or guarantee whether expressed or implied is extended by the Principal or Manufacturer only, and the surety assumes no liability for such a guarantee.

Signed, sealed, and dated this _____ day of _____, 20____.

_____(Seal)

BY: _____(Seal)

_____(Seal)

Principal

_____(Seal)

BY: _____(Seal)

_____(Seal)

Surety

CERTIFICATE OF INSURANCE
CITY OF UKIAH

ISSUE DATE (MM/DD/YY)

PRODUCER

THIS CERTIFICATE OF INSURANCE IS NOT AN INSURANCE POLICY AND DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICES BELOW.

COMPANIES
BEST'S RATING

COMPANY

LETTER A

COMPANY

LETTER B

COMPANY

LETTER C

COMPANY

LETTER D

COMPANY

LETTER E

INSURED

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	EXPIRATION DATE (MM/DD/YY)	ALL LIMITS IN THOUSANDS	
	GENERAL LIABILITY ☐ COMMERCIAL ☐ CLAIMS MADE ☐ OCCURRENCE ☐ OWNER'S & CONTRACTOR'S PROT. ☐ OTHER				GENERAL AGGREGATE	\$
					PRODUCTS COMP/OPS AGGREGATE	\$
					PERSONAL & ADVERTISING INJURY	\$
					EACH OCCURRENCE	\$
					FIRE DAMAGE (any one fire)	\$
					MEDICAL EXPENSES (any one person)	\$
	AUTOMOTIVE LIABILITY ☐ ANY AUTO ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ☐ NON-OWNED AUTOS ☐ GARAGE LIABILITY				COMBINED SINGLE LIMIT	\$
					BODILY INJURY (per person)	\$
					BODILY INJURY (per accident)	\$
					PROPERTY DAMAGE	\$
	EXCESS LIABILITY ☐ UMBRELLA ☐ OTHER THAN UMBRELLA FORM				EACH OCCURRENCE	\$
					AGGREGATE	\$
	☐ WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY				STATUTORY	
					EACH ACCIDENT	\$
					DISEASE - POLICY LIMIT	\$
					DISEASE - EACH EMPLOYEE	\$
	PROPERTY DAMAGE ☐ COURSE OF CONSTRUCTION				AMOUNT OF INSURANCE	\$

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/RESTRICTIONS/SPECIAL ITEMS

THE FOLLOWING PROVISIONS APPLY:

- None of the above-described policies will be canceled until after 30 day's written notice has been given to the City at the address indicated below.
- The City, its officials, officers, employees, and volunteers are added as insureds on all Liability Insurance Policies listed above.
- It is agreed that any insurance or self-insurance maintained by the City will apply in excess of and not contribute with, the insurance described above.
- The City is named a loss payee on The Property Insurance Policies described above, if any.
- All rights of subrogation under the Property Insurance Policy listed above have been waived against the City.
- The Worker's Compensation Insurer named above, if any, agrees to waive all rights of subrogation against the City for injuries to employees of the insured resulting from work for the City or use of the City's premises or facilities.

INSURER:
POLICY NUMBER:
ENDORSEMENT NUMBER:

COMMERCIAL GENERAL LIABILITY
FORM CG 20 10 11 85 (MODIFIED)

THIS ENDORSEMENT CHANGES THE POLICY, PLEASE READ IT CAREFULLY

**ADDITIONAL INSURED ----- OWNERS, LESSEES OR
CONTRACTORS**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Additional Insured Person(s) or Organization(s)	Location(s) of Covered Operations
City of Ukiah, its officers, officials, employees and volunteers 300 Seminary Avenue Ukiah, CA 95482	

If no entry appears above, information required to complete this endorsement will be shown in
Declarations as applicable to this endorsement.

Section II WHO IS AN INSURED is amended to include as an additional insured the person(s) or organization(s) shown in the
Schedule, but only with respect to liability for "bodily injury", "property damage", or "personal and advertising injury" arising out of "your
work" performed for that insured.

Modifications to ISO form CG20 10 1185:

The insured scheduled above includes the insured's elected or appointed officers, officials, employees and volunteers.
This insurance shall be primary as respects the insured shown in the schedule above, or if excess, shall stand in an
unbroken chain of coverage excess of the Named Insured's scheduled underlying primary coverage. In either event, any
other insurance maintained by the Insured scheduled above shall be in excess of this insurance and shall not be called
upon to contribute with it.

The insurance afforded by this policy shall not be canceled except after thirty (30) days prior written notice by certified
mail, return receipt requested, has been given to the City.

Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case
where an agreement to indemnify the additional insured would be invalid under Subdivision (b) of Section 2782 of the
Civil Code.

Signature-Authorized Representative

Address

Phone Number

AUTOMOBILE LIABILITY SPECIAL ENDORSEMENT

FOR _____ City of Ukiah _____ (the "City")

Endorsement No. _____

Issue Date: _____

PRODUCER

Telephone: (_____) _____

POLICY INFORMATION:

Insurance Company: _____

Policy No.: _____

Policy Period: (from) _____ (to) _____

LOSS ADJUSTMENT EXPENSE ☐ Included in limits☐ In addition to limits☐ Deductible ☐ Self Insured Retention (check which) of \$ _____

NAMED INSURED

APPLICABILITY. This insurance pertains to the operation and/or tenancy of the named insured under all written agreements and permits in force with the City unless checked here ☐ in which case only the following specific agreements and permits with the City are covered:

CITY AGREEMENTS/PERMITS

TYPE OF INSURANCE

- ☐ COMMERCIAL
☐ BUSINESS AUTO POLICY
☐ OTHER

OTHER PROVISIONS

LIMIT OF LIABILITY

\$ _____ per accident, for bodily injury and property damage

CLAIMS: Underwriter's representative for claims pursuant to this insurance.

Name: _____

Address: _____

Telephone: (_____) _____

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, it is agreed as follows:

1. INSURED: The City, its officers, officials, employees and volunteers are included as insureds with regard to damages and defense of claims arising from: the ownership operation, maintenance, use, loading or unloading of any auto owned, leased, hired or borrowed by the Named Insured, or for which the Named Insured is responsible.
2. CONTRIBUTION NOT REQUIRED: As respects work performed by the Named Insured for or on behalf of the City, the insurance afforded by this policy shall: (a) be primary insurance as respects the City, its officers, officials, employees and volunteers; or (b) stand in an unbroken chain of coverage excess of the Named Insured's primary coverage. Any insurance or self-insurance maintained by the City, its officers, officials, employees, and volunteers shall be excess of the Named Insured's insurance and not contribute with it.
3. CANCELLATION NOTICE: With respect to the interests of the City, this insurance shall not be canceled, except after thirty (30) days prior written notice by receipted delivery has been given to the City.
4. SCOPE OF COVERAGE: This policy affords coverage at least as broad as:
(1) If primary, insurance Services Office form number CA0001 (Ed. 1/87), Code 1 (Any auto); or
(2) If excess, affords coverage which is at least as broad as the primary insurance forms referenced in the preceding section (1).

Except as stated above nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER

CITY

City of Ukiah
300 Seminary Avenue
Ukiah, California 95482-5400

AUTHORIZED
REPRESENTATIVE☐ Broker/Agent ☐ Underwriter ☐ _____

I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement.

Signature _____
(original signature required)

Telephone: (_____) _____ Date signed: _____

WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY SPECIAL ENDORSEMENT

FOR _____ City of Ukiah (the "City")

Endorsement No. _____

Issue Date: _____

PRODUCER

Telephone: (_____) _____

POLICY INFORMATION:

Insurance Company: _____

Policy No. _____

Policy Period: (from) _____ (to) _____

NAMED INSURED**OTHER PROVISIONS**

CLAIMS: (Underwriter's representative for claims pursuant to this insurance.

Name: _____

Address: _____

Telephone: (_____) _____

EMPLOYERS LIABILITY LIMITS

\$ _____ (Each Accident)

\$ _____ (Disease - Policy Limit)

\$ _____ (Disease - Each Employee)

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, it is agreed as follows:

1. CANCELLATION NOTICE: This insurance shall not be canceled, except after thirty (30) days prior written notice by receipted delivery has been given to the City.
2. WAIVER OF SUBROGATION: This Insurance Company agrees to waive all rights of subrogation against the City, its officer, officials, employees, and volunteers for losses paid under the terms of this policy which arise from the work performed by the Named Insured for the City.

Except as stated above nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements, or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER**CITY**

City of Ukiah

300 Seminary Avenue

Ukiah, California 95482-5400

AUTHORIZED ☐ Broker/Agent ☐ Underwriter ☐**REPRESENTATIVE**

I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement.

Signature _____
(original signature required)

Telephone: (_____) _____ Date signed: _____

Please return to:

CITY OF UKIAH
300 Seminary Avenue
Ukiah, California 95482-5400
(707) 463-6200

NOTICE OF COMPLETION

NOTICE IS HEREBY GIVEN:

1. That the project described as: Runway 15-33 Pavement Rehabilitation Project, Spec 19-11
2. That the nature of the work: Rehabilitation of the 75-foot center section of runway 15-33 and rehabilitation of the remaining pavement edges. The construction of new taxiway connector A2 also was performed to comply with FAA standards; this construction also included the demolition of Taxiways B.
3. That on the 29th day of July, 2020, the Contract work for this project was actually completed.
4. That the name and address of the Contractor is Granite Construction Company, 1324 S. State Street, Ukiah CA 95482.
5. That the property location of work performed herein referred to is situated in the County of Mendocino, State of California, and is described as follows: Ukiah Municipal Airport, 1403 S. State Street, Ukiah, CA.

I hereby certify under penalty of perjury that the forgoing is true and correct:

City Council Approval CITY OF UKIAH, a Municipal Corporation

Date By: _____
Kristine Lawler, City Clerk _____
Date

State of California

County of Mendocino

Exempt from recording fees pursuant to Government Code Section 27383.



AGENDA SUMMARY REPORT

SUBJECT: Council to Consider Approval of the Master Plan for the Development of the Great Redwood Trail-Ukiah Linear Park.

DEPARTMENT: Community Services **PREPARED BY:** Neil Davis, Community Services Administrator
PRESENTER: Consent Calendar

ATTACHMENTS:

1. GRT Ukiah Park Master Plan

Summary: Walk & Bike Mendocino, under contract to the City of Ukiah, has developed a master plan for the development of the Great Redwood Trail – Ukiah. The draft plan was presented to Council at the October 7th meeting and released for public comment the following day. Public comments have been added to the plan as deemed appropriate and the plan is now presented to Council for consideration of adoption.

Background: The City of Ukiah has been very active in developing the Great Redwood Trail within the city limits. The trail provides a much-needed, safe and efficient corridor for bicycle and pedestrian traffic, as well as direct access to major employment centers, services, shopping, residential areas, the future Mendocino County Courthouse, and connectivity to other bicycle routes throughout the city. In total, Phases 1, 2, and 3 of the project provide approximately two miles of easily accessible roadway for bicycle and pedestrian traffic to move through the city.

Currently there are three sections of the Great Redwood Trail-Ukiah. Phase 1 of the multi-use Great Redwood Trail spans the center of Ukiah. Phase 2 extended the trail from Gobbi Street south to Commerce Drive and includes a bridge crossing of Doolin Creek. Staff obtained Caltrans funding for \$1,500,000 through the Active Transportation Program (ATP) for the design and construction of this project. Phase 3 extended the trail from Clara Avenue north to Brush Street, and includes a bridge crossing over Orr Creek. Staff obtained a California Natural Resources Agency grant in the amount of \$1,400,067 through the Urban Greening Program for the design and construction of this project and completed the Great Redwood Trail to the north boundary of the city limits.

Funding is being sought for an additional phase to complete the trail to the south boundary of the city limits. The Great Redwood Trail-Ukiah currently runs from Brush Street at the northern end of Ukiah to Commercial Street at the south. The next construction phase of the trail (Phase 4) will extend the trail south to Plant Road, increasing the length to 4 miles. The City worked with North Coast Opportunities, the Ukiah Valley Trail Group, and Walk and Bike Mendocino to gather community input for the grant application and also in developing an overall master plan for the Great Redwood Trail-Ukiah. Community input has been sought in the form of an online survey, an online workshop, and an in-person workshop right out on the trail.

Discussion: Creating a park-like setting along the Great Redwood Trail-Ukiah has been a goal for the staff at Walk & Bike Mendocino, a program of North Coast Opportunities (NCO). Walk and Bike Mendocino was retained by the City of Ukiah to assist in evaluating what components of a 'park' our community would like to see in the continued development of the corridor along the Great Redwood Trail-Ukiah as a linear park.

The new recreational opportunity (linear park) will expand and enhance the non-motorized corridor, adding a much-needed community green area to the region. Walk and Bike Mendocino, as part of their commitment to this contract, solicited community input and prepared a master plan to guide future projects along this linear park space. Having accomplished this planning, the City will be better prepared to compete for grant funding when opportunities arise.

Through a survey, online events, and meetings scheduled specifically for this task, Walk & Bike Mendocino staff provided the public with an opportunity to identify community needs for the linear park. Input from local businesses, law enforcement, tribal partners, and other interested stakeholders was also sought and incorporated into the plan. Community members showed great interest in increasing shade on the trail, creating community event spaces, pollinator and native plant gardens, public art and murals, and playgrounds and exercise equipment. Other supplementary interests included benches, water stations, dog bag waste stations, and bike parking.

Walk & Bike Mendocino staff presented the draft Master Plan Document to City of Ukiah Council on October 7th, 2020. The draft plan was then made available on the City of Ukiah's web site and made available for public comment. Public comments have now been incorporated into the plan. Staff recommends that Council move to adopt the final draft that is now presented to the Council as Attachment #1.

Recommended Action: Approve presented draft Master Plan for the Development of the Great Redwood Trail- Ukiah Linear Park as the Final Approved plan.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Walk and Bike Mendocino/NCO

Approved: 
Sage Sangiacomo, City Manager



Great Redwood Trail-Ukiah Linear Park Master Plan

Autumn 2020

Prepared for the City of Ukiah,
by Walk & Bike Mendocino



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Great Redwood Trail-Ukiah Linear Park Master Plan

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Planning the Park: Amenities along the GRT-Ukiah Linear Park.....17

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Full Survey Results – English. See attached pdf.

Full Survey Results – Spanish. See attached pdf.

Survey Comments - English. See attached pdf.

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Introduction

In June 2020, what previously had been known as “The Rail Trail” was officially designated a park by the Ukiah City Council and renamed The Great Redwood Trail – Ukiah (GRT-Ukiah). The GRT- Ukiah is currently built at 1.8-miles long; this unique linear park that runs alongside the trail spans the city limits of Ukiah at 3 miles long and roughly 100 feet wide.

With the new designation in place, the City of Ukiah, working with Walk & Bike Mendocino, began the process of developing a Master Plan for the GRT- Ukiah. The Master Plan will serve as a guiding document for the park and help determine the current and future needs of the GRT- Ukiah. As funding becomes available, the Master Plan will also help guide decisions regarding what facilities and amenities, from benches and murals to dog parks and pollinator gardens, are added as the park develops.

Today, the trail is used by pedestrians, joggers and cyclists for exercise and recreation, and by office professionals on a lunchtime stroll. It is already the centerpiece of a growing active transportation network throughout Ukiah, that will in the coming decade connect to Sonoma County to the South and Humboldt County to the North.

Vision

An inclusive and connected linear park, recreation, and active transportation trail system that encourages opportunities for health and wellness, building community, and joy to the Ukiah Community and Mendocino County.

Goals

Goal 1: Gather Public Input from a Diverse Cross Section of the Community

Create a Process that captures the current state of the trail and Build a Plan that envisions its future

- Assesses how the community currently uses the GRT-Ukiah through Advisory Group input, a community survey, and public workshops.
- Establishes a GRT-Ukiah Park Master Plan Advisory Group that convenes numerous times, in person and/or on bike on the trail to adequately envision the future park.
- Organizes multiple public workshops online or in-person.
- Conducts in-person outreach on the GRT-Ukiah.
- Conducts a bilingual community needs online survey open to all.
- Assesses what the community likes about the GRT-Ukiah, improvements they would like to see and concerns they have.

Goal 2: Revitalizing & Developing Community Spaces along the GRT-Ukiah Linear Park

Supporting and maintaining park and recreation amenities for future generations and climates

- Develops and enhances shade throughout the linear park.
- Identifies high use areas and evaluate cost effective options to install permanent restrooms and drinking water facilities.
- Identifies high-traffic areas in need of additional parking (including ADA parking spots) to increase accessibility and usability.
- Implements projects that expand capacity and increase usability for existing facilities.
- Provides guidance on incorporating low impact, sustainable and green building practices in the development of park and trail facilities.
- Increases community access to nature.
- Commits to utilizing and exploring regenerative landscaping practices.
- Identifies areas for creek and habitat restoration

Goal 3: The GRT-Ukiah as a centerpiece of a regional Active Transportation Network

Envisioning a sustainable future by developing trails and building community connections

- Continues to incorporate and grow sustainable best practices, including solar-powered infrastructure, grey-water irrigation, utilizing recycled and local materials.
- Utilizes adequate signage to promote sense of security, safety, and wayfinding.
- Assesses safety and visibility at crossing intersections, especially at high-traffic roads.
- Expands funding for programs and facilities through donations, grants, and alternative sources.
- Explores ecotourism potential and possibilities when the Great Redwood Trail is complete, ultimately connecting to Sonoma & Marin, and Humboldt Counties. The trail will bring in a diverse range of individuals from throughout the state and potentially from other states to travel to and experience the beauty of the wilderness in our region.
- Encourages usership for commuting as a main north-south active transportation route that will connect with Orr Creek Greenway and other future east-west corridors and routes.

Public Engagement Process

Community Needs Assessment Survey

Online and printed surveys in English and Spanish invited community input for the GRT-Ukiah Linear Park and sought to understand existing and potential trail usership, distance of residents and employees from trail, demographics, and needed recreational programs and facilities. From June 15 to September 7, 2020, 215 participants filled out the survey and shared their feedback. Analyzed results from this survey are integrated into the Recreation Programming Recommendations and the Park System Recommendations on the following pages. **See addendum for full survey results and comments.**

Bi-lingual informational survey flyers were designed and delivered via directly to businesses adjacent to the proposed Great Redwood Trail- Ukiah at Plant Rd: C & S Waste Disposal, City of Ukiah Animal Shelter, Mendocino Transit Authority, Ukiah Valley Athletic Club business outreach, in-person and via email, and through Walk & Bike Mendocino's email newsletters. Flyers were created and distributed at community businesses and on community boards and along the Great Redwood Trail-Ukiah

Printed surveys in English and Spanish were distributed to neighboring businesses to the trail: Ukiah Valley Athletic Club and Dave's Bike. These two community businesses served as sites for community members to fill out surveys on the spot and as a place to collect physical copies of the survey. Social media outreach was through the Walk & Bike Mendocino and City of Ukiah Facebook pages, and shared in community groups and forums to reach a diverse demographic.

Linear Park Advisory Group

An advisory group composed of 12 participants: stakeholders, community leaders, and organizations was formed and met twice: via zoom call on June 9th, and via two group bike rides on the GRT-Ukiah, on June 30th and July 1st. The group represented the Parks and Recreation Committee, Open Space Committee, the Community Foundation, NCO's Walk & Bike Mendocino, Ukiah Vecinos en Acción, Ukiah Police Department, Mendocino County Arts Council, Ukiah City Council and City Staff.

Community Forums

Two online community forums were held via video conference, and one in-person on-trail outreach event, had residents and local officials in attendance.

Outreach for these forums was conducted through online social media and e-mail newsletter. **See addendum for forum feedback and notes.**

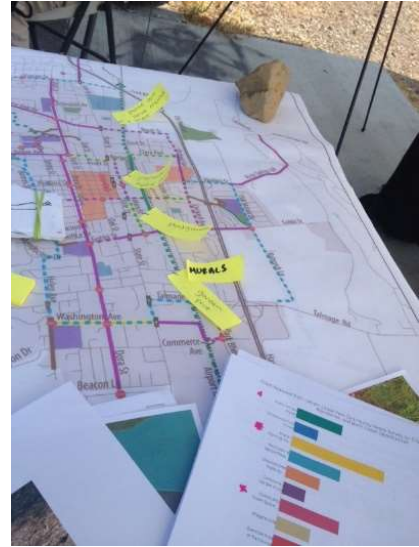


Advisory group bike ride at the future Phase 4 of GRT-Ukiah.

- **A Community Input Forum** held online July 6, 2020 via video conference encouraged questions, comments, and dialogue with community members with discussion topics including existing and potential trail usage, the need for shade and suggested facilities along the potential trail and

greenway, wayfinding and directional signage, safety concerns, additional trail connections, and suggestions for improved crossings.

- **A Park Planning Forum** held online on August 26th discussed preliminary survey results, initial recommendation for facilities and amenities, addressed participant concerns, and included discussions with Ukiah Police Department and Ukiah City Council. Participants were encouraged to also add their feedback for the placement of recommended facilities using an online mapping system. An outreach event on August 22nd on the Great Redwood Trail-Ukiah also sought feedback from the public and trail users for the placement and recommendations for facilities and amenities on printed maps.



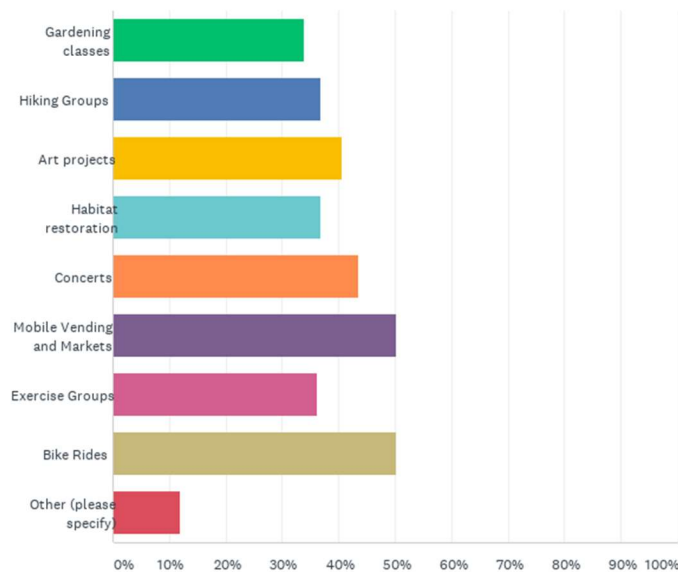
*Annotating maps with amenities at the GRT-Ukiah Park
Planning on the trail.*

Recreation Programming Recommendations

The community identified many programming ideas as part of the Community Needs Assessment process. This input revealed numerous directions to make City of Ukiah Parks & Recreation programming even more innovative.

- **Culturally Responsive and Appropriate Programming.** Ukiah's diversity provides an opportunity to honor its Native American and Latino Heritage and for a more diverse set of recreation programs and events. By engaging with under-represented communities, the City of Ukiah can gather programming ideas that encourage and empower these groups. Heritage signage can be incorporated into appropriate areas along the Great Redwood Trail-Ukiah Linear Park.
- **Neighborhood-Scaled Events.** Outreach results show a need for more community event spaces and opportunities to connect with neighbors in localized and small-scale events, such as: kids activities, organized (5k) runs, gardening classes, mural painting and public art projects, habitat restoration, hiking groups, dog-walking groups, group bike rides, mobile vending and pop-up markets, and concerts.
- **Promoting Volunteerism as a Program Area.** More people are looking to engage and become more connected in their communities. Volunteering fosters a sense of place and provides ways of meaningful involvement, skill sharing, and connecting with those of similar interest. Develop volunteerism opportunities for diverse interests and formats, such as native plants gardening, mural painting, public art projects, and trash clean-up days.

Q9 What community events, activities and volunteer opportunities would you participate in along the Great Redwood Trail - Ukiah Linear Park?



Park System Recommendations

Recommendations and Area-Specific Recommendations for the City of Ukiah Parks and Recreation system provide direction based on community needs assessments.

Addressing Safety Concerns

Safety can be a barrier to more usership along the current Great Redwood Trail-Ukiah. Community concerns are focused on the lack of visibility and high vehicular speed and traffic at the trail crossings of busy intersections, such as Perkins St., Gobbi St., and Talmage Rd. Personal safety concerns stem from homeless encampments set up along the former railroad lines and the accompanying alcohol and drug use, and trash. Homelessness continues to be a challenge in many cities, and as long as the root of mental illness within a society is not properly addressed, people being forced into homelessness will continue. The recommendations below and on the following pages are some possible solutions that have been derived from surveys, community forums, and discussions to alleviate tensions surrounding the negative stigma of homeless people, to encourage an environment of positive mental health and human morale, increase the number of users on the trail for walking and biking for exercise, transportation, and recreation, and ultimately to create a feeling of belonging and safety in the community.

Q13 Any other comments for improvement for the Great Redwood Trial - Ukiah?

love along trail Ukiah drive issue feel will must community adding
bike north homeless Please trail safe use go
walking better people camp need well great nice feel safe walk bike
Thank

Word Cloud from the Community Needs Assessment Survey

Sample of Community Comments Regarding Homelessness, Safety, and Crossings:

"Homelessness seems like it will be the biggest issue. While I haven't used the trails (at all really) the unknown about the homeless is a huge reason why it will take a long time before I would consider using it."

"This was a great concept, but until something is done to make people feel safe, many like my family and I will not use it."

"Crossing Gobbi, or Perkins are both dangerous, drivers do not pay attention, or stop. Any improvements to the crossing would be appreciated."

"Trail crossings at Perkins, Gobbi and Talmage are unsafe. When I drive my car, there are so many signs in the vicinity of the crossings that I can't focus on whether there are pedestrians trying to cross the street. They rely on me to stop, but I may not see them in time."

Safe Access to the Park

More connections and more users will ultimately lead to a greater sense of safety. Potential solutions to increase safety include:

- Utilize tactile concave circular bumps or rumble strips, to slow down traffic and get drivers attention by making noise and vibrations when cars drive over.
- Paint the trail crosswalk a bright or distinctive color.
- Crossing signals to be placed in the same direction as pedestrian or bicycle traffic.
- Improve accessibility of connection at Cherry St. and Washington / Hastings.
- Add park and trail access to Waugh Lane: Access will increase usership by inviting a whole neighborhood to the park and trail.
- Restore Creeks and access along GRT-Ukiah Park, such as Orr and Doolan Creeks. Create hiking trails along the creeks that connect with GRT-Ukiah.
- Explore potential to integrate with MTA bus routes and stops.

Signage

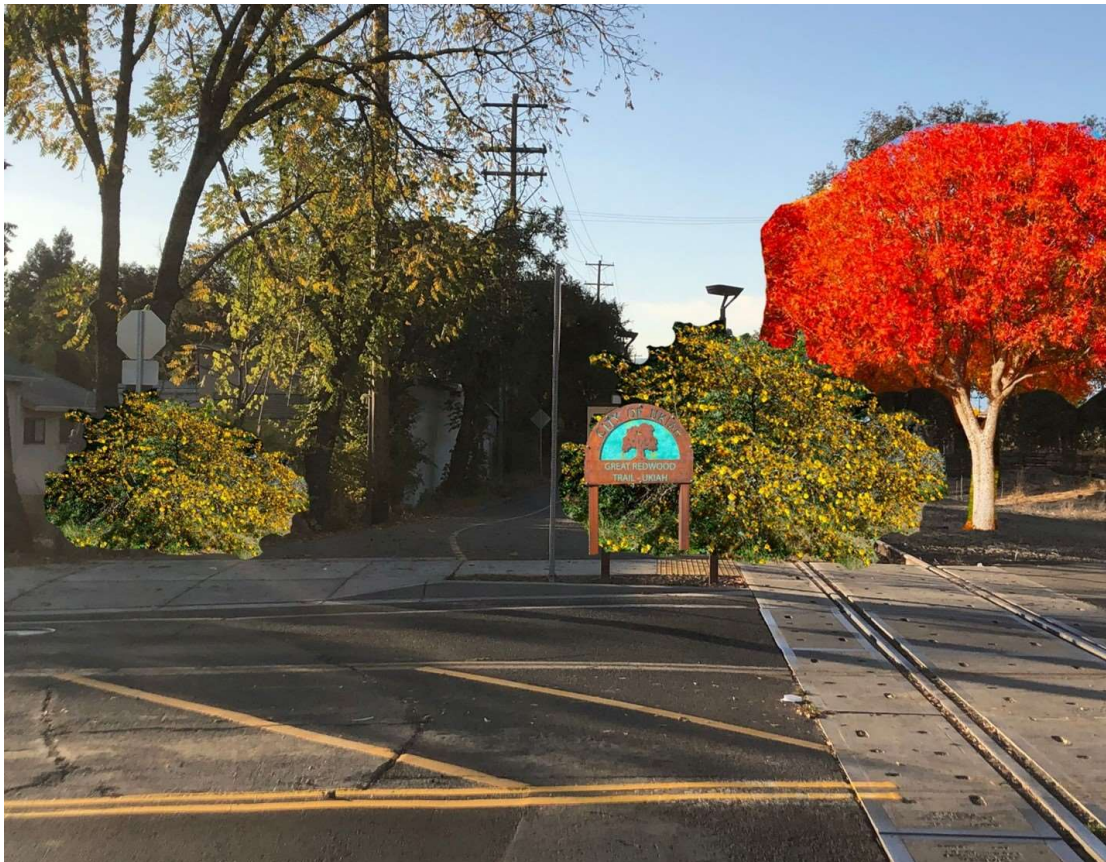
Appropriate signage will help locals and tourists alike to feel safe by knowing where they are and where they need to go.

- Add signage on the trail with the crossing street name.
- Remove unnecessary sidewalk /street signage and infrastructure associated with the non-operational railroad at trail crossings.
- Creatively repurpose obsolete railroad crossing infrastructure as GRT-Ukiah signage.
- Add signage for trail etiquette:
 - Pedestrians / slower traffic stay to right, bicyclists /faster traffic pass on the left.
 - Pick-up litter / no littering signs.
 - Signs posting non-emergency police number.
- Additional Landmark Signage: where on the trail users are located, how far from Ukiah destination points, shopping areas, milestones, and landmarks.
- Create maps and designated routes within the City of Ukiah where people can bike or walk safely. Create a community awareness campaign to share these routes.

Branding

Consistent branding of signage, amenities, and features will help with the marketing of the trail and the City of Ukiah.

- Utilize consistent “style sheet” with fonts and colors for future trail and park signage.
- Prioritize the landscaping and signing of road crossings.
- Flannel Bush (*Fremontodendron californicum*) planted at trail entrances requires little maintenance and water while staying green through the summer with bright yellow flowers late into the summer.
- Where room is available plant Chinese Pistache (*Pistacia chinensis*) to provide a consistent landscape with the School Street.
- Paint Crosswalks with City of Ukiah Style Sheet color and write in Bold Letters “Great Redwood Trail.”
- Utilize the rusted metal style signs to mark trail entrances to maintain consistency with other City of Ukiah Parks.



Parking

The provision of additional parking should be kept to a minimum. One function of the Park corridor is to encourage the use of active transportation modes. Additional parking is counterproductive to this goal. Additionally, there is ample on street parking within one to two blocks of most of the trail. Emphasizing adding safe, accessible sidewalks from these neighborhood, on-street parking locations as opposed to adding parking spaces makes better use of scarce land within the City limits and is generally consistent with the recreational objectives of trail users.

Accessible parking, consistent with Americans with Disabilities Act guidelines should be located near gathering places and at access locations that lack on-street parking. ADA parking should be placed at Norton St., Talmage Road, and Norgard Lane. ADA parking should be considered in the future when gathering spots are developed.

Primary Recommended Amenities and Facilities

- Shade and Planting Trees for Shade
- Community Event Spaces
- Pollinator and Native Plants Garden
- Public Art and Murals
- Playgrounds, Exercise Areas and Parcourse

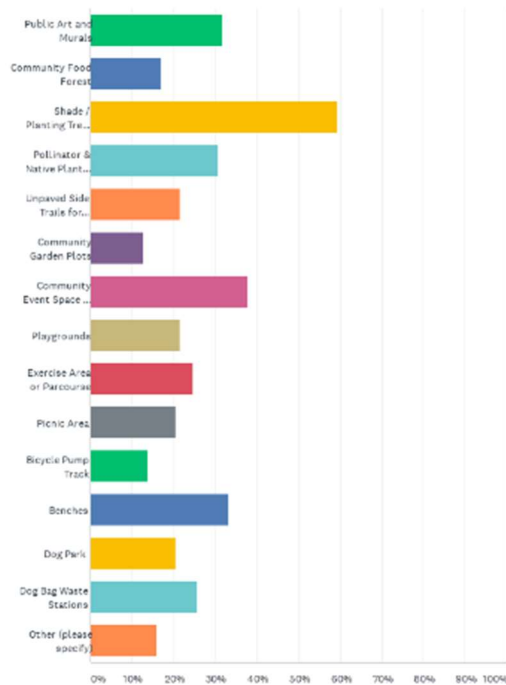
Supplementary Recommended Amenities

- Benches
- Drinking Fountains, Bottle Refill Stations, Water for Animals
- Dog Bag Waste Stations
- Bike Parking



An artistic bike rack in Gilroy, CA adds color, fun, and a sense of civic pride.

Q7 As funding becomes available, the park may expand to include amenities such as benches and water fountains and facilities ranging from parcourse exercise courses to dog parks. From the following list, what are the top three amenities or facilities are needed along The Great Redwood Trail - Ukiah? Click here to see inspiration photos at the Walk & Bike Mendocino page or visit <http://walkbikemendo.org/great-redwood-trail-ukiah/linear-park>



Amenities and Facilities Question from the Community Needs Assessment Survey

Shade and Planting Trees for Shade

- **Trees: Established trees provide habitat, shade, and beauty for generations.**
 - Plant Native and Drought Hardy Trees: Valley Oaks, Live Oaks, and Big Leaf Maples.
- **Solar Panels can provide shade, energy, and structural beauty.**
 - Utilize as part of a structure to provide shade
 - Provides electricity, allow park users to recharge electronics, especially during PSPS outages, and allowing for Wi-Fi access with time limit.
 - Installation and purchasing of solar panels could be provided through extensive grant funding sources, including disaster preparedness, community resiliency, and regenerative energy grants, which are available to promote solar energy. Solar panels as recharge stations along the trail adds a much needed and sensible form of resiliency during wildfire season. As wildfires cause evacuations in the region, with people relocated and floating to different areas in the county, in addition to the uncertainty of energy stability due to the City of Ukiah PSPS occurrences. Having a recharge area would take pressure off government resources and evacuation centers, who provide those services in downtown areas.



An example of a sculptural solar panel shade structure.

Community Event Space

- Outdoor event spaces can host events such as pop-up marketplaces with vendors, farmers markets, live music, dances, and concerts.
- LatinX communities voiced a need for more family and community gathering areas.
- Will need ADA parking, electricity, bathroom facilities, and shade nearby.

Pollinator & Native Plants Garden

- A diverse pollinator garden using native and naturalized plants creates habitat for butterflies, bees, and birds.
- Can use graywater and purple pipe irrigation.
- Incorporating regenerative design systems ensures a thriving and blossoming environment for future generations. An example of this is following the 3 Ethics (Earth Care, People Care, Fair Share) and 12 Principles of Permaculture Design: observe and interact, catch and store energy, obtain a yield, apply self-regulation and accept feedback, use and value renewable resources and services, produce no waste, design from patterns to details, integrate rather than segregate, use small and slow solutions, use and value diversity, use edges and value the marginal, and creatively use and respond to change.



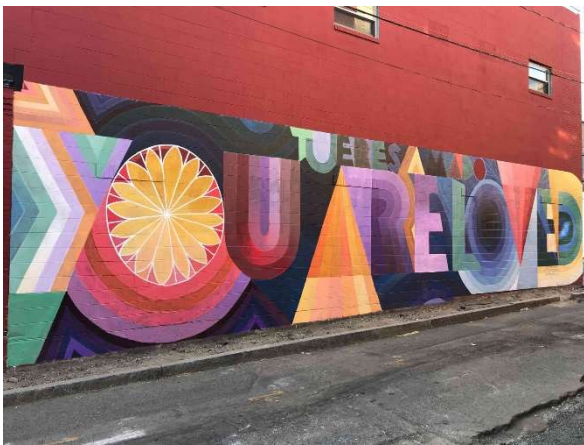
The native pollinator garden integrates public art in the recently redesigned Central Park, City of Davis.

Public Art and Murals

- Using public art can promote a sense of pride and belonging in the community.
- Studies show that murals with faces/ eyes can help people feel seen and connected. Murals with faces can also discourage vandalism and illicit behavior.
- Art can display community values and heritage.
- Incorporating encouraging quotes can have a positive impact on mental health.
- Creating public art through volunteerism encourages community building.



Native American Heritage mural, City of Davis, CA.



Motivational bilingual YOU ARE LOVED/ERES AMADO murals by Alex Cook. Left: Division St, Chelsea, MA. Right: Elmhurst Park, Boston, MA Youarelovedmurals.com

Playgrounds, Exercise Areas and Parcourse

Over 50% of the survey respondents use the trail for exercise. Incorporating a variety of play and exercise structures will encourage a healthy and active community.

The following recommendations take into consideration the uncertain future regarding health guidelines, and a need to promote positive mental health.

- **Natural Playgrounds** can use local and free materials, allows for adequate space for children (and adults!) to play, and inspires deeper connections with nature.
- **Labyrinth Mazes** can be integrated into playgrounds for kids, or into other parts of the park for adults / mixed use. Labyrinths are meditation tools used for centuries by many societies and cultures, to help people find calm and become more relaxed.
- **Parcourses and Exercise Areas** are easy to integrate into small spaces and promotes community health.

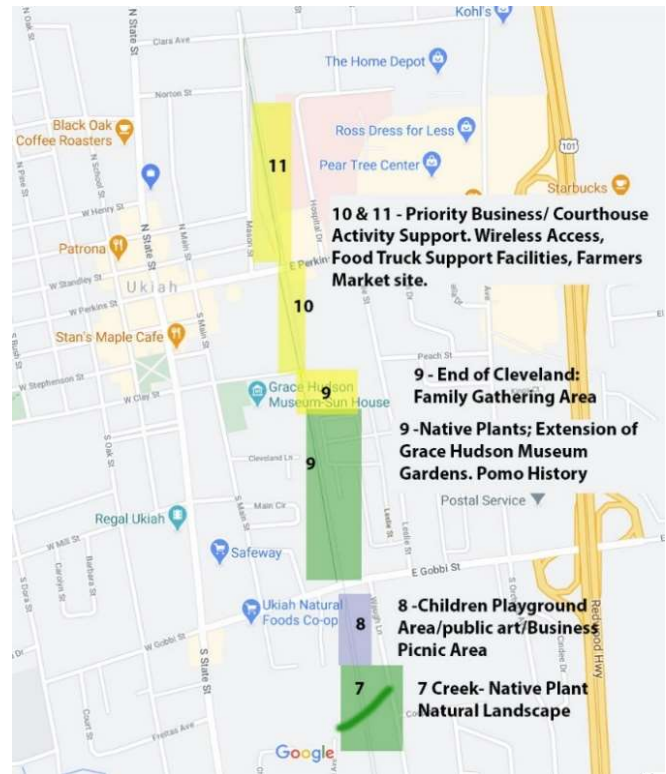
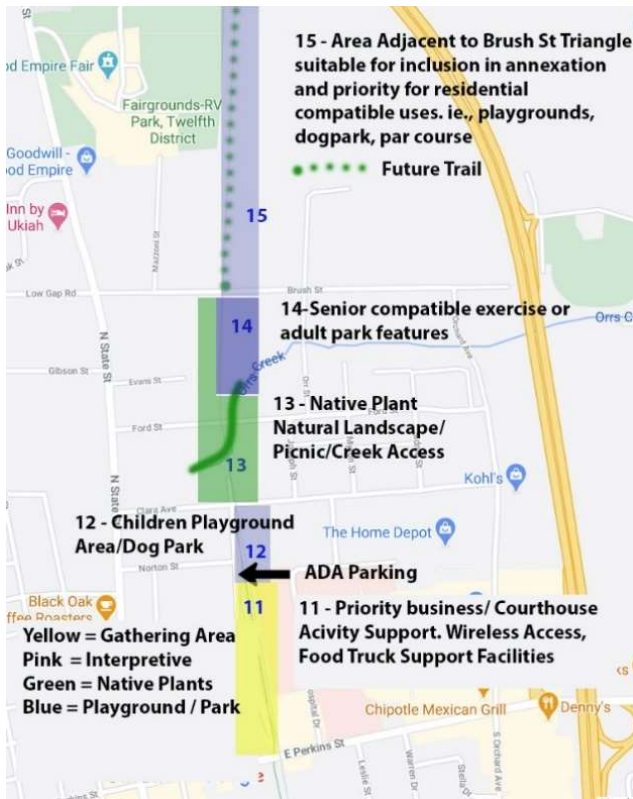


Natural Playground, Woodbriar Park, Greeley, Colorado

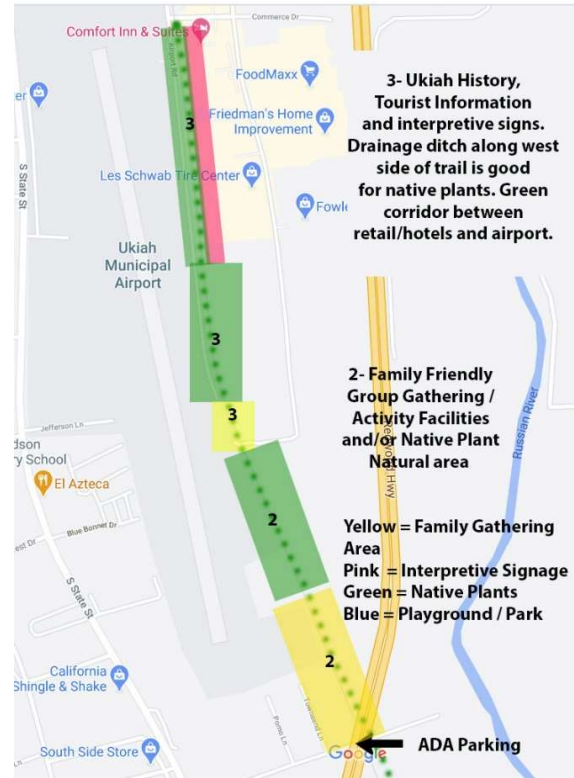
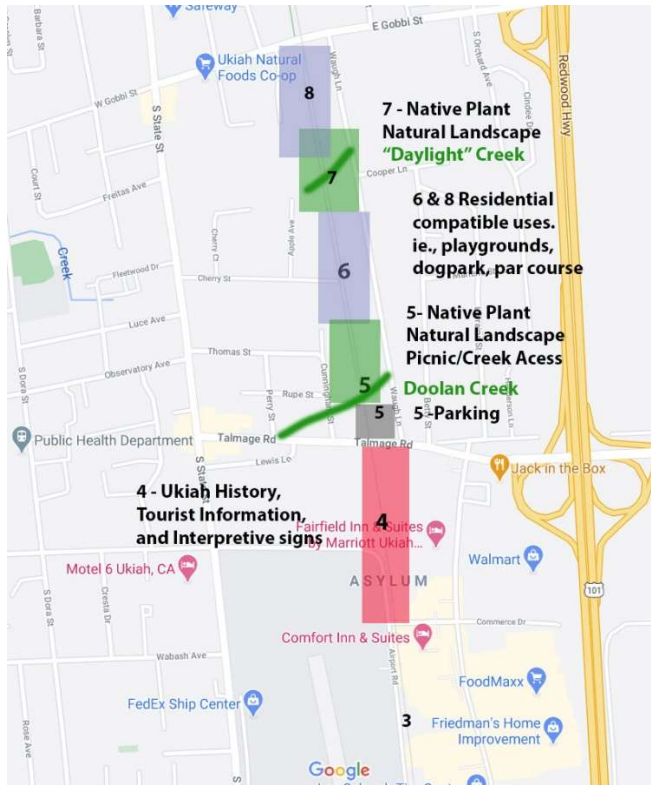


An example of a labyrinth maze in a playground.

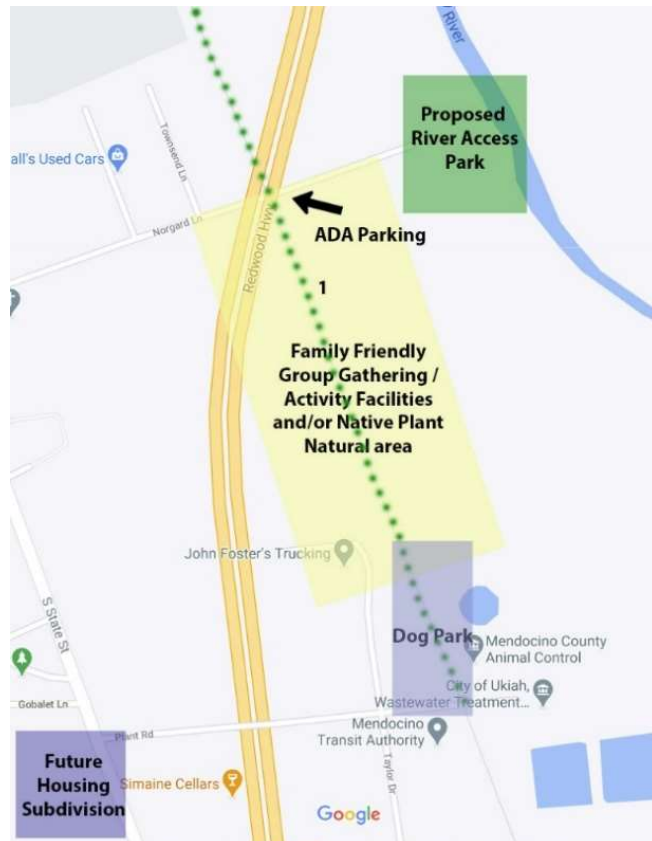
Planning the Park: Amenities along the GRT-Ukiah Linear Park



Left: GRT-Ukiah North Trail, Brush to Perkins, Right: Perkins to Gobbi



Left: GRT-Ukiah Trail, Gobbi St to Commerce Dr, Right: Commerce to Norgard St.
 Below: Norgard St. to Plant Rd.



Addendum

COMMUNITY INPUT FORUM

July 6, 2020

- **SAFETY:**
 - The crossing at Talmage (and Gobbi, Perkins) is dangerous, drivers are ignoring crosswalks. How to improve the crossing at Talmage, whether with a crosswalk arm, push button, or more street signage?
 - focus signage and remove unnecessary signage and infrastructure associated with the non-operational railroad,
 - utilize tactile concave circular bumps that are installed en masse, to slow down traffic and get drivers attention by making noise and vibrations when cars drive over.
 - Painting the trail crossing a bright or distinctive color
 - Concave mirrors for blind corners, possibility for security cameras?
- **SIGNAGE:**
 - Painted on the trail and/or signs: pedestrians / slower traffic stay to right, pass on the left
 - Horse accessibility: horse hike bike triangle, yield right of way sign
 - Additional Signage for telling people where in Ukiah they are, how far from destination points, shopping areas, milestones, and landmarks
 - Signage on the trail with crossing street name
- **AMENITIES:**
 - bring the purple pipe irrigation into phase 3
 - important that drinking fountains have water bottle refill stations.
 - a prevailing theme that is fitting to the area, such as “Bigfoot”
 - need for community space and stage
 - parcourse throughout the trail park.
 - Multiple playgrounds specific to child age range

PARK PLANNING FORUMS, COMMUNITY FEEDBACK

August 22, 2020 & August 26, 2020

- **SAFETY:**
 - Increase overall usership to promote feeling safe using the park and trail
 - More connections and more users will lead to a greater sense of safety.
 - Improve connections at Cherry St. and Washington / Hastings
 - 902 Waugh Lane: Access through this (private) facility will increase usership by inviting a whole neighborhood’s access to the park and trail
 - Graffiti: the more we clean up graffiti, the more time it takes to come back, continue clean-up efforts
 - Use public art to discourage vandalism and promote sense of belonging
 - Studies show that murals with faces / eyes communicates that the place is loved by the community and leads to feeling seen, this could reduce homelessness and mental illness in the community

- The role of Ukiah Police Department enforces behavior on the trail: leash laws, no alcohol, zero tolerance on camping, citizens to call 707-463-6262 for non-emergency dispatch. Since the designated as a park, there are now more enforcement possibilities available, and there will be more compliance the more people are using the area.
- Create maps and designated routes with the City of Ukiah where people can bike or walk safely. Create a community awareness campaign to share these routes.
- **SIGNAGE:**
 - Utilize consistent “style sheet” with fonts and colors for future trail and park signage
 - Having street signs along the trail will help tourists and visitors to know where they are
- **AMENITIES:**
 - Solar panels
 - Utilize as part of a structure to provide shade
 - Provides electricity, allow park users to recharge electronics, especially in times with PSPS outages, and allowing for Wi-Fi access with time limit
 - Installation and purchasing of solar panels could be provided through extensive grant funding sources, including disaster preparedness, community resiliency, and regenerative energy grants, which are available to promote solar energy. Solar panels as recharge stations along the trail adds a much needed and sensible form of resiliency during wildfire season. As wildfires cause evacuations in the region, with people relocated and floating to different areas in the county, in addition to the uncertainty of energy stability due to City of Ukiah PSPS occurrences. Having a recharge area would take pressure off government resources and evacuation centers, who provide those services in downtown areas.
 - Art that displays community values
 - Set up more volunteer mural days. Need for a GRT-Ukiah Murals / Public Art Commission?
 - Pop-up marketplaces (resource “Head West Marketplace”), with vendors, music in community spaces; will need parking, bathroom facilities, and shade
 - More trash cans and water refill stations, water for animals
 - Restore Creeks and access along GRT-Ukiah Park, such as Orr and Dooley Creeks. Create hiking trails to connect with GRT-Ukiah

Survey Comments – English Translation of Spanish survey comments.

1. I do not have children that are mine but I do have brothers and other children that I take care of sometimes. 7/6/2020 7:45 PM
2. More bilingual signs along the trail please, better lighting at night for walk. More garbage and recycling bins available. Public wifi access to read e-books or listen to podcasts during the walk. 6/23/2020 10:42 PM
3. That the homeless drugged or under alcohol are not housed there because we are afraid that they may attack us, we feel fear because we think they may attack us. 6/23/2020 6:15 PM
4. Why don't you want to set up stages to put on marching bands on weekends? 6/22/2020 2:37 PM
5. More safety on the road 6/22/2020 10:39 AM
6. Control more the flow of homeless, better clean the area so that there are no needles and there is danger of children getting hurt when grabbing them, more spaces to rest and shade. 6/22/2020 9:51 AM



AGENDA SUMMARY REPORT

SUBJECT: Approval of Agreement with NCE of Richmond in the Amount of \$88,900 for Professional Consulting Services Related to a Trench Cut Fee Study and Implementation and Corresponding Budget Amendment.

DEPARTMENT: Public Works **PREPARED BY:** Jarod Thiele, Public Works Management Analyst
PRESENTER: Tim Eriksen, Public Works Director/City Engineer

ATTACHMENTS:

1. NCE Ukiah Trench Cut Proposal FINAL

Summary: Council will consider approval of an Agreement with NCE of Richmond in the amount of \$88,900 for Professional Consulting Services related to a Trench Cut Fee Study and Implementation and corresponding budget amendment.

Background: With the implementation of Measure Y, the City continues to spend significant resources to improve the condition of the street network. Since work from other utilities, including those that are City owned, affect the future condition of the improved streets, staff recommends that a Trench Cut Fee should be implemented. This study will evaluate the impacts of utility cuts on the service life of the pavement and to develop appropriate mitigation measures, including a fee schedule.

Discussion: Problems associated with the performance of pavement cuts and street repairs have been a concern to public agencies for many years. Public agencies and utilities have sponsored engineering investigations, and these studies indicate that the life expectancy of a street may be reduced by the presence of pavement cuts.

A Trench Cut Fee is common among other municipalities in California. The fees are structured based on pavement age, the type of recent pavement treatment, trench direction, size of excavation, as well as other factors. This study will analyze these factors in depth and develop associated fees that will be charged to contractors who perform trench cuts in the City's streets.

Staff prepared a Request for Proposal (RFP), which was released on September 22, 2020. Proposals were received until October 29, 2020, at which time one proposal was received from NCE of Richmond, CA (Attachment 1). NCE is a firm that specializes in technical engineering related specifically to pavement. They have significant experience with other cities, counties and Caltrans.

Staff is recommending the award of a contract to NCE in the amount of \$88,900 and approval of a corresponding budget amendment.

Recommended Action: Approval of Agreement with NCE of Richmond in the Amount of \$88,900 for Professional Consulting Services Related to a Trench Cut Fee Study and Implementation and Corresponding Budget Amendment.

BUDGET AMENDMENT REQUIRED: Yes

CURRENT BUDGET AMOUNT: 12024200.52100- \$0

PROPOSED BUDGET AMOUNT: 12024200.52100- \$88,900

FINANCING SOURCE: Measure Y Funds

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Tim Eriksen, Director of Public Works/City Engineer; Daniel Flores, Engineering Technician

Approved:


Sage Sangiacomo, City Manager



City of Ukiah

PROPOSAL

Attachment 1

Trench Cut Fee Study and Implementation

October 29, 2020



Submitted By:

Point Richmond Office

501 Canal Blvd, Suite I

Richmond, CA 94804

Phone: 510.215-3620



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Appendices

- A Staff Resumes

Cover Letter

October 29, 2020

Mr. Daniel Flores
Engineering Technician
City of Ukiah
Public Works Department
300 Seminary Avenue
Ukiah, CA 95482-5400

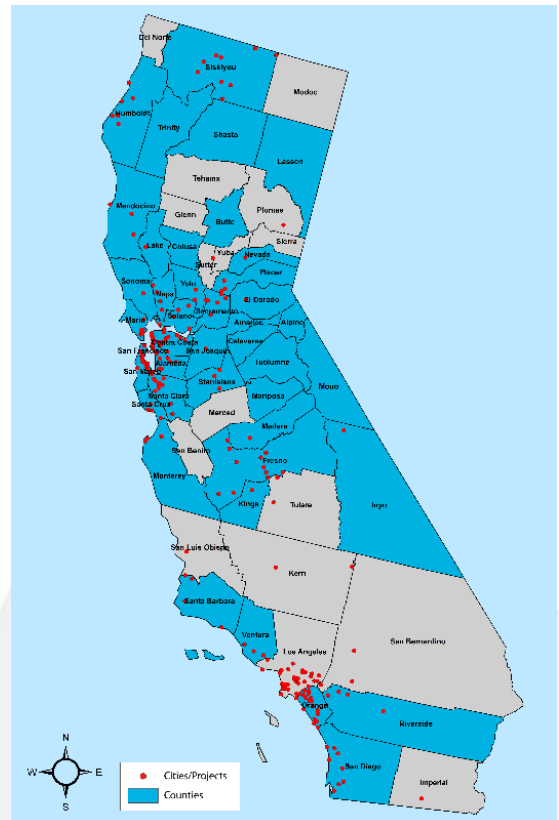
Subject: Proposal –Trench Cut Fee Study and Implementation

Dear Mr. Flores and Members of the Selection Committee:

NCE understands that the City of Ukiah desires to evaluate the impacts of utility cuts on the service life of pavements and to develop appropriate mitigation measures, including a fee schedule.

We have extensive experience performing similar pavement related studies for public agencies throughout California and the U.S. We are a nationally recognized pavement specialty firm with broad capabilities and expertise in the areas of pavement research, analysis and design, and we bring to the City of Ukiah the following:

- **Familiarity with Ukiah Streets** – NCE successfully updated the City's StreetSaver[®] pavement management system in 2016-2017; our familiarity with the City's street network enables us to identify the appropriate streets to be tested/evaluated for this study. We can easily locate sections with trench cuts, their maintenance histories and determine the best candidates for evaluation.
- **National Expertise in Pavement Technology** – NCE is a unique civil engineering firm in that we have a pavement research division that conducts applied research and engineering studies for the Federal Highway Administration and state highway agencies. The map to the right illustrates clients where we have conducted pavement related studies.
- **Extensive Experience** – we have performed similar utility trench cut studies for the Cities of Sacramento, Philadelphia, Seattle, Anaheim, Pacifica, Chico, Elk Grove, Bishop and the Regional Transportation Commission for Southern Nevada (Las Vegas).
- **Performed Truck Impact Fee Studies** for the Cities of Pacifica, Carmel-By-The-Sea, Walnut Creek, San Bruno, Highlands, San Joaquin Irrigation District and UC Davis.
- **Demonstrated Experience** with implementation of pavement management programs; NCE has worked with more than 200 public agencies in California (more than 300 nationwide).



Point Richmond, CA

501 Canal Blvd, Suite I

Richmond, CA 94804

(510) 215-3620

- **Expertise in Practical Pavement Designs** based on using deflection testing and analysis, which will be employed on this project.
- **Extensive Working Knowledge with StreetSaver®** – The NCE team has worked with StreetSaver® for more than 30 years. We have worked with more than 200 public agencies, throughout California, Nevada, Washington, Oregon and the nation, on similar projects.
- **Rigorous Quality Control** – NCE's projects include a QC manager, who reports directly to the project manager and provides a thorough review of documents prepared for deliverables.

NCE's team has worked together on many projects and will provide the City with the technical and management experience to address the data collection, work plan, analysis, and reporting required. Our highly trained and capable technical staff are experienced in data collection. We have developed an excellent reputation for dedication, integrity, productivity, quality of work, and service to our clients.

Finally, we would like to emphasize again the uniqueness of NCE's qualifications and experience. We are a pavement specialty firm, with a depth of knowledge that extends from research and studies to evaluation and design. Our clients range from the Strategic Highway Research Program (SHRP) to state highway agencies, such as Caltrans to local cities and counties. We perform state-of-the-art pavement research and analysis and we are able to convert the results into practical solutions for local implementations including fee studies.

NCE has the capability to deliver responsive, cost effective and high-quality pavement management services. These services will be accomplished through a systematic and organized method of work and communication led by Ms. Mei-Hui Lee, PhD, PE, as NCE's proposed Project Manager.

Contract Manager

Margot Yapp, PE is authorized to negotiate and contractually bind NCE to the City's agreement. Her contact information is as follows:

Ms. Margot Yapp, PE
Phone: (916) 388-5655
Email: MYapp@ncenet.com

NCE Office Address:
501 Canal Blvd, Suite I
Richmond, CA 94804

The NCE team is prepared to meet the upcoming challenges of this project. NCE looks forward to your favorable review of our proposal and the opportunity to work with the City. This proposal is a firm offer for a minimum period of thirty (30) days after the submittal date. Please do not hesitate to contact Margot at the number shown above with any questions.

Sincerely,

NCE



Margot Yapp, PE
President/Principal-in-Charge



Mei Hui Lee, PhD, PE
Project Manager

Point Richmond, CA
501 Canal Blvd, Suite I
Richmond, CA 94804
(510) 215-3620



Contract Approach and Schedule

Project Understanding

Interest in the impact of utility cuts on roadway performance has been prevalent among cities and counties for the last 30 years. There are extensive published and unpublished reports and literature on this subject, dating back to the 1940s, but in general, reports since 1990 are most relevant to this study. The City of Sacramento was a pioneer in this area with its 1996 study and excavation cost recovery fees. The fees were structured based on pavement age, trench directions, and size of excavation. Since that time, multiple agencies across California and the United States have conducted similar studies.

NCE understands that the City of Ukiah is seeking a consultant to perform a Trench Cut Study on its 53 centerline miles of streets, and assist in the implementation of the proposed recommendations, including a fee ordinance.

Problems associated with the performance of pavement cuts and street repairs have been a concern to public agencies for many years. Public agencies and the utilities have sponsored engineering investigations and these studies indicate that the life expectancy of a street may be reduced by the presence of pavement cuts. Most of these studies focus on the impact of backfill placement and specification on potential surface settlement, rather than the impacts of cuts on the frequency of maintenance and rehabilitation activities.

NCE's past reviews have found that findings from studies funded by utility companies and public agencies are often contradictory. Therefore, care needs to be taken when reviewing the technical approach used and the results.

Examples of agencies where similar studies have been performed include San Francisco, Santa Ana, Seattle, Los Angeles, Cincinnati, Phoenix, Union City, Ottawa (Canada), League of Arizona Cities and Counties, Indiana Local Agencies, San Mateo County and Alameda County. NCE is currently conducting a similar study for the Cities of Anaheim and Pacifica; additionally, we are currently updating Sacramento's original study.

NCE understands that the City of Ukiah desires to evaluate the impact of utility cuts on the structural integrity or functional performance of pavement. Should there be any impacts, appropriate mitigation measures are to be developed, including a fee schedule.

NCE's technical approach will include the following tasks:

- Research and summarize other studies related to street deterioration and rehabilitation costs from pavement utility cuts and trenches;
- Determine a methodology to establish the impacts of utility cuts/trenches;
- Perform a comprehensive pavement analysis to determine the extent of damage to the City's streets;
- Determine the loss of street life as a result of pavement cuts and determine the resultant rehabilitation costs;
- Develop an impact fee schedule relative to pavement cuts; and
- Summarize all findings in a report.



Scope of Work

The following paragraphs describe in more detail NCE's proposed scope of work.

Task 1: Summarize Utility Cut Fee Studies

In this task, NCE will first schedule a kickoff meeting with City staff to review:

- Project scope, deliverables and timeline
- Review of existing information on pavement sections
- Review current restoration standards and practices
- Review historical data available such as age of trenches and pavements, and maintenance and rehabilitation activities
- Review previous study report and approaches
- Review typical maintenance and rehabilitation practices and costs
- Review existing maintenance/pavement cut record-keeping procedures

Next, NCE will conduct a detailed review of those studies that are most pertinent to the City including any follow-up information (i.e., economic impacts, associated costs, fees and ordinance development, agency adoptions and implementation). Many of these studies were performed over 15-20 years ago as shown in the bibliography below, but some are relatively recent.

- Bodocsi, A., et al. Impact of Utility Cuts on Performance of Street Pavements. Department of Civil and Environmental Engineering, University of Cincinnati, Cincinnati, OH, 1995.
- Chow, C. A., and V. B. Troyan. Quantifying Damage from Utility Cuts in Asphalt Pavement by Using San Francisco's Pavement Management Data. Transportation Research Record: Journal of the Transportation Research Board, No. 1655, 2007.
- Lakkavalli M, V. et al. Challenges in Utility Coordination and Implementation of Pavement Degradation Fees. Conference of the Transportation Association of Canada, 2015.
- Karim, M. M. A., et al. Effect of Utility Cuts on Serviceability of Pavement Assets – A Case Study from the City of Calgary. Pavement and Asset Management Session of the Annual Conference of the Transportation Association of Canada, 2014.
- Marcus W. B. Economic Report: Estimated Costs of Accelerated Repaving Required As a Result of Utility Excavations in San Francisco Streets. City and County of San Francisco, CA, 1998.
- Shahin, M. Y., and J. A. Croveti. Analysis of the Impact of Utility Cuts on Pavement Life and Rehabilitation Cost in Prince George's County, MD. Prince George's County, MD, 2002.
- Shahin, M. Y., et al. The Effects of Utility Cut Patching on Pavement Life Span and Rehabilitation Costs. City of Los Angeles, CA, 1996.
- Shahin, M. Y., et al. Costing the Effects of Utility Cuts in the Life Cycle of Asphalt Pavements. City of Burlington, VT, 1986.
- Stephen Q. S. and K. A. Lauter. Using Pavement Management System Concepts to Determine the Cost and Impact of Utility Trenching on an Urban Road Network. Transportation Research Record: Journal of the Transportation Research Board, No 1699, 2000.
- Torbaghan, M.E., et al. Investigating the Relationship Between Trenching Practice and Road Deterioration. Infrastructure Asset Management, 2020.

Generally, the results of studies conducted by public agencies show that the presence of utility cuts lower measured pavement condition scores (indexes) compared to pavements of the same age with no utility cuts. The link between the presence of utility cuts and accelerated pavement deterioration is accepted by most agencies. The San Francisco study concedes that high-quality workmanship in the repair of utility trenches may reduce the structural damage to the pavement, but contends that lower ride quality and increased cracking still result and, therefore service life is diminished.

Task 2: Engineering Approach & Analyses

There are two primary methodologies that have been utilized; either using pavement condition data and statistical (or functional) analyses to develop performance models, or a structural analysis using deflection testing to quantify the impacts of utility cuts (NCE employed both approaches for Seattle and is currently conducting a similar scope for Anaheim).

The first requires a pavement management system that contains sufficient historical data so that streets with and without utility cuts can be compared. An example of such an approach is shown in the chart on the right (**Figure 1**) from San Francisco. However, it can be challenging to get sufficient data, primarily because few agencies have accurate data on pavement age beyond 10-15 years.

The pictures below (**Figure 2**) illustrate streets with and without cuts and the impacts on the PCI.

Figure 1. City of San Francisco – Pavement Condition by Age and Utility Cut

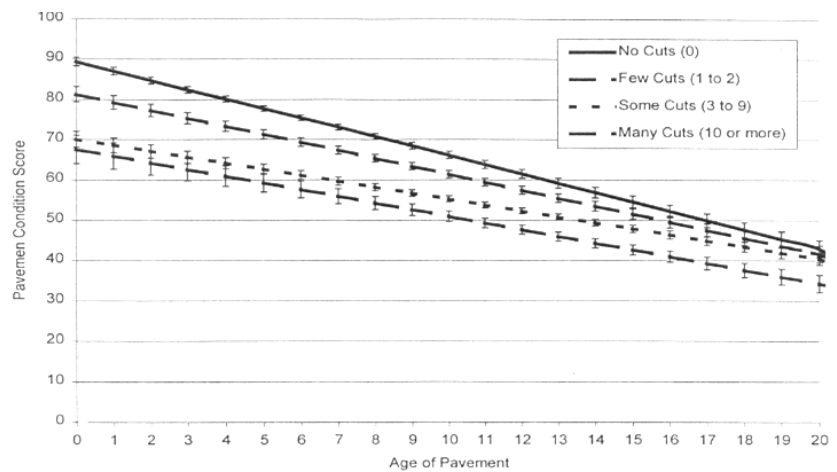


Figure 2. Comparison of Pavement Condition With and Without Utility Cuts

In this task, NCE will therefore review the City's StreetSaver® database to extract sections with utility cuts and compare their PCIs before and after the cuts. In order for the statistical analyses to be viable, several hundred data points will be required. Pavement distress details or available images will be reviewed to verify the presence and condition of the utility cuts.

The second, more common approach, was pioneered in Sacramento, and relies on the use of deflection testing to determine the impacts. The premise is that cutting into a pavement will structurally weaken the surrounding areas due to the “slumping” effect. Deflection testing can be used to establish the relative loss of structural capacity resulting from the presence of pavement cuts. This loss of structural capacity necessitates thicker overlays, thus increasing the cost of rehabilitation for a street with pavement cuts over the costs for a street without cuts.

This approach is most successful when used on pavements that have higher traffic volumes (such as arterials) and the pavement section must be known (either through cores or as-builts). A sample testing plan is shown to the right (**Figure 3**) for both longitudinal and transverse cuts. The deflection points 10 feet away from the cut act as the “control” section and provide a comparison of the pavement performance if there was no cut.

NCE will use the structural capacities of the sections with and without pavement cuts to determine the reduction in pavement life using mechanistic analysis. In addition, the required overlay thickness will be determined for each section. **Figure 4** below clearly shows that the age of the pavement adjacent to the cut has a higher overlay thickness required.

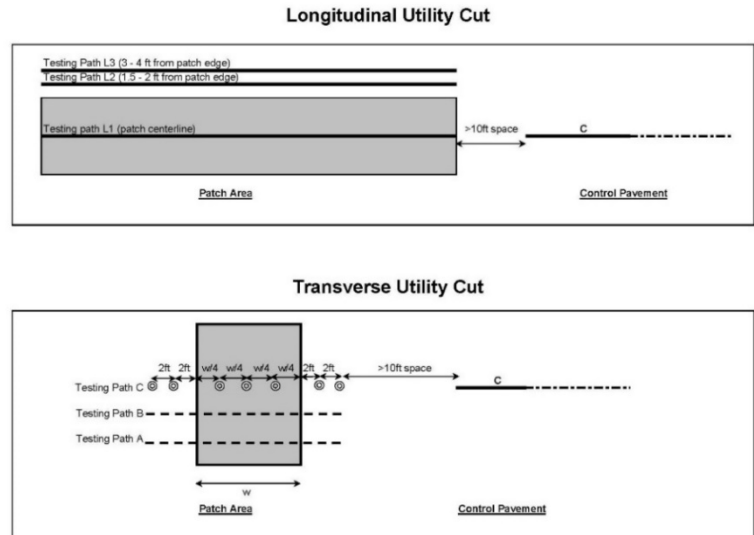


Figure 3. Example of Deflection Testing Plan

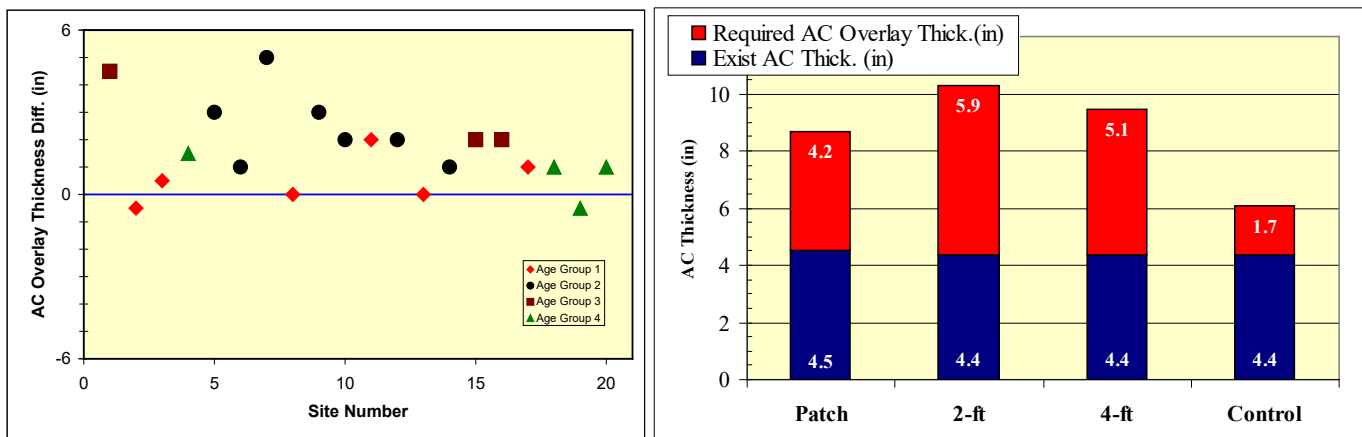


Figure 4. Differences in Overlay Thicknesses On and Adjacent to Utility Cut

By comparing the costs of overlays for sections with and without pavement cuts, the increased cost attributable to the pavement cut can be determined.

Task 3: Develop Fee Schedule and Report

NCE will then develop a fee schedule that will recover the full impacts of pavement cuts. Typical costs of repairs and types of repairs will be obtained from the City and used to determine the fee. This should be from recent bid tabs and include cost data such as:

- Construction and construction management of pavements
- Design
- City overhead
- Non-pavement items such as striping, traffic control, signal loops etc.
- Others as relevant

We will also review the different methodologies for recovering rehabilitation costs due to pavement cuts. In particular, the trigger points for overlays will be discussed. A sample of various fee schedules are shown in the below table. The results will be documented in the report for the City's review.

CITY	FEE SCHEDULE	COMMENTS
Los Angeles, CA	\$3.43 - \$14.08 per SF	Decreases with age. Considering flat fee.
San Francisco, CA	\$3.50 - \$1.00 per SF	Decreases with age.
Union City, CA	\$17.50 per LF	Single flat fee.
Oxnard, CA	\$0.55 per SF	
Bakersfield, CA	\$4.50 - \$8.50 per SF	
Redlands, CA	\$0.25 - \$2.00 per SF	Decreases with age and condition.
Seattle, WA	\$17.70 per SF	Single flat fee.
Pennsylvania, PA	\$2.24 per SF	Trigger level of 30%

In addition to the fee analysis, NCE will review moratoria from other agencies, and provide a recommendation to the City. After the analysis is completed, NCE will prepare a draft study report for the City to review. Upon receipt of the comments on the draft report, NCE will complete the final report for submittal. The report will include the following:

- Introduction/Background
- Results of literature reviewed
- Study approach
- Results of deflection testing analysis
- Results of pavement management program (PMP) statistical analysis
- Description of analysis results determining the impact of trench/pavement cuts on pavements
- Comparison of results with other studies
- Recommendations for rehabilitation actions due to the presence of trenches
- Estimate of repair costs required for pavements with and without cuts
- Recommended fee schedule

DELIVERABLES:

- Draft report
- Final report

Task 4 – Develop Fee Ordinance and Council Presentation

In this task, NCE will assist the City in developing a fee ordinance and present our findings to the City Council. This will include the methodology employed, a discussion of alternatives, an alternatives analysis and recommendations. Prior to the workshop, NCE will meet with City staff to review the presentation and modified as needed.

NCE has conducted many similar presentations, both to a technical and a non-technical audience. Typically, audiences such as a technical advisory committee will “dive deep” into the technical details. In contrast, City Council may focus only on the policy recommendations. Either way, NCE will provide City staff with the support desired.

It is assumed that this workshop will be conducted in person at the City, unless the current COVID-19 environment necessitates a virtual setting.

DELIVERABLES

- PowerPoint presentation

Schedule

The project schedule assumes a notice to proceed on December 1st, 2020 and a kickoff meeting scheduled by December 4th, 2020. In addition, two weeks is included for City’s review of the draft report. It is NCE’s experience that if the review includes the City Attorney’s office, this may require additional time.

Task Description	Weeks from Notice To Proceed																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Kickoff Meeting and Summarize Utility Cut Fee Studies																		
2. Engineering Approach & Analysis																		
A. Structural Analysis - Deflection Testing																		
B. Statistical Analysis - PMP Data (optional)																		
3. Develop Fee Schedule & Final Report																		
Draft Report																		
City Review																		
Final Report																		
4. City Council Presentation																		
	To be Determined																	

Assumptions:

Assumes no weather delays for Task 2A.



Contract Team

NCE brings a collaborative and innovative problem-solving mentality to address the technical challenges facing the City's pavement issues. Our key personnel have worked together on dozens of projects. The single most important tool for successful project management is clear, consistent and cooperative communication. As Project Manager, **Dr. Mei-Hui Lee, PE** will communicate regularly with the City regarding the progress of the study. She has conducted similar pavement impact studies for other agencies (**Sacramento and Pacifica**), is knowledgeable about the technical resources of the firm, managed and provide quality control for engineering projects, understands public sector contracts and contracting and has the authority to recruit resources within the firm and will work closely with the team and the City to make resources available on a short order basis. She will work closely with the team and the City to apply new ideas grounded in results gained to date from previous trench cut impact studies that she managed to successful conclusion and implementation.

We have assembled a team of professionals (**Figure 5**) with demonstrated experience providing services for similar types of programs – people who will take an outside of the box approach to problem-solving and who have the ability to draw upon established and new technologies to develop solutions. Our staff benefits from an investment in continuous training in emerging design and construction techniques and routinely shares their technical knowledge with others in the engineering community through teaching seminars, workshops and publication of articles in professional journals. NCE, with a staff of over 110 employees, is committed to providing the staff presented within this section. These individuals will be ready to begin work upon notice to proceed from the City. Our key personnel will be available throughout this contract.

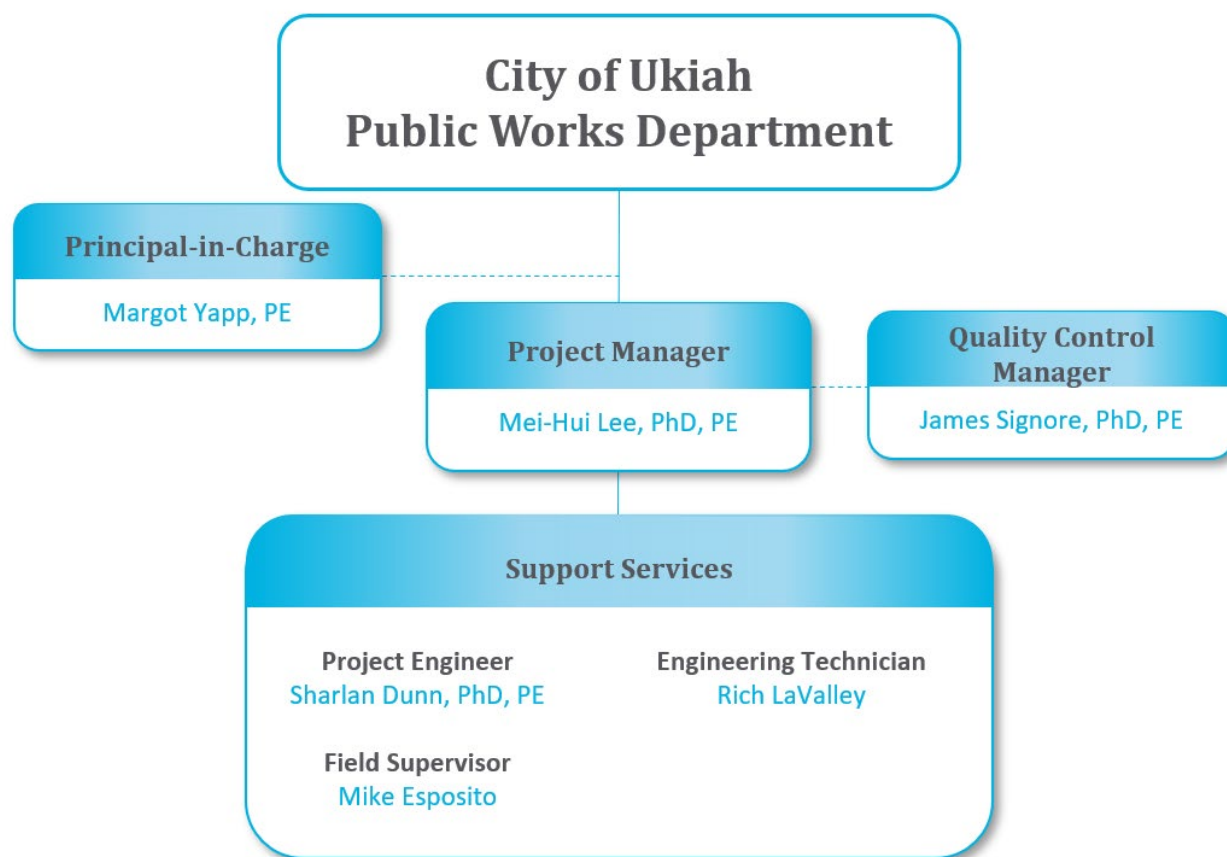


Figure 5. Organization Chart

NCE has performed numerous utility cut impact studies, usually with the objective of quantifying the required maintenance costs due to decreased pavement life. Fee schedules and/or ordinances were then developed to capture these costs.

Studies to determine the impacts of different truck loads such as construction or garbage trucks are similar in nature, and have the same objective of quantifying the increased maintenance costs.

Provided on the following pages are resumes for the NCE team that will provide the trench cut fee study related services to the City.

NCE Key Personnel



Ms. Margot Yapp, PE is NCE's proposed Principal-in-Charge. Ms. Yapp's expertise in pavement studies, design and management lies in the intersection of research and implementation. The path began during her senior year of college with her honors project and continued through research she conducted while obtaining her master's degree. Mentored by a nationally known pavement engineer at the start of her career, Ms. Yapp met leading pavement researchers and learned practical aspects of applying research. She has taught workshops on pavement management systems for the National Highway Institute and the Federal Highway Administration.

Of particular interest to this project, is her experience working on numerous pavement impact studies caused by different truck traffic as well as those from utility cuts. She has used a variety of rigorous technical approaches to determine these impacts such as:

- Development of an experiment design to ensure that all variables affecting pavement impacts are included
- Rigorous statistical analyses to ensure that results and conclusions are significant
- Pavement structural analysis, including the use of deflection testing
- Pavement condition analysis, employing the use of pavement management data

In each case, the appropriate technical approach was selected depending on the type of study and the data available.

Ms. Yapp was the Project Manager for the City of Ukiah's PMP update and was the Project Manager for similar trench cut studies in **Chico, Santa Rosa, Seattle, Philadelphia and Anaheim**. She is currently the Project Manager for the California Statewide Local Streets and Roads Needs Assessment and will bring a wealth of knowledge and expertise on statewide funding issues.



Ms. Mei-Hui Lee, PhD, PE is NCE's proposed Project Manager. She has 10+ years of experience in pavement engineering and is certified by the MTC inspector certification testing program and has expertise in performing condition surveys. Dr. Lee is also well experienced with updating maintenance and rehabilitation decision trees and the treatment unit costs, and the development of budget scenarios and summary reports. She has developed cost-effective maintenance treatments and strategies, prepared

custom multiple-year detailed street maintenance plans and budget option reports and linked GIS maps with management sections in the client's PMP database. **She is currently updating the City of Sacramento's trench cut fee ordinance and developing something similar for Pacifica and Elk Grove.**





Mr. James Signore, PhD, PE is NCE's proposed QC Manager. Dr. Signore has been involved in the pavement field for 25 years performing research, consulting, and teaching. He has worked with many local agencies in reviewing their pavement strategies and paving practices such as the **Cities of Davis, Elk Grove, Folsom and the Counties of Sacramento, Madera, Sonoma, Trinity, and San Joaquin**. Currently, he is the Principal Investigator to Caltrans for an on-call pavement engineering services project, where he is responsible for addressing issues related to pavement materials, design and testing throughout California. In addition, Dr. Signore is a Member of the Transportation Research Board Committee AFD70, Pavement Rehabilitation, AFD70-1, Pavement Interlayer Systems and the FAA Airport Pavement Technical Working Group.



Ms. Sharlan Dunn, PhD, EIT, proposed Project Engineer, earned her PhD in civil engineering with an emphasis in pavement and materials. Dr. Dunn has extensive research experience in pavement design, management, and materials. She also has expertise in the areas of pavement distress data collection, analysis and QC; M&R decision trees and treatment unit costs; multiple-year budget scenario analyses; and summary reports. She has

developed and updated similar trench cut studies for **Sacramento, Anaheim and Pacifica**, as well as pavement management system plans for the Cities of Sacramento, Citrus Heights, Davis, and Oakland and the Counties of Sacramento, Monterey and Calaveras.



Mr. Mike Esposito is NCE's proposed Field Supervisor. Since joining the firm in 1994, he has grown with the company and performs several functions essential to NCE and its clients. He has supervised and conducted transportation asset management on numerous projects throughout Northern Nevada and California. Also, during the past seven years, Mr. Esposito has performed the duties of Field Operations Supervisor for the FHWA Long-Term Pavement Performance (LTPP) regional contract, responsible for hiring and training technical staff, ensuring safety procedures and scheduling road testing as much as a year in advance.



Mr. Rich LaValley, proposed Engineering Technician, has been performing Falling Weight Deflectometer (FWD) operations in all the Western States and can verify and analyzing FWD and Deflection data. He has been accredited by the FHWA as a Distress Rater for 21 years and as a Seasonal Monitoring Technician for five years. Other duties include Transverse Profile and Distress testing and performing downloads of Seasonal data. Mr.

LaValley has vital expertise with the care and maintenance of the FWD equipment and is responsible for the vehicle and all testing equipment in the field. During Distress monitoring, he notes damage to roads and structures, including markings and signs and reports to appropriate agencies when attention is required.



Resumes

Focused resumes highlighting registrations/credentials, education, years of experience and a list of recent, relevant projects for each key member are included in the Appendix.



References

Pavement Management Update and GIS Linkage, Ukiah, CA (Mendocino Council of Governments [MCOG])



NCE has completed MCOG's PMP updates and GIS linkages four times since 2001. We have also provided in-depth StreetSaver® training to County and specific City Staff as well as provided assistance with Council presentations in recent years.

NCE last updated of the pavement management system and GIS linkage for the County of Mendocino and the Cities of Ukiah, Willits, Fort Bragg and Point Arena in 2012/2013. The County and these Cities have utilized the StreetSaver® program since 2000/2001. The scope of work included distress/condition surveys on approximately 768 centerline miles using the MTC StreetSaver® procedures, updating maintenance and rehabilitation history data, calculating the pavement condition indices (PCI), linking the StreetSaver® databases to the GIS, performing budget analyses on all databases, preparing final reports and conducting training for County and city personnel.



“Our experiences with them have been very good. NCE has been extremely responsive and professional. We have found them to be very knowledgeable and experienced in the field of Pavement Management. They have completed the projects on time and within budget. As rural counties, Lake and Mendocino present unique challenges which NCE has met with ease. Their staff has shown technical expertise and we’ve been very pleased with products which we have received from them. Their reports are particularly thorough and informative. The analysis and recommendations presented in their reports have really helped demonstrate to local officials the need for additional pavement maintenance and rehabilitation funding for our local agencies.”

Nephele S. Barrett, Executive Director
Mendocino Council of Governments

Client Contact

Mendocino Council of Governments

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Project Team

Margot Yapp, PE

Project Manager and Primary POC

James Signore, PE

QC Manager

Mei Hui Lee, PE

Senior Engineer

Utility Trench Cut Study Update (City of Sacramento)



With over 3,000 lane-miles of streets, the City owns and maintains the fifth largest street network in California. Since 2016, NCE has been responsible for updating the City pavement management system.

NCE is currently conducting a study to evaluate the impacts of utility cuts on the service life of pavements and to develop appropriate mitigation measures, including a fee schedule. A similar study was conducted in 1996, and this project will update the findings.

NCE's technical approach will include the following tasks:

- Research and summarize other studies related to street deterioration and rehabilitation costs from pavement utility cuts and trenches;
- Determine a methodology to establish the impacts of utility cuts/trenches;
- Perform a comprehensive pavement analysis to determine the extent of damage to the City's streets;
- Determine the loss of street life as a result of pavement cuts and determine the resultant rehabilitation costs;
- Develop an impact fee schedule relative to pavement cuts;
- Present the results to City Council and support to City staff for other meetings as needed.

Client Contact

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Project Team

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Principal-in-Charge
Mei-Hui Lee, PhD, PE
Project Manager
Sharlan Dunn, PhD
Project Engineer
Mike Esposito
Field Supervisor
Rich LaValley
Engineering Technician

"Of particular value to me was NCE's ability to develop a Pavement Condition Report that was geared to educate the public and elected officials with the challenges the City faces maintaining its pavement infrastructure. The report was very well done and became a popular template for other agencies maintaining pavement infrastructure in the Sacramento region. I recommend NCE to other organizations and hope to continue working with them in the future. They are hardworking, top-performing customer service-oriented professionals."

Gregory J. Smith, PE, Senior Civil Engineer
City of Sacramento Department of Public Works

Technical Review of Pavement Maintenance Impact Study (City of Santa Rosa)



The City of Santa Rosa had developed a methodology to determine the impacts of refuse trucks and underground utilities on pavement life. Pavement management data was used to model the differences in pavement life depending on the presence of utilities.

Most approaches used by other agencies focus specifically on utility cuts, and employ deflection testing and mechanistic analysis to quantify the impacts on pavements. These are then translated into fee schedules that are usually tiered (typically by age or condition), and then applied to all utilities that make cuts.

In the case of Santa Rosa's Utility Impact Fee (UIF), some of the assumptions relied on engineering judgment and local observations from the field when originally developed in 2003. NCE was selected to perform a peer review of the assumptions used such as the impact of refuse trucks and utilities, as well as the life extensions of the designated maintenance treatments and the development of the impact fee. Recommendations were made to update the models with field data as well as to revise the cost assumptions for the impact fees.

Client Contact

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QA/QC Manager
Shahram Misaghi, PE
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Impact of Utility Repairs on Performance of Street Pavements (Various Cities)

Similar utility cut studies were performed for the Cities of Palo Alto, Chico, Bishop, Elk Grove and Salem and the County of Santa Clara from 2001 to 2007. Deflection testing was utilized to determine the impacts of utility cuts, and fee schedules were developed. These agencies did not possess sufficient historical data in their pavement management systems, therefore, deflection testing was the only approach available.

Trench Cut Fee Study Services (City of Anaheim)



NCE was selected by the City of Anaheim to provide a Trench Cut Fee Study for the City's streets. The City is looking into ways to recover both its direct and indirect costs through fees, and desires to evaluate the impact of pavement cuts on the structural integrity of asphalt concrete streets. The City owns and maintains approximately

581.73 centerline miles of pavements, which includes 156.57 centerline miles of the Master Plan of Arterial Highways (MPAH) streets (AHS network) and 425.16 miles of local streets (LSS network).

NCE's responsibilities will include a Preliminary Study Report (PSR), Study Workshop, Final Study Report, as well as providing Outreach and Coordination (Council and Fee Workshops, study development meetings, and public meetings).

NCE's technical approach will include the following tasks:

- Research and summarize other studies related to street deterioration and rehabilitation costs from pavement utility cuts and trenches;
- Determine a methodology to establish the impacts of utility cuts/trenches;
- Perform a comprehensive pavement analysis to determine the extent of damage to the City's streets;
- Determine the loss of street life as a result of pavement cuts and determine the resultant rehabilitation costs;
- Develop an impact fee schedule relative to pavement cuts;
- Conduct a study workshop;
- Provide public outreach support;
- Prepare a study report; and
- As optional tasks, provide other options to generate additional fees, and/or draft language for changing and updating the City's Municipal Code to implement a trench fee.

Client Contact

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Sharlan Dunn, PhD, EIT
Project Engineer
Mike Esposito
Field Supervisor
Rich LaValley
Engineering Technician

Evaluation of Pavement Cuts (Regional Transportation Commission of Southern Nevada)

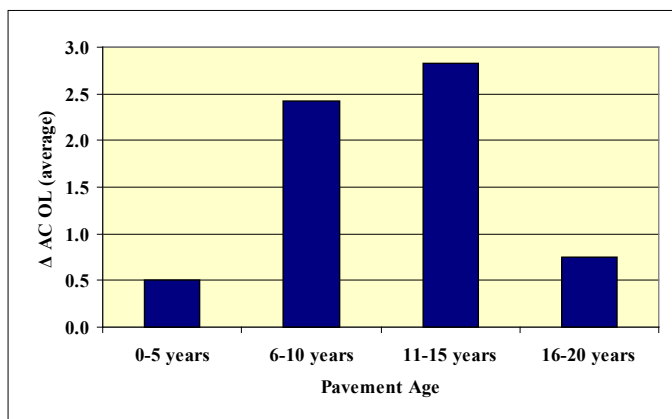
NCE investigated the impacts of pavement cuts (from utilities as well as street maintenance) on streets within the Cities of Las Vegas, North Las Vegas, Henderson as well as Clark County. This project objective was to determine if there was an impact on pavements from the presence of pavement cuts, and if so, to quantify that impact and the costs for restoration.

In this study, we performed the following:

- Reviewed and summarized other studies related to street deterioration and rehabilitation costs from pavement cuts
- Conducted a testing program to evaluate pavement sites in all agencies affected by cuts. This included deflection testing with a Falling Weight Deflectometer in order to assess the structural differences
- Performed a comprehensive pavement analysis to determine the extent of damage to County/City streets from pavement cuts
- Determined the loss of street life as a result of pavement cuts and rehabilitation costs
- Developed a fee schedule or methodology to recover rehabilitation costs and a fee schedule
- Recommended restoration procedures to mitigate the impacts of pavement cuts

NCE's general approach was to perform a structural evaluation using deflection testing. Once the results indicated that there were statistical differences present, a model was developed to predict the differences in maintenance and rehabilitation costs resulting from a pavement cut.

As the results indicated in the figure to the left, pavements that were 11-15 years old were impacted greatest (as measured by the increase thickness of an asphalt concrete overlay) by the presence of utility cuts. Numerous presentations were made to RTC staff during and at the conclusion of this study.



Client Contact

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Project Team

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Project Manager

Impact of Utility Cuts on Performance of Seattle Streets (City of Seattle)



NCE was commissioned to perform a study to determine the impacts of utility cuts on street pavements by Seattle Transportation. The City experienced over 9000 new utility cuts every year, caused by a dozen private and public utilities.

This study was to determine the extent of degradation and costs associated with maintenance repairs and rehabilitation due to the presence of utility cuts.

Seattle had an extensive and well documented pavement management program, and almost a thousand sites were statistically analyzed to develop performance models. A structural approach using deflection testing was also used on select pavement sections.

The following tasks were performed by NCE.

- Review of literature and City's data sources
- Identification of candidate sections
- Statistical analysis of historical data from pavement management system data
- Structural approach using deflection testing
- Data analysis and model development
- Report preparation
- Presentations to City staff

Client Contact

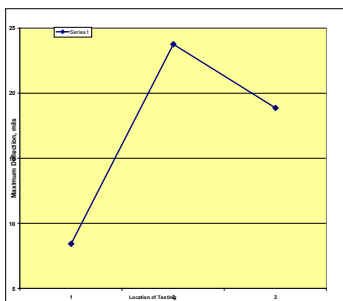
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Project Team

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Project Manager and Primary POC

Impact of Utility Cuts on Performance of Street Pavements (City of Philadelphia)



NCE was selected by the City of Philadelphia to determine the impacts of utility cuts on pavements and to develop a utility cut fee. An experiment design was developed that included pavements from different functional classifications, ages and surface types was developed. Then a combination of condition surveys and deflection testing was used to measure

the accelerated deterioration in pavements. Finally, statistical analysis was performed to measure the effects of the utility cuts and the results were used to develop a fee schedule.

The figure to the left illustrates the fact that highest deflections were obtained two feet away from the edge of the pavement cut.

NCE worked with both the Public Works and Legal Departments during the development of the fee ordinance.

Client Contact

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Project Team

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Senior Engineer



Addendum

NCE has checked the City's website and acknowledges no addenda have been posted as of the due date of the proposal.



Exceptions

NCE has reviewed the City of Ukiah Standard Contract provided as Attachment A to your request for proposal for Trench Cut Fee Study and Implementation Services. After careful consideration, we would appreciate the opportunity to discuss the changes noted below. The proposed indemnification changes are requested to meet the requirements of SB496.

Contract Attachment A, Article Number, Name: Article 6, Indemnification, Subsection 6.2 Indemnification

Proposed Change: Notwithstanding the foregoing insurance requirements, and in addition thereto, Consultant agrees, for the full period of time allowed by law, surviving the termination of this Agreement, to indemnify the City for any claim, cost or liability ~~that arises out of, or pertains to, or relates to~~ **the extent caused by** any negligent act ~~or omission~~ or the willful misconduct of Consultant and its agents in the performance of services under this contract, but this indemnity does not apply to liability for damages for death or bodily injury to persons, injury to property, or other loss, arising from the sole negligence, willful misconduct or defects in design by the City, or arising from the ~~active~~ negligence of the City.

“Indemnify,” as used herein includes ~~the reimbursing the apportioned~~ expenses of defending against a claim and the payment of any settlement or judgment arising out of the claim. Defense costs include all costs associated with defending the claim, including, but not limited to, the fees of attorneys, investigators, consultants, experts and expert witnesses, and litigation expenses.

In no event shall the cost to defend charged to the CONSULTANT exceed the CONSULTANT’s proportionate percentage of fault.

References in this paragraph to City or Consultant, include their officers, employees, agents, and subcontractors.

Contract Attachment A, Article Number, Name: Article 7, Contract Provisions, Subsection 7.8 Termination

Proposed Change: This Agreement may only be terminated by either party: 1) for breach of the Agreement; 2) because funds are no longer available to pay Consultant for services provided under this Agreement; or 3) City has abandoned and does not wish to complete the project for which Consultant was retained. A party shall notify the other party of any alleged breach of the Agreement and of the action required to cure the breach. If the breaching party fails to cure the breach within the time specified in the notice, the contract shall be terminated as of that time. If terminated for lack of funds or abandonment of the project, the contract shall terminate on the date notice of termination is given to Consultant. City shall pay the Consultant only for services performed and expenses incurred as of the effective termination date. In such event, as a condition to payment, Consultant shall provide to City all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs and reports prepared by the Consultant under this Agreement. Consultant shall be entitled to receive just and equitable compensation for any work satisfactorily completed hereunder, ~~subject to off set for any direct or consequential damages City may incur as a result of Consultant's breach of contract.~~

Insurance Requirements

NCE currently complies with and will continue to meet the City’s insurance requirements as outlined in Attachment B, Insurance Requirements, to your request for proposal for Utility Trench Cut Fee Study and Implementation Services.



A Staff Resumes

Mei-Hui Lee, PhD, PE – Project Manager

Dr. Mei-Hui Lee has a PhD in civil and pavement engineering and over 10 years of experience in pavement design, evaluation and maintenance projects. Currently, Dr. Lee serves as the Project Manager for the Cities of Sacramento and Pacifica on similar trench cut studies.

She has also been responsible for numerous pavement management and design projects at NCE. **Her clients include the Counties of Siskiyou, Mendocino, Lake, Trinity, Mariposa and Sacramento as well as multiple cities including Sacramento, Davis, Stockton, Elk Grove, Lincoln, Folsom, and Yuba.** Dr. Lee is certified by the MTC inspector certification testing program. She was also involved in the Needs Assessment for the Rural Counties Task Force.

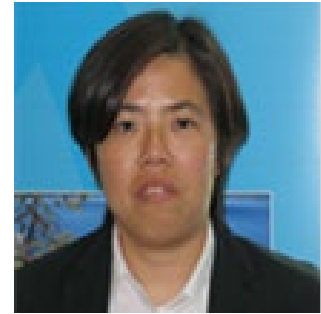
Representative Projects

Pavement Management System Updates

Various Cities and Counties

Project Engineer. Dr. Lee has been involved with updating Pavement Management Systems (PMS) for many Cities and Counties in the Bay Area, Central Valley, and outside of California. She is responsible for the analysis and quality control of pavement distress data collection, updating maintenance and rehabilitation decision trees and the treatment unit costs, and the development of budget scenarios and summary reports. She has developed cost-effective maintenance treatments and strategies, prepared custom multiple-year detailed street maintenance plans and budget option reports, and linked GIS maps with management sections in the client's PMS database. Some of her current/past PMS clients include:

- | | | |
|-----------------------|---------------------------|--------------------|
| ■ Ada County, ID | ■ Folsom | ■ Sacramento |
| ■ Amador City | ■ Hayward Airport | ■ County |
| ■ Amador County | ■ Jackson | ■ San Francisco |
| ■ Belvedere | ■ Lake County | ■ San Rafael |
| ■ Benicia | ■ Lakeport | ■ Santa Cruz |
| ■ Calistoga | ■ Madera County | ■ Santa Rosa |
| ■ Chula Vista | ■ Mariposa County | ■ Siskiyou County |
| ■ Clearlake City | ■ Marin County | ■ South San |
| ■ Concord | ■ Mendocino COG | ■ Francisco |
| ■ Contra Costa County | ■ (includes Ukiah) | ■ Sonoma County |
| ■ Davis | ■ Monterey County | ■ St. Helena |
| ■ East Bay Regional | ■ Moraga | ■ Trinity County |
| ■ Park Districts | ■ Novato | ■ University of |
| ■ Elk Grove | ■ Oakland | ■ California-Davis |
| ■ Fairfax | ■ Placerville | ■ Vallejo |
| | ■ Pleasant Hill | ■ Yuba City |
| | ■ Plymouth | ■ Yountville |
| | ■ Rio Vista | |
| | ■ Sacramento | |



Education

PhD, Civil Engineering,
National Taiwan University,
Taiwan, 2009

MS, Civil Engineering,
Columbia University, New
York, 2012

BS, Civil Engineering,
National Taiwan University,
Taiwan, 2002

Registrations/Certifications

Professional Engineer –
Civil, CA #87635

MTC StreetSaver® Rater
Certification Program

Affiliations

American Society of Civil
Engineers

American Concrete
Pavement Association

Joined NCE

2014

Total Years of Experience

10 years

Utility Trench Cut Fee Study

City of Sacramento, CA

Project Manager. NCE is currently conducting a study to evaluate the impacts of utility cuts on the service life of pavements and to develop appropriate mitigation measures, including a fee schedule. A similar study was conducted by the City in 1996, and this project will update the findings. The methodology includes performing deflection testing on selected sites, developing a fee schedule and a presentation to Council on the results.

Pavement Management System Update

City of Sacramento, CA

Senior Engineer. With over 3,000 lane-miles of streets, Sacramento owns and maintains the fifth largest street network in California. In 2016, the City converted to the StreetSaver® pavement management system software and needed results from an updated PMS in less than six weeks. NCE implemented an aggressive field data collection schedule to meet this goal. After the field data was collected, NCE developed maintenance strategies and performed multiple funding scenarios for each Council district. Finally, a report for City Council and the public was prepared, along with GIS maps.

In 2020, NCE was selected again to provide pavement condition data collection and updating the Pavement Management Application (PMA).

Pavement Management Program for Hayward Executive Airport (HEA)

City of Hayward, CA

Project Engineer. Scope included updating the PAVER™ pavement management system, which covers approximately 4.4 million square feet of airside pavements, performing condition surveys as per ASTM 5340, updating historical maintenance activities in the database, updating pavement strategies and unit costs, performing budgetary/funding analyses, linking PAVER™ database to CADD drawings, and preparing multi-year work plan. HEA, a former World War II fighter base, is home to 4,400 aircraft and is located on 543 acres with two parallel runways of 5,694 and 3,107 feet each.

Pavement Management Peer Review

County of Madera, CA

Senior Engineer. Dr. Lee reviewed existing information for developing a pavement management program for the County. A summary of pavement inventory and data collection recommendations were summarized in the report. Based on summary information developed in this project, a draft scope of work for the County's use in developing a request for proposal to implement a pavement management system was also developed.

Margot Yapp, PE – Principal-in-Charge

Ms. Margot Yapp's expertise in pavement studies, design and management lies in the intersection of research and implementation. The path began during Ms. Yapp's senior year of college with her honors project and continued through research she conducted while obtaining her master's degree. Mentored by a nationally known pavement engineer at the start of her career, Ms. Yapp met leading pavement researchers and learned practical aspects of applying research.

She enjoys the fulfilling opportunities NCE provides, whether it's helping colleagues with their professional development or affecting city and state transportation policies. Having worked with public agencies for more than 30 years — both as an employee and a consultant — Ms. Yapp understands the challenges public servants face, making her effective at providing recommendations and presentations. She is skilled at translating technical information to a succinct, understandable message, "particularly useful since policies need to be adopted by non-technical people."

Ms. Yapp has taught workshops on pavement management systems for the National Highway Institute and the Federal Highway Administration.

Of particular interest to this project, is her experience working on numerous pavement impact studies caused by different truck traffic as well as those from utility cuts. She has used a variety of rigorous technical approaches to determine these impacts such as:

- Development of an experiment design to ensure that all variables affecting pavement impacts are included
- Rigorous statistical analyses to ensure that results and conclusions are significant
- Pavement structural analysis, including the use of deflection testing
- Pavement condition analysis, employing the use of pavement management data

In each case, the appropriate technical approach was selected depending on the type of study and the data available.

Representative Projects

Pavement Management System Update and GIS Linkage

Mendocino Council of Governments, Ukiah, CA

Project Manager. This project was included in MCOG's 2016/17 Overall Work Program to provide for updates to the Pavement Management Programs for the County of Mendocino and the Cities of Ukiah, Fort Bragg, Willits and Point Arena utilizing the StreetSaver® program. This included conducting condition surveys and updating databases for the 773 miles of streets and roads within the County and city systems. In addition, each agency's GIS linkage was revised as appropriate for compatibility with the updated survey data. Reports on the conditions, needs, and budget scenarios were included as well. Training on use of the StreetSaver® program for local agency staff was also part of the project. Use of the program varied among the agencies. Some utilized the program as a preventive maintenance programming tool and have performed in-house pavement condition surveys, while others did not fully utilize the program or entered new data. **NCE has completed MCOG's PMP updates and GIS linkages four times since 2001.**



Education

MS, Civil Engineering,
Oregon State University,
Corvallis, 1987

BS, Civil Engineering,
Oregon State University,
Corvallis, 1985

BS, Forest Engineering,
Oregon State University,
Corvallis, 1985

Registrations/Certifications

Professional Engineer –
Civil, CA, #45027

Affiliations

American Society of Civil
Engineers

American Public Works
Association

TRB Subcommittee A2B01 –
Local Agency Pavement
Management

Joined NCE

1994

Total Years of Experience

30 years

Utility Trench Cut Fee Study

City of Sacramento, CA

Project Manager. NCE is currently conducting a study to evaluate the impacts of utility cuts on the service life of pavements and to develop appropriate mitigation measures, including a fee schedule. A similar study was conducted by the City in 1996, and this project will update the findings. The methodology includes performing deflection testing on selected sites, developing a fee schedule and a presentation to Council on the results.

Trench Cut Fee Study

City of Anaheim, CA

Project Manager. NCE was selected by the City of Anaheim to provide a Trench Cut Fee Study for the City's streets. The City is looking into ways to recover both its direct and indirect costs through fees, and desires to evaluate the impact of pavement cuts on the structural integrity of asphalt concrete streets. The City owns and maintains approximately 581.73 centerline miles of pavements, which includes 156.57 centerline miles of the Master Plan of Arterial Highways (MPAH) streets (AHS network) and 425.16 miles of local streets (LSS network). NCE's responsibilities will include a Preliminary Study Report (PSR), Study Workshop, Final Study Report, as well as providing Outreach and Coordination (Council and Fee Workshops, study development meetings, and public meetings).

Impact of Utility Cuts on Performance of Seattle Streets

City of Seattle, WA

Project Manager. NCE was commissioned to perform a study to determine the impacts of utility cuts on street pavements by Seattle Transportation. This study was to determine the extent of degradation and costs associated with the presence of utility cuts. This study utilized the methodology that was also adopted by many other cities around the U.S. and has been cited by APWA and many other publications related to the impacts of utility cuts.

Impact of Utility Cuts on Performance of Street Pavements

City of Philadelphia, PA

Principal. NCE was selected by the City of Philadelphia to determine the impacts of utility cuts on pavements and to develop a utility cut fee. An experiment design was developed that included pavements from different functional classifications, ages and surface types was developed. Then a combination of condition surveys and deflection testing was used to measure the accelerated deterioration in pavements. Finally, statistical analysis was performed to measure the effects of the utility cuts and the results were used to develop a fee schedule.

Evaluation of Pavement Cuts

Regional Transportation Commission (RTC) of Southern Nevada, Las Vegas, NV

Project Manager. NCE investigated the impacts of pavement cuts (from utilities as well as street maintenance) on streets within the Cities of Las Vegas, North Las Vegas, Henderson as well as Clark County. This project objective was to determine if there was an impact on pavements from the presence of pavement cuts, and if so, to quantify that impact and the costs for restoration.

Impact of Utility Repairs on Performance of Street Pavements

Cities of Santa Rosa, Chico, Bishop, CA and Salem, OR

Project Manager. Similar utility cut studies were performed for the Cities of Santa Rosa, Chico, Bishop and Salem. Deflection testing was utilized to determine the impacts of utility cuts, and fee schedules were developed. The cities did not possess historical data and no PMS data were available, therefore, deflection testing was the only approach available.

James Signore, PhD, PE – Quality Control Manager

James M. Signore, PhD, PE, specializes in pavement design and evaluation, rehabilitation and maintenance, materials assessment, and training. He has experience in designing pavements for many local agencies, Caltrans and for heavy vehicle loading applications at airfields and ports. He has spent years researching all types of pavement materials, having directed a state-of-the-art AMRL certified and Superpave mix design equipped research laboratory and is well versed in state and local pavement practices and specifications.

Dr. Signore has taught NHI's and ASCE's "Techniques for Pavement Rehabilitation" (including best practices for utility cuts and patches) seminars to practicing engineers for 20 years. He taught graduate courses in pavement engineering at San Jose State University and many of his former students are civil engineers at local agencies. He uses his practical and research experience, technical knowledge and teaching skills to develop an understanding of client needs and the creation of design and rehabilitation strategies that offer the client agency the leading-edge in methods and materials for their pavements. Dr. Signore is a Member of the Transportation Research Board Committee AFD70, Pavement Rehabilitation, AFD70-1, Pavement Interlayer Systems and the FAA Airport Pavement Technical Working Group.

Dr. Signore has worked on several pavement impact studies caused by different truck traffic as well as those from utility cuts e.g. City of Philadelphia. He has used a variety of rigorous technical approaches to determine these impacts such as:

- Development of an experiment design to ensure that all variables affecting pavement impacts are included
- Rigorous statistical analyses to ensure that results and conclusions are significant
- Pavement structural analysis, including the use of deflection testing
- Pavement condition analysis, employing the use of pavement management data

In each case, the appropriate technical approach was selected depending on the type of study and the data available.

Representative Projects

Pavement Management System Update

City of Sacramento, CA

QC Manager. With over 3,000 lane-miles of streets, Sacramento owns and maintains the fifth largest street network in California. In 2016, the City converted to the StreetSaver® pavement management system software and needed results from an updated PMS in less than six weeks. NCE implemented an aggressive field data collection schedule to meet this goal. After the field data was collected, NCE developed maintenance strategies and performed multiple funding scenarios for each Council district. Finally, a report for City Council and the public was prepared, along with GIS maps.

In 2020, NCE was selected again to provide pavement condition data collection and updating the Pavement Management Application (PMA).



Education

PhD, Civil Engineering,
University of Illinois,
Urbana-Champaign, 1998

MS, Civil Engineering,
University of Illinois –
Urbana-Champaign, 1994

BS, Electrical Engineering,
Clarkson University, 1985

Registrations/Certifications

Professional Engineer –
Civil, CA, #62647

Affiliations

TRB Committee AFD70,
Pavement Rehabilitation

TRB Committee AFD70-1,
Pavement Interlayer
Systems

ASCE Airfield Pavement
Committee

FAA Pavement Technical
Working Group

American Society of Civil
Engineers

Joined NCE

2014

Total Years of Experience

25 years

Trench Cut Fee Study

City of Anaheim, CA

QC Manager. NCE was selected by the City of Anaheim to provide a Trench Cut Fee Study for the City's streets. The City is looking into ways to recover both its direct and indirect costs through fees, and desires to evaluate the impact of pavement cuts on the structural integrity of asphalt concrete streets. The City owns and maintains approximately 581.73 centerline miles of pavements, which includes 156.57 centerline miles of the Master Plan of Arterial Highways (MPAH) streets (AHS network) and 425.16 miles of local streets (LSS network). NCE's responsibilities will include a Preliminary Study Report (PSR), Study Workshop, Final Study Report, as well as providing Outreach and Coordination (Council and Fee Workshops, study development meetings, and public meetings).

Impact of Utility Cuts on Performance of Street Pavements

City of Philadelphia, PA

Project Manager, Senior Engineer. NCE was selected by the City of Philadelphia to determine the impacts of utility cuts on pavements and to develop a utility cut fee. An experiment design was developed that included pavements from different functional classifications, ages and surface types was developed. Then a combination of condition surveys and deflection testing was used to measure the accelerated deterioration in pavements. Finally, statistical analysis was performed to measure the effects of the utility cuts and the results were used to develop a fee schedule.

On-Call Pavement Engineering

California Department of Transportation, Statewide, CA

Project Manager 2015-2022. Dr. Signore manages the pavement on-call contract with Caltrans and is responsible for all contractual and project management activities. Major task orders emphasize asphalt and concrete pavement performance and evaluation for all types of pavement issues such as a comparison of ARHM and conventional HMA performance, HMA smoothness specifications, and polyester inlay materials evaluation. He provided technical guidance on the selection and testing of joint filler and spall repair materials and acted as a construction methods assessor on the installation of precast concrete slabs. He wrote, reviewed, or edited numerous interim and final reports including those dealing with continuously reinforced concrete, rapid set concrete, concrete inlay hardeners, and concrete flexural strength.

Pavement Management Systems

Various Cities and Counties

QC Manager. Dr. Signore has been responsible for quality control for Pavement Management Systems (PMS) updates for many cities and counties in California. He is responsible for the quality control of data and responsible for spot checks on the field crews during the pavement condition surveys. Some of his clients include:

- | | | | |
|--------------------|-------------------|-------------------------|-----------------------|
| ▪ Aliso Viejo | ▪ Folsom | ▪ Pico Rivera | ▪ South San Francisco |
| ▪ Buena Park | ▪ Garden Grove | ▪ San Francisco | ▪ Southgate |
| ▪ Burbank | ▪ Hayward Airport | ▪ San Francisco Airport | ▪ Stanton |
| ▪ Carson | ▪ La Mirada | ▪ Santa Clarita | ▪ Thousand Oaks |
| ▪ Dana Point | ▪ Lemon Grove | ▪ Santa Monica | ▪ West Covina |
| ▪ Davis | ▪ Madera County | ▪ Siskiyou County | ▪ Yorba Linda |
| ▪ Downey | ▪ Newport Beach | ▪ Sonoma County | ▪ Yuba City |
| ▪ Elk Grove | ▪ Orange | | |

Sharlan Dunn, PhD, EIT – Project Engineer

Dr. Dunn joined NCE as a project engineer in 2018 after graduating from Purdue University with a PhD in civil engineering with an emphasis in pavement management and pavement materials. She has extensive research and design experience in pavement design, management, and materials. She currently serves as a project engineer for pavement management, maintenance, rehabilitation, design, and planning projects.

Representative Projects

Utility Trench Cut Fee Study

City of Sacramento, CA

Project Manager. NCE is currently conducting a study to evaluate the impacts of utility cuts on the service life of pavements and to develop appropriate mitigation measures, including a fee schedule. A similar study was conducted by the City in 1996, and this project will update the findings. The methodology includes performing deflection testing on selected sites, developing a fee schedule and a presentation to Council on the results.

Trench Cut Fee Study

City of Anaheim, CA

Project Engineer. NCE was selected by the City of Anaheim to provide a Trench Cut Fee Study for the City's streets. The City is looking into ways to recover both its direct and indirect costs through fees, and desires to evaluate the impact of pavement cuts on the structural integrity of asphalt concrete streets. The City owns and maintains approximately 581.73 centerline miles of pavements, which includes 156.57 centerline miles of the Master Plan of Arterial Highways (MPAH) streets (AHS network) and 425.16 miles of local streets (LSS network). NCE's responsibilities will include a Preliminary Study Report (PSR), Study Workshop, Final Study Report, as well as providing Outreach and Coordination (Council and Fee Workshops, study development meetings, and public meetings).

Springville Street Cut Fee Schedule

City of Springville, UT

Graduate Research Assistant. Dr. Dunn aided in the development of a fee schedule for street cuts based on functional classification, pavement age, and age at the time of cut. She was responsible for distress evaluations, roughness measurements, falling-weight deflectometer testing, and data analysis.

Valley View Avenue Rehabilitation Project

City of La Mirada, CA

Project Engineer. NCE provided pavement evaluation and design services of Valley View Avenue, a highly traveled commercial corridor nearly a mile long with heavily deteriorated pavement. A pavement condition survey was conducted with distresses identified along with areas for potential base repairs. Coring, sampling and laboratory testing was performed, and a pavement design and soils investigation report were prepared and included potential treatments with a focus on sustainable treatments and cost saving measures. Technical specifications were provided.



Education

PhD, Civil Engineering,
Purdue University, 2018

Registrations/Certifications

Engineer-in-Training (EIT)

MTC StreetSaver® Rater
Certification Program

Affiliations

American Society of Civil
Engineers

Joined NCE

2018

Total Years of Experience

5 years

Pavement Management System Development and Updates

Various Cities and Counties, CA

Project Engineer. Dr. Dunn has been involved in developing and updating pavement management system (PMS) plans for several cities and counties in California and Washington. She has been responsible for pavement distress data collection, analysis and quality control; updated maintenance and rehabilitation decision trees and treatment unit costs; performed multiple-year budget scenario analyses; and prepared summary reports.

Some of her current/past clients include:

- | | | |
|--------------------|---|---------------------------------------|
| ▪ Alameda County | ▪ Marin County | ▪ Santa Cruz County |
| ▪ Calaveras County | ▪ Monterey County | ▪ San Francisco |
| ▪ Campbell | ▪ Oakland | ▪ San Francisco International Airport |
| ▪ Davis | ▪ Sacramento | ▪ Seaside |
| ▪ Elk Grove | ▪ Sacramento County | ▪ Siskiyou County |
| ▪ Fresno COG | ▪ Sacramento International Airport | ▪ Sonoma County |
| ▪ Madera County | | |

SFO On-Call Pavement Engineering

San Francisco International Airport, CA

Project Engineer. Dr. Dunn has been involved in a variety of field investigation and design work at the San Francisco Airport. These include pavement evaluation of Runway 1L-19R, and Boarding Areas A and B, and evaluation and design of Taxiway B 3 and 4. These projects have involved a variety of destructive and non-destructive testing (such as coring, deflection testing, and ground penetrating radar testing) and complex analyses and design using back calculation and FAA design software.

Broadway and Parkside Rehabilitation

City of Walnut Creek, CA

Project Engineer. This project included rehabilitation recommendations for approximately two miles of arterial streets that exhibited a variety of distresses ranging from minor to severe failure mechanisms. Pavement design tasks included pavement condition surveys, coring, non-destructive pavement deflection testing, design, and base repair location identification. NCE also provided civil design services for these street sections. Based on structural analyses and constructability issues, the recommended treatments included primarily traditional mill and overlay with base repairs with some portions of surface reconstruction.

Presidio Trust Pavement Rehabilitation and Maintenance

Presidio Trust, San Francisco, CA

Project Engineer. This project included pavement and civil design services for 33 street sections and five parking lots within the Presidio Trust to extend pavement life and provide improved access and service for visitors and the local community. Together these streets constitute approximately seven centerline miles of pavement. Pavement design services involved a pavement condition survey, coring, laboratory testing, and pavement design per the Caltrans Highway Design Manual. Treatment recommendations considered budget constraints, constructability, street condition, grade constraints, pavement defects, pavement layer thicknesses, fabric depth, and cost effectiveness and included traditional rehabilitation methods as well as green treatments such as cold-in-place recycling. The green treatments not only minimized material off haul, but also minimized the construction time and inconvenience to visitors and residents.

Mike Esposito – Field Supervisor

Since joining the firm in 1994, Mr. Mike Esposito has grown with the company and performs several functions essential to NCE and its clients. He has supervised and conducted transportation asset management on numerous projects throughout Northern Nevada and California. Also, during the past seven years, Mr. Esposito has performed the duties of Field Operations Supervisor for the FHWA Long-Term Pavement Performance (LTPP) regional contract, responsible for hiring and training technical staff, ensuring safety procedures and scheduling road testing as much as a year in advance.

Representative Projects

Trench Cut Fee Study

City of Anaheim, CA

Field Supervisor. NCE was selected by the City of Anaheim to provide a Trench Cut Fee Study for the City's streets. The City is looking into ways to recover both its direct and indirect costs through fees, and desires to evaluate the impact of pavement cuts on the structural integrity of asphalt concrete streets. The City owns and maintains approximately 581.73 centerline miles of pavements, which includes 156.57 centerline miles of the Master Plan of Arterial Highways (MPAH) streets (AHS network) and 425.16 miles of local streets (LSS network). NCE's responsibilities will include a Preliminary Study Report (PSR), Study Workshop, Final Study Report, as well as providing Outreach and Coordination (Council and Fee Workshops, study development meetings, and public meetings).

Grade Separation Haul Road Evaluation and Rehabilitation

City of Montebello, CA

Field Supervisor. NCE is providing pavement evaluation and rehabilitation design for four streets, including a major arterial that is being used as a haul route for the construction of a new grade separation project in Montebello for the San Gabriel Valley Council of Government (formerly the Alameda Corridor East) and the City of Montebello.

NCE performed a field inspection to determine current distresses and pavement condition and conducted deflection testing using our Dynatest Model 8000 FWD. Pavement cores and bulk samples of the subgrade were also obtained for laboratory testing, including R-values. In addition, dynamic cone penetrometer testing was performed at every core hole in accordance with ASTM D6951. The results were used to prepare pavement designs.

Bridgeport Streets Rehabilitation

City of Bridgeport, CA

Technician. The project included pavement rehabilitation for three miles of roadways in Bridgeport, CA. NCE's services included completion of a pavement condition survey, coring, non-destructive FWD testing, pavement design and soils investigation, curb, gutter, sidewalk and surface drainage condition survey, PS&Es and bidding services. Project duties included existing conditions analysis, coordination of coring activities and condition survey activities, pavement design, design recommendations and preparation of the pavement design and soils investigation report.



Education

Truckee Meadows
Community College

Fayetteville Technical
Community College

General Construction
Equipment School

Joined NCE

1994

Total Years of Experience

24 years

Pavement Engineering On-Call Services

San Francisco International Airport (SFIA), San Francisco, CA

Field Technician. The scope included collecting pavement distress data for both airside and landside pavements as per ASTM D5340 and D6433, respectively. A semi-automated vehicle was used to collect data on the runways and taxiways with walking surveys used on the aprons. Mr. Esposito updated SFIA's PAVER™ PMS and submitted reports to the Federal Aviation Administration, determined the ACN/PCN for runways and taxiways and performed deflection testing and pavement designs (FAARFIELD) for Runways 1L/19R, Taxiways E, F and L.

2010-2015 Pavement Condition Data Collection

RTC of Washoe County, NV

Lead Technician. This project involved collecting pavement condition survey data on the regional road network. NCE has collected data annually on over 160 centerline miles of roadway identified in RTC's Regional Transportation Plan (approximately 1,870 sample units are inspected each year). NCE's services included updating pavement management databases for Washoe County, City of Reno and City of Sparks, as well as performing QC/QA activities on the data.

2012-2014 Pavement Condition Data Collection

Washoe County, NV

Lead Technician. This project involved collecting pavement condition survey data on the County's roadway and parking lot networks, including inspecting approximately 3,000 sample units every year. NCE's services included coordinating with the County, collecting data, QC/QA, updating the management system, developing GIS shapefiles and linking those to the management system. This work also included establishing new sample units, and identifying unrecorded maintenance activities.

2011-2014 Pavement Condition Data Collection

City of Sparks, NV

Lead Technician. This project involved collecting pavement condition survey data on the City's roadway network, as well as their regional bike and pedestrian trails, including inspecting approximately 1,000 sample units every year. NCE's services included coordinating with the City, collecting data, QC/QA and updating the management system. This work also included establishing new sample units and identifying unrecorded maintenance activities.

Long Term Pavement Performance

Federal Highway Administration, Western Regional States

Field Operations Supervisor. The project involved scheduling of all field activities, roadway evaluations, field materials sampling and coordination of with agencies to receive maintenance information that has occurred on over 500 roadway segments across 14 Highway Agencies in the Western US. The field monitoring activities included materials sampling, falling weight deflectometer, pavement condition surveys, profile, environmental, global positioning measurements and dynamic cone penetrometer.

Asphalt Research Consortium Pavement Data Collection

Western Research Institute, Nationwide

Project Manager/Technician. NCE provides data collect services for the Western Research Institute (WRI) as part of a national study of in-service pavements. This study is part of the Asphalt Research Consortium (ARC). NCE has collected pavement condition data, provided construction documentation services and coring on these sites located across the U.S.

Rich LaValley – Engineering Technician

As an Engineering Technician, Mr. Rich LaValley has been performing Falling Weight Deflectometer (FWD) operations in all the Western States and can verify and analyzing FWD and Deflection data. He has been accredited by the FHWA as a Distress Rater for 21 years and as a Seasonal Monitoring Technician for five years. Other duties include Transverse Profile and Distress testing and performing downloads of Seasonal data. Mr. LaValley has vital expertise with the care and maintenance of the FWD equipment and is responsible for the vehicle and all testing equipment in the field. During Distress monitoring, he notes damage to roads and structures, including markings and signs and reports to appropriate agencies when attention is required. Mr. LaValley also performs pavement materials sampling (i.e., coring) at locations across the Western U.S. His extensive experience in the field with different kinds of asphalt and concrete surfaces allows him to work independently and efficiently.

In 14 years of field data collection, Mr. LaValley has tested over 28,000 test points using the standard FHWA 12 and 16 drop test setups (the equivalent of 300,000 test drops). He has participated in 15 FHWA certified reference calibrations at Dynatest's facility in Starke, Florida, A & M's facility in College Station, Texas, Denver, Colorado and UC Davis. He has been involved in the comprehensive overhaul of two Dynatest 8000 Falling Weight Deflectometers, having collaborated with Dynatest in performing FHWA sponsored yearly maintenance on both FHWA and NCE privately owned FWD



Education

University of Nevada –
Reno, NV 1984-1988

Joined NCE

1998

Total Years of Experience

22 years

Representative Projects

Trench Cut Fee Study

City of Anaheim, CA

Engineering Technician. NCE was selected by the City of Anaheim to provide a Trench Cut Fee Study for the City's streets. The City is looking into ways to recover both its direct and indirect costs through fees, and desires to evaluate the impact of pavement cuts on the structural integrity of asphalt concrete streets. The City owns and maintains approximately 581.73 centerline miles of pavements, which includes 156.57 centerline miles of the Master Plan of Arterial Highways (MPAH) streets (AHS network) and 425.16 miles of local streets (LSS network). NCE's responsibilities will include a Preliminary Study Report (PSR), Study Workshop, Final Study Report, as well as providing Outreach and Coordination (Council and Fee Workshops, study development meetings, and public meetings).

Grade Separation Haul Road Evaluation and Rehabilitation

City of Montebello, CA

Engineering Technician. NCE is providing pavement evaluation and rehabilitation design for four streets, including a major arterial that is being used as a haul route for the construction of a new grade separation project in Montebello for the San Gabriel Valley Council of Government (formerly the Alameda Corridor East) and the City of Montebello.

NCE performed a field inspection to determine current distresses and pavement condition and conducted deflection testing using our Dynatest Model 8000 FWD. Pavement cores and bulk samples of the subgrade were also obtained for laboratory testing, including R-values. In addition, dynamic cone penetrometer testing was performed at every core hole in accordance with ASTM D6951. The results were used to prepare pavement designs.

Long Term Pavement Program

Nationwide

Rich has more than 21 years of experience with data collection on the Long-Term Pavement Performance (LTPP) project. This federal project has test sites in every state and province. NCE, as the Western Region Support Contractor, has several accredited raters, including Rich, who has measured distress at hundreds of sections over the Western United States and operated profile measurement equipment and participated in forensic activities. In the field and at home, he is responsible for all equipment calibrations and maintenance, daily logs and reports, and verification of reliable data.

San Francisco International Airport (SFIA) Pavement Engineering On-Call Services

City and County of San Francisco, CA

Engineering Technician. The scope included collecting pavement distress data for both airside and landside pavements as per ASTM D5340 and D6433, respectively. A semi-automated vehicle was used to collect data on the runways and taxiways with walking surveys used on the aprons. Updated SFIA's PAVER™ PMS and submitted reports to the Federal Aviation Administration. Determining the ACN/PCN for runways and taxiways, and performed deflection testing and pavement designs (FAARFIELD) for Runways 1L/19R, Taxiways E, F, and L.

Inyo County Pavement Management Program

Inyo County, CA

Engineering Technician. The scope included developing the inventory and condition information for the paved roads, approximately 550 centerline miles Inyo County and City of Bishop, conducting annual manual condition data collection using PAVER software and ASTM D6433 standards, ensuring a rigorous and extensive QC program, determining traffic volume (average daily traffic) data at 20 locations in Bishop, predicting the future pavement condition of the paved network, determining impacts of multiple budget/funding scenarios on future roadway conditions, performing 20-year and 5-year work planning analysis and integrating the PMS database with the County and City's GIS.

Virginia Street Bus RAPID Transit Extension

RTC of Washoe County, NV

Technician. NCE prepared the environmental document, preliminary and final engineering design of the Virginia Street Bus RAPID Transit Extension project that increases mobility and safety along the corridor. The project includes the extension of RTC RAPID service from the 4th Street Station to the University of Nevada, Reno with new transit stations, roadway reconstruction, intersection and signal modifications, landscaping and aesthetics, pedestrian improvements and lighting, bicycle improvements, parking and access management, utility relocations, and drainage improvements. Rich supported assessments of multiple side streets in the Virginia Street corridor, included performing FWD testing.

Pavement Condition Data Collection (2010, 2012, and 2013-2020)

Regional Transportation Commission (RTC) of Washoe County, NV

Technician. This project involves collecting pavement condition survey data on the regional road network. NCE is scheduled to collect data on over 160 centerline miles of roadway identified in RTC's Regional Transportation Plan (approximately 1,870 sample units will be inspected). NCE's services include updating pavement management databases for Washoe County, City of Reno, and City of Sparks as well as performing QC/QA activities on the data.

**City of Ukiah
Trench Cut Fee Study & Implementation Services
Cost and Time Estimate**

Task	Hourly Breakdown by Task					Deflection Testing & Traffic Control	Coring & Traffic Control	Totals
	Project Manager	Principal	QC/QA	Project Engr	Technician			
Task I. Utility Cut Fee Study								
1. Kickoff Meeting and Summarize Utility Cut Fee Studies	6	4		16				\$ 4,800
2. Engineering Approach & Analysis								
A. Structural Analysis - Deflection Testing	8		8	48	72	\$ 10,000	\$ 12,000	\$ 43,600
B. Statistical Analysis - PMP Data (optional)	8	4	8	64				\$ 15,200
3. Develop Fee Schedule & Final Report	8	4	8	64				\$ 15,500
4. City Council Presentation	8	16	4	16				\$ 9,800
Totals	38	28	28	208	72	\$ 10,000	\$ 12,000	\$ 88,900

Assumptions:

Task 1 includes the kickoff meetings. Should Shelter-in-place directives be still in place, this will be conducted via video-conferencing.

Task 2A assumes that 16 sites will be selected for testing. Includes coring and traffic control. Coring can be deleted if pavement structure is known.

Task 2B assumes that PMP data has sufficient data for developing a model. This is an optional task.

Task 4 includes 2 virtual meetings.



AGENDA SUMMARY REPORT

SUBJECT: Notification of Purchase of Services from DC Electric Group, Inc. of Cotati in the Amount of \$16,270 for the Repair of Traffic Signal Poles and Approval of Corresponding Budget Amendment

DEPARTMENT: Public Works **PREPARED BY:** Jarod Thiele, Public Works Management Analyst
PRESENTER: Consent Calendar

ATTACHMENTS:

1. Ukiah- Orchard & Perkins- Traffic Signal Pole Replacements

Summary: Council will receive Notification of Purchase of Services from DC Electric Group, Inc. of Cotati in the amount of \$16,270 for the repair of traffic signal poles and approval of a corresponding Budget Amendment

Background: On October 2, 2020, a semi truck and trailer hit and damaged the traffic signal pole at the northeast corner of East Perkins Street and North Orchard. The Police, Electric and Public Works Departments responded to the accident.

Discussion: Significant damage was caused to both traffic signal poles at the intersection of East Perkins Street and North Orchard Avenue. Staff contacted DC Electric Group, Inc. of Cotati and requested a quote (Attachment 1) for the replacement of both poles, push buttons and other components. Expenses for these repairs will be collected from the insurance company of the semi truck owner.

A budget amendment is requested for both the revenue account for the anticipated insurance proceeds, as well as the corresponding expense account for the repairs.

Recommended Action: Notification of Purchase of Services from DC Electric Group, Inc. of Cotati in the Amount of \$16,270 for the Repair of Traffic Signal Poles and Approval of Corresponding Budget Amendment

BUDGET AMENDMENT REQUIRED: Yes

CURRENT BUDGET AMOUNT: 10024214.52100- \$18,000

PROPOSED BUDGET AMOUNT: 10000000.44835: \$16,270 10024214.52100- \$16,270

FINANCING SOURCE: Traffic Signals

PREVIOUS CONTRACT/PURCHASE ORDER NO.: PO 46944

COORDINATED WITH: Tim Eriksen, Director of Public Works/City Engineer; Mary Horger, Financial Services Manager

Approved: 
Sage Sangiacomo, City Manager



October 23, 2020

City of Ukiah
Attn: Jarod Thiele via email: jthiele@cityofukiah.com
Public Works Management Analyst
300 Seminary Avenue
Ukiah, CA 95482-5400

Job Name: Damaged TS Pole Replacements
Job Location: Orchard & Perkins, Ukiah, CA

Dear Jarod,

Per your email on 10/7/20, the mast arm pole on the NE corner was hit and damaged (refer to Exhibit A, attached). *We offer to perform the following work based on our standard terms and conditions:*

- Establish temporary traffic control as needed and set intersection to red flash.
- Salvage the existing mast arm, LMA, and all traffic signal components for re-use.
- Remove and dispose of the damaged mast arm pole shaft.
- Furnish and install new Caltrans Type 19-4-100 pole shaft on the existing foundation.
- Reinstall the salvaged traffic signal components.
- Re-pull the existing wire up the pole and make the necessary connections.
- Return intersection to auto and test for proper operations.
- Mortar pole base as needed.

Labor, Material, & Equipment... \$12,975.00

The estimated lead-time on material is 12-14 weeks from receipt of Notice to Proceed from the City of Ukiah and work can begin within ten (10) business days from receipt of said material. This price is valid for 30 days.

This offer is hereby accepted on this _____ day of _____, 2020.

City of Ukiah

DC Electric Group, Inc.

By: _____

Tim Carter

Title: _____

Regional Manager

Exhibit A





October 23, 2020

City of Ukiah
Attn: Jarod Thiele via email: jthiele@cityofukiah.com
Public Works Management Analyst
300 Seminary Avenue
Ukiah, CA 95482-5400

Job Name: Damaged TS Pole Replacements
Job Location: Orchard & Perkins, Ukiah, CA

Dear Jarod,

Per your email on 10/7/20, the 1A TS pole on the NE corner has been hit and damaged (refer to Exhibit A, attached). *We offer to perform the following work based on our standard terms and conditions:*

- Establish temporary traffic control as needed.
- Salvage the existing TV-2-T framework and (2) signal heads for re-use.
- Remove and dispose of the damaged pole.
- Furnish and install new Caltrans Type 1A pole on the existing foundation.
- Reinstall the salvaged traffic signal components.
- Furnish and install new Bulldog PPB and side-mount PPB framework.
- Re-pull the existing wire up the pole and make the necessary connections.
- Test for proper operations.
- Mortar pole base as needed.

Labor, Material, & Equipment... \$3,295.00

All material is stock with DC Electric Group, Inc. and work can begin within ten (10) business days of receipt of Notice to Proceed from the City of Ukiah. This price is valid for 30 days.

This offer is hereby accepted on this _____ day of _____, 2020.

City of Ukiah

By: _____

Title: _____

DC Electric Group, Inc.

A handwritten signature in blue ink, appearing to read 'Tim Carter'.

Tim Carter

Regional Manager

Exhibit A





AGENDA SUMMARY REPORT

SUBJECT: Approval of Amendment No. 1 with GHD, Inc. in the Amount of \$13,623.89 for Additional Investigations and Engineering Analysis for Future Water Storage.

DEPARTMENT: Water Resources **PREPARED BY:** Jarod Thiele, Public Works Management Analyst
PRESENTER: Consent Calendar

ATTACHMENTS:

None

Summary: Council will consider approval of Amendment No. 1 with GHD, Inc. in the amount of \$13,623.89 for additional investigations and engineering analysis for future water storage.

Background: The City is exploring future water storage infrastructure for the potable water system and fire protection needs of the community.

Discussion: In August 2020, staff executed a contract with GHD, Inc. of Santa Rosa in the amount of \$8,500 for Engineering Services to conduct a preliminary evaluation for future tank sites. This evaluation simply consisted of where to possibly locate tank sites based on elevation and access.

During the initial evaluation, it was determined that several viable sites exist that warrant further investigation, specifically focusing on access, tank water supply, and interconnection to the City's existing water distribution system.

GHD will further evaluate potential sites and perform a conceptual sizing analysis to develop the estimated potable, fire and contingency storage volumes for each tank. Conceptual sizing and alignments for water mains that interconnect with the City's existing system will be developed, and a simple hydraulic analysis will be performed to identify the approximate locations of pressure reducing stations to provide adequate service pressure.

Exhibits showing the layout of each of the tanks and water mains will be developed. An analysis of up to six (6) tank materials will be included to identify preferred tank materials. Finally, a planning level cost estimate will be prepared for the water tanks, mains, appurtenances as well as soft costs for design, construction management and escalation.

Staff is recommending approval of Amendment No. 1 in the amount of \$13,623.89 for a maximum not to exceed contract amount of \$22,123,89

Recommended Action: Approve Amendment No. 1 with GHD, Inc. in the Amount of \$13,623.89 for Additional Investigations and Engineering Analysis for Future Water Storage.

BUDGET AMENDMENT REQUIRED: No

CURRENT BUDGET AMOUNT: 82027110.52100- \$370,000

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: Water Fund

PREVIOUS CONTRACT/PURCHASE ORDER NO.: Contract 2021-112

COORDINATED WITH: Sage Sangiacomo, City Manager; Sean White, Director of Water Resources; Tim Eriksen, Director of Public Works/City Engineer

Approved:


Sage Sangiacomo, City Manager



AGENDA SUMMARY REPORT

SUBJECT: Report of Acquisition of Professional Services from Alpha Analytical Laboratories, Inc. in the Amount of \$18,917.85 for Quarterly Water Sampling and Completion of Chemical Examination Reports for the Ukiah Landfill.

DEPARTMENT: Public Works **PREPARED BY:** Jason Benson, Senior Civil Engineer
PRESENTER: Consent Calendar

ATTACHMENTS:

1. Alpha Analytical Labs Invoices_11Nov2020

Summary: Council will receive a report regarding the acquisition of services for quarterly water sampling and preparation of chemical examination reports for the Ukiah Landfill.

Background: In accordance with the Waste Discharge Requirements issued by the North Coast Regional Water Quality Control Board (NCRWQCB), the City is mandated to complete quarterly water sampling and analysis for the Ukiah Landfill.

Discussion: In compliance with Section 1522 of the City Code, this report is submitted to the City Council for the purpose of reporting the acquisition of professional consulting services costing more than \$10,000. The Public Works Department requested Alpha Analytical Laboratories, Inc. to conduct quarterly water sampling and to prepare chemical examination reports for the Ukiah Landfill. Alpha Analytical completed the quarterly water sampling and produced the chemical examination reports for the amount of \$18,917.85. For reference, please refer to Attachment #1, a copy of the Alpha Analytical invoices. In conjunction with these chemical examination reports, EBA Engineering analyzes the data to prepare and submit the required detection monitoring report to the NCRWQCB.

Recommended Action: Receive and file report of acquisition of professional services from Alpha Analytical Laboratories, Inc. in the amount of \$18,917.85 for quarterly water sampling and completion of chemical examination reports for the Ukiah Landfill. Report is submitted pursuant to City Code.

BUDGET AMENDMENT REQUIRED: \$0

CURRENT BUDGET AMOUNT: 70024500.52100: \$393,934.60

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: Landfill Contractual Services - 70024500.52100

PREVIOUS CONTRACT/PURCHASE ORDER NO.: PO# 46945

COORDINATED WITH: Tim Eriksen, Director of Public Works / City Engineer and Mary Horger, Financial Services Manager

Approved: 
Sage Sangiacomo, City Manager



INVOICE

Certified Small Business #0001025

Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
 Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
 300 Seminary Ave
 Ukiah, CA 95482
 Attn: Jason Benson

Invoice #: 0104429-UKIAHLF
 Date: 10/27/20
 Project ID: Monitoring Wells - Annual
 Project No: Monitoring Wells - Annual
 PO/Reference:

Order #
 20J1910

Receipt Date
 10/14/20

Terms
 NET 30

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
2	Hexavalent Chromium in Water by EPA 7196A [10 day]	Water	\$30.00	\$60.00

Invoice Total: \$60.00

CITY OF UKIAH

DEPARTMENT PUBLIC WORKS

REQUISITION **E40071**

DATE NOVEMBER 11, 2020

LOG. SUPPLIER ALPHA ANALYTICAL LABS

PURCHASE ORDER NO. _____

CARD NO.	QUANTITY	DESCRIPTION	ACCOUNT NUMBER	UNIT PRICE	TOT
		MONITORING WELLS - ANNUAL (1-4)			
		1) INVOICE # 104429	\$ 60.00		
		2) INVOICE # 105014	\$ 7,441.95		
		3) INVOICE # 105057	\$ 4,717.95		
		4) INVOICE # 111470	\$ 5,753.95		
		5) INVOICE # 105020	\$ 944.00		
		LEACHATE - ANNUAL	\$ 18,917.85		
		Acc# 70024500.52100			
		LANDFILL CONTRACTUAL SERVICES			

BUDGETED AMOUNT
 R EXPENDITURE BALANCE _____

Jason Benson
 DEPT. HEAD OR AUTHORIZED AGENT
 Page 517 of 553



INVOICE

Certified Small Business #0001025

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Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
300 Seminary Ave
Ukiah, CA 95482

Attn: Jason Benson

Invoice #: 0104429-UKIAHLF
Date: 10/27/20

Project ID: Monitoring Wells - Annual
Project No: Monitoring Wells - Annual
PO/Reference:

Order #
20J1910

Receipt Date
10/14/20

Terms
NET 30

Jason Benson 11 Nov 2020

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
2	Hexavalent Chromium in Water by EPA 7196A [10 day]	Water	\$30.00	\$60.00

Invoice Total: \$60.00



INVOICE

Certified Small Business #0001025

Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
300 Seminary Ave
Ukiah, CA 95482
Attn: Jason Benson

Invoice #: 0105014-UKIAHLF
Date: 10/30/20

Project ID: Monitoring Wells - Annual
Project No: Monitoring Wells - Annual
PO/Reference:

Order #
20J1502

Receipt Date
10/12/20

Terms
NET 30

Jason Benson 11 Nov 2020

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
1	Volatiles by EPA 8260 [10 day]	Water	\$140.00	\$140.00
1	8270 Regular List Group [10 day]	Water	\$295.00	\$295.00
7	Silver Dissolved by EPA 200.7 [10 day]	Water	\$175.00	\$1,225.00
7	Aluminum Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	Total Alkalinity by SM2320B [10 day]	Water	\$15.00	\$105.00
7	Ammonia by SM4500-NH3 C [10 day]	Water	\$25.00	\$175.00
7	Arsenic Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
7	Boron Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$105.00
7	Barium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Small Bailer [10 day]	Water	\$175.00	\$175.00
7	Beryllium Dissolved EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	Bicarbonate by SM2320B [10 day]	Water	\$15.00	\$105.00
7	Calcium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$105.00
7	Carbonate by SM2320B [10 day]	Water	\$15.00	\$105.00
7	Cadmium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	Chloride by EPA 300.0 [10 day]	Water	\$18.00	\$126.00
7	Cobalt Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	Conductivity by SM2510B [10 day]	Water	\$10.00	\$70.00
7	Chromium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Hexavalent Chromium in Water by EPA 7196A [10 day]	Water	\$30.00	\$150.00
2	Hexavalent Chromium in Water by EPA 7196A [10 day]	Water	\$0.00	\$0.00
7	Copper Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	Iron Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Field Technician [10 day]	Water	\$880.00	\$880.00
1	Filters [10 day]	Water	\$210.00	\$210.00
7	Fluoride by EPA 300.0 [10 day]	Water	\$18.00	\$126.00
1	GeoTracker EDF File [10 day]	Water	\$358.00	\$358.00



INVOICE

Certified Small Business #0001025

Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
300 Seminary Ave
Ukiah, CA 95482
Attn: Jason Benson

Invoice #: 0105014-UKIAHLF
Date: 10/30/20

Project ID: Monitoring Wells - Annual
Project No: Monitoring Wells - Annual
PO/Reference:

Order #
20J1502

Receipt Date
10/12/20

Terms
NET 30

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
7	Handling & Disposal [10 day]	Water	\$3.00	\$21.00
7	Mercury Dissolved by EPA 245.1 [10 day]	Water	\$0.00	\$0.00
7	Potassium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$105.00
7	Magnesium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$105.00
1	Miles [10 day]	Water	\$4.95	\$4.95
7	Manganese Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	Molybdenum Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	Sodium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$105.00
7	Nickel Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	Total Nitrogen (NO ₂ , NO ₃ , TKN & Calc.) [10 day]	Water	\$45.00	\$315.00
7	Oil and Grease (HEM) [10 day]	Water	\$50.00	\$350.00
7	Lead Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
7	pH Water by SM4500-H+ B [10 day]	Water	\$10.00	\$70.00
7	Antimony Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	Selenium Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
7	Tin Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	Total Dissolved Solids by SM2540C [10 day]	Water	\$15.00	\$105.00
7	Sulfate by EPA 300.0 [10 day]	Water	\$18.00	\$126.00
7	Thallium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	TPH as Diesel/Motor Oil by EPA 8015 [10 day]	Water	\$60.00	\$420.00
7	TPH as Gas & VOAs by EPA 8260B [10 day]	Water	\$180.00	\$1,260.00
7	Vanadium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
7	Zinc Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00

Invoice Total: \$7,441.95



INVOICE

Certified Small Business #0001025

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Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
300 Seminary Ave
Ukiah, CA 95482
Attn: Jason Benson

Invoice #: 0105057-UKIAHLF
Date: 10/30/20

Project ID: Monitoring Wells - Annual
Project No: Monitoring Wells - Annual
PO/Reference:

Order #
20J1905

Receipt Date
10/14/20

Terms
NET 30

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
1	Volatiles by EPA 8260 [10 day]	Water	\$140.00	\$140.00
1	8270 Regular List Group [10 day]	Water	\$295.00	\$295.00
4	Silver Dissolved by EPA 200.7 [10 day]	Water	\$175.00	\$700.00
4	Aluminum Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Total Alkalinity by SM2320B [10 day]	Water	\$15.00	\$60.00
4	Ammonia by SM4500-NH3 C [10 day]	Water	\$25.00	\$100.00
4	Arsenic Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
4	Boron Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$60.00
4	Barium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Small Bailer [10 day]	Water	\$50.00	\$50.00
4	Beryllium Dissolved EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Bicarbonate by SM2320B [10 day]	Water	\$15.00	\$60.00
4	Calcium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$60.00
4	Carbonate by SM2320B [10 day]	Water	\$15.00	\$60.00
4	Cadmium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Chloride by EPA 300.0 [10 day]	Water	\$18.00	\$72.00
4	Cobalt Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Conductivity by SM2510B [10 day]	Water	\$10.00	\$40.00
4	Chromium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Hexavalent Chromium in Water by EPA 7196A [10 day]	Water	\$30.00	\$120.00
4	Copper Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Iron Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Field Technician [10 day]	Water	\$715.00	\$715.00
1	Filters [10 day]	Water	\$180.00	\$180.00
4	Fluoride by EPA 300.0 [10 day]	Water	\$18.00	\$72.00
1	GeoTracker EDF File [10 day]	Water	\$225.00	\$225.00
4	Handling & Disposal [10 day]	Water	\$3.00	\$12.00



INVOICE

Certified Small Business #0001025

Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
300 Seminary Ave
Ukiah, CA 95482
Attn: Jason Benson

Invoice #: 0105057-UKIAHLF
Date: 10/30/20
Project ID: Monitoring Wells - Annual
Project No: Monitoring Wells - Annual
PO/Reference:

Order #
20J1905

Receipt Date
10/14/20

Terms
NET 30

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
4	Mercury Dissolved by EPA 245.1 [10 day]	Water	\$0.00	\$0.00
4	Potassium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$60.00
4	Magnesium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$60.00
1	Miles [10 day]	Water	\$4.95	\$4.95
4	Manganese Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Molybdenum Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Sodium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$60.00
4	Nickel Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Total Nitrogen (NO ₂ , NO ₃ , TKN & Calc.) [10 day]	Water	\$45.00	\$180.00
4	Oil and Grease (HEM) [10 day]	Water	\$50.00	\$200.00
4	Lead Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
4	pH Water by SM4500-H+ B [10 day]	Water	\$10.00	\$40.00
4	Antimony Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Selenium Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
4	Tin Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Total Dissolved Solids by SM2540C [10 day]	Water	\$15.00	\$60.00
4	Sulfate by EPA 300.0 [10 day]	Water	\$18.00	\$72.00
4	Thallium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	TPH as Diesel/Motor Oil by EPA 8015 [10 day]	Water	\$60.00	\$240.00
4	TPH as Gas & VOAs by EPA 8260B [10 day]	Water	\$180.00	\$720.00
4	Vanadium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
4	Zinc Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00

Invoice Total: \$4,717.95



INVOICE

Certified Small Business #0001025

Alpha Analytical Laboratories, Inc.

email: clientservices@alpha-labs.com

Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
300 Seminary Ave
Ukiah, CA 95482

Attn: Jason Benson

Invoice #: 0111470-UKIAHLF
Date: 11/03/20

Project ID: Monitoring Wells - Annual
Project No: Monitoring Wells - Annual
PO/Reference:

Jason Benson 11 Nov 2020

Order #
20J1652

Receipt Date
10/13/20

Terms
NET 30

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
1	Volatiles by EPA 8260 [10 day]	Water	\$140.00	\$140.00
1	8270 Regular List Group [10 day]	Water	\$295.00	\$295.00
5	Silver Dissolved by EPA 200.7 [10 day]	Water	\$175.00	\$875.00
5	Aluminum Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Total Alkalinity by SM2320B [10 day]	Water	\$15.00	\$75.00
5	Ammonia by SM4500-NH3 C [10 day]	Water	\$25.00	\$125.00
5	Arsenic Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
5	Boron Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$75.00
5	Barium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Small Bailer [10 day]	Water	\$150.00	\$150.00
5	Beryllium Dissolved EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Bicarbonate by SM2320B [10 day]	Water	\$15.00	\$75.00
5	Calcium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$75.00
5	Carbonate by SM2320B [10 day]	Water	\$15.00	\$75.00
5	Cadmium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Chloride by EPA 300.0 [10 day]	Water	\$18.00	\$90.00
5	Cobalt Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Conductivity by SM2510B [10 day]	Water	\$10.00	\$50.00
5	Chromium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Hexavalent Chromium in Water by EPA 7196A [10 day]	Water	\$30.00	\$150.00
5	Copper Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Iron Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Field Technician [10 day]	Water	\$825.00	\$825.00
1	Filters [10 day]	Water	\$180.00	\$180.00
5	Fluoride by EPA 300.0 [10 day]	Water	\$18.00	\$90.00
1	GeoTracker EDF File [10 day]	Water	\$274.00	\$274.00
5	Handling & Disposal [10 day]	Water	\$3.00	\$15.00



INVOICE

Certified Small Business #0001025

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Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
300 Seminary Ave
Ukiah, CA 95482
Attn: Jason Benson

Invoice #: 0111470-UKIAHLF
Date: 11/03/20
Project ID: Monitoring Wells - Annual
Project No: Monitoring Wells - Annual
PO/Reference:

Order #
20J1652

Receipt Date
10/13/20

Terms
NET 30

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
5	Mercury Dissolved by EPA 245.1 [10 day]	Water	\$0.00	\$0.00
5	Potassium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$75.00
5	Magnesium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$75.00
1	Miles [10 day]	Water	\$4.95	\$4.95
5	Manganese Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Molybdenum Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Sodium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$75.00
5	Nickel Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Total Nitrogen (NO2, NO3, TKN & Calc.) [10 day]	Water	\$45.00	\$225.00
5	Oil and Grease (HEM) [10 day]	Water	\$50.00	\$250.00
5	Lead Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
5	pH Water by SM4500-H+ B [10 day]	Water	\$10.00	\$50.00
5	Antimony Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Selenium Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
5	Tin Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Total Dissolved Solids by SM2540C [10 day]	Water	\$15.00	\$75.00
5	Sulfate by EPA 300.0 [10 day]	Water	\$18.00	\$90.00
5	Thallium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	TPH as Diesel/Motor Oil by EPA 8015 [10 day]	Water	\$60.00	\$300.00
5	TPH as Gas & VOAs by EPA 8260B [10 day]	Water	\$180.00	\$900.00
5	Vanadium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Zinc Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00

Invoice Total: \$5,753.95



INVOICE

Certified Small Business #0001025

Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
300 Seminary Ave
Ukiah, CA 95482

Attn: Jason Benson

Invoice #: 0111470-UKIAHLF
Date: 11/03/20

Project ID: Monitoring Wells - Annual
Project No: Monitoring Wells - Annual
PO/Reference:

Jason Benson 11 Nov 2020

Order #
20J1652

Receipt Date
10/13/20

Terms
NET 30

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
1	Volatiles by EPA 8260 [10 day]	Water	\$140.00	\$140.00
1	8270 Regular List Group [10 day]	Water	\$295.00	\$295.00
5	Silver Dissolved by EPA 200.7 [10 day]	Water	\$175.00	\$875.00
5	Aluminum Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Total Alkalinity by SM2320B [10 day]	Water	\$15.00	\$75.00
5	Ammonia by SM4500-NH3 C [10 day]	Water	\$25.00	\$125.00
5	Arsenic Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
5	Boron Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$75.00
5	Barium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Small Bailer [10 day]	Water	\$150.00	\$150.00
5	Beryllium Dissolved EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Bicarbonate by SM2320B [10 day]	Water	\$15.00	\$75.00
5	Calcium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$75.00
5	Carbonate by SM2320B [10 day]	Water	\$15.00	\$75.00
5	Cadmium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Chloride by EPA 300.0 [10 day]	Water	\$18.00	\$90.00
5	Cobalt Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Conductivity by SM2510B [10 day]	Water	\$10.00	\$50.00
5	Chromium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Hexavalent Chromium in Water by EPA 7196A [10 day]	Water	\$30.00	\$150.00
5	Copper Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Iron Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Field Technician [10 day]	Water	\$825.00	\$825.00
1	Filters [10 day]	Water	\$180.00	\$180.00
5	Fluoride by EPA 300.0 [10 day]	Water	\$18.00	\$90.00
1	GeoTracker EDF File [10 day]	Water	\$274.00	\$274.00
5	Handling & Disposal [10 day]	Water	\$3.00	\$15.00



INVOICE

Certified Small Business #0001025

Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
300 Seminary Ave
Ukiah, CA 95482
Attn: Jason Benson

Invoice #: 0111470-UKIAHLF
Date: 11/03/20
Project ID: Monitoring Wells - Annual
Project No: Monitoring Wells - Annual
PO/Reference:

Order #
20J1652

Receipt Date
10/13/20

Terms
NET 30

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
5	Mercury Dissolved by EPA 245.1 [10 day]	Water	\$0.00	\$0.00
5	Potassium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$75.00
5	Magnesium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$75.00
1	Miles [10 day]	Water	\$4.95	\$4.95
5	Manganese Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Molybdenum Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Sodium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$75.00
5	Nickel Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Total Nitrogen (NO ₂ , NO ₃ , TKN & Calc.) [10 day]	Water	\$45.00	\$225.00
5	Oil and Grease (HEM) [10 day]	Water	\$50.00	\$250.00
5	Lead Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
5	pH Water by SM4500-H+ B [10 day]	Water	\$10.00	\$50.00
5	Antimony Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Selenium Dissolved by EPA 200.8 [10 day]	Water	\$0.00	\$0.00
5	Tin Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Total Dissolved Solids by SM2540C [10 day]	Water	\$15.00	\$75.00
5	Sulfate by EPA 300.0 [10 day]	Water	\$18.00	\$90.00
5	Thallium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	TPH as Diesel/Motor Oil by EPA 8015 [10 day]	Water	\$60.00	\$300.00
5	TPH as Gas & VOAs by EPA 8260B [10 day]	Water	\$180.00	\$900.00
5	Vanadium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
5	Zinc Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00

Invoice Total: \$5,753.95



INVOICE

Certified Small Business #0001025

Alpha Analytical Laboratories, Inc.

email: clientservices@alpha-labs.com

Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
300 Seminary Ave
Ukiah, CA 95482

Attn: Jason Benson

Invoice #: 0105020-UKIAHLF
Date: 10/30/20

Project ID: Leachate - Annual
Project No: Leachate - Annual
PO/Reference:

Order #
20J1653

Receipt Date
10/13/20

Terms
NET 30

Jason Benson 11/Nov/2020

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
1	Silver Dissolved by EPA 200.7 [10 day]	Water	\$175.00	\$175.00
1	Aluminum Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Total Alkalinity by SM2320B [10 day]	Water	\$15.00	\$15.00
1	Ammonia by SM4500-NH3 C [10 day]	Water	\$25.00	\$25.00
1	Arsenic Dissolved by EPA 200.7 [10 day]	Water	\$35.00	\$35.00
1	Boron Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$15.00
1	Barium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Beryllium Dissolved EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Bicarbonate by SM2320B [10 day]	Water	\$15.00	\$15.00
1	BOD by SM5210B [10 day]	Water	\$33.00	\$33.00
1	Calcium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$15.00
1	Carbonate by SM2320B [10 day]	Water	\$15.00	\$15.00
1	Cadmium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Chloride by EPA 300.0 [10 day]	Water	\$18.00	\$18.00
1	Cobalt Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	COD by SM5220D [10 day]	Water	\$30.00	\$30.00
1	Chromium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Hexavalent Chromium in Water by EPA 7196A [10 day]	Water	\$30.00	\$30.00
1	Copper Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Iron Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	GeoTracker EDF File [10 day]	Water	\$45.00	\$45.00
1	Handling & Disposal [10 day]	Water	\$3.00	\$3.00
1	Mercury Dissolved by EPA 245.1 [10 day]	Water	\$0.00	\$0.00
1	Potassium Dissolved by EPA 200.7 [10 day]	Water	\$35.00	\$35.00
1	Magnesium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$15.00
1	Manganese Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Molybdenum Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00



INVOICE

Certified Small Business #0001025

Alpha Analytical Laboratories, Inc. email: clientservices@alpha-labs.com
Corporate: 208 Mason Street | Ukiah, CA 95482 | T: 707-468-0401 | F: 707-468-5267 | ELAP# 1551

Bill To: Ukiah Landfill
300 Seminary Ave
Ukiah, CA 95482
Attn: Jason Benson

Invoice #: 0105020-UKIAHLF
Date: 10/30/20
Project ID: Leachate - Annual
Project No: Leachate - Annual
PO/Reference:

Order #
20J1653

Receipt Date
10/13/20

Terms
NET 30

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
Alpha Analytical Laboratories, Inc.				
1	Sodium Dissolved by EPA 200.7 [10 day]	Water	\$15.00	\$15.00
1	Nickel Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Nitrate as N by EPA 300.0 [10 day]	Water	\$18.00	\$18.00
1	Oil and Grease (HEM) [10 day]	Water	\$50.00	\$50.00
1	Lead Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Antimony Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Selenium Dissolved by EPA 200.7 [10 day]	Water	\$35.00	\$35.00
1	Tin Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Total Dissolved Solids by SM2540C [10 day]	Water	\$15.00	\$15.00
1	Total Suspended Solids by SM2540D [10 day]	Water	\$19.00	\$19.00
1	Sulfate by EPA 300.0 [10 day]	Water	\$18.00	\$18.00
1	Thallium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	TPH as Diesel/Motor Oil by EPA 8015 [10 day]	Water	\$60.00	\$60.00
1	TPH as Gas & VOAs by EPA 8260B [10 day]	Water	\$195.00	\$195.00
1	Vanadium Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00
1	Zinc Dissolved by EPA 200.7 [10 day]	Water	\$0.00	\$0.00

Invoice Total: \$944.00



AGENDA SUMMARY REPORT

SUBJECT: Receive Status Report and Consider Any Action or Direction Related to the Novel Coronavirus (COVID-19) Emergency Including Operational Preparedness and Response; Continuity of City Operations and Services; Community and Business Impacts; and Any Other Related Matters.

DEPARTMENT: City Manager /
Admin

PREPARED BY: Tami Bartolomei, Office of Emergency Services
Coordinator

PRESENTER: Tami Bartolomei, Office of Emergency
Management Coordinator

ATTACHMENTS:

None

Summary: The City Council will receive a status report and consider any action or direction related to the Novel Coronavirus (COVID-19) Emergency including operational preparedness and response; continuity of City operations and services; community and business impacts; and any other related matters.

Background: On March 4, 2020, California Governor Gavin Newsom declared a State of Emergency in California in response to the COVID-19 pandemic.

The County of Mendocino declared a State of Emergency related to the COVID-19 on March 4, 2020.

On March 17, 2020, the City Manager, acting as the Director of Emergency Services, declared the existence of a local emergency.

On March 18, 2020, City Council approved a Resolution ratifying the proclamation declaring the existence of a local emergency.

Since the onset of the emergency, the City of Ukiah has worked to respond to the public health and safety needs of the community in cooperation with the County of Mendocino and other partners. The local response for public health is lead regionally by the County of Mendocino and the County's Public Health Officer. In addition, the City of Ukiah has worked to maintain the continuity of public services including public safety, water, sewer, electric, airport, public works, and other essential activities.

Discussion: As the coronavirus "COVID-19" continues to evolve, the City of Ukiah continues to monitor the situation and respond to emerging needs of the community. The City is in continued contact with local and state agencies, as well as community partners, hospitals, schools, and neighboring cities to ensure we have the most updated information pertaining to COVID-19 and are coordinating efforts.

Reports and/or information from the City of Ukiah's Emergency Operation Center (EOC) will include:

- * Emergency Operation Center (EOC) Status
- * COVID-19 Case Updates
- * Public Information Officer

- * Medical Services
- * School/Education
- * Public Safety (Police/Fire/EMS)
- * Shelter in Place Monitoring and Compliance
- * Community Service Groups
- * Homeless Response
- * Business Impacts/Services
- * Public Infrastructure/Construction Status
- * City Finance
- * Recovery Efforts and Planning
- * Other Related matters

Staff will provide a status report to City Council and will seek direction or action on operational preparedness and response; continuity of City operations and services; community and business impacts; and any other related matters.

Go to the City's website (www.cityofukiah.com) for direct access to information related to the Novel Coronavirus (COVID-19) emergency including local updates, City Services, Community/Resident Information, and Business Resources.

Recommended Action: Receive status report and consider any action or direction related to the Novel Coronavirus (COVID-19) Emergency including operational preparedness and response; continuity of City operations and services; community and business impacts; and any other related matters.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Sage Sangiacomo, City Manager

Approved: 
Sage Sangiacomo, City Manager



AGENDA SUMMARY REPORT

SUBJECT: Update on Emergency Repair of the Yosemite Drive Water Main and Determine that Emergency Conditions Continue to Require the Emergency Repair.

DEPARTMENT: Public Works **PREPARED BY:** Jarod Thiele, Public Works Management Analyst

PRESENTER: Tim Eriksen, Public Works Director/City Engineer

ATTACHMENTS:

1. Resolution 2020-63 Yosemite Drive Water Main Emergency Work

Summary: The City Council will review the status of the emergency award of contract to repair the Yosemite Drive Water Main, to comply with Public Contract Code Section 22050.

Background: At their regular meeting of November 4, 2020, the City Council voted to adopt a resolution finding that emergency conditions would not allow sufficient time to publicly bid the repair of the Yosemite Drive Water Main. Please refer to Attachment 1 for a copy of the resolution.

The City Council awarded a contract to Wipf Construction under Public Contract Code Section 22050 to repair the Yosemite Drive Water Main. That section allows such repairs without competitive bidding in an emergency, if the City Council on a 4/5 vote makes specified finding. However, please note, that staff solicited quotes from two additional companies before making the award recommendation.

The City Council voted at its November 18, 2020, meeting to determine that an emergency still existed.

Discussion: Under Public Contract Code 22050, Subsection (c)(1) the City Council is required to review the emergency action taken on November 4th at every regularly scheduled meeting thereafter until the action is terminated.

In reviewing the action, the City Council must determine whether the emergency conditions excusing competitive bidding continue for the repair of the Yosemite Drive Water Main. It must make that finding by a 4/5 vote.

Staff is anticipating the work to begin on this contract by the time Council reviews this action and will provide an update.

Recommended Action: Determine that emergency conditions continue to require the repair of the Yosemite Drive Water Main without competitive bidding.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Tim Eriksen, Director of Public Works/City Engineer; Mary Horger, Financial Services Manager

Approved: 
Sage Sangiacomo, City Manager

RESOLUTION NO. 2020-63**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF UKIAH APPROVING PURSUANT TO PUBLIC CONTRACT CODE SECTION 22050 THE EMERGENCY PROCUREMENT WITHOUT PUBLIC BIDDING OF CONSTRUCTION SERVICES TO REPAIR THE WATER MAIN ON YOSEMITE DRIVE****WHEREAS:**

1. During normal operation of the City of Ukiah's Water Distribution System, a portion of water main failed repeatedly on Yosemite Drive; and
2. Without the normal operation of this water main, the City is unable to provide necessary and immediate services to its residents which could lead to public health hazards; and
3. With damage caused to public property including streets, curb, gutter; and
4. With damage caused to private property including driveway aprons and driveways; and
5. The City Engineer estimates that it would take 120 days to develop plans and specifications to bid the construction work required to repair the water main and damaged public and private property, to advertise requests for bids, to award the bid and to commence construction and an additional 2-3 weeks to complete the work; and
6. Under Public Contract Code Section 22050(a)(1) in the case of an emergency, the City, pursuant to a four-fifths vote of the City Council, may repair or replace a public facility and procure the necessary equipment, services, and supplies for those purposes, without giving notice for bids to let contracts; and
7. Under Public Contract Code Section 22050(a)(2) before the City Council takes such action, it must make a finding, based on substantial evidence set forth in the minutes of its meeting, that the emergency will not permit a delay resulting from a competitive solicitation for bids, and that the action is necessary to respond to the emergency;

NOW, THEREFORE, BE IT RESOLVED that:

1. Based on the foregoing recitals and information, the City Council finds that an emergency condition exists that must be repaired to avoid public health hazards that could result, if the repair work was put out for competitive bids in compliance with the procedures required by the Uniform Construction Cost Accounting Act.
2. The City Council authorizes the procurement of construction services to repair the water main and damaged public and private property without providing notice inviting bids.
3. The City Council authorizes the City Procurement Officer to contract with Wipf Construction to repair the backwash basins at the WTP on the amount of \$178,642.

4. Awarding a contract to repair the water main and damaged public and private property is categorically exempt from environmental review under the California Environmental Quality Act as a Class 2 categorical exemption, because it involves the replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity. (14 CCR §15302.)
5. The emergency action taken by this resolution shall terminate upon the City Council's approval of a certificate of completion for the water main and public and private property repair work.

PASSED AND ADOPTED this 4th day of November, 2020, by the following roll call vote:

AYES: Councilmembers Mulheren, Brown, Scalmanini, Orozco, and Mayor Crane

NOES: None

ABSENT: None

ABSTAIN: None


Douglas F. Crane, Mayor

ATTEST:


Kristine Lawler, City Clerk



AGENDA SUMMARY REPORT

SUBJECT: Presentation and Discussion on the Redwood Empire Municipal Insurance Fund (REMIF) Merger with Public Agency Risk Sharing Authority of California to Create the California Intergovernmental Risk Sharing Authority (CIRA)

DEPARTMENT: Human Resources /
Risk Management

PREPARED BY: Sheri Mannion, H.R. Director/Risk Manager

PRESENTER: Sheri Mannion, HR/Risk Management Director
and Amy Northam, REMIF General Manager

ATTACHMENTS:

1. REMIF PARSAC Comparison Checklist
2. CIRA Merger FAQs

Summary: The City of Ukiah is currently a member of the liability and workers' compensation Joint Powers Authority (JPA) pool named the Redwood Empire Municipal Insurance Fund or REMIF, and has been a member of the REMIF JPA since its inception in 1976. Our pool functions as an extension of the City of Ukiah and is governed by a board of directors comprised of members in the pool.

Background: Rather than purchase commercial insurance through a commercial insurance carrier, the City of Ukiah participates in an intergovernmental arrangement through which a group of cities and towns (referred to as the members) contribute to a shared fund that pays for liability and workers' compensation claims and provides risk management services. That fund is often commonly referred to as a pool. Pools are empowered to exist through the sections of the California Government Code known as joint powers authority (JPA), which allow two or more like entities to pool funds to pay for claims.

Public entity pools are fundamentally different from conventional insurance. The primary purpose of any public entity pool is to manage and reduce underlying risks to the benefit of public entity members and the public at large. Conventional insurers exist primarily to finance losses, while public pools are collaborating partners that help public entities create, foster, and manage safe environments in order to minimize personal, physical, and property damages losses.

Discussion: The Redwood Empire Municipal Insurance Fund (REMIF) is a public entity pool representing 15 small to medium sized cities/towns. It was formed in 1976 with a mission to provide workers' compensation coverage in response to increasing and unaffordable commercial rates. Coverage was expanded in the mid-1980s to include liability coverage and other services. Other lines of coverage have been added since that time, which are outlined further below.

The Public Agency Risk Sharing Authority of California (PARSAC) is a public entity pool representing 34 small to medium sized cities/towns and one fire district. It was formed in 1986 with a mission to provide liability coverage in response to the insurance crisis that eliminated commercial coverage for cities. Coverage was expanded in 1990 to include workers' compensation coverage and other services. Other lines of coverage have been added since that time, which are outlined further below.

PARSAC and REMIF provide a pooled liability program, pooled workers' compensation program, and coverage for group purchased property, Board of Directors public officials' errors and omissions, auto physical damage, special events, fidelity bonds, cyber liability, and other ancillary benefits.

REMIF has a pooled medical/health program.

Both pools focus on managing and maintaining a financially stable risk sharing pool for members, and the board of directors have a conservative funding and investment philosophy. They share a similar philosophy to embrace diverse opinions, have discussions that are constructive and collaborative, encourage participation from the members, balance member interests with those of the pool and work together towards a greater good.

Both pools also share a similar culture in that the pool is member owned, member governed, member driven and exists to serve its members. The organizations are also similar in that they serve small to medium sized cities/towns, and share a similar footprint in Northern California, while PARSAC has presence throughout the State.

A comparison matrix of the lines of coverage and services offered by both pools is attached to this staff report (Attachment 1).

Given the similarities between the two agencies, REMIF and PARSAC explored a strategic partnership, which ultimately led to a proposed merger between the two organizations. Rather than one pool merging into the other, the Board of Directors for the pools directed the creation of a new pool (called the California Intergovernmental Risk Sharing Authority or CIRA). There will be great benefits in sharing resources, sharing expenses and drawing on strengths. Benefits also include succession planning; more robust, stable programs; shared training resources; long term program sustainability; and elimination of redundancies. While a merger could have realized savings to the members of both pools, the intent of a merger between PARSAC and REMIF is to have long term stability, sustainability and adding depth and breadth to the agencies, with the singular goal of better serving our members.

After over a year of in-depth analysis of such a merger, the Board of Directors for both pools directed the merger of the organizations, effective 07/01/21, creating a new pool, CIRA. To proceed, the individual members must seek adoption of the CIRA agreements, which will be presented for adoption at a future council meeting. Council will be asked to adopt the CIRA Joint Powers Agreement and Bylaws (which will be presented for adoption as a consent item on a future agenda), and further direct staff to work with the CIRA on steps necessary to complete the merger.

To proceed, the individual members from both pools must seek adoption of the CIRA agreements from their respective Councils/Boards. These items are expected to be presented for your action at the December 16, 2020, Council meeting, and will include (1) the CIRA Joint Powers Agreement and Bylaws; (2) The necessitated changes to the REMIF Joint Powers Agreement and Bylaws to now only include the medical/health coverage line; and (3) further direct staff to work with the CIRA on steps necessary to complete the merger.

Also attached is a Frequently Asked Questions handout (Attachment 2) that provides additional information about the merger.

BUDGET/FISCAL IMPACT: The merger will consolidate the operations and expenses of both pools. CIRA will work towards eliminating redundant expenses which will lower long-term operating costs. Consolidating operations will also achieve greater economies of scale, improve service delivery, and CIRA will be in a better

position to leverage its larger size for better services, rates and coverage with service providers and excess insurers. A larger organization will also result in more predictable funding and reserving forecasts (with more available data), which reduces the likelihood of future assessments. The merged organization will be more fiscally viable and provide greater long-term stability and sustainability.

Recommended Action: Receive presentation regarding the merger of the City's liability and workers' compensation Joint Powers Authority (JPA) insurance pool [Redwood Empire Municipal Insurance Fund (REMIF)] with Public Agency Risk Sharing Authority of California (PARSAC) to create the California Intergovernmental Risk Sharing Authority (CIRA).

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: N/A

Approved: 
Sage Sangiacomo, City Manager

Lines of coverage	PARSAC	REMIF
Liability	✓	✓
Employment Practices Liability	✓	✓
Automobile Liability	✓	✓
Property Damage (3 rd party)	✓	✓
Workers' Compensation	✓	✓
Auto Physical Damage	✓	✓
Public Official Errors and Omissions	✓	✓
Property Damage (for members' property)	✓	✓
Special Events Coverage	✓	✓
Fidelity Bond	✓	✓
Employee Benefits (dental, vision, LTD, life)	✓	✓
Medical benefits (actives, retirees)	⊘	✓

Services Offered	PARSAC	REMIF
Safety Program	✓	✓
Grants	✓	⊘
Consultation and referral services	✓	✓
Customized risk management presentations	✓	⊘
Video and print resource library	✓	⊘
Regional and onsite risk management training	✓	✓
Web-based OSHA safety courses	✓	✓
In person OSHA safety courses	⊘	✓
Web-based employment practices courses	✓	✓
On site risk assessments	✓	✓
Post-accident assistance and mitigation	✓	✓
Operational Best Practices Templates	✓	⊘

Lexipol Fire and LE	✓	✓
Consultation with employment law firms	✓	✓
Liebert Cassidy Whitmore (LCW) Consortium Membership	✓	✓
DMV pull program	✓	⊘
DOT Drug Screening Program	✓	✓
Defensive Driver Training	✓	✓
Pre-employment physicals	⊘	✓

FREQUENTLY ASKED QUESTIONS . . .

Who is the other organization that we are merging with?

We are forming a merger and strategic partnership with the Public Agency Risk Sharing Authority of California (PARSAC). PARSAC is a pool of 44 cities and towns located in both Northern and Southern California. Like REMIF, PARSAC offers self-funded general and auto liability, employment liability, workers' compensation, and property coverage. REMIF however also offers a self-funded medical program, which will not be part of the merger, at least for the time being. Like REMIF, PARSAC members are full-service cities and towns, most providing police and/or fire services.

Why are we merging organizations?

The pooling industry has dramatically changed in the past decade. Some pools have dissolved due to retirement of key personnel, inability to remain fiscally solvent or have absorbed by larger organizations.

The merger of our organizations will make both organizations stronger. It will lead to long term stability and sustainability, as we will be able to spread risks and operating costs to a larger base of members. It will provide for more robust, stable programs. There will be built in redundancies and succession planning.

The financial impact due to a series of adverse loss years will be diminished because our larger size. A larger membership base will also result in more predictable funding and reserving forecasts (with more available data), which reduces the likelihood of future assessments. Finally, it will ultimately result in lower operating costs. Consolidating operations will eliminate redundancies, achieve economies of scale, improve service, and put us in a better position to leverage our larger size for better services, rates and coverage with service providers and excess insurers.

In short, it will bring both breadth and depth to the organization.

What is the name of the new organization?

The new organization will be the California Intergovernmental Risk Authority (CIRA).

What is the effective date for CIRA?

It is proposed CIRA will begin to provide coverage and services to its members July 1, 2021.

Will my agency have representation on the CIRA Board?

Yes, each member will be represented by one Board Director and one Alternate Director. Each member will have one vote.

What will be the role of the Board?

The duties of the CIRA Board will be similar to current REMIF Board in that the Board will adopt the budget, approve new members, approve dividends and assessments, approve new programs and services and elect officers.

Will the Executive Committee composition remain the same?

No, the Executive Committee will expand from 5 to 13 members. For the first two election cycles, former REMIF members will occupy at least 5 Committee seats. At least one of these seats will be an officer

position (President, Vice President, Treasurer, Auditor Controller). Committee members will be elected to serve a two-year term.

How many Board meetings will there be?

There will be at least two semiannual Board meetings each year.

How long is my agency committed to CIRA membership?

Existing PARSAC and REMIF members must participate for two fiscal years. New CIRA members may withdraw after 5 years.

Will there be any staffing changes?

The staffs of both organizations will be combined. Although there will not be any positions eliminated, job duties and assignments may be reassigned to achieve efficiency and improve service delivery.

Will my existing claims transfer to CIRA?

No, claims with incident dates prior to the merger (June 30, 2021 or before) will remain with each organization. Each organization will determine, independently, how those claims are concluded.

Will there be any change in coverage?

We will continue to offer the same coverages as currently provided: general liability, automobile liability, employment liability, workers' compensation, property, crime/employee dishonesty, special events, etc. We are currently analyzing excess providers for general liability, workers' compensation, and employment liability programs, and exploring alternative property coverage which will provide broader coverage and potentially lower costs. In the coming months, the analysis will be presented to the Transition Committee for review. In addition, REMIF will continue to offer a self-funded health program.

How will the merger affect my annual program premium contributions?

We will be allocating fixed costs to more members and this will reduce overall administration costs. Funding rates will be more stable (in the long term) as the predictive value of our loss data become more credible with a larger membership base. The actuary will complete his funding analysis later this year. Although there will be normal contribution adjustments due to changes in members' payroll and loss experience, our goal is to limit rate changes to no more than +/- 10% due to the merger.

Where will the CIRA office be located?

It is anticipated the CIRA office will be based out of Sacramento, with an office in Sonoma. REMIF will continue to maintain and provide certain pre-merger programs and services through its Sonoma office, as well as house some CIRA employees. The operating expenses for both buildings relating to CIRA's self-funded and insured programs (liability, workers' compensation, property, etc.) will be allocated to all CIRA members.

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END.



AGENDA SUMMARY REPORT

SUBJECT: Authorization for City Manager to Negotiate and Execute an Agreement with the Mendocino Local Agency Formation Commission to Procure Services for Preparation of the City of Ukiah Municipal Service Review and Sphere of Influence Update; and Approval of Corresponding Budget Amendment.

DEPARTMENT: Community
Development

PREPARED BY: Craig Schlatter, Community Development
Director

PRESENTER: Craig Schlatter, Community Development
Director

ATTACHMENTS:

None

Summary: City Council will consider authorizing the City Manager to negotiate and execute an agreement with the Mendocino Local Agency Formation Commission (LAFCo) to procure services for preparation of the City of Ukiah Municipal Service Review (MSR) and Sphere of Influence (SOI) update. Council will also consider approving a corresponding budget amendment.

Background: Additional information related to this item will be provided prior to and/or during the City Council meeting.

Discussion: Additional information forthcoming.

Recommended Action: Authorize City Manager to negotiate and execute an agreement with the Mendocino Local Agency Formation Commission (LAFCo) to procure services for preparation of the City of Ukiah Municipal Service Review and Sphere of Influence update; and approve corresponding budget amendment.

BUDGET AMENDMENT REQUIRED: Yes

CURRENT BUDGET AMOUNT:

PROPOSED BUDGET AMOUNT:

FINANCING SOURCE:

PREVIOUS CONTRACT/PURCHASE ORDER NO.:

COORDINATED WITH: David Rapport, City Attorney

Approved: 
Sage Sangiacomo, City Manager



AGENDA SUMMARY REPORT

SUBJECT: Authorization for City Manager to Negotiate and Execute a Month-to-Month Contract with KP Public Affairs.

DEPARTMENT: City Manager / Admin

PREPARED BY: Shannon Riley, Deputy City Manager

PRESENTER: Shannon Riley, Deputy City Manager

ATTACHMENTS:

1. Ukiah proposal _KP Public Affairs

Summary: The Council will consider authorizing the City Manager to contract with KP Public Affairs for assistance with community engagement. The firm would not act as a public information officer, but would provide the tools and training necessary to more effectively and efficiently engage with the residents, media, and other stakeholders in the Ukiah Valley.

Background: Civic engagement is one of the key aspects to government accountability. By definition, democratic governments should reflect public opinion, and therefore function best when the citizens are well informed.

The City of Ukiah employs a variety of communication methods in an effort to both inform and seek input from the community. However, there are no employees who are solely dedicated to this engagement or a unifying approach. Therefore, communication tends to be fragmented, varying from department to department, and is largely reactive.

Discussion: Today in Ukiah, there are more opportunities and more reasons than ever to engage with local government—disaster preparedness, the update of our General Plan, the economic and social recovery from the pandemic, proposed annexations, development of and access to beneficial programs, and more.

A more effective communication strategy would contribute to:

- Effective implementation of public policy and projects
- Assisting the news media in coverage of governmental activities
- Reporting to the citizenry on agency activities
- Increasing the internal cohesion of the agency
- Engagement with the agency itself

Never before has government had so many tools to communicate with citizens: through print, television, and online media, though social media feeds, through email and text notifications, through mobile apps, etc. This provides a tremendous opportunity to connect with residents; however, navigating the rapidly changing media environment requires specialized expertise and the commitment of time and resources.

KP Public Affairs, a public affairs firm with a well-established reputation for serving municipalities experiencing similar challenges to Ukiah, has the expertise to understand not only the challenges the City is facing regarding many of the City's efforts, but also how best to negotiate those challenges. KP Affairs has

experience working with the League of Cities; the Cities of Davis, West Sacramento, Paramount, and Marina; Westlands Water District; and the Sacramento Transportation Agency, Southern California Public Power Agency, and many more. They have a well-established reputation for success and their team members are some of the most respected in the industry.

A proposal from KP Public Affairs is provided as Attachment 1. It is important to note that KP Public Affairs would not act as a public information officer; rather, they would provide the tools and training to support the City team. Staff recommends entering into a month-to-month agreement at a rate of \$10,000 per month. KP Public Affairs brings a high level of expertise and efficiency, with services that include graphic design, copywriting, social media proficiency, and all other aspects of public relations. If the City were to hire for these skills, it would likely take two or more employees and would be far less economical. The proposed source of funding is primarily from moneys that were allocated to travel and training, and which could not be used due to the pandemic.

Recommended Action: Authorize the City Manager to negotiate and execute a month-to-month contract with KP Public Affairs in the amount of \$10,000 per month.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: \$70,000

FINANCING SOURCE: Existing training and supply budgets (unused due to COVID-19), based on allocation for the community outreach budget

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH:

Approved: 
Sage Sangiacomo, City Manager



November 20, 2020

To: The City of Ukiah, Attn: Shannon Riley, Deputy City Manager

From: Alison MacLeod, KP Public Affairs Proposed Program Lead

Re: Proposal for Communications Services

Thank you for the opportunity to provide recommendations and a proposal for services to support the City of Ukiah. Based on our current understanding, we recommend the City implement a multi-pronged communications program that includes strategic message development and outreach to help position Ukiah to achieve its goals for moving forward. While we have outlined our proposed activities below, we will refine our approach as we work with City leadership and staff and engage in the community.

PROPOSED COMMUNICATIONS PROGRAM

Situation

While the City is working hard to protect and improve quality of life for Ukiah residents, staff lacks the resources and expertise to effectively and efficiently communicate these efforts and engage with the community. An outreach, messaging and education effort can help as the City pursues sustainable provision of municipal services throughout Ukiah Valley and navigates the economic recovery after the pandemic.

There is an opportunity for the City to elevate its communication efforts to proactively tell its story, increase understanding, and build awareness of the benefits of key City decisions. By crafting clear

messages, recruiting new messengers, and using a series of communication channels, the City can improve how it is perceived and its ability to make positive progress in the region.

Proposed Approach

A big part of the success for any public information program depends on effectively communicating the realities of current situation and the real-life implications for people in continuing the status quo, and then effectively communicating the policy goals of elected leadership and how those goals offer a path forward.

Proposed Program Elements

The key elements of our proposed communications program include:

- **Message Development:** Build out key message tracks for each policy area – with major points and supporting information – that the City can use as a basis for communicating the issues at hand and what they mean for the residents and the region’s future.
- **Materials Development:** Create a series of materials that can be used in outreach and education efforts.
- **Social Media:** Deploy informational content through the City’s own social channels, and position partners to share content.
- **Earned Media:** Work with local reporters to improve their understanding of key issues facing the Ukiah Valley, and place regular columns and contributed pieces to help get the City’s story on residents’ kitchen tables.
- **Stakeholder Outreach:** Conduct a multi-faceted outreach program that targets different constituencies with education on issues. Part of this effort could involve the creation of a “community working group.”

ABOUT KP PUBLIC AFFAIRS

KP has extensive experience working on public relations programs for municipalities which has provided us the understanding, strategic background, and tactical expertise needed to design an effective communications and outreach plan for Ukiah. Specifically, our local government experience includes working with the Sacramento Transportation Agency on a public education campaign and developing a comprehensive internal and external communications plan for the City of Davis. We also created marketing materials and a communications plan for the City of West Sacramento as it prepared to launch its Kids Home Run initiative aimed at boosting educational attainment and workforce development; we participated in the formation of an updated land use policy within the City of Paramount; and we work with the City of Marina on communications related to regional water supply issues. Additionally, we worked for many years for Westlands Water District to implement a strategic outreach program to educate and engage stakeholders on complex, controversial water supply issues. We were able to deliver strategic messages through many channels, dramatically grow the district's social media audience/engagement, shape earned media coverage, and recruit third parties to help amplify the district's messages.

KP Project Team Members:

This project will be managed by a team of skilled public affairs and communications professionals and will be led by Alison MacLeod. We will seek ongoing feedback to ensure that the program implementation is consistent with the City's requirements and desired direction. We frequently conduct bi-weekly calls and provide regular progress reports for our clients, but we are happy to adjust the reporting structure accordingly to meet your needs.

Alison MacLeod | Project Manager

Alison is a Partner at KP and runs a wide variety of local and statewide public relations programs for KP clients. She has extensive experience in strategic communications programs, media relations, coalition building, project siting, grassroots outreach, stakeholder engagement and community education. She has managed regional marketing and community outreach initiatives that involved comprehensive public education programs related to transportation, and city services. She has worked with many local governments and agencies including the City of Davis, City of West Sacramento, City of Marina, and transportation districts/ JPAs. Her outreach programs have paved the way for successful buildout of controversial projects, and helped secure major grant funding for expanded rail service in the Central Valley. She understands how to design and execute localized community outreach programs to build public and political support during environmental review and permitting processes for developments.

Tom van der List | Stakeholder Outreach Manager

Tom van der List joined KP in 2017, bringing with him a strong background in community relations, grassroots advocacy and campaign management. He has provided key stakeholder outreach, logistical, reporting and documentation support for a variety of statewide, regional, and local projects. Tom

worked on various transportation and rail efforts including the California High-Speed Rail Project, multiple projects with the Los Angeles County Metropolitan Transportation Authority (Metro), land use projects, and more. Tom has successfully built and guided the activities of working groups including local community and business leaders, generated community interest and knowledge of transportation projects, and conducted outreach for public meetings large and small.

In 2018, Tom managed an onsite presentation and stakeholder outreach at the National Governors Association annual meeting on behalf of a Fortune 500 company. He provided day-to-day communications support for Westlands Water District, including the creation of persuasive video content, fact sheets and infographics, drafting of press releases and op-eds, and distribution of information to key stakeholder audiences.

Angela Hughes | Content Manager

Angela Hughes brings almost a decade of experience in community partnerships and engagement, content creation and development, media relations, and event planning. Angela has worked with a range of clients including local government agencies in New York City, San Francisco and Arizona, elected officials, non-profit organizations, and small businesses. She is passionate about strategic communications outreach and increasing awareness through compelling narrative and messaging to support an overall mission, objectives, and goals with a strong focus on equity and inclusion. As a former broadcast journalist, Angela specializes in engaging diverse audiences including youth and families, people with disabilities, elderly (65+) residents, non-English speaking residents, low-income residents, and African American communities. Previously, Angela worked as a communications and marketing coordinator for the San Francisco Unified School District where she served over 60,000+ students and their families. She helped build awareness through media pitching, generating content, social media campaigns, and facilitating staff training and workshops. Angela's diverse skill set includes research, coalition-building, crisis communications, graphic design, and audio/video production.



AGENDA SUMMARY REPORT

SUBJECT: Receive Updates on City Council Committee and Ad Hoc Assignments, and, if Necessary, Consider Modifications to Assignments and/or the Creation/Elimination of Ad Hoc(s).

DEPARTMENT: City Clerk

PREPARED BY: Kristine Lawler, City Clerk

PRESENTER: Mayor Crane and Various Councilmembers

ATTACHMENTS:

1. 2020 City Council Special Assignments

Summary: City Council members will provide reports and updates on their committee and ad hoc assignments. If necessary, the Council may consider modifications.

Background: City Council members are assigned to a number of committees and ad hoc activities. These assignments are included as Attachment 1.

Discussion: Previously, the City Council discussed having more time allocated to reporting on committee and ad hoc activities. Often, the Council Reports section of the regular agenda is rushed due to impending business (i.e., public hearings), and not enough time is afforded for reports beyond community activities.

In an effort to foster regular updates on committee and ad hoc assignments, this item is being placed on the agenda to provide the City Council members an expanded opportunity to report on assignments and modify assignments as necessary.

In respect to upcoming vacancies created by departing councilmembers, the Mayor and City Manager will work together to ensure that those positions are covered until a detailed review can be held after the full new Council is seated.

Recommended Action: Receive report(s). The Council will consider modifications to committee and ad hoc assignments along with the creation/elimination ad hoc(s).

BUDGET AMENDMENT REQUIRED: No

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: N/A

Approved: 
Sage Sangiacomo, City Manager

2020 CITY COUNCIL SPECIAL ASSIGNMENTS

COUNTY/REGIONAL OnGoing One + Alternate	MTG DATE/TIME	MEETING LOCATION		MAILING ADDRESS/CONTACT	COMMITTEE FUNCTION	ASSIGNED TO	PRINCIPAL STAFF SUPPORT
Disaster Council	Shall meet a minimum of twice a year at a time and place designated upon call of the chair	Place designated upon call of the chair or, if she/he is unavailable or unable to call such meeting, the first vice chair and then the City Manager or her/his designee.		Emergency Management Coordinator 300 Seminary Ave. Ukiah, CA 95482 467-5765 - Tami Bartolomei	Develop any necessary emergency and mutual aid plans, agreements, ordinances, resolutions, rules, and regulations.	Mulheren Orozco- Alternate	Tami Bartolomei, Community Services Administrator; 467-5765 tbartolomei@cityofukiah.com
Greater Ukiah Business & Tourism Alliance	3rd Tuesday of month, 11:30 a.m.	200 S School St. Ukiah, CA 95482		200 S School St. Ukiah, CA 95482	Promotes tourism and works to strengthen and promote the historic downtown and businesses within the greater Ukiah area	Mulheren	Shannon Riley, Deputy City Manager; 467-5793 sriley@cityofukiah.com
Mendocino Council of Governments (MCOG)	1st Monday of month, 1:30 p.m.	Board of Supervisors Chambers 501 Low Gap Road Ukiah, CA		Executive Director 367 N. State Street, Ste. 206 Ukiah, CA 95482 463-1859	Plan and allocate State funding, transportation, infrastructure and project County wide	Brown Mulheren- Alternate	Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com
Mendocino County Inland Water and Power Commission (IWPC)	2nd Thursday of month, 6:00 p.m.	Civic Center 300 Seminary Avenue conference room 5		IWPC Staff P.O. Box 1247 Ukiah, CA 95482 391-7574 - Candace Horsley	Develops coordination for water resources and current water rights: Potter Valley project - Eel River Diversion	Orozco Brown- Alternate	Sean White, Director of Water Resources; 463-5712 swwhite@cityofukiah.com
Mendocino Solid Waste Management Authority (MSWMA)	3rd Thursday of every other month (varies), 10:00 a.m.	Willits Council Chambers		Solid Waste Director 3200 Taylor Drive Ukiah, CA 95482 468-9710	County-wide Solid Waste JPA	Brown Scalmanini- Alternate	Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com
Mendocino Transit Authority (MTA) Board of Directors	Last Wednesday of month, 1:30 p.m.	Alternating locations - Ukiah Conference Center or Fort Bragg, or Point Arena		Executive Director 241 Plant Road Ukiah, CA 95482 462-1422	County-wide bus transportation issues and funding	Mulheren Brown- Alternate	Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com
North Coast Opportunities (NCO)	4th Wednesday of month, 2 p.m.	Alternating locations - Ukiah and Lakeport		Ross Walker, Governing Board Chair North Coast Opportunities 413 North State Street Ukiah, CA 95482	Assist low income and disadvantaged people to become self reliant	Bartolomei (appointed 12/19/18)	Tami Bartolomei, Community Services Administrator; 467-5765 tbartolomei@cityofukiah.com
North Coast Rail Authority (NCRA)	2nd Wednesday of month, 10:30 a.m.	Various Locations - announced		419 Talmage Road, Suite M Ukiah, CA 95482 463-3280	Provides a unified and revitalized rail infrastructure meeting the freight and passenger needs of the region	Shannon Riley, Deputy City Manager	Shannon Riley, Deputy City Manager; 467-5793 sriley@cityofukiah.com
Russian River Watershed Association (RRWA)	4th Thursday of month, 9:00 a.m. (only 5 times a year)	Windsor Town Hall		Russian River Watershed Association Attn: Daria Isupov 425 South Main St., Sebastopol, CA 95472 666-4857	Consider issues related to Russian river - plans projects and funding requests	Mulheren Brown- Alternate	Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com
Ukiah Valley Basin Groundwater Sustainability Agency (GSA)	2nd Thursday of month, 1:30 p.m.	Board of Supervisors Chambers; 501 Low Gap Road Ukiah, CA		County Executive Office Nicole French 501 Low Gap Rd., Rm. 1010 Ukiah, CA 95482 463-4441	GSA serves as the Groundwater Sustainability Agency in the Ukiah Valley basin	Crane Mulheren- Alternate	Sean White, Director of Water Resources; 463-5712 swwhite@cityofukiah.com
COUNTY/REGIONAL One + Staff Alternate	MTG DATE/TIME	MEETING	LOCATION	MAILING ADDRESS/CONTACT	COMMITTEE FUNCTION	ASSIGNED TO	PRINCIPAL STAFF SUPPORT
Economic Development & Financing Corporation (EDFC)	2nd Thursday of month, 2:00 p.m.	Primarily 631 S. Orchard Street (location varies)		Executive Director 631 South Orchard Avenue Ukiah, CA 95482 467-5953	Multi-agency co-op for economic development and business loan program	Riley (appointed 12/19/18)	Shannon Riley, Deputy City Manager; 467-5793 sriley@cityofukiah.com
Sun House Guild ex officio	2nd Tuesday of month, 4:30 p.m.	Sun House 431 S. Main St. Ukiah, CA		431 S. Main Street Ukiah, CA 95482 467-2836	Support and expand Grace Hudson Museum	Bartolomei (appointed 12/19/18)	David Burton, Museum Director; 467-2836 dburton@cityofukiah.com
Continued - COUNTY/REGIONAL One + Staff Alternate	MTG DATE/TIME	MEETING	LOCATION	MAILING ADDRESS/CONTACT	COMMITTEE FUNCTION	ASSIGNED TO	PRINCIPAL STAFF SUPPORT
Mendocino Youth Project JPA Board of Directors	3rd Wednesday of month, 7:45 a.m.	776 S. State Street Conference Room		Mendocino Co. Youth Project 776 S. State Street, Ste. 107 Ukiah, CA 95482 707-463-4915	Targets all youth with a focus on drug and alcohol prevention, healthy alternatives and empowering youth to make healthy choices	Noble Waidelich, Police Lieutenant	Noble Waidelich, Police Lieutenant; 463-6249; nwaidelich@cityofukiah.com
Northern California Power Agency (NCPA)	4th Thursday of month, 9:00 a.m. (see NCPA calendar)	Roseville, CA and other locations		651 Commerce Drive Roseville, CA 95678 916-781-4202	Pool of public utilities for electric generation and dispatch	Crane Grandi - Alternate	Mel Grandi, Electric Utility Director; 463-6295 mgrandi@cityofukiah.com

2020 CITY COUNCIL SPECIAL ASSIGNMENTS

LOCAL/COUNTY/REGIONAL/LIANS OnGoing One or Two Council and/or Staff	MTG DATE/TIME	LOCATION	MAILING ADDRESS/CONTACT	COMMITTEE FUNCTION	ASSIGNED TO	PRINCIPAL STAFF SUPPORT
Adventist Health Community Advisory Council	Quarterly: Aug. 27, 6:45 a.m. Nov 5, 6:45 a.m.	275 Hospital Drive Ukiah, CA 95482	275 Hospital Drive Ukiah, CA 95482 707-463-7623 Allyne Brown - Allyne.Brown@ah.org	Provides the Adventist Health Ukiah Valley (AHUV) Governing Board and Administration with advice, support, and suggestions on matter of importance to Mendocino, Lake and Sonoma Counties.	Brown	Kristine Lawler , City Clerk; 463-6217 klawler@cityofukiah.com
League of California Cities Redwood Empire Legislative Committee	Prior to Division Meetings, meets 3x in person and then via conference call	Various locations that are announced	Redwood Empire League President; Public Affairs Program Manager (916) 658-8243	Elected city officials and professional city staff attend division meetings throughout the year to share what they are doing and advocate for their interests in Sacramento	Mulheren Brown- Alternate	Sage Sangiacomo , City Manager; 463-6221 ssangiacomo@cityofukiah.com
City Selection Committee	Called as required by the Clerk of the Board	BOS Conference Room 501 Low Gap Rd. Rm. 1090 Ukiah, CA	C/O: BOS 501 Low Gap Rd., Rm 1090 Ukiah, CA 95482 463-4441	Makes appointments to LAFCO and Airport Land Use Commission	Mayor	Kristine Lawler , City Clerk; 463-6217 klawler@cityofukiah.com
Investment Oversight Committee	Varies	Civic Center 300 Seminary Ave. Ukiah, CA 95482	Civic Center 300 Seminary Ave. Ukiah, CA 95482	Reviews City investments, policies, and strategies	Crane Orozco, Alternate Alan Carter, Treasurer	Dan Buffalo , Director of Finance; 463-6220 dbuffalo@cityofukiah.com
Library Advisory Board	3rd Wednesdays of alternate months; 1:00 p.m.	Various Mendocino County Libraries	Ukiah County Library 463-4491	Review library policy and activities	Mulheren	Kristine Lawler , City Clerk; 463-6217; klawler@cityofukiah.com
Ukiah Players Theater Board of Directors	3rd Tuesday of month, 6:00 p.m	1041 Low Gap Rd Ukiah, CA 95482 462-1210	1041 Low Gap Rd Ukiah, CA 95482 462-1210	To oversee the activities, organization and purpose of the Ukiah Players Theater	Greg Owen , Airport Manager (appointed 12/19/18)	Kristine Lawler , City Clerk; 463-6217 klawler@cityofukiah.com
Ukiah Unified School District (UUSD) Committee	Quarterly	511 S. Orchard, Ste. D Ukiah, CA 95482	511 S. Orchard Ukiah, CA 95482	Information exchange with UUSD Board Chair, Mayor, Superintendent, and City Manager	Mayor, City Manager and Police Chief	Sage Sangiacomo , City Manager; 463-6221 ssangiacomo@cityofukiah.com
Russian River Flood Control District (RRFCD) Liaison	1st Monday of month, 5:30 p.m.	151 Laws Ave., Suite D Ukiah, CA	151 Laws Ave., Ukiah, CA 95482; rrfc@pacific.net; 462-5278	Proactively manage the water resources of the upper Russian River for the benefit of the people and environment of Mendocino County	Mulheren/Orozco White (appointed 12/19/18)	Sean White , Director of Water Resources; 463-5712 swhite@cityofukiah.com
HHS Advisory Board	2nd Wednesday of month; 9:00 a.m.	Big Sur Room County Department of Social Services	Executive Director Jackie Williams - 462-1934 c/o Ford St. Project 139 Ford St. Ukiah CA 95482	Discussions and possible work on health and human service issues	Brown - Liaison	Shannon Riley , Deputy City Manager; 467-5793 sriley@cityofukiah.com
Mendocino County Local Area Formation Commission (LAFCO)	1st Monday of month, 9:00 a.m.	Board of Supervisors Chambers	Executive Director 200 S. School Street, Ste. 2 Ukiah, CA 95482 463-4470	Required by legislation - planning spheres of influence, annexation, service areas, and special districts	(positions not active) Crane Mulheren- Alternate	Craig Schlatter , Director of Community Development; 463-6219; cshlatter@cityofukiah.com
Mendocino County Airport Land Use Commission	As needed	BOS Conference Room 501 Low Gap Rd., Rm. 1090, Ukiah, CA	Mendocino County Executive Office 501 Low Gap Rd. Rm. 1010 Ukiah, CA 95482	To formulate a land use compatibility plan, provide for the orderly growth of the airport and the surrounding area, and safeguard the general welfare of the inhabitants within the vicinity	Owen/Schlatter	Greg Owen , Airport Manager; 467-2855; gowen@cityofukiah.com Craig Schlatter , Director of Community Development; 463-6219; cshlatter@cityofukiah.com
Mendocino County 2nd District Liaison	1st Wednesdays of month, 8:00 a.m.	Civic Center Annex conference room #5 411 West Clay St. Ukiah, CA 95482	Civic Center 300 Seminary Ave. Ukiah, CA 95482	To coordinate activities and policy development with the City's 2nd District Supervisor	Brown Crane- Alternate	Sage Sangiacomo , City Manager; 463-6221; ssangiacomo@cityofukiah.com
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Fire Executive Committee	2nd Wednesdays of month, 3:45 p.m.	Ukiah Valley Conference Center, 200 S. School Street Ukiah, CA	Stephanie Abba Civic Center 300 Seminary Ave. Ukiah, CA 95482 sabba@cityofukiah.com	Per the recently adopted agreement between the City of Ukiah and the Ukiah Valley Fire Protection District	Orozco/Brown	Doug Hutchison , Fire Chief; 463-6263; dhutchison@cityofukiah.com
Mendocino County 5th District Liaison	Monthly; TBD	Civic Center Annex conference room #5 411 West Clay St. Ukiah, CA 95482	Civic Center 300 Seminary Ave. Ukiah, CA 95482	To coordinate activities and policy development with the County's 5th District Supervisor	Brown	Sage Sangiacomo , City Manager; 463-6221; ssangiacomo@cityofukiah.com
STANDING COMMITTEES	MTG DATE/TIME	LOCATION	MAILING ADDRESS/CONTACT	COMMITTEE FUNCTION	ASSIGNED TO	PRINCIPAL STAFF SUPPORT
Equity and Diversity	TBD	Virtual Meeting Room (link to be created)	Civic Center 300 Seminary Ave. Ukiah, CA 95482	Improve diversity and equity in the City's workforce and municipal services	Orozco/Mulheren	Traci Boyl , City Manager's Office Management Analyst; 467-5720 tboyl@cityofukiah.com

2020 AD HOC COMMITTEES		
COMMITTEE	ASSIGNED TO	PRINCIPAL STAFF SUPPORT
Electric Grid Operational Improvements	Crane/Scalmanini	Mel Grandi, Electric Utility Director; 463-6295 mgrandi@cityofukiah.com
Downtown Parking Management	Mulheren/Brown	Shannon Riley, Deputy City Manager; 467-5793 sriley@cityofukiah.com
Public Works Project Specification Development	Crane/Mulheren	Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com
Uniform Cost Accounting	Crane/Mulheren	Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com
Marbut Study Ad Hoc	Brown/Scalmanini	Justin Wyatt, Police Operations Captain, 463-6760 jwyatt@cityofukiah.com
Cannabis Events	Mulheren/Brown	Tami Bartolomei, Community Services Administrator; 467-5765 tbartolomei@cityofukiah.com
Public Right of Way Related ADA Compliance	Scalmanini/Orozco	Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com
Budget Development Best Practices and Financial Policy For FY 20/21 Budget	Crane/Brown	Dan Buffalo, Director of Finance; 463-6220 dbuffalo@cityofukiah.com Sheri Mannion, Human Resource Director/Risk Manager; 463-6272, smannion@cityofukiah.com
Advance Planning & Policy for Sphere of Influence (SOI), Municipal Service Review (MSR), Annexation, Tax Sharing, Detachment, and Out of Area Service Agreements	Crane/Scalmanini	Sage Sangiacomo, City Manager 463-6221 ssangiacomo@cityofukiah.com Shannon Riley, Deputy City Manager 467-5793 sriley@cityofukiah.com Craig Schlatter, Community Development Director 463-6219 cschlatter@cityofukiah.com Sean White, Director of Water Resources; 463-5712 swhite@cityofukiah.com Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com Mel Grandi, Electric Utility Director; 463-6295 mgrandi@cityofukiah.com Dan Buffalo, Director of Finance; 463-6220 dbuffalo@cityofukiah.com
2020 Electric Rate Study	Crane/Scalmanini	Mel Grandi, Electric Utility Director; 463-6295 mgrandi@cityofukiah.com
Diversity and Equity <i>SCOPE: With community engagement, develop an action plan to foster diversity and equity in the organization and our community. Review policies, practices, and procedures to promote and enhance equal participation and access to services, resources, and life opportunities and to ensure our organization accurately reflects the diversity of our community.</i>	Orozco/Mulheren	Traci Boyl, Management Analyst; 467-5720; tboyl@cityofukiah.com
Housing Element and Implementation Review	Mulheren/Orozco	Craig Schlatter, Community Development Director 463-6219 cschlatter@cityofukiah.com
Economic Development <i>SCOPE: to review economic tools to support development in line with the Council's Strategic Plan</i>	Orozco/Scalmanini	Shannon Riley, Deputy City Manager; 467-5793 sriley@cityofukiah.com