CITY OF STORM LAKE
AIRPORT COMMISSION
AIRPORT MEETING ROOM
MARCH 13, 2017
4:00 PM

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

AGENDA

1. **Approve The February 13, 2017 Airport Commission Minutes**
2. **Airport Financial Report From February 1st, 2017 to February 28th, 2017**
3. **Airport Fuel Report February 1st, 2017 to February 28th, 2017.**
4. **Airport Manager's Monthly Report**
5. **Administration Report - March 2017 Airport Commission Meeting**
6. **Runway 13/31 Subdrain and Apron Rehab Project Plan Approval**
7. **Terminal Sitting Room Remodel/Technology Upgrades**
8. Adjourn

Meeting Protocol

If you wish to speak today, please:

1. To speak on an agenda item please approach the podium when that agenda item is called and upon recognition by the chair identify yourself by stating your name and address.
2. Please keep your remarks to three (3) minutes or less.
3. If you require accommodation for this meeting including but not limited to translation services, hearing assistance, or accessibility please contact the City Clerk at least four (4) hours prior to the start of the meeting.

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Staff Summary

3/13/2017
Agenda Item # 1.

City of Storm Lake

PO Box 1086

Storm Lake, IA 50588

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REPORT TO: Airport Commission

FROM: Mayra Martinez, City Clerk

SUBJECT: **Approve The February 13, 2017 Airport Commission Minutes**

BACKGROUND: The Airport Commission meets monthly and minutes are taken at each meeting. The Commission needs to review and approve the previous month's meeting.

FISCAL IMPACT: None

RECOMMENDATION: Approve February 13, 2017 Airport Commission minutes

ATTACHMENTS:

Description	Type
Minutes - February 13, 2017	Minutes

Storm Lake Airport Commission
Regular Meeting
Airport Terminal
Monday, February 13, 2017 4:00PM

Present: Commission Members Bob Ansorge, Maxine Lampe, Dan Richardson, Sara Huddleston and Doug White. Others Present: Jim Bartholomew, John Bartholomew, Tyler Gibbins, Gregg Broussard and Keri Navratil

Chairman Ansorge called the meeting to order at 4:00 PM.

Hear the Public – None

Minutes – Moved by Commissioner Richardson to approve the January 9, 2017 Airport Commission minutes. Seconded by Commissioner White. Vote: All ayes with Commissioner Member Huddleston absent. Motion carried.

Financial Report – Moved by Commissioner Lampe to approve the financial reports for January. Seconded by Commissioner Richardson. Vote: All ayes with Commissioner Member Huddleston absent. Motion carried.

Fuel Report – Moved by Commissioner Richardson to approve the Fuel Report for January. Seconded by Commissioner White. Vote: All ayes with Commissioner Member Huddleston absent. Motion carried.

Manager Report – Ordered and received 7560 Gallons of Jet A fuels. Issued two NOTAM closing the airport due to ice on runway and ramp.

Courtesy car usage 2 and 37 miles.

Commissioner Member Huddleston arrived 4:04 pm.

Administration Report – A discussion in regard to the donation from Travis and Kristi Brotherson was held as to where the funds would be used. Scheduled **Spring inspection** for **April 10, 2017 at 2:30 pm**. Greg Broussard gave an update on runway 13/31 sub drain plans of which the final plans will be presented to the committee in the March meeting. Commissioner Richardson presented a map of drainage issues .of which need to be addressed.

Fielded Phone Calls Resulting in Complaints – Several phone call have been receive at City Hall in regards to operations and maintenance issues of which Bart's Flying Service is not fulfilling based on the their contract with the City. Bart's Flying Service was directed to inform City Staff when NOTAM's are issued.

Adjourn – Moved by Commissioner Richardson to adjourn the meeting at 4:37pm. Seconded by Commissioner Lampe. All ayes. Motion carried.

Mayra Martinez, City Clerk

Staff Summary

3/13/2017
Agenda Item # 2.

City of Storm Lake

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REPORT TO: Airport Commission

FROM: Tyler Gibbins, Staff Accountant

SUBJECT: **Airport Financial Report From February 1st, 2017 to February 28th, 2017**

BACKGROUND: Please see the following attachments:

- Expenses
- Revenues vs Expenses
- Hangar Rental Report
- Year to Date Expense Report
- Revenue Report

On the February Expense Report please note the following:

- A load of Jet A Fuel was purchased in February
- A progress payment for the subdrain project

The second attachment shows the year to date summary history of the expenses and revenues for the Airport in a revenue vs expense type format.

The third report shows the current status of the hangar rental at the Airport. We currently have two spots available in Hangar A as well as one in Hangar B.

The final two reports are for the current fiscal year. The revenue is a representation for last month alone and the expense report is included for all of FY2017.

FISCAL IMPACT: Total expenses for the month of February 2017 are $33,704.58

RECOMMENDATION: Review and Approve the Financial Report

ATTACHMENTS:

	Description	Type
🗋	Expense List	List of Bills
🗋	Financial Report	Financial Report
🗋	Hangar Rent	Contract
🗋	FY2017 Expenses	Financial Report
🗋	Revenue Report	Financial Report

Storm Lake Airport Commission
Monthly Financial Report
Period Ending February 28, 2017

Vendor Name	Description	Account Charged	Amount	Notes
Larson Oil & Distributing Co Inc	Fuel	001-2080-02-6310-0000	$1,035.50	
MS Door Service LTD	Pest Control Service	001-2080-02-6310-0000	$45.00	
Rasmussen's Ford	Door Handle Repairs	001-2080-02-6332-0000	$323.78	
Mid American Energy	Electric Service	001-2080-02-6371-0000	$749.68	
Century Link	Phone Service	001-2080-02-6373-0000	$155.57	
Bart'f Flying Service	Operator Contract	001-2080-02-6494-0000	$5,063.04	
Iowa Lakes Regional Water	Water Service	001-2080-02-6499-0000	$56.87	
Iowa Public Airport Association	Membership	001-2080-02-6499-0000	$150.00	
Central Bank	Domain Name Renewal	001-2080-02-6499-0000	$70.68	
Kevin Neuroth	Garbage Service	001-2080-02-6499-0000	$161.25	
Eastern Aviation	Jet Fuel	001-2080-02-6503-0000	$16,443.21	
Bolton & Menk	Subdrain Design Services	301-2080-08-7186-0002	$9,450.00	

Total Expenses $33,704.58

Notes:

Airport Commission Report - FY 2016-2017

Period	1	2	3	4	5	6	7	8	9	10	11	12	
Revenue by Type	**Jul-16**	**Aug-16**	**Sep-16**	**Oct-16**	**Nov-16**	**Dec-16**	**Jan-17**	**Feb-17**	**Mar-17**	**Apr-17**	**May-17**	**Jun-16**	**Total**
Hangar Rent	2,340.40	3,815.00	2,815.00	1,370.00	3,528.00	5,283.00	2,745.00	2,845.00					24,741.40
Airport Ag Sales				22,979.75	10,207.50			17,442.60					50,629.85
Airport Utilities	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00					640.00
Fuel	27,094.46	41,330.03	25,450.62	21,951.72	22,277.46	16,029.31	16,202.82	17,424.44					187,760.86
Other							2,500.00						2,500.00
TOTAL	29,514.86	45,225.03	28,345.62	46,381.47	36,092.96	21,392.31	21,527.82	37,792.04	-	-	-	-	266,272.11

Tyler Gibbins:
Free Will Donation- Travis

*Other includes

Expenses	**Jul-16**	**Aug-16**	**Sep-16**	**Oct-16**	**Nov-16**	**Dec-16**	**Jan-17**	**Feb-17**	**Mar-17**	**Apr-17**	**May-17**	**Jun-16**	**Total**
Insurance													-
Operations	6,394.55	8,497.44	20,532.91	4,267.66	12,030.61	868.07	11,264.83	7,811.37					71,667.44
Cost of Goods for Resale	15,085.23	14,269.36	26,884.34	14,698.53	15,427.44	41,814.68		16,443.21					144,622.79
Capital			131.40				5,000.00	9,450.00					14,581.40
TOTAL	21,479.78	22,766.80	47,548.65	18,966.19	27,458.05	42,682.75	16,264.83	33,704.58	-	-	-	-	230,871.63
Revenue over Expense	8,035.08	22,458.23	(19,203.03)	27,415.28	8,634.91	(21,290.44)	5,262.99	4,087.46	-	-	-	-	35,400.48

FY 2016-2017 Hangar Rent

Hangar	Price/Month	# of spots available	# Rented	
A	65.00	4	2	
B	65.00	4	3	
C		This is VT's Hangar		
D	80.00	6	6	
E	95.00	6	6	
F	135.00	5	5	
F	150.00	1	1	
		26	**23**	**TOTAL**

General Ledger

Expense vs Budget

User: tyler.gibbins
Printed: 3/2/2017 - 3:38 PM
Period: 01 to 13, 2017
Fiscal Year: 2017
JE Number: 0

Account Number		FP	JE	Description	Budgeted Amount	Period Amount		YTD Amount	YTD Var	Encumbered	Available	% Avail
2080				Airport								
001				General Fund								
001-2080-02-6010-0000				Salaries								
001-2080-02-6010-0000				Salaries	0.00	0.00		0.00	0.00	0.00	0.00	0.00
001-2080-02-6040-0000				Overtime								
001-2080-02-6040-0000				Overtime	0.00	0.00		0.00	0.00	0.00	0.00	0.00
001-2080-02-6310-0000				Repairs/Maintenance Bldg								
7/18/2016	AP	1	50	Sheave Wheels	DR	92.00	Ck: 52827		Erect-A-Tube Inc			
7/18/2016	AP	1	50	Seed for Airport	DR	112.00	Ck: 52843		L & G Products, Inc			
8/2/2016	AP	2	7	Lights	DR	39.96	Ck: 53030		Bomgaars Supply, Inc			
8/2/2016	AP	2	7	Lights	DR	21.54	Ck: 53030		Bomgaars Supply, Inc			
8/2/2016	AP	2	7	Garden Hoses & Sprinkler	DR	157.97	Ck: 53030		Bomgaars Supply, Inc			
8/2/2016	AP	2	7	Receptacles	DR	19.92	Ck: 53030		Bomgaars Supply, Inc			
8/15/2016	AP	2	42	Pest Management Services	DR	45.00	Ck: 53135		MS Door Service Ltd			
9/6/2016	AP	3	6	Walk-In Shop Door Repairs	DR	633.30	Ck: 53244		Bargloff & Company			
9/6/2016	AP	3	6	Fuel Filters	DR	617.17	Ck: 53259		Eastern Aviation Fuels, Inc			
9/6/2016	AP	3	6	Pappy Light Repairs Runway 31	DR	225.00	Ck: 53291		Nepple Electric Inc			
9/6/2016	AP	3	6	AV Gas Cabinet Repairs	DR	4,227.58	Ck: 53306		Sioux Equipment Co Inc			
10/3/2016	AP	4	1	Hangar Door Panel Replacement	DR	2,831.73	Ck: 53494		Bargloff & Company			
10/3/2016	AP	4	1	Fuel Filters	DR	114.29	Ck: 53510		Eastern Aviation Fuels, Inc			
10/17/2016	AP	4	34	August 2016 Pest Control	DR	45.00	Ck: 53651		MS Door Service Ltd			
10/17/2016	AP	4	34	Veeder Root Repairs	DR	145.25	Ck: 53671		Seneca Companies LLC			
11/7/2016	AP	5	7	Shop Furnace Repairs	DR	739.22			Control System Specialists, LLC			

Account Number		FP	JE	Description	Budgeted Amount	Period Amount	YTD Amount	YTD Var	Encumbered	Available	% Avail
11/7/2016	AP	5	7	September 2016 Pest Control	DR	45.00	Ck: 53823	MS Door Service Ltd			
11/21/2016	AP	5	62	VT Hangar Door Repairs	DR	198.50	Ck: 53901	Advanced Door Systems			
12/5/2016	AP	6	3	Lights	DR	78.75	Ck: 54045	Bomgaars Supply, Inc			
1/16/2017	AP	7	38	Pest Control Service	DR	45.00	Ck: 54396	MS Door Service Ltd			
2/20/2017	AP	8	74	Fuel	DR	1,035.50		Larson Oil & Distributing Co, Inc			
2/20/2017	AP	8	74	December 2016 Pest Control	DR	45.00	Ck: 54706	MS Door Service Ltd			
001-2080-02-6310-0000				Repairs/Maintenance Bldg	11,540.00	11,514.68	11,514.68	25.32	0.00	25.32	0.22
001-2080-02-6332-0000				Vehicle Repair							
2/6/2017	AP	8	9	Door Handle Repairs	DR	323.78	Ck: 54593	Rasmussen's			
001-2080-02-6332-0000				Vehicle Repair	2,500.00	323.78	323.78	2,176.22	0.00	2,176.22	87.05
001-2080-02-6371-0000				Electric Service							
7/19/2016	AP	1	73	Electric Service May/June 2016	DR	779.73	Ck: 52918	MidAmerican Energy Company			
8/17/2016	AP	2	65	Electric Service Jun/July 2016	DR	810.02	Ck: 53193	MidAmerican Energy Company			
9/20/2016	AP	3	77	Electric Service Jun/July 2016	DR	668.71	Ck: 53463	MidAmerican Energy Company			
10/18/2016	AP	4	57	Electric Service Aug/Sept 2016	DR	678.38	Ck: 53708	MidAmerican Energy Company			
11/21/2016	AP	5	62	Electric Service Sept/Oct 2016	DR	486.90	Ck: 53940	MidAmerican Energy Company			
12/20/2016	AP	6	62	Electric Service Sept/Oct 2016	DR	559.06	Ck: 54267	MidAmerican Energy Company			
1/17/2017	AP	7	55	Electric Service Nov/Dec 2016	DR	713.55	Ck: 54459	MidAmerican Energy Company			
2/21/2017	AP	8	90	Electric Service Dec/Jan 2017	DR	749.68	Ck: 54756	MidAmerican Energy Company			
001-2080-02-6371-0000				Electric Service	8,200.00	5,446.03	5,446.03	2,753.97	0.00	2,753.97	33.59
001-2080-02-6373-0000				Telecommunications							
7/12/2016	AP	1	35	Phone Service July 2016	DR	155.87	Ck: 52769	Century Link			
8/9/2016	AP	2	29	August 2016 Phone Service	DR	155.87	Ck: 53066	Century Link			
9/13/2016	AP	3	35	September 2016 Phone Service- A	DR	155.87	Ck: 53365	Century Link			
10/18/2016	AP	4	57	October 2016 Phone Service	DR	155.72	Ck: 53697	Century Link			
11/14/2016	AP	5	30	Phone Service	DR	155.72	Ck: 53887	Century Link			
12/13/2016	AP	6	37	December 2016 Phone Service	DR	155.72	Ck: 54141	Century Link			
1/17/2017	AP	7	55	Phone Service- January 2017	DR	155.57	Ck: 54452	Century Link			
2/14/2017	AP	8	62	February 2017 Phone Service	DR	155.57	Ck: 54649	Century Link			
001-2080-02-6373-0000				Telecommunications	1,700.00	1,245.91	1,245.91	454.09	0.00	454.09	26.71
001-2080-02-6494-0000				Operator Contract							
7/26/2016	AP	1	92	July 2016 Airport Manager's Cont	DR	5,063.04		Bart's Flying Service			

Account Number		FP	JE	Description	Budgeted Amount	Period Amount	YTD Amount	YTD Var	Encumbered	Available	% Avail
9/1/2016	AP	3	4	Airport Contract August 2016	DR	5,063.04		Bart's Flying Service			
9/27/2016	AP	3	96	Airport Contract September 2016	DR	5,063.04		Bart's Flying Service			
11/1/2016	AP	5	2	October 2016 Airport Contract	DR	5,063.04		Bart's Flying Service			
11/29/2016	AP	5	96	Airport Contract November 2016	DR	5,063.04		Bart's Flying Service			
1/4/2017	AP	7	9	Decmeber 2016 Airport Contract	DR	5,063.04		Bart's Flying Service			
1/24/2017	AP	7	80	Airport Contract January 2017	DR	5,063.04		Bart's Flying Service			
2/21/2017	AP	8	90	February 2017 Operator Contract	DR	5,063.04		Bart's Flying Service			
001-2080-02-6494-0000				Operator Contract	61,000.00	40,504.32	40,504.32	20,495.68	0.00	20,495.68	33.60
001-2080-02-6499-0000				Contractual Services							
7/5/2016	AP	1	6	Recycling	DR	49.30	Ck: 52738	Harold Rowley Recycle Center			
7/19/2016	AP	1	73	July 2016 Water Service	DR	62.41	Ck: 52915	Iowa Lakes Regional Water			
8/1/2016	AP	2	1	Re-Align PAPI Lights for FAA	DR	467.50	Ck: 52968	K&W Electric Inc			
8/1/2016	AP	2	1	Pump Repairs	DR	379.02	Ck: 52981	Nepple Electric Inc			
8/1/2016	AP	2	1	Runway Light Repairs	DR	3,610.52	Ck: 52981	Nepple Electric Inc			
8/1/2016	AP	2	1	Tile Repairs	DR	1,500.00	Ck: 52993	Reding Gravel & Excavating Co., Inc			
8/9/2016	AP	2	26	Void 022250	CR	9.00					
8/9/2016	AP	2	29	2017 Meter Licensing Fee	DR	9.00	Ck: 53072	Iowa Dept of Agriculture & Land Stewardship			
8/15/2016	AP	2	42	FY2017 Storm Water Discharge P	DR	175.00	Ck: 53112	Iowa Dept of Natural Resources			
8/15/2016	AP	2	42	Service Call- AV Gas Pump	DR	50.00	Ck: 53137	Nepple Electric Inc			
8/15/2016	AP	2	42	Postage Aug 4, 2016	DR	7.65	Ck: 53147	Reserve Account			
8/17/2016	AP	2	65	Water Services	DR	134.11	Ck: 53190	Iowa Lakes Regional Water			
8/23/2016	AP	2	91	1st Quarter FY2017 Garbage Serv	DR	161.25		Kevin Neuroth			
9/6/2016	AP	3	6	Hangar Rent Refund Check- Augu	DR	80.00	Ck: 53267	Keith Geyer			
9/19/2016	AP	3	65	Property Tax- Pickhinke Prop	DR	169.00	Ck: 53375	Buena Vista Co Treasurer			
9/19/2016	AP	3	65	Property Tax- Foell Prop	DR	291.00	Ck: 53375	Buena Vista Co Treasurer			
9/19/2016	AP	3	65	August 2016 Legal Services	DR	246.67		Philip E Havens			
9/19/2016	AP	3	65	Pest Management Services	DR	45.00	Ck: 53410	MS Door Service Ltd			
9/19/2016	AP	3	65	FY2017 Super Maintenance Agree	DR	2,624.50	Ck: 53437	Syn-Tech Systems Inc			
9/20/2016	AP	3	77	Water Services	DR	67.95	Ck: 53458	Iowa Lakes Regional Water			
9/27/2016	AP	3	96	9/21/2016 Fuel Reimbursement	DR	29.60		Bart's Flying Service			
10/12/2016	AP	4	29	Postage Sept 27, 2016	DR	29.72	Ck: 53599	Reserve Account			
10/17/2016	AP	4	34	Propane Tank Rental- Acct#21323	DR	71.00	Ck: 53606	Amerigas			
10/18/2016	AP	4	57	October 2016 Water Service	DR	56.87	Ck: 53704	Iowa Lakes Regional Water			
10/26/2016	AP	4	81	Water Service	DR	63.23	Ck: 53738	Culligan			
11/21/2016	AP	5	62	Water Service	DR	67.95	Ck: 53924	Iowa Lakes Regional Water			
11/22/2016	AP	5	69	4th Qtr Garbage Service 2016	DR	161.25		Kevin Neuroth			
12/6/2016	AP	6	15	Postage Dec 1, 2016	DR	17.67	Ck: 54111	Reserve Account			
12/20/2016	AP	6	62	November 2016 Water Service	DR	56.87	Ck: 54264	Iowa Lakes Regional Water			

Account Number		FP	JE	Description	Budgeted Amount	Period Amount	YTD Amount	YTD Var	Encumbered	Available	% Avail
1/3/2017	AP	7	1	Water Service December 2016	DR	7.95	Ck: 54283	Culligan			
1/16/2017	AP	7	38	Underground Storage Tank Tags 2	DR	130.00	Ck: 54381	Iowa Dept of Natural Resources			
1/17/2017	AP	7	55	December 2016 Water Service	DR	62.41	Ck: 54456	Iowa Lakes Regional Water			
1/24/2017	AP	7	80	Postage Jan 17, 2017	DR	8.37	Ck: 54505	Reserve Account			
2/14/2017	AP	8	62	Water Service	DR	56.87	Ck: 54652	Iowa Lakes Regional Water			
2/20/2017	AP	8	74	2017 Membership	DR	150.00	Ck: 54693	Iowa Public Airport Assn			
2/20/2017	AP	8	74	Domain Name Renewal	DR	70.68	Ck: 54670	Central Bank			
2/21/2017	AP	8	90	1st Quarter Services 2017	DR	161.25		Kevin Neuroth			
3/6/2017	AP	9	7	Postage Feb 28, 2017	DR	20.14	Ck: 54829	Reserve Account			
001-2080-02-6499-0000				Contractual Services	25,000.00	11,342.71	11,342.71	13,657.29	0.00	13,657.29	54.63
001-2080-02-6503-0000				Merchandise for resale							
7/18/2016	AP	1	50	Jet A Fuel	DR	15,085.23	Ck: 52823	Eastern Aviation Fuels, Inc			
8/1/2016	AP	2	1	Jet A Fuel	DR	14,269.36	Ck: 52953	Eastern Aviation Fuels, Inc			
9/6/2016	AP	3	6	Jet A Fuel	DR	13,395.64	Ck: 53259	Eastern Aviation Fuels, Inc			
9/6/2016	AP	3	6	Jet A Fuel	DR	13,488.70	Ck: 53259	Eastern Aviation Fuels, Inc			
10/3/2016	AP	4	1	Jet A Fuel	DR	14,698.53	Ck: 53510	Eastern Aviation Fuels, Inc			
11/7/2016	AP	5	7	Jet A Fuel	DR	15,427.44	Ck: 53785	Eastern Aviation Fuels, Inc			
12/19/2016	AP	6	53	AV Gas	DR	26,505.03	Ck: 54162	Eastern Aviation Fuels, Inc			
12/19/2016	AP	6	53	Jet A Fuel	DR	15,309.65	Ck: 54162	Eastern Aviation Fuels, Inc			
2/6/2017	AP	8	9	Jet A Fuel	DR	16,443.21	Ck: 54548	Eastern Aviation Fuels, Inc			
3/6/2017	AP	9	7	Jet A Fuel	DR	16,149.54	Ck: 54795	Eastern Aviation Fuels, Inc			
001-2080-02-6503-0000				Merchandise for resale	325,000.00	160,772.33	160,772.33	164,227.67	0.00	164,227.67	50.53
001-2080-02-6599-0000				Supplies							
7/18/2016	AP	1	50	Deck Plate for Storage Tank Acce:	DR	27.50	Ck: 52859	Michael P Reinert			
7/26/2016	AP	1	92	Restroom Supplies	DR	52.70	Ck: 52941	Wal Mart #01-1526			
8/1/2016	AP	2	1	Propane	DR	745.74	Ck: 52944	Amerigas			
8/2/2016	AP	2	7	Supplies	DR	3.90	Ck: 53030	Bomgaars Supply, Inc			
8/15/2016	AP	2	42	Fasteners	DR	12.47		Bart's Flying Service			
9/6/2016	AP	3	6	Tug Tractor Battery	DR	103.99	Ck: 53247	Bomgaars Supply, Inc			
9/6/2016	AP	3	6	Water Hydrant	DR	221.49	Ck: 53263	Ferguson Enterprises Inc			
10/3/2016	AP	4	1	Sleeve, Cable, Rope, Link	DR	26.62	Ck: 53498	Bomgaars Supply, Inc			
10/3/2016	AP	4	1	Cleaning Supplies	DR	49.85	Ck: 53560	Wal Mart #01-1526			
11/7/2016	AP	5	7	Entry Lever	DR	49.99	Ck: 53851	Storm Lake Ace Hardware Inc			
1/24/2017	AP	7	80	Water Supplies	DR	15.90	Ck: 54497	Culligan			
3/6/2017	AP	9	7	Supplies	DR	46.53	Ck: 54840	Wal Mart #01-1526			
001-2080-02-6599-0000				Supplies	3,870.00	1,356.68	1,356.68	2,513.32	0.00	2,513.32	64.94

Account Number	FP JE	Description	Budgeted Amount	Period Amount	YTD Amount	YTD Var	Encumbered	Available	% Avail
001-2080-02-6710-0000		Vehicle Allocation							
001-2080-02-6710-0000		Vehicle Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
001-2080-02-6750-0000		Bldg Capital Improvements							
001-2080-02-6750-0000		Bldg Capital Improvements	0.00	0.00	0.00	0.00	0.00	0.00	0.00
001		General Fund	438,810.00	232,506.44	232,506.44	206,303.56	0.00	206,303.56	47.01
112		Special Levy Fund							
112-2080-02-6110-0000		FICA							
112-2080-02-6110-0000		FICA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112-2080-02-6130-0000		IPERS							
112-2080-02-6130-0000		IPERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112-2080-02-6160-0000		Worker's Comp Insurance							
112-2080-02-6160-0000		Worker's Comp Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112-2080-02-6170-0000		Unemployment							
112-2080-02-6170-0000		Unemployment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112		Special Levy Fund	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301		Capital Improvement Projects							
301-2080-08-7063-0000		Airport Layout Plan							
301-2080-08-7063-0000		Airport Layout Plan	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7100-0000		Airport Runway Protection Zone							
301-2080-08-7100-0000		Airport Runway Protection Zone	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7111-0000		Airport Parking Lot							

Account Number	FP JE	Description	Budgeted Amount	Period Amount	YTD Amount	YTD Var	Encumbered	Available	% Avail
301-2080-08-7111-0000		Airport Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7120-0000		Airport Electrical Vault Proj							
301-2080-08-7120-0000		Airport Electrical Vault Proj	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7122-0000		FBO/Corporate Hangar							
301-2080-08-7122-0000		FBO/Corporate Hangar	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7160-0001		Fuel System Rehab Construction							
301-2080-08-7160-0001		Fuel System Rehab Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7160-0002		Fuel System Rehab Engineering							
301-2080-08-7160-0002		Fuel System Rehab Engineering	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7160-0004		Fuel System Rehab Legal/Admin							
301-2080-08-7160-0004		Fuel System Rehab Legal/Admin	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7182-0000		Airport Capital Reserve							
301-2080-08-7182-0000		Airport Capital Reserve	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7183-0001		Runway 13/31 Rehab - Constr.							
301-2080-08-7183-0001		Runway 13/31 Rehab - Constr.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7183-0002		Runway 13/31 Rehab - Engineer							
301-2080-08-7183-0002		Runway 13/31 Rehab - Engineer	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7183-0004		Runway 13/31 Rehab - Leg/Admin							
301-2080-08-7183-0004		Runway 13/31 Rehab - Leg/Admi	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7186-0001		Runway 13/31 Subdrain - Const							
301-2080-08-7186-0001		Runway 13/31 Subdrain - Const	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Account Number	FP	JE		Description	Budgeted Amount	Period Amount	YTD Amount	YTD Var	Encumbered	Available	% Avail
301-2080-08-7186-0002				Runway 13/31 Subdrain - Eng							
1/3/2017	AP	7	1	Design Services through 11/30/20	DR	5,000.00		Bolton & Menk, Inc			
2/6/2017	AP	8	9	Runway Subdrain Design & Admi	DR	9,450.00		Bolton & Menk, Inc			
3/6/2017	AP	9	7	Design Services through 1/31/201	DR	5,780.00		Bolton & Menk, Inc			
301-2080-08-7186-0002				Runway 13/31 Subdrain - Eng	0.00	20,230.00	20,230.00	-20,230.00	0.00	-20,230.00	0.00
301-2080-08-7186-0003				Runway 13/31 Subdrain- Leg/Adm							
301-2080-08-7186-0003				Runway 13/31 Subdrain- Leg/Adr	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7192-0001				Chautauqua Bldg. Demo							
301-2080-08-7192-0001				Chautauqua Bldg. Demo	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7192-0002				Chautauqua Bldg. Demo - Eng.							
301-2080-08-7192-0002				Chautauqua Bldg. Demo - Eng.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7192-0004				Chautauqua Bldg. Demo - Admin							
301-2080-08-7192-0004				Chautauqua Bldg. Demo - Admin	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7204-0002				Airport ALP - Engineering							
301-2080-08-7204-0002				Airport ALP - Engineering	0.00	0.00	0.00	0.00	0.00	0.00	0.00
301-2080-08-7204-0004				Airport ALP - Legal/Admin							
9/6/2016	AP	3	6	ALP Public Presentation	DR	131.40	Ck: 53283	King's Pointe Resort			
301-2080-08-7204-0004				Airport ALP - Legal/Admin	0.00	131.40	131.40	-131.40	0.00	-131.40	0.00
301				Capital Improvement Projects	0.00	20,361.40	20,361.40	-20,361.40	0.00	-20,361.40	0.00
2080				Airport	438,810.00	252,867.84	252,867.84	185,942.16	0.00	185,942.16	42.37
				Report Totals:	438,810.00	252,867.84	252,867.84	185,942.16	0.00	185,942.16	42.37

General Ledger

Revenue Analysis

User: tyler.gibbins
Printed: 3/2/2017 - 3:38 PM
Period: 08, 2017
Fiscal Year: 2017
JE Number: 0

Account Number	FP	JE	Description	Budgeted Revenue	Period Revenue	YTD Revenue	Uncollected Bal	% Received
001-2080-01-4750-0000								
001-2080-01-4750-0000								
001-2080-01-4750-0000			Airport Gasoline					
2/2/2017	CR	8	20	Airport Gasoline 1/31/2017 SHEI	CR	161.11	Rcpt: 643620	02/01/2017	Batch: 2017 2 301
2/7/2017	CR	8	24	Airport Gasoline 2/2/2017 SHELI	CR	724.89	Rcpt: 643747	02/06/2017	Batch: 2017 2 406
2/7/2017	CR	8	24	Airport Gasoline 2/5/2017 SHELI	CR	863.22	Rcpt: 643748	02/06/2017	Batch: 2017 2 406
2/8/2017	CR	8	29	Airport Gasoline 2/6/2017 SHELI	CR	1,077.84	Rcpt: 644029	02/07/2017	Batch: 2017 2 307
2/9/2017	CR	8	49	Airport Gasoline 2/7/2017 SHELI	CR	1,364.73	Rcpt: 644171	02/08/2017	Batch: 2017 2 308
2/15/2017	CR	8	81	Airport Gasoline 2/9/2017 SHELI	CR	60.42	Rcpt: 645295	02/14/2017	Batch: 2017 2 414
2/15/2017	CR	8	81	Airport Gasoline 2/10/2017 SHEI	CR	1,474.38	Rcpt: 645296	02/14/2017	Batch: 2017 2 414
2/15/2017	CR	8	81	Airport Gasoline 2/12/2017 SHEI	CR	2,061.03	Rcpt: 645296	02/14/2017	Batch: 2017 2 414
2/15/2017	CR	8	81	Airport Gasoline 2/13/2017 SHEI	CR	1,564.75	Rcpt: 645297	02/14/2017	Batch: 2017 2 414
2/16/2017	CR	8	82	Airport Gasoline 2/14/2017 SHEI	CR	1,274.03	Rcpt: 645573	02/15/2017	Batch: 2017 2 415
2/21/2017	CR	8	96	Airport Gasoline 2/16/2017 SHEI	CR	474.80	Rcpt: 646088	02/20/2017	Batch: 2017 2 420
2/22/2017	CR	8	97	Airport Gasoline 2/17/2017 SHEI	CR	1,450.20	Rcpt: 646269	02/21/2017	Batch: 2017 2 421
2/22/2017	CR	8	97	Airport Gasoline 2/18/2017 SHEI	CR	422.15	Rcpt: 646269	02/21/2017	Batch: 2017 2 421
2/22/2017	CR	8	97	Airport Gasoline 2/20/2017 SHEI	CR	1,439.03	Rcpt: 646269	02/21/2017	Batch: 2017 2 421
2/23/2017	CR	8	101	Airport Gasoline 2/20/2017 SHEI	CR	1,021.63	Rcpt: 646292	02/22/2017	Batch: 2017 2 322
2/24/2017	CR	8	102	Airport Gasoline 2/22/2017 SHEI	CR	810.32	Rcpt: 646307	02/23/2017	Batch: 2017 2 323
2/28/2017	CR	8	114	Airport Gasoline 2/23/2017 SHEI	CR	1,150.70	Rcpt: 646386	02/27/2017	Batch: 2017 2 424
2/28/2017	CR	8	114	Airport Gasoline 2/24/2017 SHEI	CR	18.73	Rcpt: 646387	02/27/2017	Batch: 2017 2 424
2/28/2017	CR	8	114	Airport Gasoline 2/26/2017 SHEI	CR	10.48	Rcpt: 646387	02/27/2017	Batch: 2017 2 424
001-2080-01-4750-0000			Airport Gasoline	300,000.00	17,424.44	187,760.86	112,239.14	62.59
001-2080-02-4310-0000			Airport Hangar Rent					
2/3/2017	CR	8	22	Hangar/Shop Rent- Feb 2017 JIM	CR	745.00	Rcpt: 643655	02/02/2017	Batch: 2017 2 302
2/13/2017	CR	8	58	Hangar D-2 TRAVIS BROTHERS	CR	80.00	Rcpt: 644617	02/10/2017	Batch: 2017 2 410
2/14/2017	CR	8	80	Hangar F-2 STEVE HAMILTON	CR	135.00	Rcpt: 644907	02/13/2017	Batch: 2017 2 413
2/20/2017	CH	8	93	AR 00220.02.2017	CR	365.00			
2/23/2017	CR	8	101	Hanager D-6 ROBERT WALKER	CR	80.00	Rcpt: 646291	02/22/2017	Batch: 2017 2 322
2/23/2017	CR	8	101	Hanager D-6 ROBERT WALKER	CR	80.00	Rcpt: 646291	02/22/2017	Batch: 2017 2 322
2/23/2017	CR	8	101	Hangar Rent March 2017 ROBER	CR	80.00	Rcpt: 646291	02/22/2017	Batch: 2017 2 322
2/28/2017	CR	8	114	Hangar D-6 Rent IOWA STATE F	CR	80.00	Rcpt: 646384	02/27/2017	Batch: 2017 2 424

Account Number		FP	JE	Description		Budgeted Revenue	Period Revenue	YTD Revenue	Uncollected Bal	% Received
2/28/2017	CR	8	114	Hangar C Rent VT INDUSTRIES	CR		1,200.00	Rcpt: 646431	02/27/2017	Batch: 2017 2 424
001-2080-02-4310-0000				Airport Hangar Rent		35,000.00	2,845.00	24,741.40	10,258.60	70.69
001-2080-02-4340-0000				Airport Ag Sales						
2/24/2017	CR	8	102	1st Payment 2017 Ag Land Rent N	CR		3,162.60	Rcpt: 646317	02/23/2017	Batch: 2017 2 323
2/28/2017	CR	8	114	1st Half 2017 Airport Ag land rent	CR		14,280.00	Rcpt: 646401	02/27/2017	Batch: 2017 2 424
001-2080-02-4340-0000				Airport Ag Sales		72,000.00	17,442.60	50,629.85	21,370.15	70.32
001-2080-02-4550-0000				Misc Airport						
001-2080-02-4550-0000				Misc Airport		0.00	0.00	2,500.00	-2,500.00	0.00
001-2080-02-4710-0000				Airport Utilities						
2/3/2017	CR	8	22	Airport Utilities- February 2017 Jl	CR		80.00	Rcpt: 643655	02/02/2017	Batch: 2017 2 302
001-2080-02-4710-0000				Airport Utilities		1,080.00	80.00	640.00	440.00	59.26
301-2080-03-5063-0000				Airport Layout Plan						
301-2080-03-5063-0000				Airport Layout Plan		0.00	0.00	0.00	0.00	0.00
301-2080-03-5100-0000				Airport RPZ						
301-2080-03-5100-0000				Airport RPZ		0.00	0.00	0.00	0.00	0.00
301-2080-03-5110-0000				Airport Parking Lot						
301-2080-03-5110-0000				Airport Parking Lot		0.00	0.00	0.00	0.00	0.00
301-2080-03-5120-0000				Airport Electrical Vault Proj						
301-2080-03-5120-0000				Airport Electrical Vault Proj		0.00	0.00	0.00	0.00	0.00
301-2080-03-5160-0041				Fuel System Rehab State Revenu						
301-2080-03-5160-0041				Fuel System Rehab State Revenu		0.00	0.00	0.00	0.00	0.00
301-2080-03-5160-0045				Fuel System Rehab Local Rev						
301-2080-03-5160-0045				Fuel System Rehab Local Rev		0.00	0.00	0.00	0.00	0.00
301-2080-03-5182-0000				Airport Capital Reserve						
301-2080-03-5182-0000				Airport Capital Reserve		0.00	0.00	0.00	0.00	0.00
301-2080-03-5183-0041				Runway 13/31 Rehab - State Rev						
301-2080-03-5183-0041				Runway 13/31 Rehab - State Rev		0.00	0.00	0.00	0.00	0.00
301-2080-03-5183-0045				Runway 13/31 Rehab - Local						
301-2080-03-5183-0045				Runway 13/31 Rehab - Local		0.00	0.00	0.00	0.00	0.00

Account Number	FP	JE	Description	Budgeted Revenue	Period Revenue	YTD Revenue	Uncollected Bal	% Received
301-2080-03-5192-0041			Chautauqua Bldg. Demo - State					
301-2080-03-5192-0041			Chautauqua Bldg. Demo - State	0.00	0.00	0.00	0.00	0.00
301-2080-03-5204-0042			Airport ALP - Federal Revenue					
301-2080-03-5204-0042			Airport ALP - Federal Revenue	0.00	0.00	0.00	0.00	0.00
301-2080-04-5122-0000			FBO/Corporate Hangar					
301-2080-04-5122-0000			FBO/Corporate Hangar	0.00	0.00	0.00	0.00	0.00
301-2080-04-5122-0000				408,080.00	37,792.04	266,272.11	141,807.89	65.25
301-2080-04-5122-0000				408,080.00	37,792.04	266,272.11	141,807.89	65.25
			Report Totals:	408,080.00	37,792.04	266,272.11	141,807.89	65.25

Staff Summary

3/13/2017
Agenda Item # 3.

City of Storm Lake

PO Box 1086

Storm Lake, IA 50588

p (712) 732-8000

f (712) 732-4114

REPORT TO: Airport Commission

FROM: Tyler Gibbins, Staff Accountant

SUBJECT: **Airport Fuel Report February 1st, 2017 to February 28th, 2017.**

BACKGROUND: Please find the following attachments for your review:

- Sales Report
- Fuel Readings Report
- Running Total for Fuel
- Credit Card Reconciliation

On the sales report please note the following key pieces of information:

- Total sales for the month of February were $19,148.55
- Jet Fuel = $16,888.09 or 88.20% of the total sales (5,709.50 gallons)
- Av Gas = $2,260.46 or 11.80% of the total sales (564.90 Gallons)
- Hangar Renters accounted for $15,607.79 (VT was $15,221.75 or 97.53%) of the total sales or 81.51%
- The Fixed Based Operator (FBO) accounted for $213.72 of fuel sales or 1.12%
- Outside non-based aircraft accounted for $3,323.00 of the total sales or 17.35%
- Test card is $4.04 which is 0.02% of the total sales

At the bottom of the report you can see the price we are selling each product.

On the Fuel Readings Report note the AV Gas on the Veeder Root System shows we should have sold 0.9 gallons more than the fuel master shows. The Mechanical reading is showing we should have sold 2.4 gallons more.

The Jet A Fuel on the Veeder Root System shows
we sold 31.5 gallons more to equal the Fuel Master Reading.
The Mechanical Reading shows we sold 3.5 gallons more.
The next report is a month to month running total to track the amount of fuel pumped. You can see in the Running Total for Fuel report the overall difference of both AV Gas & Jet A Fuel.
Finally, the last report is a reconciliation of the credit card receipts and expenses related to the fuel sales at the Airport. The bank deposits plus the service charges equal the amount purchased at the terminal. In order to balance with the terminal system, we must only take what was purchased in the month according to the transaction date. There is a lag of a few days after the sale so we must add the outstanding transactions that come in the following month.
To reconcile our books from the financial report to the bank we must take the amount received in our books ($17,424.44) then we must add the deposits from February that did not hit the bank until March ($1,375.35) and subtract the January transactions that occurred in February ($161.11). Then we must add the service charges and test card to balance .
You can see the service charges are $505.83 for the month and the amount used for monthly testing was $4.04.

FISCAL IMPACT: Total Fuel Sales for the month of February 2017 are $19,148.55

RECOMMENDATION: Review the Report and Approve

ATTACHMENTS:

	Description	Type
	Sales Report	Financial Report
	Fuel Reading Report	Financial Report
	Running Total for Fuel	Financial Report
	Bank Reconciliation	Financial Report

City of Storm Lake
Airport Fuel Report

		$ Amount	
	Sales Breakout	AV Gas	Jet Fuel
Test Card	$ 4.04	$ 3.13	$ 0.91
Hangar Renters	$ 15,607.79	$ 386.04	$ 15,221.75
Of which is VT	$ 15,221.75		$ 15,221.75
Bart's Flying Service	$ 213.72	$ 213.72	
Credit Cards	$ 3,323.00	$ 1,657.57	$ 1,665.43
Other Purchases	$ -		
	$ 19,148.55	$ 2,260.46	$ 16,888.09
Total FM Sales=	**$ 19,148.55**		

		Gallons	
	Sales Breakout	AV Gas	Jet Fuel
Test Card	1.06	0.76	0.30
Hangar Renters	5,259.070	96.270	5,162.800
Of which is VT	5,162.800		5,162.800
Bart's Flying Service	64.570	64.570	
Credit Cards	949.700	403.300	546.400
Other Purchases	-		
	6,274.400	564.900	5,709.500
Total FM Sales=	**6,274.400**		

Price of Fuel:		
Beginning	4.11	2.92
End	4.11	3.03

City of Storm Lake
Airport Fuel Report

	AV Gas		Jet Fuel	
		Veter Root System		
Beginning Fuel Reading	9,425.000		5,312.000	
Before Fueling				742.000
After Fueling				8,307.000
Before Fueling				
After Fueling				
Fuel Added for Month	-		7,565.000	
Ending Fuel Reading	8,861.000		7,136.000	
Total=	564.000		5,741.000	

		Stick Reading		
Beginning Fuel Reading	9,327.000	67	5,271.000	47 1/2
Before Fueling			720.000	11 1/4
After Fueling			8,220.000	70 1/2
Before Fueling				
After Fueling				
Fuel Added for Month	-		7,500.000	
Ending Fuel Reading	8746.000	63	7,103.00	61
Total=	581.000		5,668.000	

		Mechanical Reading	
Beginning Fuel Reading	82,517.000	265,607.000	
Before Fueling			
After Fueling			
Fuel Added for Month			
Ending Fuel Reading	83,079.500	271,320.000	
Total=	562.500	5,713.000	

Actual	**564.90**	**5,709.50**

City of Storm Lake
Airport Fuel Report

Running Month to Month Difference in Fuel Redings

Calandar Year 2017

AV Gas

Start Read= 81,997.200

	VeterRoot System			Stick Reading			Mechanical Reading		
		Overall	This Mo.		Overall	This Mo.		Overall	This Mo.
January	Short	-4.830	-4.830	Long	24.17	24.17	Long	0.970	0.970
February	Short	-5.730	-0.900	Long	40.27	16.1	Short	-1.430	-2.400
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
Total Difference=		-5.730			40.27			-1.430	

Jet A

Start Read= 261,417.000

	VeterRoot System			Stick Reading			Mechanical Reading		
		Overall	This Mo.		Overall	This Mo.		Overall	This Mo.
January	Short	-19.500	-19.500	Short	-253.5	-253.5	Long	2.500	2.500
February	Long	12.000	31.500	Short	295	-41.5	Long	6.000	3.500
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
Total Difference=		12.000			-295			6.000	

Note: The Long/Short Amount is the difference from our readings to what the Fuel Master System reads.

City of Storm Lake
Airport Fuel Report

	Bank Deposits	Service Charge	Total Purchases	Date of Transaction	
Total Eastern Depoits:	$ 1,149.55	$ 32.51	$ 1,182.06	January	30
	$ 161.11	$ 3.29	$ 164.40	January	31
	$ 724.89	$ 19.94	$ 744.83	February	2
	$ 863.22	$ 23.28	$ 886.50	February	5
	$ 1,077.84	$ 30.48	$ 1,108.32	February	6
	$ 1,364.73	$ 38.59	$ 1,403.32	February	7
	$ 60.42	$ 1.23	$ 61.65	February	9
	$ 3,535.41	$ 95.91	$ 3,631.32	February	10, 12
	$ 1,564.75	$ 42.69	$ 1,607.44	February	13
	$ 1,274.03	$ 35.06	$ 1,309.09	February	14
	$ 474.80	$ 12.20	$ 487.00	February	16
	$ 3,311.38	$ 89.09	$ 3,400.47	February	17, 18, 20
	$ 1,021.63	$ 28.80	$ 1,050.43	February	21
	$ 810.32	$ 16.54	$ 826.86	February	22
	$ 1,150.70	$ 32.54	$ 1,183.24	February	23
	$ 29.21	$ 0.59	$ 29.80	February	24, 26
	$ 1,375.35	$ 38.89	$ 1,414.24	February	27
			$ -		
			$ -		
			$ -		
			$ -		
			$ -		
			$ -		
	$ 19,949.34	$ 541.63	$ 20,490.97		
Outstanding:			$ -		
			$ -		
			$ -		
			$ -		
			$ -		
			$ -		
			$ -		
	$ -	$ -	$ -		
Totals:	$ 19,949.34	$ 541.63	$ 20,490.97		

Totals=	**$ 19,148.55**	$ 14,271.03	Total Sales		City Billings
	$ 505.83	Service Charges		$ 4.04	(Test Card)

Staff Summary

3/13/2017
Agenda Item # 4.

City of Storm Lake

PO Box 1086

Storm Lake, IA 50588

p (712) 732-8000

f (712) 732-4114

REPORT TO: Airport Commission

FROM: Tyler Gibbins, Staff Accountant

SUBJECT: **Airport Manager's Monthly Report**

BACKGROUND: The Manager's agreement with the Storm Lake Airport Commission calls for the manager to present a monthly report to the Commission on various items for the past month. The topics that are to be included in the report are as follows:

- Pilot Activity - Report shall include a list of the tail numbers of all aircraft located on the grounds within an hour of opening and closing (excluding based aircraft)
- Airport Maintenance - Report shall identify any maintenance issues arising or discovered during the reporting period
- Student Pilots - Report on the number of student pilots currently enrolled in lessons and their training status
- Critical Systems - Report on the critical systems at the airport including but not limited to the AWOS system, runway lighting, and other navigational aids.
- Courtesy Car - Report on the number of uses and miles driven
- Marketing Efforts - Report on any efforts made by the Manager to promote the Airport
- Overnight Rentals - Identify the number of overnight rentals that took place
- NOTAMS - Report on the number and reason for any NOTAMS issued during the reporting period
- Weekly Grounds Inspection - Provide copies of the weekly ground inspection sheets showing any issues or concerns

FISCAL IMPACT: No fiscal impact to the filing of the report. The report may identify

items and issues that will require expenditures to resolve.

RECOMMENDATION: Review the Attached Report Prepared By the Manager, Bart's Flying Service

ATTACHMENTS:

	Description	Type
🗋	Manager's Report- February 2017	Backup Material

Bart's Flying Service
Manager's Report
February 2017

2/07 Picked up printer paper, and bathroom supplies at WalMart $46.53

2/18 Replaced 1 light bulb in hangar A and 1 in hangar D stall #2, readjusted door lock in hangat D stall #2.

2/20 Ordered a transpot load of jet fuel.

2/22 Received 7585 gallons of jet-A fuel.

2/24 Called Flight Service and issued NOTAM closing the airport due to snow, also notified the city.

2/25 shoveled snow around terminal building.

2/27 Picked up Pine-sol & clorox at WalMart $26.68

Courtesy car usage , no usage brakes are bad

Staff Summary

3/13/2017
Agenda Item # 5.

City of Storm Lake

PO Box 1086

Storm Lake, IA 50588

p (712) 732-8000

f (712) 732-4114

REPORT TO: Airport Commission

FROM: Tyler Gibbins, Staff Accountant

SUBJECT: **Administration Report - March 2017 Airport Commission Meeting**

BACKGROUND: Here is the monthly report from City Administration. The majority if not all of the items here are for your information and require no action on behalf of the Commission.

Inspection
A reminder, inspections will be held at 2:30 prior to the April Meeting (April 10th). A letter will be sent out later this week to those who will be inspected. The commission will be provided the previous inspection letters to know what was found last year.

Runway 13/31 Rehab
Greg has submitted everything to final out the Runway 13/31 Rehab and should be ready for the final drawdown soon.

Iowa Public Airports Association
The annual IPAA conference will bee held in Cedar Rapids this year from April 11th to April 13th. If anyone is planning to attend City Staff will need to know as soon as possible.

If you have any questions or concerns, I'll be happy to address them at the meeting.

FISCAL IMPACT: None

RECOMMENDATION: Review the Report and Ask Questions If Any

Staff Summary

3/13/2017
Agenda Item # 6.

City of Storm Lake

PO Box 1086

Storm Lake, IA 50588

p (712) 732-8000

f (712) 732-4114

REPORT TO: Airport Commission

FROM: Tyler Gibbins, Staff Accountant

SUBJECT: **Runway 13/31 Subdrain and Apron Rehab Project Plan Approval**

BACKGROUND: The plans are ready for approval by the commission. Please see the attachments. Note in the Memorandum, Greg points out two items that they are still working with the FAA on in regards to thy type of rock and the type of concrete that will be used. These items are not resolved as of now but to stay on schedule the commission needs to look at approval of the plans and specs to send them to the City Council for approval.

At this time please ask any questions regarding the plans to Greg.

After approval by the Commission, the plans and referral from the Airport Commission will be presented to the City Council on the March 20th Meeting.

FISCAL IMPACT: Bids will go out in April to get the cost of the project. Recommended cost by Engineer's Bolton & Menk is $350,100. Funding for this project will come from the FAA entitlement monies ($315,090) and matched with City local option sales tax funds ($35,010).

RECOMMENDATION: Review the plans and approve them sending them to the City Council for approval.

ATTACHMENTS:

Description	Type
Memorandum	Backup Material
Project Plans	Backup Material

Project Specs

Backup Material

BOLTON & MENK
Real People. Real Solutions.

2730 Ford Street
PO Box 668
Ames, IA 50010-0668

Ph: (515) 233-6100
Fax: (515) 233-4430
Bolton-Menk.com

MEMORANDUM

Date: 3/13/2017

To: Storm Lake Airport Commission

From: Greg Broussard

Subject: 2017 Airport Improvement Project
Storm Lake Municipal Airport
Project No.: T51.111257

Bolton & Menk submitted 90% plans and specifications to the FAA on February 20, 2017 for their review. FAA comments were received back on 3/7/2017. Bolton & Menk has addressed most of the comments provided by the FAA.

One change requested from the comments was the revision of the phasing. The new phasing plans are attached for your review. The apron has been split into two phases to protect aircraft that will be taxing across the ramp during construction. This change added an additional 2 days to the runway shutdown length. The runway will now be shut down for a maximum of 5 working days.

There are two items that are we are still working with the FAA to resolve. The first is the type of rock that will be used to back the subdrain trench. We are recommending using an Iowa DOT material instead of the FAA. The DOT material is easier to find and will be cheaper. The second items is the type of concrete for the patching. We are proposing using an Iowa DOT concrete mixture instead of the FAA. This will reduce the cost of the material and testing requirements.

We are recommending the commission approve the plans and specs contingent on the FAA approval of the two outstanding items. The plans and specs are preliminary scheduled to be on the City Council agenda on March 20th. The commission approval would keep the project on track and allow us to meet all the dates as shown.

- 3/13/2017 – Airport Commission Approval
- 3/20/2017 – City Council Approval
- 3/21/2017 – Plans on file
- 4/11/2017 – Bid the project.
- 5/5/2017 – Submit grant application to the FAA.

CONSTRUCTION PLANS FOR

2017 AIRPORT IMPROVEMENTS

STORM LAKE MUNICIPAL AIRPORT

AIP #3-19-0088-12
STORM LAKE, IOWA
T51.111257
MARCH 2017

GOVERNING SPECIFICATIONS

FEDERAL AVIATION ADMINISTRATION'S AC 150/5370-10G, DATED
JULY 21, 2014 "STANDARDS FOR SPECIFYING CONSTRUCTION OF AIRPORTS" AND ALL SUPPLEMENTS.

STATE MAP

RESOURCE LIST

CITY OF STORM LAKE

CITY HALL
620 ERIE ST.
P.O. BOX 1086
STORM LAKE, IOWA 50588

CITY MANAGER: JAMES PATRICK

MAYOR: JON KRUSE

AIRPORT COMMISSION MEMBERS:
BOB ANSORGE
DOUG WHITE
MAXINE LAMPE
SARA HUDDLESTON
DAN RICHARDSON

CITY ENGINEER:
(CONSULTANT)
GREG BROUSSARD
BOLTON & MENK, INC.
2730 FORD STREET
AMES, IA 50010

UTILITIES

GAS
ALLIANT ENERGY
STORM LAKE, IA 50588
1-800-822-4348

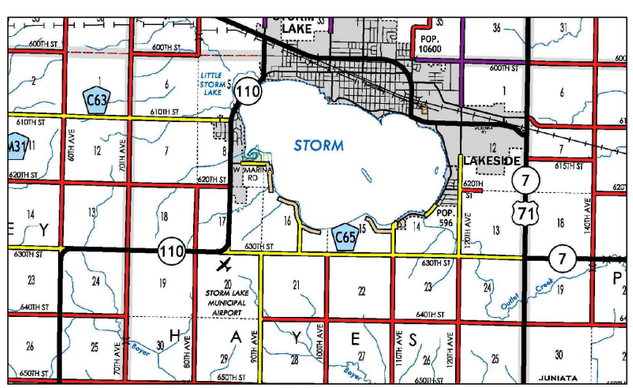
TELEPHONE/CABLE
KNOLOGY
118 E. 5TH ST.
STORM LAKE, IA 50588
712-213-7425

MEDIACOM
720 LAKE AVE
STORM LAKE, IA 50588
712-213-5527

CENTURY LINK
426 LAKE AVE
STORM LAKE, IA 50588
712-732-8348

LOCAL
CITY OF STORM LAKE
433 VILAS ROAD
STORM LAKE, IA 50588
712-732-8029

ELECTRIC
MID AMERICAN
1016 VESTAL ST.
STORM LAKE, IA 50588
1-888-427-111



VICINITY MAP
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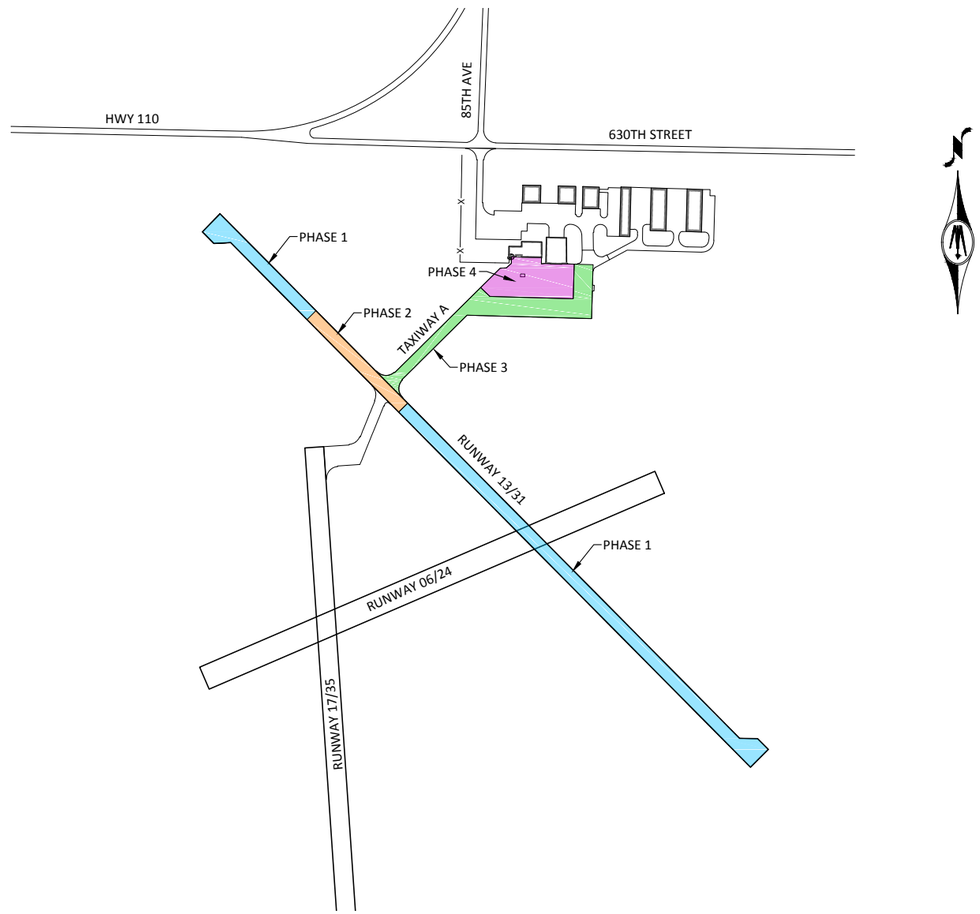

Sheet List Table

Sheet Number	Sheet Title
1	TITLE SHEET
2	QUANTITIES & ESTIMATE REFERENCE NOTES
3	SURVEY CONTROL & LAYOUT PLAN
4	SOIL BORING LOGS
5	CSPP - OVERALL LAYOUT
6	CSPP - PHASE 1
7	CSPP - PHASE 2
8	CSPP - PHASE 3
9	CSPP - PHASE 4
10	TYPICAL SECTIONS & DETAILS
11	RUNWAY SUBDRAIN PLAN
12	RUNWAY SUBDRAIN PLAN
13	APRON PLAN
14	TAXIWAY PLAN

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www.iowaonecall.com

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

LICENSED PROFESSIONAL ENGINEER
GREGORY A. BROUSSARD
21974
IOWA

PRELIMINARY

GREGORY A. BROUSSARD, P.E.

REG. NO. 21974 DATE:

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2017

PAGES OR SHEETS COVERED BY THIS SEAL:
ALL SHEETS

BOLTON & MENK

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www.bolton-menk.com

REV	ISSUED FOR	DATE

STORM LAKE MUNICIPAL AIRPORT
2017 AIRPORT IMPROVEMENTS
TITLE SHEET

SHEET 1 OF 14

HORIZ: 0 20 40 SCALE FEET

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STATEMENT OF ESTIMATED QUANTITIES

ITEM	ITEM CODE	ITEM	UNIT	QUANT	AS BUILT QUANT.
Base Bid					
1	GP-105-5.1	MOBILIZATION	LS	1	
2	------	TRAFFIC CONTROL	LS	1	
3	P-101-5.1	PAVEMENT REMOVAL	SY	264	
4	P-152-4.1	SUBGRADE - TRIM, SHAPE AND COMPACT	SY	264	
5	P-156-5.1	INSTALLATION AND REMOVAL OF SILT FENCE	LF	1000	
6	P-209-5.1	CRUSHED AGGREGATE BASE COURSE	SY	264	
7	D-705-5.1	4-INCH PERFORATED SUBDRAIN	LF	6403	
8	D-705-5.2	SUBDRAIN CLEANOUT	EA	19	
9	D-705.5.3	SUBDRAIN OUTLET	EA	9	
10	T-901-5.1	SEEDING	ACRE	1.5	
11	T-908-5.1	MULCHING	ACRE	1.5	
12	M-361-5.1	JOINT SEALANT	LF	20170	
13	M-361-5.2	CRACK SEALANT	LF	550	
14	M-564-5.1	CONCRETE REPAIR - TYPE 1 (PANEL REPLACEMENT)	SY	264	
15	M-564-5.3	CONCRETE REPAIR - TYPE 2B (PARTIAL DEPTH REPAIR)	EA	14	

GENERAL NOTES:

1. FOREIGN OBJECT DEBRIS (FOD) WILL NOT BE ALLOWED ON ACTIVE AREAS. PRIOR TO CONSTRUCTION AREAS BEING OPENED TO TRAFFIC THE OWNER, FBO, ENGINEER, AND CONTRACTOR SHALL PERFORM A FOD INSPECTION AND ALL FOD REMOVED.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH AIRPORT FBO TO ISSUE NOTAMS FOR RUNWAY CLOSURES.
3. BARRICADES SHALL BE WEIGHTED DOWN TO PREVENT MOVEMENT FROM NATURAL OR AIRCRAFT WINDS.
4. CONSTRUCTION ACTIVITIES SHALL BE CONFINED TO THE CONSTRUCTION LIMITS SHOW.
5. CONTRACTOR SHALL PROVIDE ON CONCRETE WASH OUT BIN FOR PROJECT.

ESTIMATE REFERENCE NOTES

ITEM NO.	ITEM CODE	
1	GP-105-5.1	**MOBILIZATION**
		A. THIS ITEM SHALL INCLUDE ALL COSTS ASSOCIATED WITH PREPARATION FOR ALL WORK ITEMS. ITEM INCLUDES COSTS FOR BONDING, PERMITTING, MAINTAINING HAUL ROADS AND ALL NECESSARY EQUIPMENT.
2	----	**TRAFFIC CONTROL**
		A. THIS ITEM SHALL INCLUDE ALL SIGNS AND BARRICADES AS DETAILED HERE IN AND AS REQUIRED BY THE ENGINEER AND ALL OTHER WORK NECESSARY TO CONTROL TRAFFIC DURING CONSTRUCTION.
		B. SIGNS AND BARRICADES SHOULD BE SUFFICIENTLY SECURED TO PREVENT MOVEMENT BY NATURAL AND AIRCRAFT WINDS AT ALL TIMES.
		C. ALL COST ASSOCIATED WITH TRAFFIC CONTROL PLAN IMPLEMENTATION AND SIGNAGE ARE INCIDENTAL TO THIS ITEM.
3	P-101-5.1	**PAVEMENT REMOVAL**
		A. FULL DEPTH SAW CUTS SHALL BE INCIDENTAL TO THIS ITEM.
		B. PAVEMENT SHALL BE DISPOSED OF OFF AIRPORT PROPERTY.
4	P-152-4.1	**SUBGRADE - TRIM, SHAPE AND COMPACT**
		A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED.
		B. PAVEMENT MARKING SHALL BE COMPLETED REMOVED PRIOR TO PLACING NEW MARKINGS.
5	P-156-5.1	**INSTALLATION AND REMOVAL OF SILT FENCE**
		A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED.
6	P-209-5.1	**CRUSHED AGGREGATE BASE COURSE**
		A. AGGREGATE BASE SHALL MEET THE REQUIREMENTS OF IOWA DOT SECTION 4123 - MODIFIED SUBBASE MATERIAL, GRADATION 14.
7	D-705-5.1	**4-INCH PERFORATED SUBDRAIN**
		A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED.
8	D-705-5.2	**SUBDRAIN CLEANOUT**
		A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED.
9	D-705.5.3	**SUBDRAIN OUTLET**
		A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED.
10	T-901-5.1	**SEEDING**
		A. REFLECTIVE MEDIA QUANTITY IS BASED ON 115 FT^2/GAL AND 7 LB/GAL
11	T-908-5.1	**MULCHING**
		A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED.
12	M-361-5.1	**JOINT SEALANT**
		A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED.
13	M-361-5.2	**CRACK SEALANT**
		A. THIS ITEMS INCLUDES ALL LABOR AND MATERIAL NEEDED.
14	M-564-5.1	**CONCRETE REPAIR - TYPE 1 (PANEL REPLACEMENT)**
		A. THIS ITEMS INCLUDES ALL LABOR AND MATERIAL NEEDED.
		B. USE IOWA DOT CLASS C, C-4 CONCRETE WITH CLASS 3i DURABILITY AGGREGATE. THE USE OF FLY ASH WILL BE LIMITED TO 20% MAX AND GROUND GRANULATED BLAS FURNACE SLAB (GGBFS) WILL NOT BE ALLOWED AFTER SEPTEMBER 15TH.
		C. ALL TIE BARS AND DOWEL BARS ARE INCIDENTAL TO THIS ITEM.
15	M-564-5.3	**CONCRETE REPAIR - TYPE 2B (PARTIAL DEPTH REPAIR)**
		A. THIS ITEMS INCLUDES ALL LABOR AND MATERIAL NEEDED.

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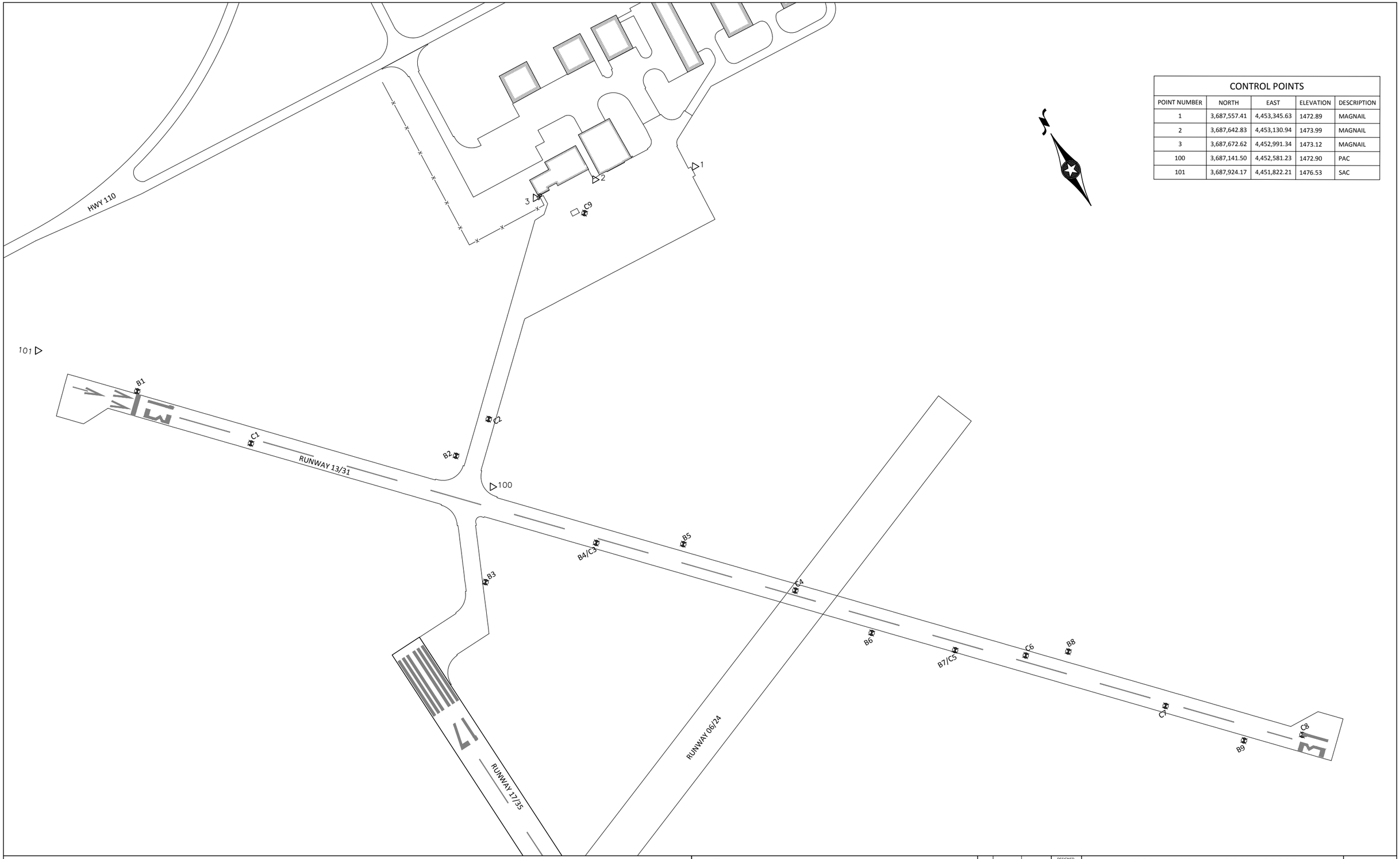
DRAWN DJM
CHECKED GAB

STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
QUANTITIES & ESTIMATE REFERENCE NOTES



CONTROL POINTS				
POINT NUMBER	NORTH	EAST	ELEVATION	DESCRIPTION
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2	3,687,642.83	4,453,130.94	1473.99	MAGNAIL
3	3,687,672.62	4,452,991.34	1473.12	MAGNAIL
100	3,687,141.50	4,452,581.23	1472.90	PAC
101	3,687,924.17	4,451,822.21	1476.53	SAC

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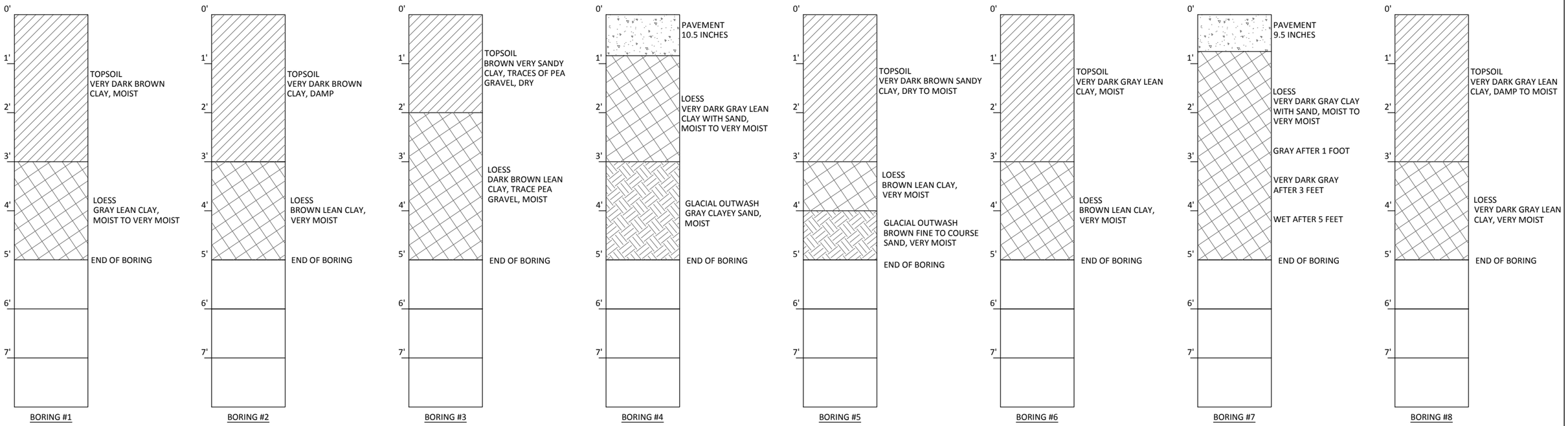
STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
SURVEY CONTROL & LAYOUT PLAN

SHEET 3 OF 14



CORE LENGHTS			
CORE NO.	PCC LENGTH, INCH	HMA LENGTH, INCH	TOTAL LENGTH, INCH
1	5.75	5.25	11.00
2	5.50	0.00	5.50
3	5.75	4.50	10.50
4	5.00	4.00	9.00
5	5.00	4.50	9.50
6	5.50	4.00	9.50
7	5.75	3.75	9.50
8	5.50	2.50	8.00
9	6.25	0.00	6.25

NOTE:
GEOTECHNICAL REPORT IS LOCATED
WITHIN THE PROJECT SPECIFICATIONS

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STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
SOIL BORING LOGS

PROJECT DESCRIPTION:
RUNWAY 13/31 REHABILITATION.

GENERAL CONSTRUCTION SAFETY:

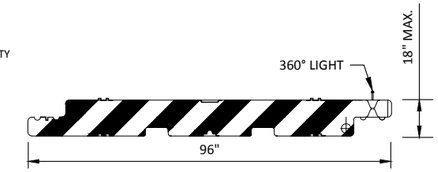
1. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS SET FORTH IN FAA AC 150/5370-2F "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION", WHICH IS INCLUDED IN THE PROJECT MANUAL APPENDIX. CONSTRUCTION SAFETY SHALL BE DISCUSSED DURING THE PRE CONSTRUCTION MEETING AND AT WEEKLY PROJECT MEETING
2. CONTRACTOR IS RESPONSIBLE FOR ALL PUBLIC AND PRIVATE UTILITY LOCATIONS DURING CONSTRUCTION.

CONSTRUCTION EQUIPMENT:

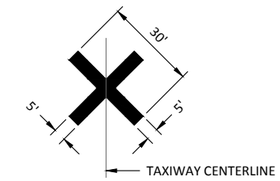
3. ALL CONSTRUCTION EQUIPMENT SHALL BE PARKED IN DESIGNATED STAGING/STORAGE AREAS WHEN NOT IN USE OR OVERNIGHT. ALL BOOMS SHALL BE LOWERED WHEN NOT IN USE.
4. THE EXPECTED MAXIMUM HEIGHT OF CONSTRUCTION EQUIPMENT IS 20 FEET AT ANY LOCATION. THE CONTRACTOR SHALL VERIFY ANY EQUIPMENT HEIGHT MORE THAN 20 FEET AND NOTIFY THE ENGINEER AND OWNER A MINIMUM OF 72 HOURS IN ADVANCE OF ANY CONSTRUCTION THAT REQUIRES EQUIPMENT WITH HEIGHTS OF MORE THAN 20 FEET SO THAT THE APPROPRIATE NOTICE TO AIRMEN (NOTAM) MAY BE ISSUED.
5. ALL EQUIPMENT WORKING ON THE AIRPORT CONSTRUCTION SITE MUST HAVE A ROTATING BEACON AND/OR WARNING FLAG. THE VEHICLE WARNING FLAGS SHALL BE AS PER DETAIL ON SHEET. THE FLAG SHALL BE SECURELY ATTACHED TO THE HIGHEST POINT ON THE CONSTRUCTION EQUIPMENT OR VEHICLE AND BE VISIBLE AT ALL TIMES. AMBER FLASHING BEACONS MOUNTED ON THE HIGHEST POINT OF THE CONSTRUCTION EQUIPMENT OR VEHICLE ARE ALSO REQUIRED TO BE INSTALLED AND OPERATIONAL.
6. VEHICULAR TRAFFIC LOCATED IN OR CROSSING ACTIVE MOVEMENT AREAS MUST HAVE A WORKING TWO-WAY RADIO CONTACT WITH AIRPORT OPERATIONS OR BE ESCORTED BY A PERSON IN RADIO CONTACT. THE DRIVER, THROUGH PERSONAL OBSERVATION, SHOULD CONFIRM THAT NO AIRCRAFT ARE APPROACHING THE VEHICLES POSITION. CONSTRUCTION PERSONNEL MAY OPERATE IN A MOVEMENT AREA WITHOUT TWO-WAY RADIO COMMUNICATION PROVIDED A NOTAM IS ISSUED CLOSING THE AREA AND THE AREA IS PROPERLY MARKED TO PREVENT INCURSIONS.

HAUL ROUTES, TRAFFIC CONTROL & ACCESS CONTROL

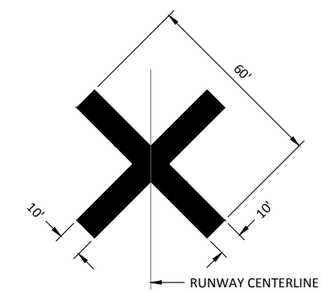
7. ALL TEMPORARY ACCESS, STORAGE/STAGING AREAS AND ROADS SHALL BE RESTORED TO ORIGINAL CONDITION, INCLUDING TOPSOILING, RESEEDING, IF NECESSARY, AFTER USE BY THE CONTRACTOR.
8. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL TRAFFIC CONTROL DEVICES AS NECESSARY.
9. THIS LAYOUT IS A MINIMUM REQUIREMENT NECESSARY TO ASSIST THE CONTRACTOR IN DETERMINING THE COST FOR PROVIDING NECESSARY TRAFFIC CONTROL. THE CONTRACTOR MAY ADD ADDITIONAL WARNING DEVICES UPON APPROVAL OF THE ENGINEER.
10. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER A MINIMUM OF 72 HOURS IN ADVANCE OF ANY PROPOSED CONSTRUCTION WITHIN THE APRON OR TAXIWAY SAFETY AREAS, RUNWAY PROTECTION ZONES, APPROACH AREAS OR REQUIRED CLOSURE AREAS SO THAT THE APPROPRIATE NOTICE TO AIRMEN (NOTAM) MAY BE ISSUED. THE OWNER WILL ALSO ISSUE TIMELY NOTAMS WHICH SPECIFICALLY DETAIL THE CURRENT STATUS OF THE AIRPORT DURING CONSTRUCTION, INCLUDING CLOSURE STATUS. THE NOTAM SHALL INCLUDE THE PROPOSED LOCATION, TIME AND DATE OF COMMENCEMENT OF CONSTRUCTION.
11. INSPECT FOR AND REMOVE FOREIGN OBJECT DEBRIS (FOD) ON OR NEAR AIRCRAFT MOVEMENT AREAS BY SWEEPING DAILY AT TIMES OF CONCURRENT CONSTRUCTION AND AIRCRAFT OPERATIONS. WASTE AND LOOSE MATERIAL MUST NOT BE PLACED IN ACTIVE MOVEMENT AREAS. MATERIALS TRACKED ONTO THESE AREAS MUST BE REMOVED CONTINUOUSLY DURING THE PROJECT. THE CONSTRUCTION SITE, INCLUDING THE STAGING AREA, SHALL BE KEPT CLEAN OF ALL PERSONNEL DEBRIS.
12. THERE SHALL BE NO UNAUTHORIZED PERSONNEL ON AIRFIELD. CONTRACTOR SHALL USE THE DESIGNATED AIRPORT ACCESS ROUTE WHEN ENTERING AIRPORT PROPERTY. NO GATES ARE TO BE LEFT OPENED AND UNATTENDED.
13. AT ALL TIMES, WHILE CONSTRUCTION IS IN PROGRESS, THE CONTRACTOR SHALL HAVE A DESIGNATED PERSON MONITORING THE UNICOM OR CTAF.
14. PERSONAL VEHICLES SHALL NOT BE ALLOWED ON THE AIRFIELD. ALL PERSONAL VEHICLES SHOULD BE PARKED IN A DESIGNATED STAGING/STORAGE AREA OR ANOTHER AREA AS DESIGNATED BY THE AIRPORT MANAGER.
15. WHEN ACCESS POINTS ARE CREATED IN THE SECURITY FENCING TO PERMIT THE PASSAGE OF CONSTRUCTION VEHICLES OR PERSONNEL, TEMPORARY GATES SHOULD BE EQUIPPED SO THEY CAN BE SECURELY CLOSED AND LOCKED TO PREVENT ACCESS BY ANIMALS AND PEOPLE.
16. LIGHTED BARRIERS (FLASHERS) SHALL BE INSPECTED AT DUSK EACH DAY TO ENSURE ALL FLASHERS ARE PROPERLY WORKING.
17. PROMINENTLY MARK OPEN TRENCHES, EXCAVATIONS AND STOCKPILED MATERIALS AND LIGHT THESE OBSTACLES DURING HOURS OF RESTRICTED VISIBILITY AND DARKNESS. CONSTRAIN STOCKPILED MATERIAL TO PREVENT ITS MOVEMENT AS A RESULT OF THE MAXIMUM ANTICIPATED AIRCRAFT BLAST AND FORECAST WIND CONDITIONS.
18. PRIOR TO OPENING OR RE-OPENING ANY CLOSED PAVEMENT AREA, THE CONTRACTOR, TOGETHER WITH THE AIRPORT OPERATOR SHALL INSPECT THE PAVEMENT, SAFETY AREAS AND PRIMARY SURFACE FOR ANY OBSTRUCTION OR FOD.
19. WHEN THE AIRFIELD IS CLOSED FOR CONSTRUCTION (RUNWAY CLOSURES), THE BEACON SHALL BE DISENGAGED (TURNED-OFF).
20. ALL AIRFIELD GUIDANCE SIGNS (INCLUDING HOLD SIGNS) SHALL BE COVERED OR OTHERWISE REMOVED FROM SERVICE IF THE PAVEMENT SAID SIGNS ARE IDENTIFYING ARE CLOSED FOR CONSTRUCTION.
21. THE CONTRACTOR SHALL NOTIFY AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF) PERSONNEL, MUTUAL AID PROVIDERS AND OTHER EMERGENCY SERVICES IF CONSTRUCTION REQUIRES SHUTTING OFF OR OTHERWISE DISTRUPTING ANY WATER LINE OR FIRE HYDRANT ON THE AIPORT OR ADJOINING AREAS AND IF CONTRACTORS WORK WITH HAZARDOUS MATERIAL ON THE AIRFIELD. NOTIFICATION MUST ALSO BE MADE WHEN THE WORK PERFORMED WILL CLOSE OR AFFECT ANY EMERGENCY ROUTES. ALSO MAKE NOTIFICATION WHEN SERVICES ARE RESTORED.



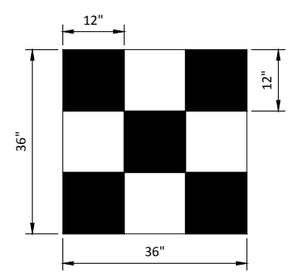
A/5 LOW PROFILE AIRPORT BARRICADE
NOT TO SCALE



B/5 TAXIWAY CLOSURE MARKER
NOT TO SCALE



C/5 RUNWAY CLOSURE MARKER
NOT TO SCALE



NOTE: FLAG SHALL HAVE A CHECKERED PATTERN OF INTERNATIONAL ORANGE AND WHITE SQUARES

D/5 VEHICLE WARNING FLAG
NOT TO SCALE

LEGEND

- PHASE 1 CONSTRUCTION
- PHASE 2 CONSTRUCTION
- PHASE 3 CONSTRUCTION
- PHASE 4 CONSTRUCTION

HORIZ. SCALE 0 150 300 FEET

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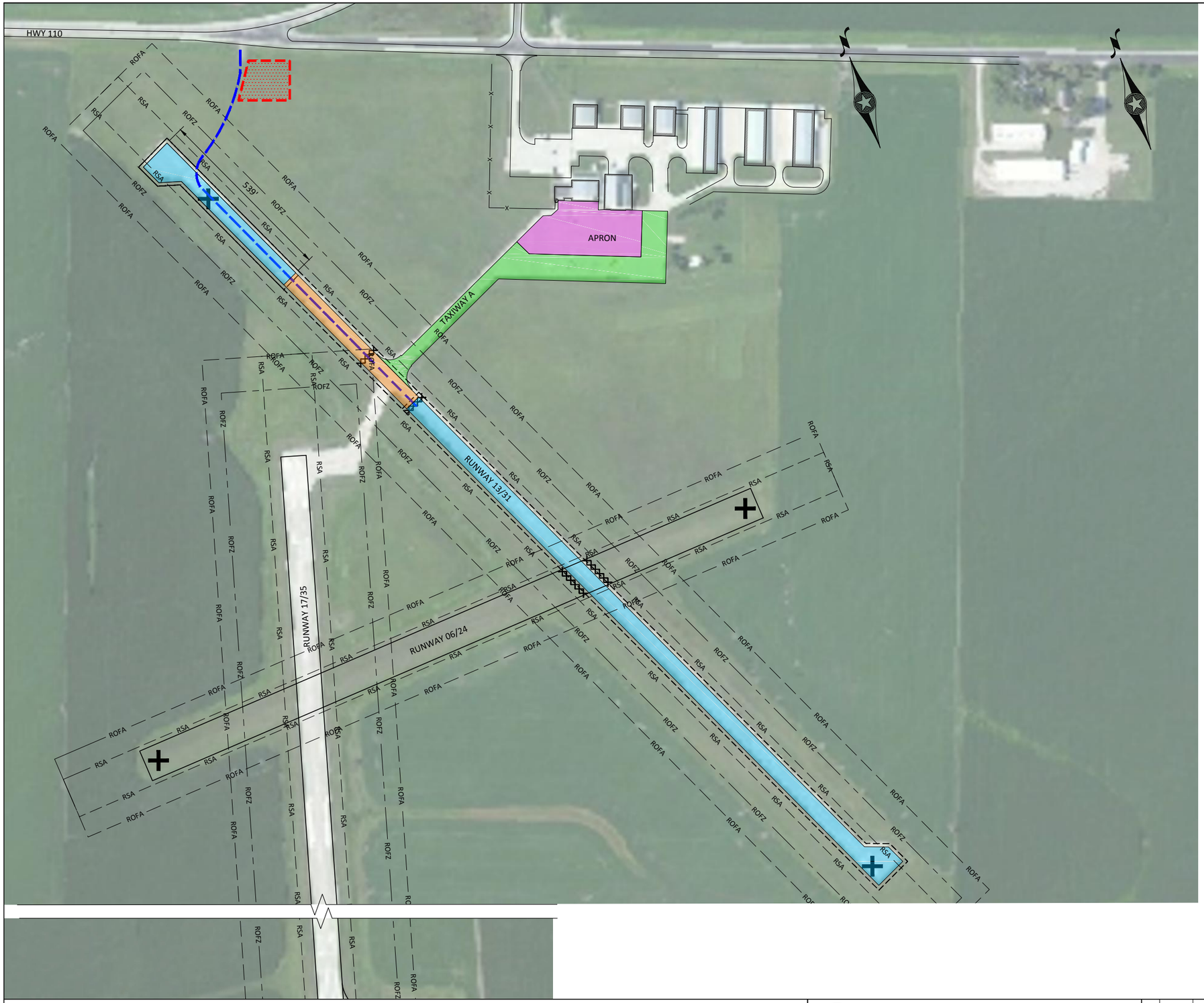
STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
CSPP - OVERALL LAYOUT



PHASE 1 NOTES:

PHASE 1 WORK ELEMENTS:
- SUBDRAIN INSTALLATION

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL BE CLOSED FOR PHASE 1.
- RUNWAY 06/24 SHALL BE CLOSED FOR PHASE 1.
- RUNWAY 17/35 SHALL REMAIN OPEN DURING PHASE 1..
- TAXIWAY A SHALL REMAIN OPEN DURING PHASE 1.

PHASE DURATION
- PHASE 1 SHALL BE COMPLETED IN 16 WORKING DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER AND FBO FOR ISSUANCE OF NOTAM's.

BARRICADE INFORMATION
- BARRICADES SHALL BE PLACED AT 10' SPACING TO PREVENT AIRCRAFT FROM ENTERING RUNWAY 13/31.
- CONTRACTOR SHALL PROVIDE FLAGGER OR CONTRACTOR PERSONNEL TO MAN THE INTERSECTION OF TAXIWAY A WITH RUNWAY 13/31 AND WHEN CROSSING AN OPEN RUNWAY

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL BE DISCONNECTED OR COVERED DURING PHASE 1.
- LIGHT ON RUNWAY 17/35 SHALL REMAIN ON DURING PHASE 1
- TAXIWAY LIGHT SHALL REMAIN ON DURING PHASE 1

LEGEND

- PHASE 1 CONSTRUCTION
- CONTRACTORS ACCESS ROUTE
- CONSTRUCTION LIMITS
- LOW PROFILE BARRICADES
- RUNWAY/TAXIWAY CLOSURE MARKER
- CONSTRUCTION STAGING/STORAGE

HORIZ. SCALE 0 150 300 FEET

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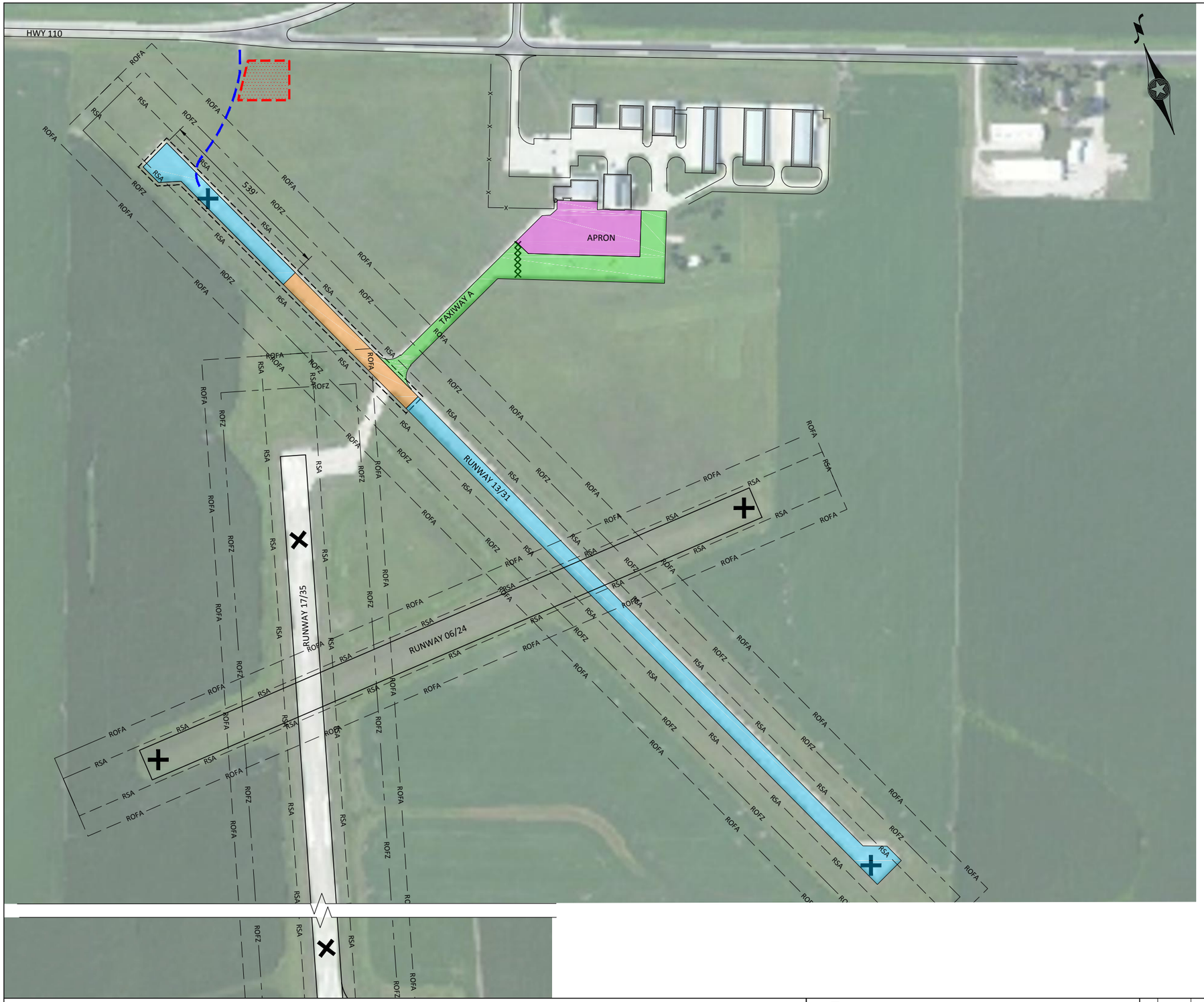
2016 AIRPORT IMPROVEMENTS
CSPP - PHASE 1



PHASE 2 NOTES:

PHASE 2 WORK ELEMENTS:
- SUBDRAIN INSTALLATION

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL BE CLOSED FOR PHASE 2
- RUNWAY 06/24 SHALL BE CLOSED FOR PHASE 2
- RUNWAY 17/35 SHALL BE CLOSED FOR PHASE 2
- TAXIWAY A SHALL BE CLOSED FOR PHASE 2

PHASE DURATION
- PHASE 2 SHALL BE COMPLETED IN 4 WORKING DAYS. PHASE 2 CAN BE COMPLETED AT THE SAME TIME AT PHASE 3 WITH THE RUNWAY CLOSURE LIMITED TO A MAXIMUM OF 4 DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER AND FBO FOR ISSUANCE OF NOTAM's.
- NOTAM WILL BE ISSUED FOR WORKERS AND EQUIPMENT ON RUNWAY 13 FOR APPROACH AND DEPARTURE OF RUNWAY 17/35

BARRICADE INFORMATION
- BARRICADES SHALL BE PLACED AT 10' SPACING TO PREVENT AIRCRAFT FROM ENTERING RUNWAY 13/31.

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL BE DISCONNECTED OR COVERED DURING PHASE 2.
- LIGHT ON RUNWAY 17/35 SHALL BE DISCONNECTED OR COVERED DURING PHASE 2.
- TAXIWAY LIGHT SHALL BE DISCONNECTED OR COVERED DURING PHASE 2.

LEGEND

- PHASE 2 CONSTRUCTION
- CONTRACTORS ACCESS ROUTE
- CONSTRUCTION LIMITS
- LOW PROFILE BARRICADES
- RUNWAY/TAXIWAY CLOSURE MARKER
- CONSTRUCTION STAGING/STORAGE

HORIZ. SCALE 0 150 300 FEET

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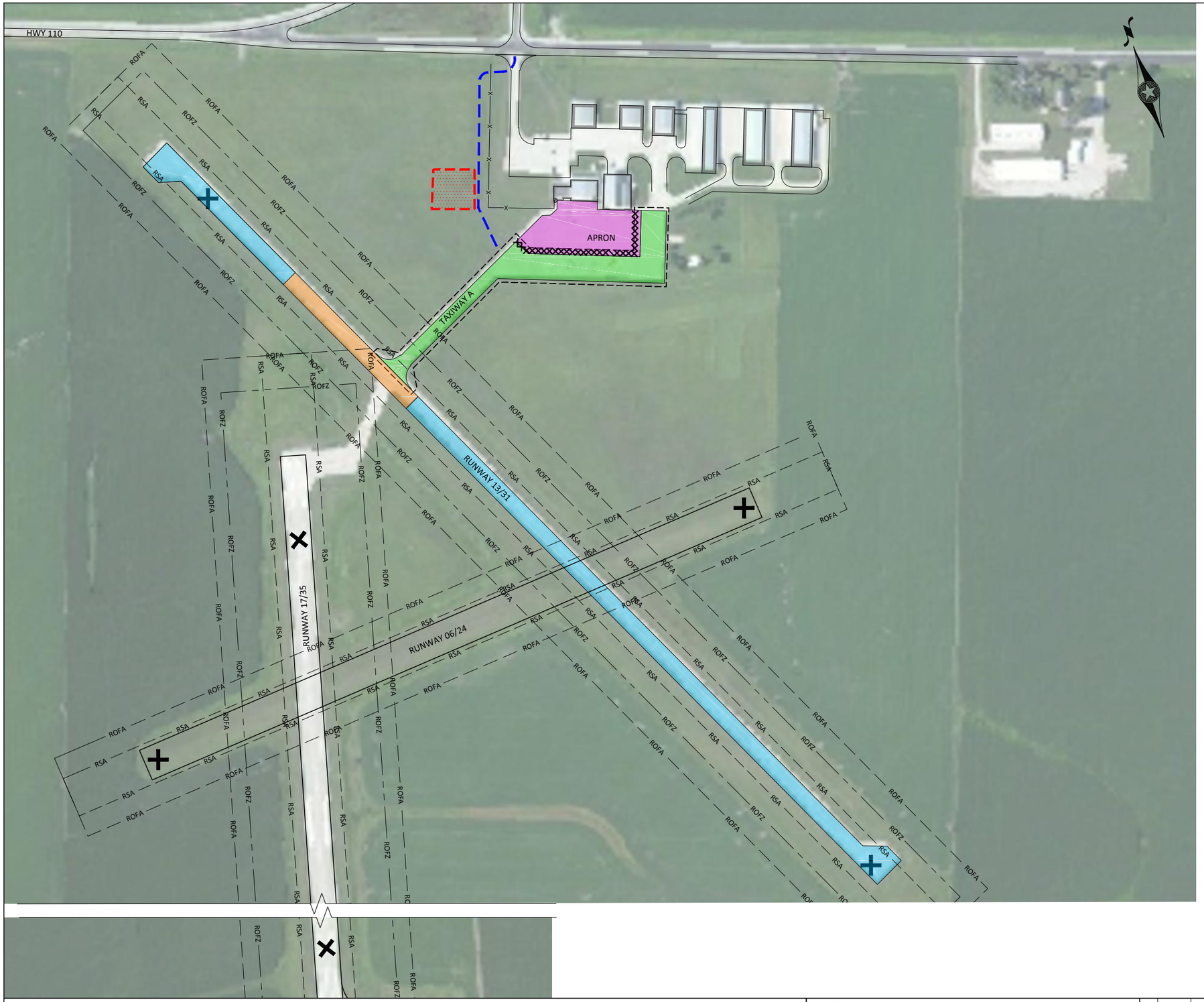
STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
CSPP - PHASE 2



PHASE 3 NOTES:

PHASE 3 WORK ELEMENTS:
- JOINT AND CRACK SEALING
- PANEL REPLACEMENT

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL BE CLOSED FOR PHASE 3.
- RUNWAY 06/24 SHALL BE CLOSED FOR PHASE 3.
- RUNWAY 17/35 SHALL BE CLOSED FOR PHASE 3.
- TAXIWAY A SHALL BE CLOSED DURING PHASE 3.

PHASE DURATION
- PHASE 3 SHALL BE COMPLETED IN 5 WORKING DAYS. PHASE 3 CAN BE COMPLETED AT THE SAME TIME AT PHASE 2 WITH THE RUNWAY CLOSURE LIMITED TO A MAXIMUM OF 5 DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER AND FBO FOR ISSUANCE OF NOTAM's.

BARRICADE INFORMATION
- BARRICADES SHALL BE PLACED AT 10' SPACING TO PREVENT AIRCRAFT FROM ENTERING TAXIWAY A.

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL BE DISCONNECTED OR COVERED DURING PHASE 3.
- LIGHT ON RUNWAY 17/35 SHALL BE DISCONNECTED OR COVERED DURING PHASE 3
- TAXIWAY LIGHT SHALL BE DISCONNECTED OR COVERED DURING PHASE 3

LEGEND

- PHASE 3 CONSTRUCTION
- CONTRACTORS ACCESS ROUTE
- CONSTRUCTION LIMITS
- LOW PROFILE BARRICADES
- RUNWAY/TAXIWAY CLOSURE MARKER
- CONSTRUCTION STAGING/STORAGE

HORIZ. 0 150 300
SCALE FEET

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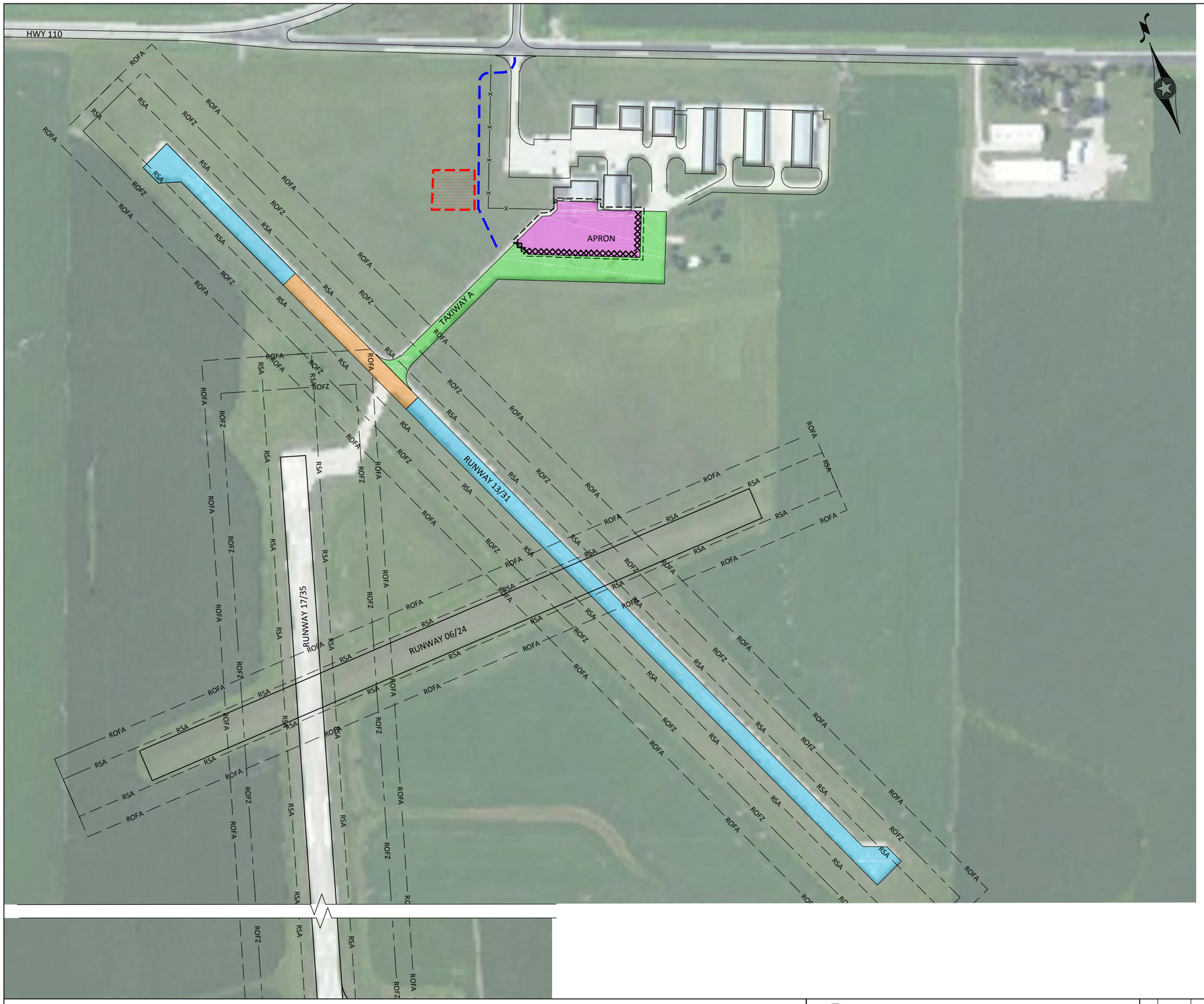
2016 AIRPORT IMPROVEMENTS
CSPP - PHASE 3



PHASE 4 NOTES:

PHASE 4 WORK ELEMENTS:
- JOINT AND CRACK SEALING
- PARTIAL DEPTH PATCHING
- PANEL REPLACEMENTS

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL REMAIN OPEN DURING PHASE 4.
- RUNWAY 06/24 SHALL REMAIN OPEN DURING 4.
- RUNWAY 17/35 SHALL REMAIN OPEN DURING PHASE 4.
- TAXIWAY A SHALL REMAIN OPEN DURING PHASE 4.
- PHASE 4 SHALL BE CONSTRUCTED TO ALLOW AIRCRAFT ACCESS TO TAXIWAY A AT ALL TIMES. IF AIRPORT ACTIVITY IS PRESENT, A FLAGGER SHALL BE PRESENT TO DIRECT AIRPORT TRAFFIC FROM CONSTRUCTION ACTIVITY.

PHASE DURATION
- PHASE 4 SHALL BE COMPLETED IN 10 WORKING DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER FOR ISSUANCE OF NOTAM's.

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL REMAIN ON DURING PHASE 4
- LIGHT ON RUNWAY 17/35 SHALL REMAIN ON DURING PHASE 4.
- TAXIWAY LIGHT SHALL REMAIN ON DURING PHASE 4.

LEGEND
- PHASE 4 CONSTRUCTION
- CONTRACTORS ACCESS ROUTE
- CONSTRUCTION LIMITS
- LOW PROFILE BARRICADES
- RUNWAY/TAXIWAY CLOSURE MARKER
- CONSTRUCTION STAGING/STORAGE

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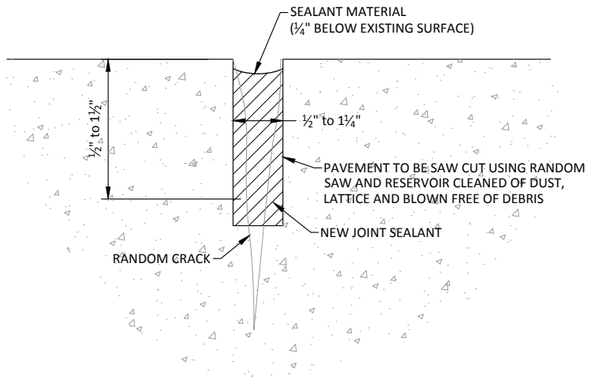
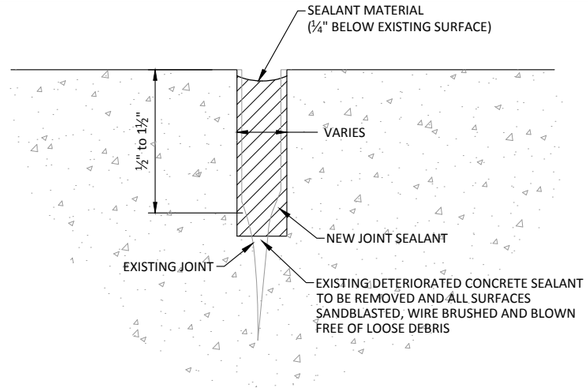
STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
CSPP - PHASE 4



A 10 RANDOM CRACK ROUTE & SEAL
NOT TO SCALE



B 10 EXISTING JOINT ROUTE & SEAL
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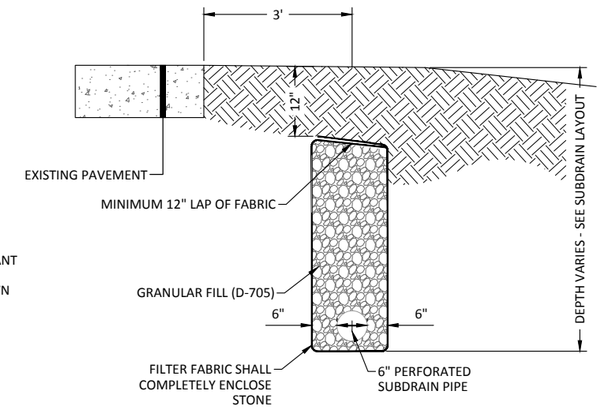
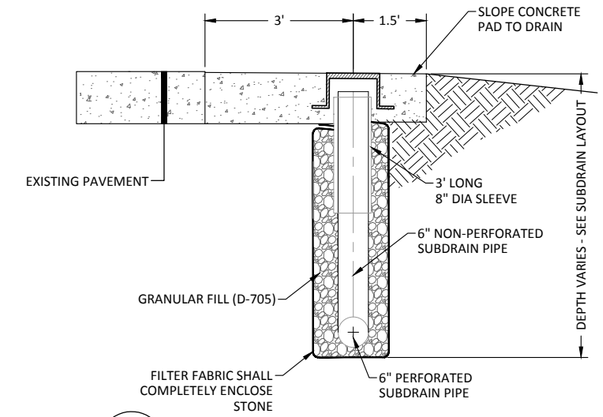
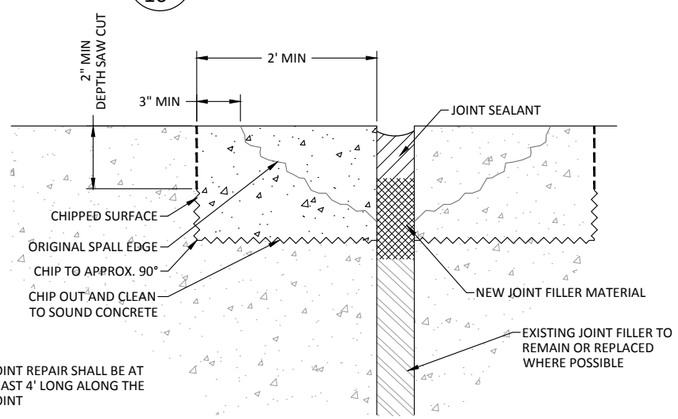


F 10 SUBDRAIN SECTION VIEW
NOT TO SCALE

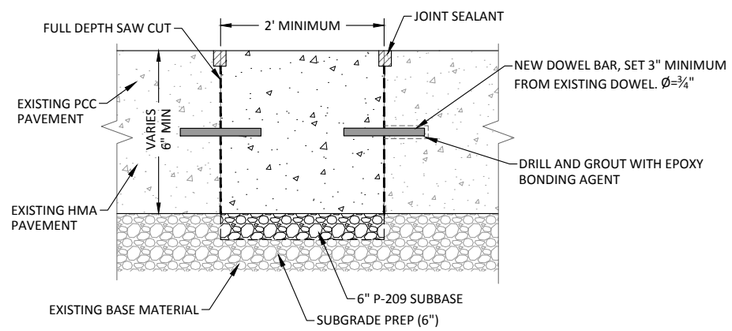


G 10 SUBDRAIN CLEANOUT RISER SECTION VIEW
NOT TO SCALE

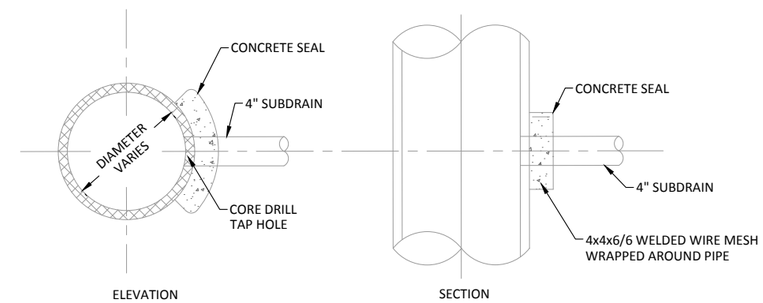


NOTE:
- JOINT REPAIR SHALL BE AT LEAST 4' LONG ALONG THE JOINT
- SAW AND SEAL EXISTING JOINT TO 1" MIN BELOW SPALLED AREA

C 10 PARTIAL DEPTH REPAIR - DOUBLE JOINT FACE
NOT TO SCALE

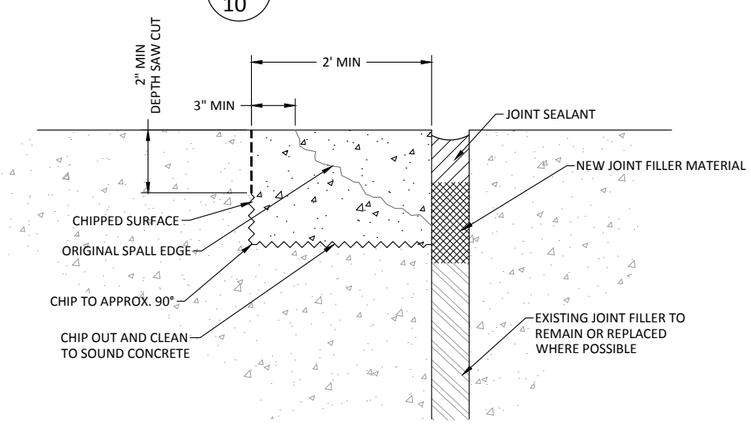


TYPICAL SECTION



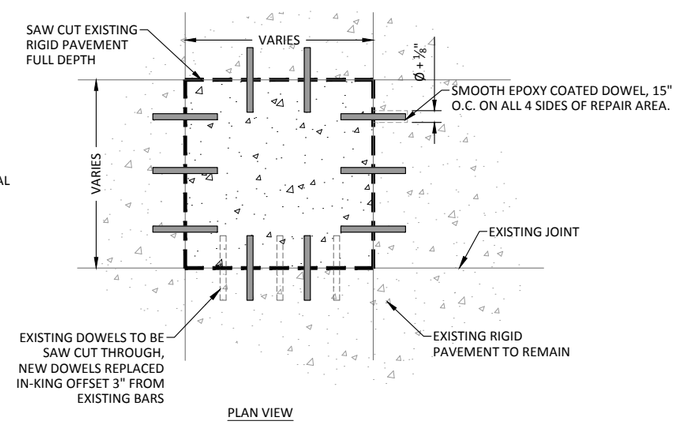
ELEVATION SECTION

H 10 FIELD TAP DETAILS
NOT TO SCALE



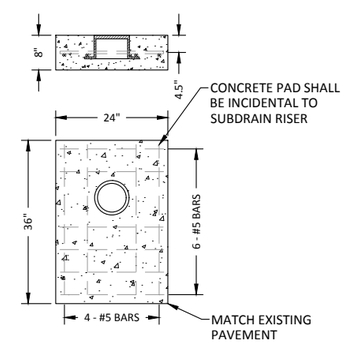
NOTE:
- JOINT REPAIR SHALL BE AT LEAST 4' LONG ALONG THE JOINT
- SAW AND SEAL EXISTING JOINT TO 1" MIN BELOW SPALLED AREA

D 10 PARTIAL DEPTH REPAIR - SINGLE JOINT FACE
NOT TO SCALE

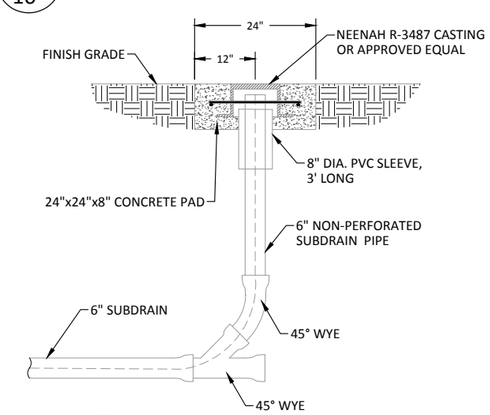


PLAN VIEW

E 10 FULL DEPTH RIGID PAVEMENT REPAIR
NOT TO SCALE



I 10 SUBDRAIN RISER DETAIL
NOT TO SCALE



J 10 SUBDRAIN PAD DETAIL
NOT TO SCALE

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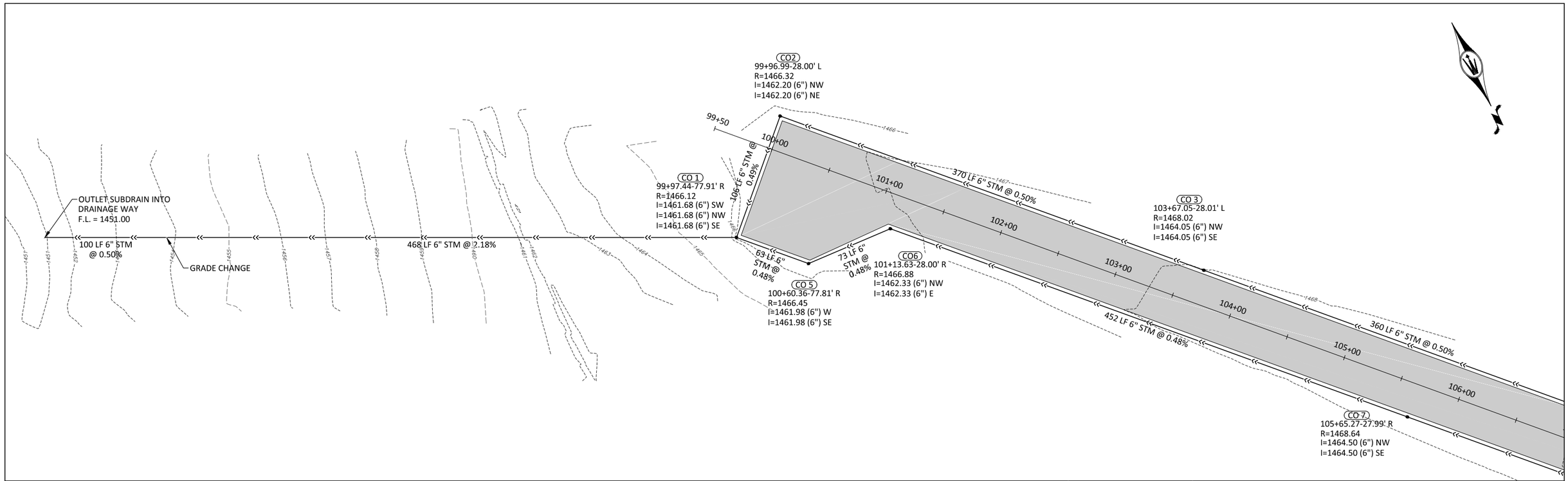
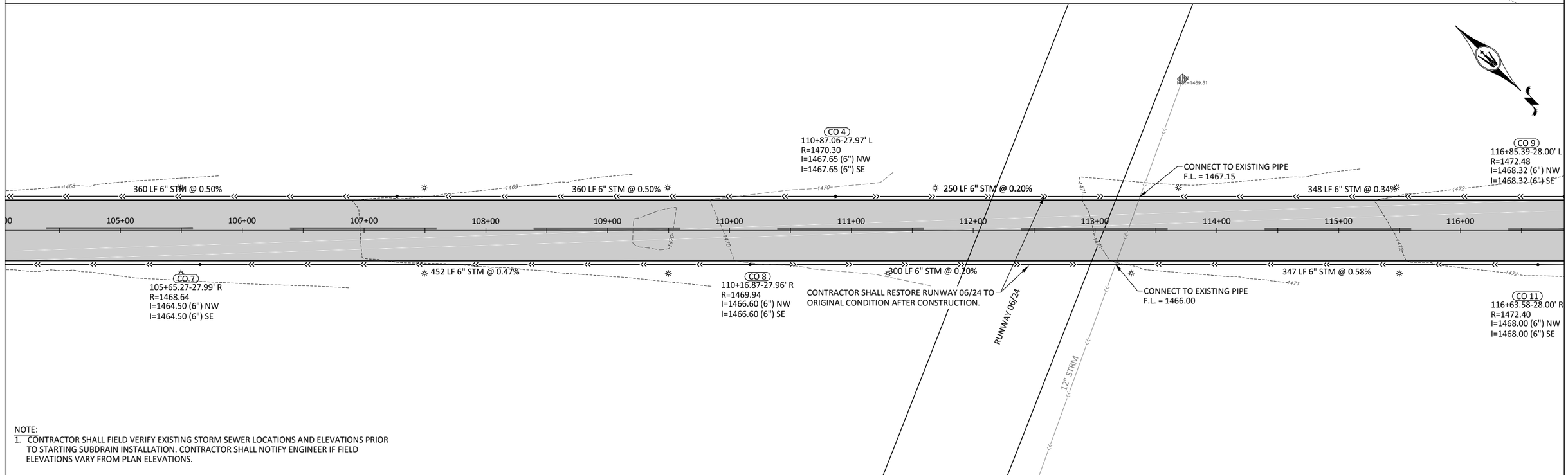
STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
TYPICAL SECTIONS & DETAILS





NOTE:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING STORM SEWER LOCATIONS AND ELEVATIONS PRIOR TO STARTING SUBDRAIN INSTALLATION. CONTRACTOR SHALL NOTIFY ENGINEER IF FIELD ELEVATIONS VARY FROM PLAN ELEVATIONS.

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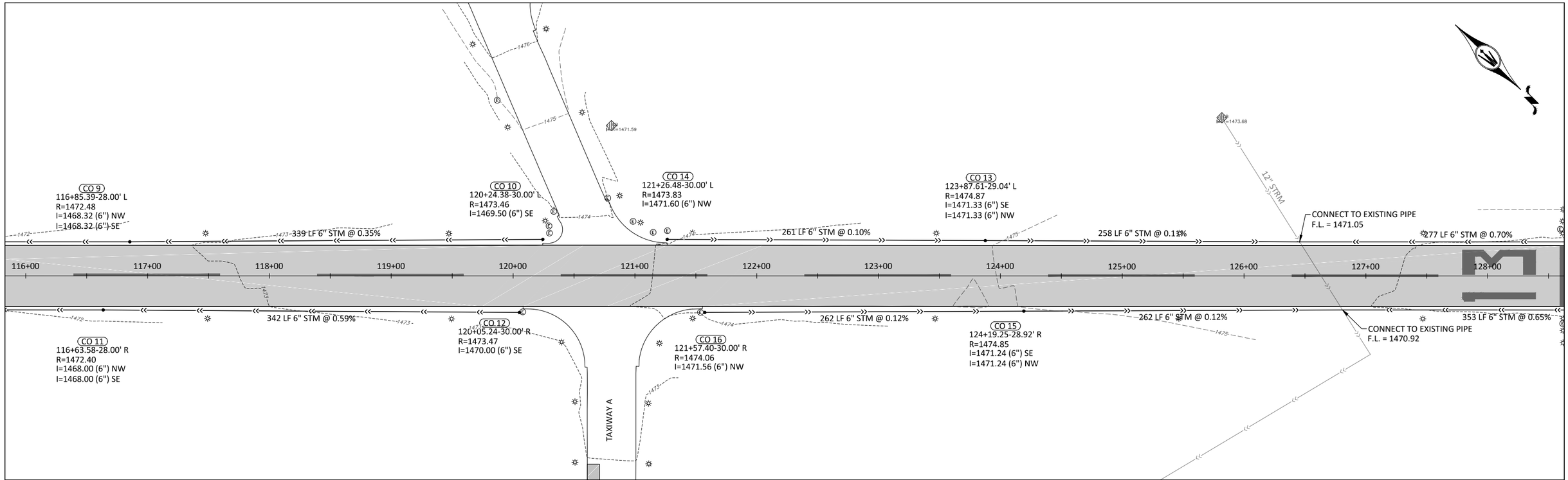
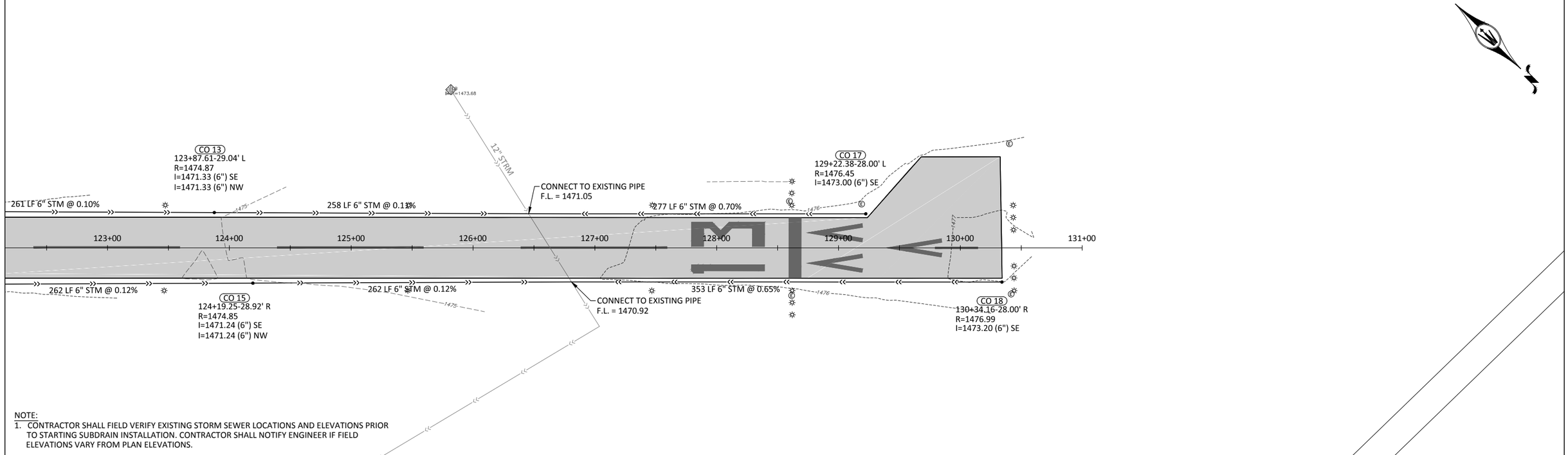
STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
RUNWAY SUBDRAIN PLAN

SHEET 11 OF 14





NOTE:
1. CONTRACTOR SHALL FIELD VERIFY EXISTING STORM SEWER LOCATIONS AND ELEVATIONS PRIOR TO STARTING SUBDRAIN INSTALLATION. CONTRACTOR SHALL NOTIFY ENGINEER IF FIELD ELEVATIONS VARY FROM PLAN ELEVATIONS.

HORIZ. SCALE 0 30 60 FEET

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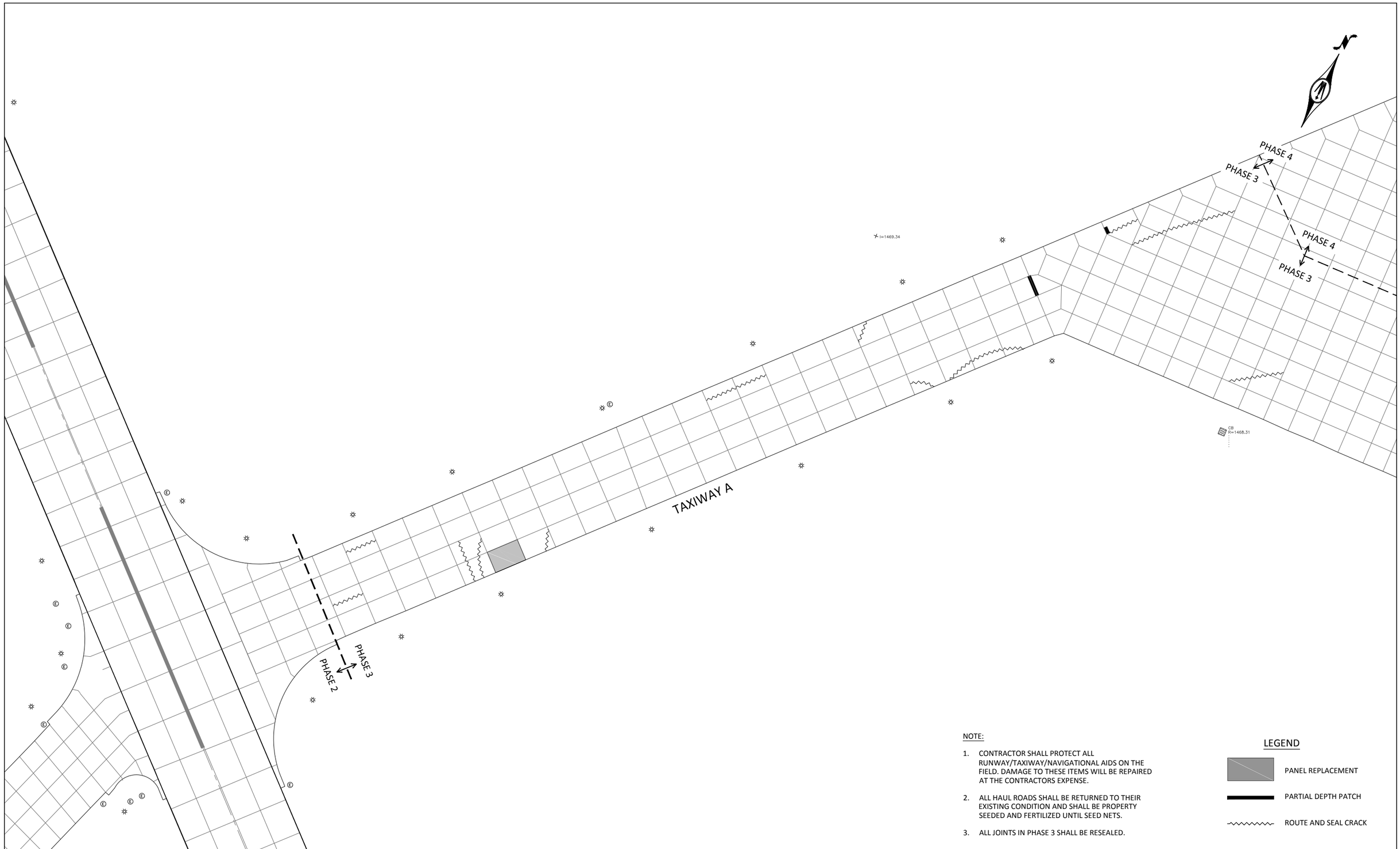
2016 AIRPORT IMPROVEMENTS
RUNWAY SUBDRAIN PLAN

SHEET 12 OF 14



NOTE:

1. CONTRACTOR SHALL PROTECT ALL RUNWAY/TAXIWAY/NAVIGATIONAL AIDS ON THE FIELD. DAMAGE TO THESE ITEMS WILL BE REPAIRED AT THE CONTRACTORS EXPENSE.
2. ALL HAUL ROADS SHALL BE RETURNED TO THEIR EXISTING CONDITION AND SHALL BE PROPERTY SEEDED AND FERTILIZED UNTIL SEED NETS.
3. ALL JOINTS IN PHASE 3 SHALL BE RESEALED.

LEGEND

- PANEL REPLACEMENT
- PARTIAL DEPTH PATCH
- ROUTE AND SEAL CRACK

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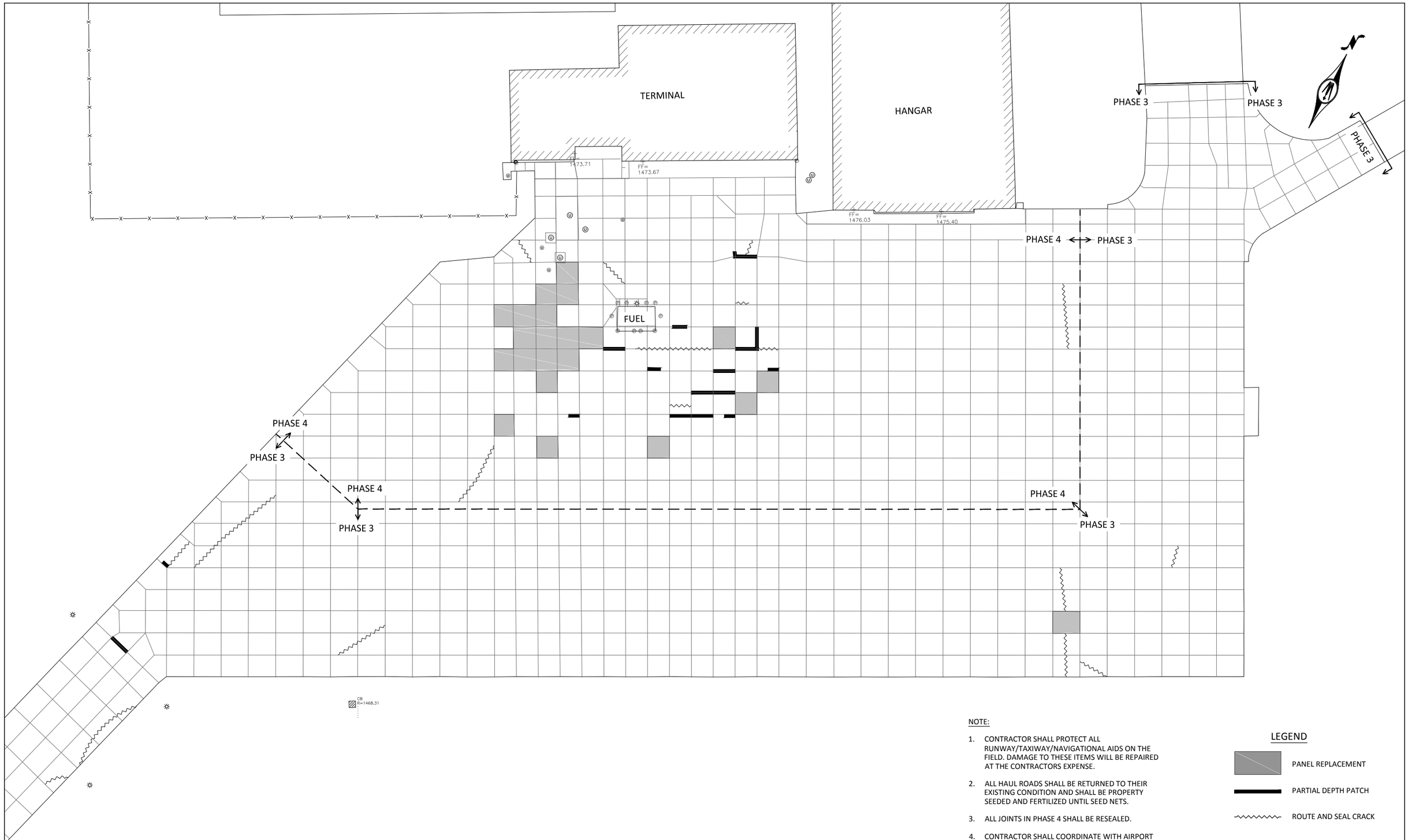
2016 AIRPORT IMPROVEMENTS
TAXIWAY PLAN

SHEET 13 OF 14



NOTE:

1. CONTRACTOR SHALL PROTECT ALL RUNWAY/TAXIWAY/NAVIGATIONAL AIDS ON THE FIELD. DAMAGE TO THESE ITEMS WILL BE REPAIRED AT THE CONTRACTORS EXPENSE.
2. ALL HAUL ROADS SHALL BE RETURNED TO THEIR EXISTING CONDITION AND SHALL BE PROPERTY SEEDED AND FERTILIZED UNTIL SEED NETS.
3. ALL JOINTS IN PHASE 4 SHALL BE RESEALED.
4. CONTRACTOR SHALL COORDINATE WITH AIRPORT TO ENSURE FUEL SALES AREA ALWAYS AVAILABLE.

LEGEND

- PANEL REPLACEMENT
- PARTIAL DEPTH PATCH
- ROUTE AND SEAL CRACK

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2016 AIRPORT IMPROVEMENTS
APRON PLAN

SHEET 14 OF 14

PROJECT MANUAL

2017 AIRPORT IMPROVEMENTS

STORM LAKE MUNICIPAL AIRPORT

CITY OF STORM LAKE, IOWA

AIP # 3-19-0088-12

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CERTIFICATION

PROJECT MANUAL

For

2017 AIRPORT IMPROVEMENTS

CITY OF STORM LAKE, IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

_____ Date: _____

Gregory A. Broussard

License No. 21974

My renewal date is December 31, 2017

Pages or sheets covered by this seal:
All

TABLE OF CONTENTS

2017 Airport Improvements

BMI #T51.111257

AIP # 3-19-0088-12

CONTRACT DOCUMENTS:

PROJECT MANUAL:

Introductory Information, Bidding Requirements, Contract Forms and Conditions of Contract

FAA SPECIAL PROVISIONS

FAA General Provisions

Technical Specifications

FAA Technical Specifications

FAA Earthwork

FAA Flexible Base Courses

P-209 – CRUSHED AGGREGATE BASE COURSE

FAA Rigid Pavement

P-501 – PORTLAND CEMENT CONCRETE PAVEMENT

FAA Miscellaneous

P-605 – JOINT SEALANTS FOR CONCRETE PAVEMENTS

FAA Drainage

D-705 – PIPE UNDERDRAINS FOR AIRPORTS
D-751 – MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES

FAA Turfing

T-901 – SEEDING
T-908 – MULCHING

Supplemental Technical Specifications

DRAWINGS (UNDER SEPARATE COVER):

__ sheets numbered 1 through ____,inclusive, dated _____, and with each sheet bearing the following general title:

2017 Airport Improvements

City of Storm Lake

APPENDICES

- Soil Report
- AC 150/5370-2F - Operational Safety Airports During Construction

******END OF SECTION*****

NOTICE TO BIDDERS

CITY OF STORM LAKE
STORM LAKE MUNICIPAL AIRPORT

AIP Project No.: **3-19-0088-12**

Sealed bids subject to the conditions and provisions presented herein will be received by the Owner until **2 p.m. (Central) on April 4th, 2017**, and then publicly opened and read City Hall**,** for furnishing all labor, materials and equipment and performing all work necessary to complete: ***2017 Airport Improvements***

Copies of the bid documents including project drawings and technical specifications are on file and may be inspected at:
2730 Ford Street, P.O. Box 668, Ames, IA 50010-0668

TO OBTAIN BID DOCUMENTS: Complete digital project bidding documents are available at www.bolton-menk.com or www.questcdn.com. You may view the digital plan documents for free by entering Quest project # on the website's Project Search page. Documents may be downloaded for $20.00. Please contact QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free membership registration, viewing, downloading, and working with this digital project information. An optional paper set of project documents is also available for a refundable price of $20.00 per set (refundable), which includes applicable sales tax and shipping. Any addendums will be mailed or faxed to all planholders. Please make your check to payable to Bolton & Menk, Inc. and send it to 2730 Ford Street, P.O. Box 668, Ames, IA 50010-0668, (515) 233-6100, fax (515) 233-4430

No prebid conference is scheduled for this project

Contract Work Items: This project will involve the following work items and estimated quantities. Prospective bidders are hereby advised that the quantities indicated herein are approximate and are subject to change per the Section 40 of the General Provisions.

Base Bid

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL
1	GP-105-5.1	MOBILIZATION	LS	1
2	------	TRAFFIC CONTROL	LS	1
3	P-101-5.1	PAVEMENT REMOVAL	SY	264
4	P-152-4.1	SUBGRADE - TRIM, SHAPE AND COMPACT	SY	264
5	P-156-5.1	INSTALLATION AND REMOVAL OF SILT FENCE	LF	1,000
6	P-209-5.1	CRUSHED AGGREGATE BASE COURSE	SY	264
7	D-705-5.1	4-INCH PERFORATED SUBDRAIN	LF	6,403
8	D-705-5.2	SUBDRAIN CLEANOUT	EA	19
9	D-705.5.3	SUBDRAIN OUTLET	EA	9
10	T-901-5.1	SEEDING	ACRE	1.5
11	T-908-5.1	MULCHING	ACRE	1.5
12	M-361-5.1	JOINT SEALANT	LF	20,170
13	M-361-5.2	CRACK SEALANT	LF	550
14	M-564-5.1	CONCRETE REPAIR - TYPE 1 (PANEL REPLACEMENT)	SY	264
15	M-564-5.2	CONCRETE REPAIR - TYPE 2B (PARTIAL DEPTH REPAIR)	EA	14

Contract Time
The owner has established a contract performance time of **33 work days** from the date of the Notice-to-Proceed. All project work shall be substantially completed within the stated timeframe. This project is subject to liquidated damages as prescribed within the project manual.

Bid Security
Each proposal must be accompanied by a bid guaranty in the amount of *5%* of the total amount of the bid. The bid guaranty may be by certified check or bid bond made payable to *CITY OF STORM LAKE.*

Bonding Requirements
The successful bidder will be required to furnish separate performance and payment bonds each in the amount equal to 100% of the contract price at the time of contract execution.

Public Hearing
A public hearing will be held by the *CITY OF STORM LAKE* City Council on the proposed contract documents (plans, specifications and form of contract) and estimated cost for the improvement at its meeting at ***Storm Lake City Hall, 620 Erie Street, Storm Lake, IA 50588 on April 4th, 2017 at 2:00 p.m.***

Award of Contract
All proposals submitted in accordance with the instructions presented herein will be subject to evaluation. Bids may be held by the *CITY OF STORM LAKE* for a period not to exceed *90* days from the date of the bid opening for the purpose of conducting the bid evaluation.

The Owner will base the award of contract upon the lowest aggregate sum proposal submitted from those bidders the Owner confirms as being responsive and responsible. The right is reserved, as the *CITY OF STORM LAKE* may require, to reject any and all bids and to waive any informality in the bids received.

Prospective Bidders are hereby advised that award of contract is contingent upon the owner receiving Federal funding assistance under the Airport Improvement Program.

Federal Provisions
This project is subject to the following Federal provisions, statutes and regulations:

Equal Employment Opportunity - Executive Order 11246 and 41 CFR Part 60: The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth within the supplementary provisions. The successful Bidder shall 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, or national origin.

Goals for Minority and Female Participation – Executive Order 11246 and 41 CFR Part 60:

1. The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth within the supplementary provisions.

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: ***0.4%***

   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 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.

Certification of Nonsegregated Facilities – 41 CFR Part 60: A certification of Nonsegregated Facilities must be submitted prior to the award of a federally-assisted construction contract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity Clause.

Contractors receiving federally assisted construction contract awards exceeding $10,000, which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from

the provisions of the Equal Opportunity Clause. The penalty for making false statements in offers in prescribed in 18 U.S.C. 1001.

Disadvantaged Business Enterprise – 49 CFR Part 26: The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted contracts. In accordance with 49 CFR Part 26.45, the sponsor has established a contract goal of *4.0%* percent participation for small business concerns owned and controlled by certified socially and economically disadvantaged enterprise (DBE). The bidder shall make and document good faith efforts, as defined in Appendix A of 49 CFR Part 26, to meet this established goal.

Davis-Bacon Act, as amended – 29 CFR Part 5: The Contractor is required to comply with wage and labor provisions and to pay minimum wages in accordance with the current schedule of wage rates established by the United States Department of Labor.

Debarment, Suspension, Ineligibility and Voluntary Exclusion – 49 CFR Part 29: The bidder certifies, by submission of a proposal or acceptance of a contract, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. Individuals or companies listed in the General Services Administration's "Excluded Parties Listing System" will not be considered for award of contract.

Foreign Trade Restriction – 49 CFR Part 30
The Bidder and Bidder's subcontractors, by submission of an offer and/or execution of a contract, is required to certify 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.

Buy American Certificate – Aviation Safety and Capacity Act of 1990:
This contract is subject to the "Buy American Preferences" of the Aviation Safety and Capacity Act of 1990. Per Title 49 U.S.C. Section 50101, all steel and manufactured products installed under an AIP assisted project must be produce in the United States unless the Federal Aviation Administration has granted a formal waiver.

As a condition of bid responsiveness, Bidders must complete and submit as part of their proposal the enclosed Buy American certification. Bidder must indicate whether it intends to meet Buy America preferences by only installing steel and manufactured products produced with the United State of America; or if it intends to seek a permissible waiver to the Buy America requirements.

a. Additional Provisions
Modification to the project documents may only be made by written addendum as issued by the Owner or Owner's authorized Representative.

The bidder's proposal must be made on the forms provided within the bound project manual. Bidders must supply all required information prior to the time of bid opening.

b. Submittal of Proposals
Additional information and instruction for submittal of a proposal are provided within the Instructions-to-Bidders. Envelopes containing bids must be sealed and addressed to:

Storm Lake City Hall, 620 Erie Street, Storm Lake, IA 50588

The upper left hand corner of the sealed envelope must identify the following information:

c. CONTRACT PROPOSAL
Bid of _____
for construction improvements at Storm Lake Municipal Airport
AIP Project No. : 3-19-0088-12
To be opened at: 2:00 p.m. on April 4th, 2017

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INSTRUCTIONS TO BIDDERS

- **Owner and Owner's Representative**
- The Owner as stated herein refers to the following agency ***City of Storm Lake***.

The Owner's authorized representative as stated herein refers to the Owner's Consultant **Bolton & Menk** herein referred to as Engineer.

- **Bidder Representations**

By submittal of a proposal (bid), the BIDDER represents the following:

- The Bidder has read and thoroughly examined the project documents
- The Bidder has a complete understanding of the terms and conditions required for the satisfactory performance of project work.
- The Bidder has fully informed themselves of the project site, the project site conditions and the surrounding area.
- The Bidder has familiarized themselves of the requirements of working on an operating airport and understands the site conditions that may in any manner affect cost, progress or performance of the work
- The Bidder has correlated their observations with that of the project documents.
- The Bidder has found no errors, conflicts, ambiguities or omissions in the project documents, except as previously submitted in writing to the owner that would affect cost, progress or performance of the work.
- The Bidder is familiar with all applicable Federal, State and local laws, rules and regulations pertaining to execution of the contract and the project work.
- The Bidder has complied with all requirements of these instructions and the associated bid documents.

- **Bid Documents/Project Manual**

The bid documents are comprised of the following; Notice-to-Bidders, Instructions-to-Bidders, General Provisions, Supplementary Provisions, Technical Specifications, Project Drawings, Construction Safety and Phasing Plan, Proposal Form with attachments, Form of Contract Agreement, any authorized addenda issued by the Owner and any document incorporated in whole or in part by reference therein.

All documents comprising the Bid Documents are complementary to one another and together establish the complete terms, conditions and obligations of the successful bidder.

Those individual elements of the Contract Documents that are bound together shall also be referred to as the Project Manual. No part of the project manual that is bound may be removed or detached.

Prospective bidders may obtain a copy of the project manual and project drawings from the designated office identified within the Notice-to-Bidders.

- **Modifications to Project Documents**

Modifications to the project documents may only be made by written addendum issued by the Owner or the Engineer. Verbal explanations, interpretations or comments made by the Owner or Owner's representative shall not be binding. Addenda will be transmitted to all known official plan holders. Each bidder shall certify at the time of bid submittal that they acknowledge receipt of all issued addenda.

- **Errors and Discrepancies in Project Documents**

Should Bidder find an error, discrepancy, ambiguity or omission in the project documents prior to submittal of a proposal, the Bidder is obligated to contact the Owner or Engineer with written notice of the error, discrepancy, ambiguity or omission. The written notice shall identify the nature and location of the error, discrepancy, ambiguity or omission. Corrections or modifications to the project documents will only be made by written addendum as prescribed herein. By submittal of a Bid Proposal, Bidder represents that they have thoroughly reviewed the project documents and that they have not identified any error, discrepancy, ambiguity or omission that would affect cost, progress or performance of the project work.

- **Clarifications and Interpretations**

A bidder requiring a clarification or interpretation of the project documents shall make a written request to the Owner or Engineer. The Owner or Engineer must receive the written request a minimum of seven (7) calendar days prior to the date of the bid opening.

- **Interpretations of Estimated Proposal Quantities**

An estimate of quantities of work to be accomplished and materials to be furnished under these specifications is stated within the project manual. This estimate is a result of careful calculations and is believed to be correct. The estimated quantities are given only as a basis for comparison of proposals and the award of contract. The Owner does not expressly or impliedly agree that the actual quantities involved will correspond exactly with the estimated quantities.

The Bidder shall not plead misunderstandings 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 hereinafter provided in the subsection titled "Alteration of Work and Quantities" of the general provisions without in any way invalidating the unit bid prices.

- **Examination of Plans, Specifications and Site Conditions**

As stated within the "Bidder Representations" and reaffirmed herein, the Bidder is expected to carefully examine the site of the proposed work, the proposal, drawings, specifications, terms and conditions of the proposed agreement and the form of agreement. The Bidder shall satisfy themselves as to the character, quality, and quantities of work to be performed, materials to be furnished and as 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 as to the conditions to be encountered in performing the work and as to the requirements of the proposed contract, plans and specifications.

Boring logs and other records of subsurface investigations and tests, as appropriate may be available for inspection by the Bidder. It is understood and agreed that such subsurface information, whether included in the project drawings, 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 Bidder is solely responsible for all assumptions, deductions, or conclusions which he or she may make from his or her examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

Issuance of Proposal Forms

The Owner reserves the right to refuse to issue a proposal form to a prospective bidder should the bidder be in default for any of the following reasons:

a. Failure to comply with any pre-qualification 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 satisfactory 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. Contractor default under previous contracts with the owner
d. Unsatisfactory work on previous contracts with the owner

- **Form of Proposal**

All bid proposals shall be made on the forms provided by the Owner within the bound Project Manual. No bidder may submit more than one proposal. All proposals are to be written in ink and shall be clearly legible. All blank spaces in the proposal forms shall be legibly completed for each and every bid item. The Bidder shall not qualify any bid item. The Bidder shall initial any erasures and alterations made on the proposal form by the bidder.

The Bidder shall state the price of their bid in U.S. dollars and cents in both written and numeral format. In the event of a discrepancy, the written value will take precedence.

Signature of Proposal

An authorized representative of the Bidder must sign and date the proposal. The Bidder's authorized representative shall use an ink pen when applying their signature to the proposal. The Bidder's representative shall have the legal authority to obligate and bind the Bidder to the terms and conditions of the contract. The Bidder shall legibly state the name of the Bidder's representative, the legal name of the Bidder, the address of the Bidder including City, State and Zip Code, and the telephone number of the Bidder.

- For bids by corporations, an officer of the corporation shall sign the bid; Bidder shall identify the State of incorporation and affix their corporate seal.
- For bids submitted by an agent, Bidder shall attach to the proposal evidence of the power of attorney.
- For bids submitted by a partnership or joint venture, the proposal shall identify the name of all firms and the authorized parties of all firms. The bidder shall attach a copy of the partnership/joint-venture agreement to the proposal.

Modification or Withdrawal of Bid Proposal

Bidder may modify or withdraw their proposal at any point up to the specified time and date identified for receipt of proposals. Any request for bid withdrawal or modification by the Bidder that is received after the specified time and date for receipt of proposals will be returned unopened to the sender.

Any modification a Bidder desires to make to their proposal, subject to the time constraint noted herein, must be made on the proposal forms contained in the project manual. The Bidder's authorized representative must sign the modification. The modification shall be placed in a sealed envelope and the statement "Modification to Proposal" shall be legibly marked in the

upper left hand corner. Withdrawal of a proposal may be made, subject to the time constraint noted herein, only with written confirmation under signature of the Bidder.

- **Bid Guaranty**

Each bid proposal must include a bid guaranty in the amount of five percent (5%) of the total amount of the bid. The bid guaranty may be by bid bond or certified check made payable to the Owner. The bid bond shall be from a responsible surety qualified to conduct business within the State of **Iowa** If Bidder uses a certified check, the certified check must be issued from a responsible and solvent bank or trust company.

- **Buy America Preference**

As a matter of bid responsiveness, Bidder must indicate within their proposal how they intend to comply with the Buy America preferences established by Title 49 USC 50101. The bidder may choose to certify it will comply with Buy America preferences by only installing steel and manufactured products that are 100% made in the United States; or the bidder may choose to certify that they cannot fully comply with Buy America preferences and thus requests a waiver to Buy America preferences.

A bidder that certifies they will meet Buy America preferences by requesting a waiver also agrees to prepare and submit a formal waiver request and the associated component cost calculation if selected by the owner as the bidder with the apparent low bid. The successful bidder must submit their formal waiver request and component cost calculation to the owner within the timeframe prescribed on the Buy America certification.

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- **Disadvantage Business Enterprise (DBE)**

The requirements of 49 CFR Part 26, Regulations of the U.S. Department of Transportation, apply to this contract. It is the policy of the *City of Storm Lake* to practice nondiscrimination based on race, color, sex or national origin in the award or performance of this contract. All firms qualifying under this solicitation are encouraged to submit bids/proposals. Award of this contract will be conditioned upon satisfying the requirements of this bid specification. These requirements apply to all bidders, including those who qualify as a Disadvantaged Business Enterprise.

The Owner has established a DBE contract goal of *4.0%* percent for this contract. The Bidder/Offeror shall make good faith efforts, as defined in Appendix A, 49 CFR Part 26, to subcontract *4.0%* of the dollar value of the prime contract to certified DBE firms as defined in 49 CFR Part 26.

All bidders shall submit the following information with their proposal on the forms provided:

(1) The names and addresses of DBE firms that will participate in the contract;
(2) A description of the work that each DBE firm will perform;
(3) The dollar amount of the participation of each DBE firm participating;
(4) Written documentation of the Bidder/Offeror's commitment to use a DBE subcontractor whose participation it submits to meet the contract goal;
(5) Evidence of good faith efforts undertaken by the bidder, as described in appendix A to 49 CFR Part 26.

The successful Bidder will be required to provide written confirmation from the participating DBE firms verifying their intent to participate as in the project. This written confirmation shall be submitted prior to execution of the contract.

Good Faith Efforts (DBE)

Bidder must demonstrate that they made good faith efforts to achieve participation with DBE firms. This requires that the bidder show that it took all necessary and reasonable steps to secure participation by certified DBE firms. The owner will not consider mere pro forma efforts as a good faith effort.

Actions constituting evidence of good faith efforts are described in appendix A to 49 CFR Part 26. Such actions include but are not limited to:

- Soliciting DBE participation through all reasonable and available means. This may include public advertisements and phone calls/faxes to known certified DBE firms.
- Consult State Department of Transportation office to obtain a list of certified DBE firms.
- Selecting portions of work that increases the likelihood that DBE firms will be available to participate
- Providing DBE firms with sufficient information and time to review the project plans and specifications.
- Documenting all contacts with DBE firms. This includes name, address, phone number, date of contact and record of conversation/negotiation.

Bidder Qualifications

Each Bidder shall furnish the owner satisfactory evidence of their competency and financial capability to perform the proposed work. The Bidder shall demonstrate that they are a responsible firm that possesses the skills, abilities, and integrity to faithfully perform the project work. To be determined responsible, a prospective contractor must:

- Have adequate resources (financial, technical, etc.) to perform the contract, or the ability to obtain them;

- Be able to comply with the required or proposed delivery or performance schedule, considering all existing business commitments;
- Have a satisfactory performance record;
- Have a satisfactory record of integrity and business ethics; and
- Be otherwise qualified and eligible to receive an award under applicable laws and regulations.

Evidence of competency shall consist of statements covering the Bidder's past experience on similar work, a listing of plant and equipment immediately available for use on the project, and a listing of key personnel that are available for the project. The listing for plant and equipment shall identify the type, the capacity and the present condition of the item.

Evidence of financial responsibility shall consist of a confidential statement or report of the Bidder's financial resources and liabilities as of the last calendar year. A public accountant must certify such statements and reports. If the Bidder is presently pre-qualified with the State Highway agency, evidence of this pre-qualification may serve as evidence of financial responsibility in lieu of the certified financial statements and reports.

Alternate Bids
Bidder shall complete all blanks provided on the proposal forms. When so permitted by the Owner, the Bidder shall legibly write the statement "No Bid" for those alternate bid options that the Bidder elects not to submit a proposal.

Submission of Bid Proposal
Prospective bidders must submit their proposal to arrive at the office location identified within the Notice-to-bidders at the specified time and date for receipt of bids. The owner will not give consideration to any proposal received after the specified time. Owner will return late proposals in an unopened manner to the return address identified on the envelope.

Prospective bidders shall enclose their proposal in a sealed opaque envelope. The upper left hand corner of the envelope shall be marked as follows:

- **Sealed Bid Proposal**

Bid of _____

For construction improvements at Storm Lake Municipal Airport

AIP Project No.: 3-19-0088-12

To be opened at: 2:00 p.m. on April 4th, 2017

For a modification to a previously submitted proposal, insert "Modification to Proposal" in place of "Sealed Bid Proposal"

Bid Protest Procedure
Any potential bidder wishing to file a protest concerning alleged improprieties with this solicitation must submit the protest in written format 72 hours prior to the specified time of the bid opening. The formal written protest must identify the name of vendor contesting the solicitation, the project name and number, and the specific grounds for the protest. All determinations made by the Owner are final. Bidders desiring a complete copy of the Owners protest procedures must make a written request to the Owner.

Bid Opening
The Owner or the Owner's representative will publicly open and read aloud all proposals submitted prior to the stated time and date for receipt of bids. Bidders, their authorized agents, and other interested parties may attend the bid opening. Owner will automatically reject any proposal without consideration that arrives after the stated time and date for receipt of bids. Owner will return late proposals in an unopened manner to the return address indicated on the envelope.

Evaluation of Proposals
The Owner reserves the rights to hold all proposals for purpose of review and evaluation by the Owner for a period not to exceed *90* calendar days from the stated date for receipt of bids. The Owner will tabulate all bids and verify proper extension of unit costs. The Bidder shall honor their proposal for the duration of this period of review and evaluation. The bid guaranty will be held by the Owner until this period of review has expired or a contract has been formally executed or a purchase order has been issued.

Bid Informalities and Irregularities
The Owner reserves the right to waive any informality or irregularity discovered in any proposal, which in the owner's judgment best serves the Owner's interest. In the situation where an extension of a unit price is found to be incorrect, the stated unit price and correct extension will govern. In the event of a discrepancy between the written and numeral values, the written value shall take precedence.

Irregular Proposals
Proposals meeting the following criteria are subject to consideration as being irregular:

1. If the proposal is on a form other than that furnished by the Owner or Owner's representative.
2. If the form furnished by the Owner or Owner's representative is altered or detached from the original document.
3. If there are unauthorized additions, conditional or alternate pay items or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.
4. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized pay items, for which the Bidder is not required to furnish a unit price.
5. If the proposal contains unit prices that are obviously unbalanced.
6. If the proposal is not accompanied by the bid guarantee specified herein.

Disqualification of Bid Proposals
The Owner reserves the right to reject any or all bids, as determined to be in the best interest of the Owner.
Causes for rejection of proposals include but are not limited to:

- Submittal of an irregular proposal;
- Submittal of more than one proposal from the same partnership, firm or corporation;
- Failure by Bidder to submit the bid prior to the stated time and date for receipt of bids;
- Failure by Bidder to furnish satisfactory bid guarantee;
- Failure by Bidder to provide all information required of the bid forms;
- Failure by Bidder to comply with the requirements of bid instructions;
- Failure by the Bidder to demonstrate good faith efforts in obtaining participation by certified DBE firms;
- Failure by the Bidder to certify how it intends to meet Buy America requirements (Buy America Certification);
- Determination by the Owner that Bidder is not qualified to accomplish the project work;
- Determination by the Owner that the Bidder has placed conditions on or qualified their proposal;
- Discovery of any alteration, interlineations or erasure of any project requirement by the Bidder;
- Inclusion of the Bidder on the "Excluded Parties Listing System" as maintained and published by the General Services Administration;
- Evidence of collusion among bidders.

Cancellation of Award
At any time prior to execution of a contract agreement, the Owner reserves the right to cancel the award for any reason without liability to the Bidder, with the exception of the return of the bid guaranty, at any time prior to execution of the contract.

Notice of Award of Contract
It is the intent of the Owner, after a period of review and evaluation, to award a contract to the responsible bidder that submits the lowest responsive proposal. The owner will notify the successful bidder their bid is acceptable through the Owner's issuance of a Notice-of-Award. The successful Bidder shall not construe issuance of the Notice-of-Award as a binding agreement. The proper execution of a contract agreement shall serve as the binding agreement.

Federal Funding Assistance
It is the intent of the Owner to seek Federal participation assistance for this project under the Airport Improvement Program (AIP). The Owner's Award of Contract is contingent upon the FAA concurrence with the award and the formal establishment of Federal assistance.

Award of Alternates
Unless specifically stated, the Owner reserves the right to accept alternates in any order or combination, which in the judgment of the Owner, best serves the Owner's interest.

Return of Bid Guaranty
The Owner will return the bid guaranty of the successful Bidder upon successful execution of the contract agreement or issuance of a purchase order. Failure by the successful Bidder to execute the contract documents or commence with the purchase order within the specified time shall result in forfeiture of the bid guaranty.

The Owner will retain the bid guaranty of the second and third lowest responsible bidders for a period of 90 days after bid opening pending the execution of the contract documents by the successful bidder or the acceptance of the purchase order. Except as noted above, the bid guaranty of unsuccessful bidders will be returned at the point the Owner rejects their proposal.

Contract Agreement
The successful Bidder shall execute the contract agreement in accordance with the accepted bid proposal within thirty (30) days of the date of the Notice-of-Award. Failure to execute the contract agreement within the specified time frame may

result in the bid being awarded to the next low bidder and shall result in the forfeiture of the Bidder's bid guarantee as a liquidated damage.

Performance and Payment Bonds
The successful Bidder shall furnish separate performance and payment bonds each in the amount of 100% of the contract price. The bonds shall be made payable to the Owner as security for faithful performance of the contract and for the payment of all persons, firms or corporations to whom the Bidder may become legally indebted for labor, materials, tools, equipment or services in the performance of the project work. The form of the bond shall be that provided within the project manual. The current power of attorney for the person signing the bond as a representative of the surety shall be attached to the bonds.

The successful bidding must deliver the executed bonds to the Owner within fifteen (15) calendar days from the date of contract execution. Bonds should not be executed prior to execution of the contract agreement. Owner will only accept bonds issued by a solvent Surety, which is certified to operate within the State the project work is located and which is listed in the current issue of the U.S. Treasury Circular 570. If specifically requested by the Owner, the successful Bidder shall obtain and submit information on the surety's financial strength rating.

Certificates of Insurance
The successful Bidder shall furnish to the Owner all required certificates of insurance as specified with the project manual.

DBE Affirmation
If not submitted with the proposal, the successful Bidder shall furnish, prior to execution of the contract agreement, written affirmation from each identified Disadvantaged Business Enterprise (DBE) firm of their intent to participate in the project.

Buy America Waiver
If the successful bidder submits a Buy America Certification that indicates they can only meet AIP Buy America preference by requesting a waiver, the bidder must submit to the owner a formal waiver request that indicates the specific percentage of components and subcomponents produced in the United States and whether final assembly occurs within the United States. The successful bidder must also attach to the waiver request a copy of the component cost calculation that demonstrates how the bidder derived the noted percentage value.

Approval of the Contract
The Owner will not enter into a contract with the successful bidder until Owner approves the Bidder's proposed DBE participation and the FAA concurs with any waiver request to Buy America preferences made by the Bidder

Upon receipt of the Contract Agreement, Contract Bonds and Certificate of Insurance as executed from the successful Bidder, the Owner will complete execution of the contract conditioned upon the Owner's judgment that it remains in their best interest to enter into the Agreement.

Delivery of the fully executed Contract Agreement to the successful Bidder shall constitute the Owner's approval to be bound by the successful Bidder's proposal and all terms and conditions of the Contract Agreement. Upon satisfactory execution of the contract by the successful Bidder and the Owner, all references to "Bidder" in the bid documents become equivalent to the term "Contractor".

DOCUMENT 00210 - ELECTRONIC/DIGITAL DOCUMENTS

PART 1 -- GENERAL

1.1 SUMMARY

A. The Owner or Engineer may elect to provide copies of the contract documents or supplemental information to the Contractor in electronic/digital media format. This section governs the availability, use and limitations of information provided in electronic/digital format.

1.2 FORMAT OF DOCUMENTS AND CONTROLLING CRITERIA

A. The Agreement identifies the contract documents upon which the Bidder or Contractor may rely. The General Conditions set forth the provisions governing the intent, interpretation and use of the contract documents. This section is intended to augment the Agreement and General Conditions and to clarify limitations on the use of electronic/digital documents.

B. "Hard Copies" of the Contract Documents consist of complete sets of those documents specifically listed in the Agreement including the version of the plans and specifications that are signed and sealed with original signature (or unalterable and legally acceptable facsimile copy of said signature) denoting the designer's final intent for bidding purposes. Electronic/digital files in the "Native File Format" are saved in the default file format used by a specific software application. The native file format of an application is proprietary and these types of files are not meant to be transferred to other applications. Electronic/digital files in the native file format may be altered and may not be representative of the paper copies of the documents

C. For bidding purposes only, Hard Copies of the Contract Documents shall be construed to include electronic/digital files of the Bidding Documents (as defined in Section 00200), prepared by Engineer and provided under direction of Engineer in a Portable Document Format (PDF) format or other file format that is intended by the Engineer and Owner to be unalterable and exactly representative of the information contained in the paper copies of the documents.

D. The project plans graphically set forth design requirements for the project. These plans are a two-dimensional representation of three-dimensional existing conditions and proposed improvements. Because it is generally impossible to economically or graphically duplicate real world conditions on a two-dimensional plan format, certain approximations, graphical simplifications, intentional or unintentional inaccuracies must generally be used to adequately describe the existing conditions and work to be done on the plans. Because of these graphical compromises, certain dimensions and other supplementary notes and information may be added to the plans to control the specific requirements of the design. Electronic/digital versions of the plans in PDF format, native file format or other electronic file format may imply a spatial accuracy that exceeds the graphical limitations of the original plan set. This is also true of supplementary electronic/digital information developed from the plans or underlying support data (such as layers, hidden lines, survey points or topographic computational networks).

E. In the event of a conflict between an electronic/digital version of a Contract Document and the Hard Copy of the document, the Hard Copy shall be deemed to govern. Bidders, by submitting a bid, and the Contractor by executing the contract, acknowledge these graphical limitations to the plan development process and accept the controlling nature of the Hard Copies of all project documents as set forth in the General Conditions.

1.3 AVAILABILITY AND USE OF DIGITAL/ELECTRONIC DOCUMENTS

A. When the Advertisement for Bids or Project Manual indicate that electronic/digital copies of the Plans and Specifications are available, such documents shall be made available to the Bidder or Contractor upon request in PDF format or other file format that is intended by the Engineer and Owner to be unalterable and exactly representative of the information contained in the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of electronic/digital documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot

and do not guarantee that electronic/digital versions and reproductions prepared from those versions are identical in every manner to the paper copies.

B. Except as otherwise advised, the Bidder may use and rely upon complete sets of the PDF or other electronic/digital version of the Bidding Documents, prepared by the Engineer and provided under direction of the Engineer, for preparation of its bid. However, Contractor assumes all risks associated with differences arising from transmission/receipt of electronic/digital versions and reproductions prepared from those versions and, further, assumes all risks, costs and responsibility associated with use of the electronic/digital versions to derive information that is not explicitly contained in the paper copies of the documents and for Bidder's reliance upon such derived information.

C. When using PDF versions of the bidding documents, the Contractor shall prepare its Bid on a printed paper copy of the Bid Form from the PDF file; submit its bid together with all required submittals; and deliver the Bid in the manner described in the bidding documents. The printed copy of the Bid Form shall be clearly legible, printed on 8 ½ inch by 11 inch paper and as closely identical in appearance to the PDF Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the Hard Copy of the Bid Form, providing that all required information and submittals are included with the bid.

D. After a Contract is awarded, the Owner may provide or direct the Engineer to provide for the use of the Contractor such electronic/digital copies of the contract documents or other support documents in native file formats as may have been previously developed as part of the Project design process. Release of such information, if available, shall be deemed to be solely for the convenience of the Contractor. Unless the Contract Documents explicitly identify that such information shall be available to the successful Bidder, nothing herein shall create an obligation on the part of the Owner or Engineer to provide or create such information and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital data is appropriate and adequate for the Contractor's specific purposes. In no case shall the Contractor be entitled to extra compensation or adjustment in contract time due to claims arising from any differences between the Hard Copies of the Contract Documents and electronic/digital data.

E. Release of all electronic/digital information requested by the Contractor shall be at the sole discretion of the Owner or Engineer and a separate charge will be made to the Contractor for creation or preparation of such information.

F. Release of electronic/digital data shall be subject to the herein accompanying form, entitled "REQUEST TO PROJECT ENGINEER FOR ELECTRONIC/DIGITAL DATA AND CONDITIONS OF USE," together with such other limitations as the Owner or Engineer may deem appropriate for the Project. In the event of questions, conflicts, inconsistencies between any the electronic/digital data, the Hard Copies of the Contract Documents shall govern unless otherwise directed in writing by the Owner and Engineer.

G. In the event that Owner elects to provide or directs the Engineer to provide to the Contractor any Contractor-requested electronic/digital data that is not explicitly identified in the Contract Documents as being available to the successful bidder, the Engineer shall be reimbursed by the Contractor on an hourly basis (at $120 per hour) for all engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by the Engineer.

******END OF SECTION******

REQUEST TO PROJECT ENGINEER (BOLTON & MENK, INC. "BMI")
FOR ELECTRONIC/DIGITAL DATA AND CONDITIONS OF USE

Project Contractor ("USER"): _____

Project Owner: City of Storm Lake

Project Name: 2017 Airport Improvements

Description of Data/Files To Be Provided: _____

A. The electronic/digital data covered by this Request was prepared by BMI as an internal working document for its purposes solely and is being provided to USER on an "AS IS" basis without any warranties of any kind, including, but not limited to implied warranties of fitness for any purpose. As such, the USER is advised and acknowledges that the information may not be suitable for the USER's application or may require substantial modification and independent verification by the USER. Information may include intentional or unintentional inaccuracies, approximations, graphical simplifications, undocumented intermediate revisions and other devices that may affect subsequent reuse.

B. The electronic/digital data may not accurately reflect the printed products (also known as Hard Copies) that are signed or sealed by BMI. In the case of conflicts between the signed or sealed documents and electronic/digital data, the Hard Copies shall control. Files in electronic/digital media format of text, data, graphics, or of other types that are provided by BMI to USER are only for convenience of USER. Any conclusion or information obtained or derived from such electronic/digital data will be at the USER's sole risk and the USER waives any claims against BMI or PROJECT OWNER arising from use of electronic/digital data.

C. USER shall indemnify and hold harmless PROJECT OWNER and BMI and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from USER's use, adaptation or distribution of any electronic/digital data provided under this Request.

D. All Documents provided in electronic/digital format are instruments of service and, unless otherwise specifically identified in the Contract between the USER and PROJECT OWNER, are not Contract Documents. BMI shall retain all ownership, copyrights and property interests therein, subject to any agreement between BMI and the PROJECT OWNER. Nothing herein shall be deemed to be

a transfer of the ownership rights of BMI or those of the PROJECT OWNER to the USER and USER's rights regarding any information shall be limited those explicitly described in this Request.

E. Although BMI may advise the USER of known errors or required updates in electronic/digital data provided to the USER upon discovery by BMI or notice to BMI of such conditions, the USER agrees that BMI and PROJECT OWNER are under no obligation to notify USER or correct, revise, update or otherwise maintain any electronic/digital data provided to the USER, nor shall the USER be entitled to make any claim for extra compensation or other consideration on account of using such data.

F. USER agrees not to sell, copy, transfer, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of BMI, unless such distribution is specifically identified in this request and is limited to USER's subcontractors. USER warrants that subsequent use by USER'S subcontractors shall comply with all terms of this Request.

G. Provision of this information does not include any license of software or other systems necessary to read, use or reproduce the information. USER assumes all responsibility to obtain any necessary software and appropriate licenses to utilize the information in any format or application.

H. The USER shall compensate BMI in the amount of $120.00/per hour for all labor and expenses associated with the handling, processing and delivery of the information in an "as is" form or to adapt such information into a form which BMI, in its sole discretion, deems to reasonably reflect the limits of the accuracy or usability of the information. USER acknowledges such compensation shall be deemed to be a data processing fee and is not a design fee or part of the design fees paid by the PROJECT OWNER to BMI.

Accepted by: USER

_____
Printed Name of "USER"

_____ _____
Date Name and Title of Authorized Representative of USER

_____
Signature of Authorized Representative of USER

Approved: Project Engineer: (BMI)

_____
Signature of Project Engineer's Representative

Version 04/11/07

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Items to be Submitted With the Bid

2017 Airport Improvements

Storm Lake Municipal Airport

T51.111257

AIP #3-19-0088-12

Storm Lake, Iowa

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PROPOSAL FORM

FAA AIP Project: 3-19-0088-12

The undersigned, in compliance with the request for bids for construction of the following Project:

2017 Airport Improvements

hereby proposes to furnish all labor, permits, material, machinery, tools, supplies and equipment to faithfully perform all work required for construction of the Project in accordance with the project manual, project drawings and issued Addenda within the specified time of performance for the following prices:

ITEM	ITEM CODE	ITEM	UNIT	QUANT.	UNIT PRICE	EXTENSION
1	GP 105-01	MOBILIZATION	LS	1	$	$
2	-	TRAFFIC CONTROL	LS	1	$	$
3	P-101-5.1	PAVEMENT REMOVAL	SY	264	$	$
4	P-152-4.1	SUBGRADE – TRIM, SHAPE, AND COMPACT	SY	264	$	$
5	P-156-5.1	INSTALLATION AND REMOVAL OF SILT FENCE	LF	1,000	$	$
6	P-209-5.1	CRUSHED AGGREGATE BASE COURSE	SY	264	$	$
7	D-705-5.1	4-INCH PERFORATED SUBDRAIN	LF	6,403	$	$
8	D-705-5.2	SUBDRAIN CLEANOUT	EA	19	$	$
9	D-705-5.3	SUBDRAIN OUTLET	EA	9	$	$
10	T-901-5.1	SEEDING	ACRE	1.5	$	$
11	T-908-5.1	MULCHING	ACRE	1.5	$	$
12	M-361-5.1	JOINT SEALANT	LF	20,170	$	$
13	M-361-5.2	CRACK SEALANT	LF	550	$	$
14	M-564-5.1	CONCRETE REPAIR – TYPE 1 (PANEL REPLACEMENT)	SY	264	$	$
15	M-564-5.2	CONCRETE REPAIR – TYPE 2B (PARTIAL DEPTH REPAIR)	EA	14	$	$
TOTAL BASE BID (Numeral Format)				$		
TOTAL BASE BID (Written Format)						

ACKNOWLEDGEMENTS BY BIDDER

a. By submittal of a proposal, the BIDDER acknowledges and accepts that the quantities established by the OWNER are an approximate estimate of the quantities required to fully complete the Project and that the estimated quantities are principally intended to serve as a basis for evaluation of bids. The BIDDER further acknowledges and accepts that payment under this contract will be made only for actual quantities and that

quantities will vary in accordance with the General Provisions subsection entitled "Alteration of Work and Quantities".

b. The BIDDER acknowledges and accepts that the Bid Documents are comprised of the documents identified within the Instructions to Bidders. The BIDDER further acknowledges that each the individual documents that comprise the Bid Documents are complementary to one another and together establishes the complete terms, conditions and obligations of the successful BIDDER.

c. As evidence of good faith in submitting this proposal, the undersigned encloses a bid guaranty in the form of a certified check or bid bond in the amount of 5% of the bid price. The BIDDER acknowledges and accepts that refusal or failure to accept award and execute a contract within the terms and conditions established herein will result in forfeiture of the bid guaranty to the owner as a liquidated damage.

d. The BIDDER acknowledges and accepts the OWNER'S right to reject any or all bids and to waive any minor informality in any Bid or solicitation procedure.

e. The BIDDER acknowledges and accepts the OWNER'S right to hold all Proposals for purposes of review and evaluation and not issue a notice-of-award for a period not to exceed 60 calendar days from the stated date for receipt of bids.

f. The undersigned agrees that upon written notice of award of contract, he or she will execute the contract within thirty (30) days of the notice-of-award and furthermore and provide executed payment and performance bonds within fifteen (15) days from the date of contract execution. The undersigned accepts that failure to execute the contract and provide the required bonds within the stated timeframe shall result in forfeiture of the bid guaranty to the owner as a liquidated damage.

g. Time of Performance: By submittal of this proposal, the undersigned acknowledges and agrees to commence work within ten (10) calendar days of the date specified in the written "Notice-to-Proceed" as issued by the OWNER. The undersigned further agrees to complete the Project within 30 Working days from the commencement date specified in the Notice-to-Proceed.

h. The undersigned acknowledges and accepts that for each and every Calendar/Working day the project remains incomplete beyond the contract time of performance, the Contractor shall pay the non-penal amount of $500.00 per Working day as a liquidated damage to the OWNER.

i. The BIDDER acknowledges that the OWNER has established a contract Disadvantaged Business Enterprise goal of 4.6% for this project. The BIDDER acknowledges and accepts the requirement to apply and document good faith efforts, as defined in Appendix A, 49 CFR Part 26, for subcontracting a portion of the prime contract to certified Disadvantaged Business Enterprises (DBE), as defined in 49 CFR Part 26 for purposes of meeting the OWNER'S established goal. The BIDDER, in complying with this requirement, proposes participation by Disadvantaged Business Enterprises as stated on the attached forms, "Utilization Statement" and "Letter of Intent"

j. The BIDDER, by submission of a proposal, acknowledges that award of this contract is subject to the provisions of the Davis-Bacon Act. The BIDDER accepts the requirement to pay prevailing wages for each classification and type of worker as established in the attached wage rate determination as issued by the United States Department of Labor. The BIDDER further acknowledges and accepts their requirement to incorporate the provision to pay the established prevailing wages in every subcontract agreement entered into by the Bidder under this project.

k. Compliance Reports (41 CFR Part 60-1.7): Within 30 days after award of this contract, the Contractor/Subcontractor shall file a compliance report (Standard Form 100) if s/he has not submitted a complete compliance report within 12 months proceeding the date of award. This report is required if the Contractor/Subcontractor meets all of the following conditions:
    1. Contractors/Subcontractors are not exempt based on 41 CFR 60-1,5.
    2. Has 50 or more employees.
    3. Is a prime contractor or first tier subcontractor.
    4. There is a contract, subcontract, or purchase order amounting to $50,000 or more

l. The undersigned acknowledges receipt of the following addenda:

Addendum Number ___ dated _____ Received_____

Addendum Number ___ dated _____ Received_____

Addendum Number ___ dated _____ Received_____

REPRESENTATIONS BY BIDDER

By submittal of a proposal (bid), the BIDDER represents the following:

a. The BIDDER has read and thoroughly examined the bid documents including all authorized addenda.
b. The BIDDER has a complete understanding of the terms and conditions required for the satisfactory performance of project work.
c. The BIDDER has fully informed themselves of the project site, the project site conditions and the surrounding area.
d. The BIDDER has familiarized themselves of the requirements of working on an operating airport and understands the conditions that may in any manner affect cost, progress or performance of the work
e. The BIDDER has correlated their observations with that of the project documents.
f. The BIDDER has found no errors, conflicts, ambiguities or omissions in the project documents, except as previously submitted in writing to the owner that would affect cost, progress or performance of the work.
g. The BIDDER is familiar with all applicable Federal, State and local laws, rules and regulations pertaining to execution of the contract and the project work.
h. The BIDDER has complied with all requirements of these instructions and the associated project documents.

CERTIFICATIONS BY BIDDER

a. The undersigned hereby declares and certifies that the only parties interested in this proposal are named herein and that this proposal is made without collusion with any other person, firm or corporation. The undersigned further certifies that no member, officer or agent of OWNER'S has direct or indirect financial interest in this proposal.

b. **Certification of Non-Segregated Facilities:** (41 CFR Part 60-1.8)
The BIDDER, as a potential federally-assisted construction contractor, certifies that it does not maintain or provide, for its employees, any segregated facilities at any of its establishments and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The BIDDER certifies that it will not maintain or provide, for its employees, segregated facilities at any of its establishments and that it will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Bidder agrees that a breach of this certification is a violation of the Equal Opportunity Clause, which is to be incorporated in the contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The Bidder agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that it will retain such certifications in its files.

c. **Trade Restriction Certification:** (49 CFR Part 30)
The Bidder, by submission of an offer certifies that it:

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 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 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;
3. 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.

d. **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion:** (49 CFR Part 29)
The Bidder certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the Bidder or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

e. **Buy American Certification:** (Title 49 U.S.C. Chapter 501)
As a condition of bid responsiveness, the bidder must how it intend to comply with the Buy American preferences established under Title 49 U.S.C. Section 50101. Bidder must complete the attached Buy American certification. If the bidder requests a permissible waiver to the Buy America requirements, the Bidder identified as with the successful bid must submit a formal waiver request and component cost calculation within the prescribed time identified on the Buy America certification.

ATTACHMENTS TO THIS BID

The following documents are attached to and made a part of this Bid:

1. Bid Guaranty in the form of a Bid Bond (10%) in **SEPARATE ENVELOPE**;
2. Completed DBE forms “Utilization Statement” and “Letter of Intent”.
3. Evidence of good faith efforts required by 49 CFR Part 26, Appendix A. If proposed DBE goal is met, submittal of evidence of good faith efforts is not required.
4. Evidence of BIDDER’S qualifications per the requirements of the Instructions-to-Bidders.
5. Identity of Bidder / Bidder Status Forms

SIGNATURE OF BIDDER

IF AN INDIVIDUAL:

Name: _____

By: _____
(Signature of Individual)

Doing Business as: _____

Business Address: _____

_____

Telephone Number: _____

IF A PARTNERSHIP:

Partnership Name: _____

By: _____
(Authorized Signature)
(Attach Evidence of Authority to sign as a Partnership)

Name and Title: _____

Business Address: _____

_____

Telephone Number: _____

IF A CORPORATION:

Corporation Name: _____

By: _____
(Authorized Signature)
(Attach Evidence of Authority to sign)

Name and Title: _____

Business Address: _____ (CORPORATE SEAL)

_____

Telephone Number: _____

ATTEST:

By: _____
(Authorized Signature)

Name and Title: _____

IF A JOINT VENTURE: *(Attach copy of Joint Venture Agreement)*

Joint Venture Name: _____

By: _____
(Authorized Signature)
(Attach Evidence of Authority to sign)

Name and Title: _____

Business Address: _____

_____

Telephone Number: _____

Joint Venture Name: _____

By: _____

(Authorized Signature)
(Attach Evidence of Authority to sign)

Name and Title: _____

Business Address: _____

_____

Telephone Number: _____

IDENTITY OF BIDDER

The bidder shall indicate whether the bid is Submitted by a/an:

- ☐ Individual, Sole Proprietorship
- ☐ Partnership
- ☐ Corporation
- ☐ Limited Liability Company
- ☐ Joint-venture; all parties must join-in and execute all documents
- ☐ Other

The bidder shall enter its Public Registration Number __ __ __ __ __ - __ __ issued by the Iowa Commissioner of Labor Pursuant Section 91C.5 of the Iowa Code.

Failure to provide said Registration Number shall result in the bid being read under advisement. A contract will not be executed until the Contractor is registered.

_____
Bidder

_____
Signature

By _____
Name (Print/Type)

_____
Title

_____
Street Address

_____
City, State, Zip Code

_____
Telephone Number

Type or print the name and title of the company's owner, president, CEO, etc. if a different person than entered above

_____
Name

_____
Title

NOTE: The signature on this proposal must be an original signature in ink; copies, facsimiles, or electronic signatures will not be accepted.

All bidders must submit the following completed form to the governmental body requesting bids per 875 Iowa Administrative Code Chapter 156.

Bidder Status Form

To be completed by all bidders — Part A

Please answer "Yes" or "No" for each of the following:

☐ Yes ☐ No My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).

☐ Yes ☐ No My company has an office to transact business in Iowa.

☐ Yes ☐ No My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.

☐ Yes ☐ No My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.

☐ Yes ☐ No My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a non-resident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders **Part B**

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: _____ to _____ Address: _____

(mm/dd/yyy) City, State, Zip: _____

Dates: _____ to _____ Address: _____

(mm/dd/yyy) City, State, Zip: _____

Dates: _____ to _____ Address: _____

(mm/dd/yyy) City, State, Zip: _____

You may attach additional sheet(s) if needed.

To be completed by non-resident bidders **Part C**

1. Name of home state or foreign country reported to the Iowa Secretary of State: _____
2. Does your company's home state or foreign country offer preferences to bidders who are residents? ☐ Yes ☐ No
3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

_____

_____

You may attach additional sheet(s) if needed.

To be completed by all bidders **Part D**

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be reason to reject my bid.

Firm Name: _____

Signature: _____ Date: _____

WORKSHEET: AUTHORIZATION TO TRANSACT BUSINESS

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

☐ Yes ☐ No My business is currently registered as a contractor with the Iowa Division of Labor.

☐ Yes ☐ No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.

☐ Yes ☐ No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes

☐ Yes ☐ No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.

☐ Yes ☐ No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa Secretary of State, has filed its most recent biennial report with the Secretary of State, and has neither received a certificate of withdrawal from the Secretary of state nor had its authority revoked.

☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.

☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.

☐ Yes ☐ No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.

☐ Yes ☐ No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa Secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.

☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.

☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

UTILIZATION STATEMENT

Disadvantage Business Enterprise

The undersigned bidder/offeror has satisfied the requirements of the bid specification in the following manner. (*Please mark the appropriate box*)

- ❑ **The bidder/offeror is committed to a minimum of _____% DBE utilization on this contract.**
- ❑ **The bidder/offeror, while unable to meet the DBE goal of 4.0%, hereby commits to a minimum of _____% DBE utilization on this contract and also submits documentation, as an attachment demonstrating good faith efforts (GFE).**

The undersigned hereby further assures that the information included herein is true and correct, and that the DBE firm(s) listed herein have agreed to perform a commercially useful function in the work items noted for each firm. The undersigned further understands that no changes to this statement may be made without prior approval from the Civil Right Staff of the Federal Aviation Administration.

_____
Bidder's/Offeror's Firm Name

_____ _____
Signature Date

DBE UTILIZATION SUMMARY

	Contract Amount		DBE Amount	Contract Percentage
DBE Prime Contractor	$_____	x 1.00 =	$_____	_____%
DBE Subcontractor	$_____	x 1.00 =	$_____	_____%
DBE Supplier	$_____	x 0.60 =	$_____	_____%
DBE Manufacturer	$_____	x 1.00 =	$_____	_____%
Total Amount DBE			$_____	_____%
DBE Goal			$_____	_____%

Note: If the total proposed DBE participation is less than the established DBE goal, Bidder must provide written documentation of the good faith efforts as required by 49 CFR Part 26.

LETTER OF INTENT

Disadvantage Business Enterprise

(This page shall be submitted for each DBE firm)

Bidder/Offer Name:_____

Address:_____

City:_____ State:_____ Zip:_____

DBE Firm: DBE Firm:_____

Address:_____

City:_____ State:_____ Zip:_____

DBE Contact Person: Name:_____ Phone: ( )_____

DBE Certifying Agency: _____ Expiration Date:_____

Each DBE Firm shall submit evidence (such as a photocopy) of their certification status.

Classification: ☐ Prime Contractor ☐ Subcontractor ☐ Joint Venture ☐ Manufacturer ☐ Supplier

Work item(s) to be performed by DBE	Description of Work Item	Quantity	Total

The bidder/offeror is committed to utilizing the above-named DBE firm for the work described above. The estimated participation is as follows:

DBE contract amount:$_____Percent of total contract:_____%

AFFIRMATION:

The above-named DBE firm affirms that it will perform the portion of the contract for the estimated dollar value as stated above.

By: _____

(Signature) *(Title)*

- **Note: In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.**

Buy America Certification

(Title 49 U.S.C. Section 50101)

PROJECT NAME:	2017 Airport Improvements
AIRPORT NAME:	City of Storm Lake
AIP NUMBER:	3-19-0088-12

This solicitation and any resulting contract 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

(a) Preference. - The Secretary of Transportation may obligate an amount that may be appropriated to carry out section 106(k), 44502(a)(2), or 44509, subchapter I of chapter 471 (except section 47127), or chapter 481 (except sections 48102(e), 48106, 48107, and 48110) of this title for a project only if steel and manufactured goods used in the project are produced in the United States.

(b) Waiver. - The Secretary may waive subsection (a) of this section if the Secretary finds that -

(1) Applying subsection (a) would be inconsistent with the public interest;

(2) The steel and goods produced in the United States are not produced in a sufficient and reasonably available amount or are not of a satisfactory quality;

(3) When procuring a facility or equipment under section 44502(a)(2) or 44509, subchapter I of chapter 471 (except section 47127), or chapter 481 (except sections 48102(e), 48106, 48107, and 48110) of this title -

A. The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components of the facility or equipment; and

B. Final assembly of the facility or equipment has occurred in the United States; or

(4) Including domestic material will increase the cost of the overall project by more than 25 percent.

(c) Labor Costs. - In this section, labor costs involved in final assembly are not included in calculating the cost of components.

* * * * * * *

As a matter of bid responsiveness, the bidder or offeror must complete and submit this certification with their bid proposal. The bidder must sign and date the certification. The bidder/offeror must indicate how they propose to comply with the Buy America provision by selecting one of the following certification statements.

☐ **The bidder hereby certifies that it will comply with Title 49 U.S.C Section 50101(a) by only installing steel and manufactured products produced in the United States of America. The bidder further agrees that if chosen as the apparent low bid, it will submit documentation to the owner that demonstrate all steel and manufactured products are 100% manufactured in the United States.**

☐ **The bidder hereby certifies that it cannot fully comply with the Buy America preferences of Title 49 U.S.C Section 50101(a); bidder therefore requests a waiver per Title 49 U.S.C Section 50101(b) subject to the following conditions:**

- For equipment and material the FAA has already issued a waiver to AIP Buy American preferences as indicated on the current FAA Buy American conformance list, bidder shall submit a listing of specific equipment and material it proposes to install on the project prior to the issuance of a Notice-to-Proceed.
- For equipment and material the FAA has not previously issued a waiver to Buy American preferences, the bidder identified with the apparent low bid agrees to prepare and submit to the owner a waiver request and component calculation information within 15 calendar days of the date of the notice of apparent award of contract.

_____ _____

Bidder's Firm Name *Date*

_____

Signature

Buy America Waiver Request

Title 49 U.S.C Section 50101 (b)

For Airfield Development Projects funded under the Airport Improvement Program

Type of Waiver Request:

The bidder may request a waiver subject to the provisions of Section 50101(b)(3) or Section 50101(b)(4). The bidder may not request a waiver under Section 50101(b)(1) or Section 50101(b)(2). Bidder is hereby advised that the Owner's approval with the bidder's waiver request is contingent upon FAA approval. The bidder must select one of the following applicable waiver provisions:

❒ Section 50101(b)(3): Bidder hereby requests a waiver to Buy America preferences based upon Section 50101(b)(3) for the equipment identified below. The bidder certifies that _____ % of the cost of components and subcomponents comprising the equipment are produced in the United States and that final assembly occurs within the United States. *(Bidder must attach a copy of the component cost calculation table)*

Equipment: _____

❒ Section 50101(b)(4). Bidder hereby requests a waiver to Buy America preferences based upon Section 50101(b)(4). The bidder asserts provision of domestic material increases the cost of the overall project by more than 25%. *(Note: This type of waiver is very rare)*

Certification Signature

In accordance with Section 50101(b), we request a waiver to the Buy America provisions based on the above certification and attached documentation.

_____ _____

Bidder's Firm Name *Date*

_____

Signature

Instructions for Section 50101(b)(3) Waiver:

1. "Equipment" in Section 50101 shall mean the following:
   a) Individual type "L" items (Airfield Lighting Equipment) as listed in FAA Advisory Circular 150/5345-53.
   b) Individual bid items as established within FAA Advisory Circular 150/5370-10. The bid item application may not be applied for the type "L" items listed in AC 150/5345-53.
   c) A waiver request may only address one specific equipment item. Submit separate requests for each equipment item for which a waiver.
   d) Items listed under the Nationwide Waiver do not require further review. Please refer to the following webpage: http://www.faa.gov/airports/aip/procurement/federal_contract_provisions/media/buy_american_waiver.xls
2. The bidder must base the U.S. percentage upon the value that results from completing a component cost calculation table similar to the attached format. Bidder shall avoid mere pro forma efforts to establish the waiver request percentage. The Bidder must submit the component cost calculation table as an attachment to the waiver request.
3. Components/subcomponents are the material and products composing the "equipment".
4. The final assembly of the AIP-funded "equipment" must be within the USA *(Section 50101(b)(3)(B)).* Final assembly is the substantial transformation of the components and subcomponents into the end product.
5. All steel used in the "Equipment" must be produced in the United States.
6. The Buy American requirements apply to all tier contractors and subcontractors. All contractors/subcontractors are required to provide appropriate documentation that indicates origin of manufacturer and percentage of domestic made product.
7. The bidder is hereby advised there is no implied or expressed guarantee that a requested waiver will be issued by the Federal Aviation Administration (FAA). Less than 60% USA component/subcomponent proposed for this facility CANNOT be waived. Products made with foreign steel are not eligible for a waiver.

Instructions for Section 50101(b)(4) Waiver:

1. The 25% cost increase waiver is rarely applicable. Consult Owner before making this request.

North America Free Trade Act (NAFTA)

The NAFTA **does not** apply to the AIP. Products and material made in Canada or Mexico must be considered as foreign made products.

COMPONENT COST CALCULATION TABLE

- *In lieu of completing this table, bidder may prepare a spreadsheet that addresses the same information and calculations as presented herein.*
- *An authorized person shall attest under signature and date that the submitted information is accurate and complete.*
- *The bidder/contractor shall submit the signed component cost calculation table to the Owner as an attachment to the waiver request*
- *The component breakout shall be along major components of the equipment.*
- *Submit separate calculation for each different equipment types. Do not combine the component cost calculations of different types of equipment.*
- *For Airfield development projects, equipment is defined as the "L" items (Airfield Lighting Equipment) as listed in FAA Advisory Circular 150/5345-53 and the b) individual bid items as established within FAA Advisory Circular 150/5370-10. The individual bid item method may not be applied to the "L" type items.*

Equipment Type: _____

Component/Subcomponents	Name of Manufacturer	Country of Origin	Cost of Foreign Manufactured Components/Subcomponents	Cost of USA Manufactured Components/Subcomponents

Sum of US Manufactured Component/Subcomponent Costs: _____

Sum of all Equipment Components and Subcomponents: _____

Percentage of Equipment Components Manufactured in the United States: _____

Place of Final Assembly _____

Certification Signature
I hereby certify the above information is accurate and complete.

_____ _____
Bidder's Firm Name *Date*

_____
SignaturE

Buy America Conformance Listing

Title 49 U.S.C Section 50101 (b)

For Airfield Development Projects funded under the Airport Improvement Program

- *Preparation of a Component Cost Calculation Table is not necessary for equipment listed on the FAA national listing:* *http://www.faa.gov/airports/aip/procurement/federal_contract_provisions/media/buy_american_waiver.xls*
- *Bidder shall submit a listing of equipment it proposes to install on the project that is included on the current National Buy American conformance list.*

Equipment Type	Name of Manufacturer	Product Number

Certification Signature:

Bidder hereby certifies that the above listed equipment, which we propose for installation on the subject project, are on the current National Buy America Conformance list on the website listed above.

I hereby certify the above information is accurate and complete.

_____ _____

Bidder's Firm Name *Date*

_____

Signature

Bid Bond

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER:

_____

_____

_____

SURETY:

_____

_____

_____

OWNER:

_____

_____

_____

BID

Bid Due Date: _____

Description:

_____

BOND

Bond Number: _____

Date: _____

Penal sum _____ $ _____

(Words) *(Figures)*

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER	SURETY
_____ (Seal)	_____ (Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature (*Attach Power of Attorney*)
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
_____	_____
Title	Title

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

3.2 All Bids are rejected by Owner, or

3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

Items to be Executed After Award of Contract

2017 Airport Improvements

City of Storm Lake, Iowa

T51.111257

AIP # 3-19-0088-12

FORM OF

CONTRACT AGREEMENT

CITY OF STORM LAKE

AIP Project No.: **3-19-0088-12**

THIS AGREEMENT, made as of _____ is

BY AND BETWEEN

the OWNER: *City of Storm Lake*,
620 Erie Street
Storm Lake, IA 50588

And the CONTRACTOR:

WITNESSETH:

WHEREAS it is the intent of the Owner to make improvements at ***STORM LAKE MUNICIPAL AIRPORT*** generally described as follows;

2017 Airport Improvements

hereinafter referred to as the Project.

NOW THEREFORE in consideration of the mutual covenants hereinafter set forth, OWNER and CONTRACTOR agree as follows:

Article 1 - Work

It is hereby mutually agreed that for and in consideration of the payments as provided for herein to the CONTRACTOR by the OWNER, CONTRACTOR shall faithfully furnish all necessary labor, equipment, and material and shall fully perform all necessary work to complete the Project in strict accordance with this Contract Agreement and the Contract Documents.

Article 2 – Contract Documents

CONTRACTOR agrees that the Contract Documents consist of the following: this Agreement, General Provisions, Supplementary Provisions, Specifications, Drawings, all issued addenda, Notice-to-Bidders, Instructions-to-Bidders, Proposal and associated attachments, Performance Bond, Payment Bond, Wage Rate Determination, Insurance certificates, documents incorporated by reference, documents incorporated by attachment, and all OWNER authorized change orders issued subsequent to the date of this agreement. All documents comprising the Contract Documents are complementary to one another and together establish the complete terms, conditions and obligations of the CONTRACTOR. All said Contract Documents are incorporated by reference into the Contract Agreement as if fully rewritten herein or attached thereto.

Article 3 – Contract Price

In consideration of the faithful performance and completion of the Work by the CONTRACTOR in accordance with the Contract Documents, OWNER shall pay the CONTRACTOR an amount equal to:

$_____ ($_____)

(Amount in Written Words) *(Amount in Numerals)*

subject to the following:

a. Said amount is based on the schedule of prices and estimated quantities stated in CONTRACTOR'S Bid Proposal, which is attached to and made a part of this Agreement;
b. Said amount is the aggregate sum of the result of the CONTRACTOR'S stated unit prices multiplied by the associated estimated quantities;
c. CONTRACTOR and OWNER agree that said estimated quantities are not guaranteed and that the determination of actual quantities is to be made by the OWNER'S ENGINEER;
d. Said amount is subject to modification for additions and deductions as provided for within the Contract General Provisions.

Article 4 – Payment

Upon the completion of the work and its acceptance by the OWNER, all sums due the CONTRACTOR by reason of faithful performance of the work, taking into consideration additions to or deductions from the Contract price by reason of alterations or modifications of the original Contract or by reason of "Extra Work" authorized under this Contract, will be paid to the CONTRACTOR by the OWNER after said completion and acceptance.

The acceptance of final payment by the CONTRACTOR shall be considered as a release in full of all claims against the OWNER, arising out of, or by reason of, the work completed and materials furnished under this Contract.

OWNER shall make progress payments to the CONTRACTOR in accordance with the terms set forth in the General Provisions. Progress payments shall be based on estimates prepared by the ENGINEER for the value of work performed and materials completed in place in accordance with the Contract Drawings and Specifications.

Progress payments are subject to retainage requirements as set forth in the General Provisions.

Article 5 – Contract Time

The CONTRACTOR agrees to commence work within ten (10) calendar days of the date specified in the OWNER'S Notice-to-Proceed. CONTRACTOR further agrees to complete said work within 33 working days of the commencement date stated within the Notice-to-Proceed.

It is expressly understood and agreed that the stated Contract Time is reasonable for the completion of the Work, taking all factors into consideration. Furthermore, extensions of the Contract Time may only be permitted by execution of a formal modification to this Contract Agreement in accordance with the General Provisions and as approved by the OWNER.

Article 6 – Liquidated Damages

The CONTRACTOR and OWNER understand and agree that time is of essence for completion of the Work and that the OWNER will suffer additional expense and financial loss if said Work is not completed within the authorized Contract Time. Furthermore, the CONTRACTOR and OWNER recognize and understand the difficulty, delay, and expense in establishing the exact amount of actual financial loss and additional expense. Accordingly, in place of requiring such proof, the CONTRACTOR expressly agrees to pay the OWNER as liquidated damages the non-penal sum of $500per day for each work day required in excess of the authorized Contract Time.

Furthermore, the CONTRACTOR understands and agrees that;

a. the OWNER has the right to deduct from any moneys due the CONTRACTOR, the amount of said liquidated damages;
b. the OWNER has the right to recover the amount of said liquidated damages from the CONTRACTOR, SURETY or both.

Article 7 – CONTRACTOR'S Representations

The CONTRACTOR understands and agrees that all representations made by the CONTRACTOR within the Proposal shall apply under this Agreement as if fully rewritten herein.

Article 8 – CONTRACTOR'S Certifications

The CONTRACTOR understands and agrees that all certifications made by the CONTRACTOR within the Proposal shall apply under this Agreement as if fully rewritten herein. The CONTRACTOR further certifies the following;

a. Certification of Eligibility (29 CFR Part 5.5)
    i. By Entering into this contract, the CONTRACTOR certifies that neither 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 U.S.C.

b. Certification of Non-Segregated Facilities (41 CFR Part 60-1.8)
The federally-assisted construction CONTRACTOR, certifies that it does not maintain or provide, for its employees, any segregated facilities at any of its establishments and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The BIDDER certifies that it will not maintain or provide, for its employees, segregated facilities at any of its establishments and that it will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Bidder agrees that a breach of this certification is a violation of the Equal Opportunity Clause, which is to be incorporated in the contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The Bidder agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that it will retain such certifications in its files.

Article 9 – Miscellaneous

a. CONTRACTOR understands that it shall be solely responsible for the means, methods, techniques, sequences and procedures of construction in connection with completion of the Work;

b. CONTRACTOR understands and agrees that it shall not accomplish any work or furnish any materials that are not covered or authorized by the Contract Documents unless authorized in writing by the OWNER or ENGINEER;

c. The rights of each party under this Agreement shall not be assigned or transferred to any other person, entity, firm or corporation without prior written consent of both parties;

d. OWNER and CONTRACTOR each bind itself, their partners, successors, assigns and legal representatives to the other party in respect to all covenants, agreements, and obligations contained in the Contract Documents.

Article 10 – OWNER'S Representative

The OWNER'S Representative, herein referred to as ENGINEER, is defined as follows:

BOLTON & MENK INC
2730 FORD STREET
AMES, IA

Said ENGINEER will act as the OWNER'S representative and shall assume all rights and authority assigned to the ENGINEER as stated within the Contract Documents in connection with the completion of the Project Work.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have executed five (5) copies of this Agreement on the day and year first noted herein.

OWNER

Name: _____

Address: _____

_____

_____

By: _____
Signature

_____
Title of Representative

ATTEST

By: _____
Signature

_____
Title

CONTRACTOR

Name: _____

Address: _____

_____

_____

By: _____
Signature

_____
Title of Representative

ATTEST

By: _____
Signature

_____
Title

PAYMENT BOND

Bond Number

PRINCIPAL *(Legal Name and Business Address)*	STATE OF INCORPORATION

SURETY *(Legal Name and Business Address)*	CONTRACT NO.	CONTRACT DATE

PENAL SUM OF BOND *(Expressed in words and numerals)*

OBLIGATION

KNOW ALL PERSONS BY THESE PRESENTS, that the above named PRINCIPAL, hereinafter referred to and called CONTRACTOR, and the above named SURETY hereby bind themselves unto City of Storm Lake, 620 Erie St. Storm Lake, IA as OBLIGEE, hereinafter referred to and called OWNER, in the penal sum stated above, in lawful money of the United States of America to be paid to OWNER. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

CONTRACTOR has entered into the written contract agreement identified hereinabove with the OWNER for the following project:

Project Name: _

Project Location: _

which said contract and associated contract documents, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

CONDITION

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if CONTRACTOR shall promptly make payment to all employees, persons, firms or corporations for all incurred indebtedness and just claims for labor, supplies, materials and services furnished for or used in connection with the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect subject to the following additional conditions:

1. CONTRACTOR and SURETY indemnify and hold harmless the OWNER for all claims, demands, liens or suits that arise from performance of the Contract
2. SURETY, for value received, hereby stipulates and agrees that no change, extension of time, modification, omission, addition or change in or to the Contract, or the work performed thereunder or the specifications accompanying the same, shall in any way affect the SURETY'S obligation on this bond; and SURETY hereby agrees to waive notice of any and all such extensions, modifications, omissions, alterations, and additions to the terms of the Contract, work or specifications.
3. No final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.
4. The amount of this bond shall be reduced by and to the extent of any payments made in good faith hereunder.
5. Amounts owed by the OWNER to the CONTRACTOR under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the CONTRACTOR furnishing and the OWNER accepting this Bond, they agree that all funds earned by the CONTRACTOR in the performance of the Contract are dedicated to satisfy obligations of the CONTRACTOR and the SURETY under this Bond, subject to the OWNER'S priority to use the funds for the completion of the project.

WITNESS

In witness whereof, this instrument is executed this the _____ day of _____, 20___.

INDIVIDUAL PRINCIPAL:

Company Name: _____

Signature: _____

Name and Title: _____

CORPORATE PRINCIPAL:

ATTEST**:**

Corporate Name: _____

Signature: _____

Name and Title: _____

(Affix Corporate Seal)

Signature: _____

Name and Title: _____

SURETY:

ATTEST**:**

Surety Name: _____

Signature: _____

Name and Title: _____

(Affix Seal)

Signature: _____

Name and Title: _____

(Attach Power of Attorney)

OWNER ACCEPTANCE

The OWNER approves the form of this Payment Bond.

Date: _____

Signature: _____

Name and Title: _____

ATTEST:

Signature: _____

Name and Title: _____

(Affix Sea

PERFORMANCE BOND

Bond Number

PRINCIPAL *(Legal Name and Business Address)*	STATE OF INCORPORATION

SURETY *(Legal Name and Business Address)*	CONTRACT NO.	CONTRACT DATE

PENAL SUM OF BOND *(Expressed in words and numerals)*

OBLIGATION

KNOW ALL PERSONS BY THESE PRESENTS, that the above named PRINCIPAL, hereinafter referred to and called CONTRACTOR, and the above named SURETY hereby bind themselves unto City of Storm Lake, 620 Erie St. Storm Lake, IA as OBLIGEE, hereinafter referred to and called OWNER, in the penal sum stated above, in lawful money of the United States of America to be paid to OWNER. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

CONTRACTOR has entered into the written contract agreement identified hereinabove with the OWNER for the following project:

Project Name: _____

Project Location: _____

which said contract and associated contract documents, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

CONDITION

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if CONTRACTOR shall promptly and faithfully perform all undertakings, covenants, terms, conditions and agreements of the Contract during the original term of the Contract and any extensions thereof that are granted by the OWNER, with or without notice to the SURETY, and during the period of any guarantee or warranties required under the Contract, and if CONTRACTOR shall perform and fulfill all undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of the Contract that hereafter are made, then this obligation shall be void; otherwise it shall remain in full force and effect subject to the following additional conditions:

6. SURETY, for value received, hereby stipulates and agrees that no change, extension of time, modification, omission, addition or change in or to the Contract, or the work performed thereunder or the specifications accompanying the same, shall in any way affect the SURETY'S obligation on this bond; and SURETY hereby agrees to waive notice of any and all such extensions, modifications, omissions, alterations, and additions to the terms of the Contract, work or specifications.

7. Whenever CONTRACTOR shall be and declared by the OWNER to be in default under the Contract, the Surety shall promptly and at the SURETY'S expense remedy the default by implementing one or more of the following actions:

   a. Arrange for the CONTRACTOR, with consent of the OWNER, to perform and complete the Contract; or

   b. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

   c. Obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the Contract; arrange for a contract to be prepared for execution by the OWNER and the contractor selected with the OWNER'S concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract; and make available as work progresses (even though there should be a

default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the penal sum of the bond. The term "balance of the contract price", as used in this paragraph, shall mean the total amount payable by OWNER to CONTRACTOR under the Contract and any amendments thereto, disbursed at the rate provided in the original contract, less the amount properly paid by OWNER to CONTRACTOR.

d. With written consent of the OWNER, SURETY may waive its right to perform and complete, arrange for completion or obtain a new contractor and with reasonable promptness, investigate and determine the amount the SURETY is liable to the OWNER and tender payment therefor to the OWNER.

8. CONTRACTOR and SURETY agree that if in connection with the enforcement of this Bond, the OWNER is required to engage the services of an attorney, that reasonable attorney fees incurred by the OWNER, with or without suit, are in addition to the balance of the contract price.

9. No right of action shall accrue on this bond to or for the use of any person or corporation other than the OWNER named herein or the successors or assigns of the OWNER.

WITNESS

In witness whereof, this instrument is executed this the _____ day of _____, 20___.

INDIVIDUAL PRINCIPAL:

Company Name: _____

Signature: _____

Name and Title: _____

CORPORATE PRINCIPAL:

ATTEST**:**

Corporate Name: _____

Signature: _____ Signature: _____

Name and Title: _____ Name and Title: _____

(Affix Corporate Seal)

SURETY:

ATTEST**:**

Surety Name: _____

Signature: _____ Signature: _____

Name and Title: _____ Name and Title: _____

(Affix Seal) (Attach Power of Attorney)

OWNER ACCEPTANCE:

The OWNER approves the form of this Performance Bond.

Date: _____ Signature: _____

Name and Title: _____

ATTEST:

Signature: _____

Name and Title: _____

(Affix Seal)

SPECIAL PROVISIONS

2017 Airport Improvements

City of Storm Lake, Iowa

T51.111257

AIP # 3-19-0088-12

FAA
Airports

Required Contract Provisions for Airport Improvement Program and for Obligated Sponsors

1 REQUIRED CONTRACT PROVISIONS.

Federal laws and regulations require that specific contract provisions be included in certain contracts, requests for proposals, or invitations to bid ***whether or not*** the contracts are federally-funded. This requirement is established within the grant assurances. Other contract provisions are required to be in federally-funded contracts, including all subcontracts. For purposes of determining requirements for contract provisions, the term ***contract*** includes subcontracts.

The type and magnitude of a project determines whether a provision is required. Some Federal provisions have dollar thresholds that define when they are applicable. The majority of the Federal provisions may be incorporated within the contract itself. However, certain Federal notices are required to be identified within the Notice-to-Bidders.

1.5 GENERAL REQUIREMENT FOR CONTRACTS.

In general, the sponsor must:

1) Physically incorporate these contract provisions (not simply by reference) in each contract funded under AIP;

2) Require the contractor (including all subcontractors) to insert these contract provisions in each contract and subcontract, and further require that the clauses be included in all subcontracts;

3) Require the contractor (or subcontractor) to incorporate applicable requirements of these contract provisions by reference for work done under any purchase orders, rental agreements and other agreements for supplies or services;

4) Require that the prime contractor be responsible for compliance with these contract provisions by any subcontractor, lower-tier subcontractor or service provider; and

5) Not modify the provisions. Minor additions covering state or sponsor requirements may be included in a separate supplemental specification, provided they do not conflict with federal laws and regulations and do not change the intent of the required contract provision.

Subject to the applicability criteria noted in the specific contract provisions, these contract provisions apply to all work performed on the contract.

1.6 GENERAL REQUIREMENT FOR REQUESTS FOR BIDS (ADVERTISEMENT) AND NOTICE TO BIDDERS

In general, the sponsor may incorporate certain provisions *by reference* in the Request for Bids (the Advertisement) rather than including the entire text of the provision in the Request or Notice. The provisions that can be incorporated by reference in the Request or Notice are:

1) Buy American Preference
2) Foreign Trade Restriction
3) Davis Bacon
4) Affirmative Action
5) Governmentwide Debarment and Suspension
6) Governmentwide Requirements for Drug-free Workplace

1.7 GENERAL REQUIREMENTS FOR ALL CONTRACTS ENTERED INTO BY OBLIGATED SPONSORS.

Where noted, the sponsor must include certain notifications in contracts or solicitations for proposals regardless of funding source.

1.8 FAILURE TO COMPLY WITH PROVISIONS.

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,
3) Seek suspension/debarment, or
4) Any other action determined to be appropriate by the sponsor or the FAA.

1.9 REQUIRED CONTRACT PROVISIONS.

The following list summarizes the contract provisions and to what types of contracts the provisions apply:

All Contracts Regardless of Funding Source

a. Civil Rights – General

Civil Rights – Title VI **All AIP Funded Contracts**

a. Access to Records and Reports
b. Affirmative Action Plan
c. Buy American Preferences
d. Civil Rights – General
e. Civil Rights - Title VI
f. Disadvantaged Business Enterprises

g. Energy Conservation Requirements
h. Federal Fair Labor Standards Act (Minimum Wage)
i. Lobbying and Influencing Federal Employees
j. Occupational Safety and Health Act
k. Rights to Inventions
l. Trade Restriction Clause
m. Veteran's Preference

Additional Provisions for AIP Funded Contracts that are $2,000 and greater

a. Copeland Anti-Kickback
b. Davis Bacon Requirements

Additional Provisions for AIP Funded Contracts that are $10,000 and greater

a. Affirmative Action
b. Equal Employment Opportunity
c. Nonsegregated Facilities
d. Termination of Contract

Additional Provisions for AIP Funded Contracts that are $25,000 and greater

a. Debarment and Suspension

Additional Provisions for AIP Funded Contracts that are $100,000 and greater

a. Breach of Contract
b. Clean Air and Water Pollution Controls
c. Contract Work Hours and Safety Standards

2 ACCESS TO RECORDS AND REPORTS.

(Reference: 2 CFR § 200.326, 2 CFR § 200.333)

2.5 APPLICABILITY.

Applies to all AIP-funded projects and must be included in all contracts and subcontracts.

2.6 MANDATORY CONTRACT LANGUAGE.

The mandatory language that must be used on AIP funded project contracts is as follows:

ACCESS TO RECORDS AND REPORTS

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Sponsor, 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.

3 **AFFIRMATIVE ACTION REQUIREMENT**.

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

3.5 **APPLICABILITY**.

Incorporate in all AIP-funded construction contracts and subcontracts that exceed $10,000. This notice must be placed within the solicitation for proposals. The goals for minority participation are dependent upon the Economic Area (EA) and Standard Metropolitan Statistical Area (SMSA). Refer to Volume 45 of the Federal Register dated 10/3/80. Page 65984 contains a table of all EA and SMSA and their associated minority goals. Executive Order 11246 has set a goal of 6.9% nationally for female participation for all construction contractors.

3.6 **MANDATORY CONTRACT LANGUAGE**.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION

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:

A. Timetables
B. Goals for minority participation for each trade (Vol. 45 Federal Register pg. 65984 10/3/80)
C. 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 is also subject to the goals for both federally funded and non-federally funded construction regardless of the percentage of federal participation in funding.

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 shall 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, 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 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 [insert description of the geographical areas where the contract is to be performed giving the state, county, and city, if any].

3.7 **AFFIRMATIVE ACTION PLAN**.

The Department of Labor is responsible for administering the Executive Order 11246, which contains requirements for an Affirmative Action Plan. This Plan is similar in content and requirements to the affirmative action plan required in 49 CFR Part 152 subpart e. 49 CFR Part 152 applied to grants issued under the Airport Development Aid Program, which was replaced by the Airport Improvement Program.

4 BREACH OF CONTRACT TERMS.

(Reference 2 CFR § 200 Appendix II(A))

4.5 APPLICABILITY.

This provision is required in all contracts that exceed the simplified acquisition threshold. This threshold, fixed at 41 USC 403(11), is presently set at $100,000.

4.6 MANDATORY CONTRACT LANGUAGE.

The regulation does not prescribe mandatory language, however the following clause represents sample language that meets the intent of 2 CFR § 200 Appendix II(A). This provision requires grantees to incorporate administrative, contractual or legal remedies in instances where contractors violate or breach contract terms.

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. 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.

5 BUY AMERICAN PREFERENCE.

(Reference: 49 USC § 50101)

5.5 APPLICABILITY.

The sponsor must meet the Buy American preference requirements found in 49 USC § 50101 in all AIP-funded projects. 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 in

compliance. The Buy American preference also applies to professional service agreements if the agreement includes any manufactured product as a deliverable.

5.6 REQUIREMENTS.

The Buy-American preference requirements established within 49 USC § 50101 require that all steel and manufactured goods used on AIP projects must be produced in the United States. It also gives the FAA the ability to issue a waiver to the sponsor to use other materials on the AIP funded project. The FAA requires that these waivers be requested in advance of use of the materials on the AIP funded project. The sponsor may request that the FAA issue a waiver from the Buy American preference requirements if the FAA finds that:

1) applying the provision is not in the public interest;

2) the steel or manufactured goods are not available in sufficient quantity or quality in the United States;

3) the cost of components and subcomponents produced in the United States is more than 60 percent of the total components of a facility or equipment, and final assembly has taken place in the United States. Items that have an FAA standard specification item number (such as specific airport lighting equipment) is considered the equipment in this case. For construction of a facility, the application of this subsection is determined after bid opening; or

4) applying this provision would increase the cost of the overall project by more than 25 percent.

5.7 NATIONAL BUY AMERICAN WAIVERS WEBSITE.

The FAA Office of Airports maintains a list of equipment that has received waivers from the Buy American preference requirements on the http://www.faa.gov/airports/aip/buy_american/ website. Products listed on the Nationwide Buy American Waivers Issued list do not require a project specific Buy American preference requirement waiver from the FAA.

5.8 MANDATORY CONTRACT LANGUAGE.

The mandatory language that must be used on AIP funded project contracts is as follows:

BUY AMERICAN CERTIFICATION

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.

*****

Certificate of Buy American Compliance for Total Facility

(Buildings such as Terminal, SRE, ARFF, etc.)

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 of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e. 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 products
3. 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 the 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 results 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 furnish US domestic product for any waiver request that the FAA rejects.
5. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

b. <u>Required Documentation</u>

Type 3 Waiver - The cost of components and subcomponents produced in the United States is more that 60% of the cost of all components and subcomponents of the "facility". The required documentation for a type 3 waiver is:

a) Listing of all manufactured products 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 and installation at project location.
c) Percentage of non-domestic component and subcomponent cost as compared to total "facility" component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

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.

_____ _____

Date Signature

Company Name | Title

* * * * *

Certificate of Buy American Compliance for Manufactured Products

(Non-building construction projects, equipment acquisition projects)

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 the 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.

c. <u>Required Documentation</u>

Type 3 Waiver - The cost of the item components and subcomponents produced in the United States is more that 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.

Date	Signature
Company Name	d. Title

6 CIVIL RIGHTS - GENERAL.

(Reference: 49 USC § 47123)

6.5 APPLICABILITY.

The General Civil Rights Provisions found in 49 USC § 47123, derived from the Airport and Airway Improvement Act of 1982, Section 520, apply to all AIP-funded projects. This provision is in addition to the Civil Rights – Title VI provisions.

6.6 MANDATORY CONTRACT LANGUAGE.

The mandatory language that must be used on AIP funded project contracts is as follows:

GENERAL CIVIL RIGHTS PROVISIONS

The contractor agrees that it will 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 handicap be excluded from participating in any activity conducted with or benefiting from Federal assistance.

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

This provision also obligates the tenant/concessionaire/lessee or its transferee for the period during which Federal assistance is extended to the airport through the Airport Improvement Program, except where Federal assistance is to provide, or is in the form of personal property; real property or interest therein; structures or improvements thereon.

In these cases the provision obligates the party or any transferee for the longer of the following periods:

(a) the period during which the property is used by the airport sponsor or any transferee for a purpose for which Federal assistance is extended, or for another purpose involving the provision of similar services or benefits; or

(b) the period during which the airport sponsor or any transferee retains ownership or possession of the property.

7 CIVIL RIGHTS – TITLE VI ASSURANCES.

Appropriate clauses from the Standard DOT Title VI Assurances must be included in all contracts and solicitations. The clauses are as follows:

1) Title VI Solicitation Notice
2) Title VI Clauses for Compliance with Nondiscrimination Requirements.
3) Title VI Required Clause for Land Interests Transferred from the United States

4) Title VI Required Clause for Real Property Acquired Or Improved by the sponsor subject to the nondiscrimination Acts and Regulations.
5) Clauses for Construction/Use/Access to Real Property Acquired Under the Activity, Facility or Program
6) Title VI List Of Pertinent Nondiscrimination Statutes And Authorities

7.5 APPLICABILITY.

The sponsor must insert the **Title VI Solicitation Notice** in:

1) All solicitations for bids, requests for proposals work, or material subject to the nondiscrimination acts and regulations made in connection with Airport Improvement Program grants; and

2) All proposals for negotiated agreements regardless of funding source

e. The Sponsor must insert the **Title VI required contract clause** and the **Title VI list of Pertinent Nondiscrimination Statutes and Authorities** in every contract or agreement, unless the sponsor has determined and the FAA has agreed, that the contract or agreement is not subject to the nondiscrimination Acts and the Regulations.

f. The sponsor must insert the clauses of **Title VI Clauses for Deeds Transferring United States Property**, as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a sponsor.

g. The sponsor must include the **Title VI Clauses for Transfer of Real Property Acquired or Improved Under the Activity, Facility, Or Program**, the **Title VI Clauses for Construction/Use/Access to Real Property Acquired Under the Activity, Facility or Program,** and the **Title VI List of Pertinent Nondiscrimination Authorities**, as a covenant running with the land, in any future deeds, leases, licenses, permits, or similar instruments entered into by the sponsor with other parties:

1) For the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and

2) For the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.

7.6 MANDATORY CONTRACT LANGUAGE.

7.6.1 Title VI Solicitation Notice

(Source: Appendix 4 of FAA Order 1400.11, Nondiscrimination in Federally-Assisted Programs at the Federal Aviation Administration)

Title VI Solicitation Notice:

The **(Name of Sponsor)**, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby

notifies all bidders 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.

7.6.2 Title VI Clauses for Compliance with Nondiscrimination Requirements

(Source: Appendix A of Appendix 4 of FAA Order 1400.11, Nondiscrimination in Federally-Assisted Programs at the Federal Aviation Administration)

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 Statutes and Authorities**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** 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 Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. **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 Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. **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 Acts, Regulations, 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.

5. **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.

6. **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.

7.6.3 Title VI Clauses for Deeds Transferring United States Property

(Source: Appendix B of Appendix 4 of FAA Order 1400.11, Nondiscrimination in Federally-Assisted Programs at the Federal Aviation Administration)

CLAUSES FOR DEEDS TRANSFERRING UNITED STATES PROPERTY

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of the Airport Improvement Program grant assurances.

NOW, THEREFORE, the Federal Aviation Administration as authorized by law and upon the condition that the (***Title of Sponsor***) will accept title to the lands and maintain the project constructed thereon in accordance with (***Name of Appropriate Legislative Authority***), for the **(Airport Improvement Program or other program for which land is transferred),** and the policies and procedures prescribed by the Federal Aviation Administration of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the (***Title of Sponsor***) all the right, title and interest of the U.S. Department of Transportation/Federal Aviation Administration in and to said lands described in (***Exhibit A attached hereto or other exhibit describing the transferred property)*** and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto (***Title of Sponsor***) and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the (***Title of Sponsor***), its successors and assigns.

The (***Title of Sponsor***), in consideration of the conveyance of said lands and interests in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed [,] [and]* (2) that the (***Title of Sponsor***) will use the lands and interests in lands and interests in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended[, and (3) that in the event of breach of any of the above-mentioned non-discrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said land, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the Federal Aviation Administration and its assigns as such interest existed prior to this instruction].*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

7.6.4 Title VI Clauses for Transfer of Real Property Acquired or Improved Under the Activity, Facility, or Program

(Source: Appendix C of Appendix 4 of FAA Order 1400.11, Nondiscrimination in Federally-Assisted Programs at the Federal Aviation Administration)

CLAUSES FOR TRANSFER OF REAL PROPERTY ACQUIRED OR IMPROVED UNDER THE ACTIVITY, FACILITY, OR PROGRAM

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the (***Title of Sponsor***) pursuant to the provisions of the Airport Improvement Program grant assurances.

A. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add “as a covenant running with the land”] that:

1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a Federal Aviation Administration activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Nondiscrimination Acts and Regulations listed in the Pertinent List of Nondiscrimination Authorities (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Nondiscrimination covenants, (***Title of Sponsor***) will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.*

C. With respect to a deed, in the event of breach of any of the above Nondiscrimination covenants, the (***Title of Sponsor***) will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the (***Title of Sponsor***) and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

7.6.5 Title VI Clauses for Construction/Use/Access to Real Property Acquired Under the Activity, Facility or Program

(Source: Appendix D of Appendix 4 of FAA Order 1400.11, Nondiscrimination in Federally-Assisted Programs at the Federal Aviation Administration)

CLAUSES FOR CONSTRUCTION/USE/ACCESS TO REAL PROPERTY ACQUIRED UNDER THE ACTIVITY, FACILITY OR PROGRAM

The following clauses will be included in deeds, licenses, permits, or similar instruments/agreements entered into by (***Title of Sponsor***) pursuant to the provisions of the Airport Improvement Program grant assurances.

A. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, “as a covenant running with the land”) that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination,

(3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the List of Pertinent Nondiscrimination Authorities.

B. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above nondiscrimination covenants, (***Title of Sponsor***) will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued.*

C. With respect to deeds, in the event of breach of any of the above nondiscrimination covenants, (***Title of Sponsor***) will there upon revert to and vest in and become the absolute property of (***Title of Sponsor***) and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

7.6.6 Title VI List of Pertinent Nondiscrimination Authorities

(Source: Appendix E of Appendix 4 of FAA Order 1400.11, Nondiscrimination in Federally-Assisted Programs at the Federal Aviation Administration)

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 U.S.C. § 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 U.S.C. § 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 U.S.C. § 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 U.S.C. § 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 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;

- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 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 non-discrimination 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 U.S.C. 1681 et seq).

8 CLEAN AIR AND WATER POLLUTION CONTROL.

(Reference: 49 CFR § 18.36(i)(12)) Note, when the DOT adopts 2 CFR 200, this reference will change to 2 CFR § 200 Appendix II(G))

8.5 APPLICABILITY.

Incorporate in all professional service agreements, construction contracts and subcontracts that exceed $100,000. (Note that the 2 CFR 200 will raise this level to $150,000)

8.6 MANDATORY CONTRACT LANGUAGE.

CLEAN AIR AND WATER POLLUTION CONTROL

Contractors and subcontractors agree:

1. That any facility to be used in the performance of the contract or subcontract or to benefit from the contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities;

2. To comply with all the requirements of Section 114 of the Clean Air Act, as amended, 42 U.S.C. 1857 et seq. and Section 308 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. relating to inspection, monitoring, entry, reports, and information, as well as all other requirements

specified in Section 114 and Section 308 of the Acts, respectively, and all other regulations and guidelines issued thereunder;

3. That, as a condition for the award of this contract, the contractor or subcontractor will notify the awarding official of the receipt of any communication from the EPA indicating that a facility to be used for the performance of or benefit from the contract is under consideration to be listed on the EPA List of Violating Facilities;

4. To include or cause to be included in any construction contract or subcontract which exceeds $100,000 the aforementioned criteria and requirements.

9 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS. (Reference: 2 CFR § 200 Appendix II (E))

9.5 APPLICABILITY.

Incorporate in all professional service agreements, construction contracts and subcontracts that exceed $100,000.

9.6 MANDATORY CONTRACT LANGUAGE.

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) above, 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 above, 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 above.

3. Withholding for Unpaid Wages and Liquidated Damages.
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 any

monies 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 above.

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 section.

10 **COPELAND "ANTI-KICKBACK" ACT**
(Reference: 2 CFR § 200 Appendix II(D), 29 CFR parts 3 & 5)

10.5 APPLICABILITY.
Incorporate into all construction contracts and subcontracts that exceed $2,000 and are financed under the AIP program.

10.6 MANDATORY CONTRACT LANGUAGE.
The United States Department of Labor Wage and Hours Division oversees the Copeland "Anti-Kickback" Act requirements. All contracts and subcontracts must meet comply with the Occupational Safety and Health Act of 1970.

United States Department of Labor Wage and Hours Division can provide information regarding any specific clauses or assurances pertaining to the Copeland "Anti-Kickback" Act requirements required to be inserted in solicitations, contracts or subcontracts.

11 **DAVIS-BACON REQUIREMENTS**.
(Reference: 2 CFR § 200 Appendix II(D))

11.5 APPLICABILITY.
Incorporate into all construction contracts and subcontracts that exceed $2,000 and are financed under the AIP program.

11.6 **MANDATORY CONTRACT LANGUAGE**.
The mandatory language is as follows:

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; and

(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, D.C. 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 which 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 records which 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 *http://www.dol.gov/esa/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) That 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) That 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) That 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 which 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 U.S.C. 1001.

12 **DEBARMENT AND SUSPENSION (NON-PROCUREMENT)**.

(Reference: 2 CFR part 180 (Subpart C), 2 CFR part 1200, DOT Order 4200.5 DOT Suspension & Debarment Procedures & Ineligibility)

12.5 **APPLICABILITY**.

The contract agreement that ultimately results from this solicitation is a "covered transaction" as defined by Title 2 CFR Part 180. Bidder must certify at the time they submit their proposal that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction. The bidder with the successful bid further agrees to comply with Title 2 CFR Part 1200 and Title 2 CFR Part 180, Subpart C by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction".

Incorporate in all contracts and subcontracts that exceed $25,000.

12.6 **MANDATORY CONTRACT LANGUAGE**.

CERTIFICATE REGARDING DEBARMENT AND SUSPENSION (BIDDER OR OFFEROR)

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.

CERTIFICATION REGARDING DEBARMENT AND SUSPENSION (SUCCESSFUL BIDDER REGARDING LOWER TIER PARTICIPANTS)

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.

13 DISADVANTAGED BUSINESS ENTERPRISE.

(Reference: 49 CFR part 26)

13.5APPLICABILITY.

The Disadvantaged Business Enterprise requirements found in 49 CFR part 26, apply to all AIP-funded projects and must be included in all contracts and subcontracts. This includes both project with contract goals and project relying on race/gender neutral means.

13.6MANDATORY CONTRACT LANGUAGE.

The mandatory language that must be used on AIP funded project contracts is as follows. Other than to insert appropriate Sponsor information into the noted spaces, the Sponsor must not modify these contract clauses:

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 DOT 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 recipient deems appropriate.

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 {specify number} days from the receipt of each payment the prime contractor receives from {Name of recipient}. The prime contractor agrees further to return retainage payments to each subcontractor within {specify the same number as above} 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 {Name of Recipient}. This clause applies to both DBE and non-DBE subcontractors.

14 ENERGY CONSERVATION REQUIREMENTS.

(Reference 2 CFR § 200 Appendix II(H))

14.5APPLICABILITY.

The Energy Conservation Requirements found in 2 CFR § 200 Appendix II(H)**,** apply to all AIP-funded construction and equipment projects and must be included in all contracts and subcontracts.

14.6MANDATORY CONTRACT LANGUAGE.

The regulation does not prescribe mandatory language, however the following clause represents sample language that meets the intent of 2 CFR § 200 Appendix II(H):

ENERGY CONSERVATION REQUIREMENTS

The contractor agrees to comply with mandatory standards and policies relating to energy efficiency that are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

15 EQUAL OPPORTUNITY CLAUSE AND SPECIFICATIONS.

(Reference 41 CFR § 60-1.4, Executive Order 11246)

15.5 APPLICABILITY.

Incorporate contract language and specifications into all construction contracts and subcontracts that exceed $10,000 and are financed under the AIP program.

15.6 MANDATORY CONTRACT LANGUAGE.

41 CFR § 60-1.4 provides the mandatory contract language, but allows such necessary changes in language to be made to identify properly the parties and their undertakings. 41 CFR § 60-4.3 provides the mandatory specifications.

EQUAL OPPORTUNITY 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, 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 he 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 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 18.7a through 18.7p 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 a 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 (18.7a through 18.7p). 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 18.7a through 18.7p 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 18.7 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 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).

16 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

(Reference: 29 USC § 201, et seq.)

16.5APPLICABILITY.

The federal minimum wage provisions are contained in the Fair Labor Standards Act (FLSA) which is administered by the United States Department of Labor Wage and Hour Division. All contracts and subcontracts must meet comply with the FLSA, including the recordkeeping standards of the Act**.**

16.6 MANDATORY CONTRACT LANGUAGE.

All contracts and subcontracts that result from this solicitation incorporate the following provisions by reference, with the same force and effect as if given in full text. The contractor has full responsibility to monitor compliance to the referenced statute or regulation. The contractor must address any claims or disputes that pertain to a referenced requirement directly with the Federal Agency with enforcement responsibilities.

Requirement	Federal Agency with Enforcement Responsibilities
Federal Fair Labor Standards Act (29 USC 201)	U.S. Department of Labor – Wage and Hour Division

17 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES. (Reference: 49 CFR part 20, Appendix A)

17.5APPLICABILITY.

The Lobbying and Influencing Federal Employees prohibition found in 49 CFR part 20, Appendix A, applies to all AIP-funded projects and must be included in all contracts and subcontracts.

17.6MANDATORY CONTRACT LANGUAGE.

The mandatory language that must be used on AIP funded project contracts is as follows:

LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

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.

18 NONSEGREGATED FACILITIES REQUIREMENT. (Reference: 41 CFR § 60-1.8)

18.5 APPLICABILITY.

Incorporate in all construction contracts and subcontracts that exceed $10,000. The notices must be placed within the solicitation for proposals. The actual certification must be incorporated in the contract agreement.

18.6 **MANDATORY CONTRACT LANGUAGE AND NOTICE**.

NOTICE OF NONSEGREGATED FACILITIES REQUIREMENT

Notice to Prospective Federally Assisted Construction Contractors

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a federally-assisted construction contract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity Clause.

2. Contractors receiving federally-assisted construction contract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause.

3. The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

Notice to Prospective Subcontractors of Requirements for Certification of Non-Segregated Facilities

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a subcontract exceeding $10,000, which is not exempt from the provisions of the Equal Opportunity Clause.

2. Contractors receiving subcontract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause.

3. The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

CERTIFICATION OF NONSEGREGATED FACILITIES

The federally-assisted construction contractor certifies that she or he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that she or he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally-assisted construction contractor certifies that she or he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that she or he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The federally-assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, 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 which are segregated by explicit directives

or are, in fact, segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The federally-assisted construction contractor agrees that (except where she or he has obtained identical certifications from proposed subcontractors for specific time periods) she or he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that she or he will retain such certifications in his files.

19 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

(Reference 20 CFR part 1910)

19.5APPLICABILITY.

The United States Department of Labor Occupational Safety & Health Administration (OSHA) oversees the workplace health and safety standards wage provisions from the Occupational Safety and Health Act of 1970. All contracts and subcontracts must meet comply with the Occupational Safety and Health Act of 1970.

19.6 MANDATORY CONTRACT LANGUAGE.

All contracts and subcontracts that result from this solicitation incorporate the following provisions by reference, with the same force and effect as if given in full text. The contractor has full responsibility to monitor compliance to the referenced statute or regulation. The contractor must address any claims or disputes that pertain to a referenced requirement directly with the Federal Agency with enforcement responsibilities.

Requirement	Federal Agency with Enforcement Responsibilities
Occupational Safety and Health Act of 1970 (20 CFR Part 1910)	U.S. Department of Labor – Occupational Safety and Health Administration

20 RIGHT TO INVENTIONS.

(Reference 2 CFR § 200 Appendix II(F))

20.5APPLICABILITY.

The requirement for rights to inventions and materials found in 2 CFR § 200 Appendix II(F) applies to all AIP-funded projects and must be included in all contracts and subcontracts.

20.6MANDATORY CONTRACT LANGUAGE.

The regulation does not prescribe mandatory language, however the following clause represents sample language that meets the intent of 2 CFR § 200 Appendix II(F).

RIGHTS TO INVENTIONS

All rights to inventions and materials generated under this contract are subject to requirements and regulations issued by the FAA and the Sponsor of the Federal grant under which this contract is executed.

21 TERMINATION OF CONTRACT.

(Reference 2 CFR § 200 Appendix II(B))

21.5 APPLICABILITY.

Incorporate in all contracts and subcontracts that exceed $10,000.

21.6 MANDATORY CONTRACT LANGUAGE.

TERMINATION OF CONTRACT

a. The Sponsor may, by written notice, terminate this contract in whole or in part at any time, either for the Sponsor's convenience or because of failure to fulfill the contract obligations. Upon receipt of such notice services must be immediately discontinued (unless the notice directs otherwise) and all materials as may have been accumulated in performing this contract, whether completed or in progress, delivered to the Sponsor.

b. If the termination is for the convenience of the Sponsor, an equitable adjustment in the contract price will be made, but no amount will be allowed for anticipated profit on unperformed services.

c. If the termination is due to failure to fulfill the contractor's obligations, the Sponsor may take over the work and prosecute the same to completion by contract or otherwise. In such case, the contractor is liable to the Sponsor for any additional cost occasioned to the Sponsor thereby.

d. If, after notice of termination for failure to fulfill contract obligations, it is determined that the contractor had not so failed, the termination will be deemed to have been effected for the convenience of the Sponsor. In such event, adjustment in the contract price will be made as provided in paragraph 2 of this clause.

e. The rights and remedies of the sponsor provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

22 TRADE RESTRICTION

(Reference: 49 CFR part 30)

22.5 APPLICABILITY.

The trade restriction clause applies to all AIP-funded projects and must be included in all contracts and subcontracts.

22.6 MANDATORY CONTRACT LANGUAGE.

The mandatory language is as follows:

TRADE RESTRICTION CLAUSE

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.

23 TEXTING WHEN DRIVING

(References: Executive Order 13513, and DOT Order 3902.10)

23.5APPLICABILITY.

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), FAA 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 sub-grant.

23.6MANDATORY CONTRACT LANGUAGE.

By adopting the Applicability Language, the following contract language will meet the intent and requirement for Texting When Driving:

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), FAA 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 sub-grant.

The Contractor must promote policies and initiatives for employees and other work personnel that decrease crashes by distracted drivers, including policies to ban text messaging while driving. The Contractor must include these policies in each third party subcontract involved on this project.

24 VETERAN’S PREFERENCE

(Reference: 49 USC § 47112(c))

24.5 APPLICABILITY.

The Veteran’s preference clause found in 49 USC § 47112(c) applies to all AIP-funded projects and must be included in all contracts and subcontracts that involve labor

24.6 MANDATORY CONTRACT LANGUAGE.

The regulation does not prescribe mandatory language, however the following clause represents sample language that meets the intent of 49 USC § 47112(c) is as follows:

VETERAN’S PREFERENCE

In the employment of labor (except in executive, administrative, and supervisory positions), preference must be given to Vietnam era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns owned and controlled by disabled veterans as defined in Title 49 United States Code, Section 47112. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

WAGE RATE DETERMINATION

General Decision Number: IA170097 01/06/2017 IA97

Superseded General Decision Number: IA20160097

State: Iowa

Construction Types: Heavy and Highway

Counties: Iowa Statewide.

STATEWIDE EXCEPT SCOTT COUNTY HEAVY CONSTRUCTION PROJECTS (Does not include work on or pertaining to the Mississippi or Missouri Rivers or on Water and Sewage Treatment Plants), AND HIGHWAY PROJECTS (does not include building structures in rest areas)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2017

SUIA2016-001 06/07/2016

	Rates	Fringes
Carpenter & Piledrivermen		
ZONE 1	$ 26.42	11.13
ZONE 2	$ 24.33	11.13
ZONE 3	$ 24.33	11.13
ZONE 4	$ 23.65	8.95
ZONE 5	$ 22.75	7.55
CONCRETE FINISHER		
ZONE 1	$ 24.50	7.10
ZONE 2	$ 24.50	7.10
ZONE 3	$ 24.50	7.10
ZONE 4	$ 22.05	5.55
ZONE 5	$ 20.45	6.10
ELECTRICIAN (STREET AND HIGHWAY LIGHTING AND TRAFFIC		

SIGNALS)

ZONE 1, 2, AND 3	$ 22.80	5.70
ZONE 4	$ 21.50	5.70
ZONE 5	$ 19.30	5.70

IRONWORKER (SETTING OF STRUCTURAL STEEL)

ZONE 1	$ 29.00	8.55
ZONE 2	$ 26.91	8.55
ZONE 3	$ 26.61	8.85
ZONE 4	$ 24.75	7.85
ZONE 5	$ 22.90	7.40

LABORER

ZONE 1, 2, AND 3		
GROUP A	$ 21.33	8.50
GROUP AA	$ 23.71	8.50
GROUP B	$ 19.48	8.50
GROUP C	$ 16.40	8.50
ZONE 4		
GROUP A	$ 19.00	7.95
GROUP B	$ 17.68	7.95
GROUP C	$ 14.80	7.95
ZONE 5		
GROUP A	$ 19.50	6.50
GROUP B	$ 17.00	6.50
GROUP C	$ 16.15	6.50

POWER EQUIPMENT OPERATOR

ZONE 1		
GROUP A	$ 29.40	13.30
GROUP B	$ 27.85	13.30
GROUP C	$ 25.35	13.30
GROUP D	$ 25.35	13.30
ZONE 2		
GROUP A	$ 28.70	13.30
GROUP B	$ 27.10	13.30
GROUP C	$ 24.55	13.30
GROUP D	$ 24.55	13.30
ZONE 3		
GROUP A	$ 27.50	19.55
GROUP B	$ 25.70	19.55
GROUP C	$ 24.70	19.55
GROUP D	$ 24.70	19.55
ZONE 4		
GROUP A	$ 28.35	9.35
GROUP B	$ 27.21	9.35
GROUP C	$ 25.13	9.35
GROUP D	$ 25.13	9.35
ZONE 5		
GROUP A	$ 24.67	7.60
GROUP B	$ 23.63	7.60

GROUP C.....$ 21.90 7.60
GROUP D.....$ 20.90 7.60

TRUCK DRIVER
ZONE 1.....$ 21.50 10.30
ZONE 2.....$ 21.50 10.30
ZONE 3.....$ 21.50 10.30
ZONE 4.....$ 21.60 6.00
ZONE 5.....$ 19.65 6.00

ZONE DEFINITIONS

ZONE 1 - The Counties of Polk, Warren and Dallas for all Crafts, and Linn County Carpenters Only.

ZONE 2 - The Counties of Dubuque for all crafts and Linn County for all Crafts except Carpenters.

ZONE 3 - The Cities of Burlington, Clinton, Fort Madison Keokuk, and Muscatine (and abutting municipalities of any such cities).

ZONE 4 - Story, Black Hawk, Cedar, Jasper, Jones, Jackson, Louisa, Madison and Marion Counties; Clinton County (except the City of Clinton), Johnson County, Muscatine County (except the City of Muscatine), the City of Council Bluffs, Lee County and Des Moines County.

ZONE 5 – All areas of the state not listed above.

LABORER CLASSIFICATIONS - ALL ZONES

GROUP AA: Asbestos abatement worker (Zones 1, 2, and 3) Skilled pipelayer (sewer, water and conduits) and tunnel laborers (zones 1, 2 and 3)

GROUP A - Asbestos abatement worker (Zones 4 and 5) Carpenter tender on bridges and box culverts; curb machine (without a seat); deck hand; diamond and core drills; drill operator on air tracs, wagon drills and similar drills; form setter/stringman on paving work; gunnite nozzleman; joint sealer kettleman; laser operator; pipelayer (sewer water and conduits) Zone 4 & 5; powderman tender; powerman/blaster; saw operator; tunnel laborer (zones 4 and 5).

GROUP B - Air, gas, electric tool operator; barco hammer; carpenter tender; caulker; chain sawman; compressor (under 400cfm); concrete finisher tender; concrete processing materials and monitors; cutting torch on demolition; drill tender; dumpmen; electric drills; fence erectors; form line expansion joint assembler; form tamper; general laborer; grade checker; handling and placing metal mesh, dowel bars, reinforcing bars and chairs; hot asphalt laborer; installing temporary traffic control devices; jackhammerman; mechanical grouter; painter (all except stripers); paving breaker; planting trees, shrubs and flowers; power broom (not self/propelled); power buggyman; rakers; rodman (tying reinforcing steel); sandblaster; seeding and mulching; sewer utility topman/bottom man; spaders; stressor or stretcherman on pre or post tensioned concrete; stringman on re/surfacing/no grade control; swinging stage, tagline or block and tackle; tampers; timberman; tool room men and checkers; tree climber; tree groundman; underpinning and shoring caissons over twelve feet deep; vibrators; walk behind trencher; walk behind paint stripers; walk behind vibrating compactor; water pumps (under three inch); work from bosun chair.

GROUP C - Scale weigh person; traffic control/flagger, surveillance or monitor, water carrier.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS - ALL ZONES

GROUP A - All terrain (off road) forklift; Asphalt Breakdown Roller (vibratory), Asphalt laydown machine; asphalt plant; Asphalt Screed, bulldozer finish); central mix plant; concrete pump; crane; crawler tractor pulling scraper; directional drill (60,000(lbs) pullback and above); dragline and power shovel; dredge engineer; excavator (over 1/2 cu. yd.) front end loader (4 cy and over); horizontal boring machine; master mechanic; milling machine (over 350 hp); motor grader (finish); push cat; rubber tired backhoe (over 1/2 cu. yd.) scraper (12 cu. yd. and over or finish); Self-propelled rotary mixer/road reclaimer; sidebroom tractor; slipform portland concrete paver; tow or push boat; trenching machine (Cleveland 80 or similar).

GROUP B - Articulated off road hauler, asphalt heater/planer; asphalt material transfer vehicle; Asphalt Roller; belt loader or similar loader; bulldozer (rough); churn or rotarydrill; concrete curb machine, crawler tractor pulling ripper, disk or roller; deck hand/oiler directional drill (less than 60,000(lbs) pullback); distributor; excavator 1/2 cu. yd. and under); form riding concrete paver; front end loader (2 to less than 4 cu. yd.); group equipment greaser; mechanic; milling machine (350hp. and less); paving breaker; portland concrete dry batch plant; rubber tired backhoe 1/2 cu. yd. and under); scraper (under 12 cy), screening, washing and crushing plant (mobile, portable or stationary); shoulder machine; skid loader (1cu. yd and over); subgrader or trimmer; trenching machine; water wagon on compaction.

GROUP C - Boom & winch truck, concrete spreader/belt placer, deep wells for dewatering; farm type tractor (over 75 hp.) pulling disc or roller; forklift; front end loader (under 2 cu. yd.); motor grader (rough); pile hammer power unit; pump (greater than three inch diameter); pumps on well points; safty boat; self-propelled roller (other than asphalt); self-propelled sand blaster or shot blaster, water blaster or striping grinder/remover; skid loader(under 1 cu. yd.); truck mounted post driver.

GROUP D - Boiler, compressor, cure and texture machine; dow box; farm type or utility tractor (under 75 hp.) pulling disk, roller or other attachments; group greaser tender; light plants; mechanic tender; mechanical broom; mechanical heaters; oiler; pumps (under three inch diameter); tree chipping machine; truck cranedriver/oiler.

CARPENTERS AND PILEDRIVERMEN, OR IRONWORKERS (ZONE 5)

Setting of structural steel; any welding incidental to bridge or culvert construction; setting concrete beams.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses
(29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate(weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination

* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator
(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

GENERAL SPECIFICATIONS

2017 Airport Improvements

City of Storm Lake, Iowa

T51.111257

AIP #3-19-0088-12

Part 1 – General Provisions

Section 10 Definition of Terms

Whenever 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 interpreted as follows:

10-01 AASHTO. The American Association of State Highway and Transportation Officials, the successor association to AASHO.

10-02 Access road. The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public highway.

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 Improvement Program (AIP). A grant-in-aid program, administered by the Federal Aviation Administration (FAA).

10-05 Air operations area (AOA). For the purpose of these specifications, 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.

10-06 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; and airport buildings and facilities located in any of these areas, and includes a heliport.

10-07 ASTM International (ASTM). Formerly known as the American Society for Testing and Materials (ASTM).

10-08 Award. The Owner's notice to the successful bidder of the acceptance of the submitted bid.

10-09 Bidder. Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

10-10 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.

10-11 Calendar day. Every day shown on the calendar.

10-12 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 the work affected by such changes. The work, covered by a change order, must be within the scope of the contract.

10-13 Contract. The written agreement covering the work to be performed. The awarded contract shall include, but is not limited to: Advertisement, Contract Form, Proposal, Performance Bond, Payment Bond, any required insurance certificates, Specifications, Plans, and any addenda issued to bidders.

10-14 Contract item (pay item). A specific unit of work for which a price is provided in the contract.

10-15 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.

10-16 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.

10-17 Contractor's laboratory. The Contractor's quality control organization in accordance with the Contractor Quality Control Program.

10-18 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.

10-19 Drainage system. The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.

10-20 Engineer. The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering observation of the contract work and acting directly or through an authorized representative.

10-21 Equipment. All machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper construction and acceptable completion of the work.

10-22 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 Engineer to be necessary to complete the work within the intended scope of the contract as previously modified.

10-23 FAA. The Federal Aviation Administration of the U.S. Department of Transportation. When used to designate a person, FAA shall mean the Administrator or his or her duly authorized representative.

10-24 Federal specifications. The Federal Specifications and Standards, Commercial Item Descriptions, and supplements, amendments, and indices thereto are prepared and issued by the General Services Administration of the Federal Government.

10-25 Force account. Force account work is planning, engineering, or construction work done by the Sponsor's employees.

10-26 Inspector. An authorized representative of the Engineer assigned to make all necessary observations **]** and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

10-27 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 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, 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.

10-28 Laboratory. The official testing laboratories of the Owner or such other laboratories as may be designated by the Engineer. Also referred to as "Engineer's Laboratory" or "quality assurance laboratory."

10-29 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.

10-30 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.

10-31 Materials. Any substance specified for use in the construction of the contract work.

10-32 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.

10-33 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.

10-34 Passenger Facility Charge (PFC). Per 14 CFR Part 158 and 49 USC § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls."

10-35 Pavement. The combined surface course, base course, and subbase course, if any, considered as a single unit.

10-36 Payment bond. The approved form of security furnished by the Contractor and his or her 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.

10-37 Performance bond. The approved form of security furnished by the Contractor and his or her surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

10-38 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.

10-39 Project. The agreed scope of work for accomplishing specific airport development with respect to a particular airport.

10-40 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.

10-41 Proposal guaranty. The security furnished with a proposal to guarantee that the bidder will enter into a contract if his or her proposal is accepted by the Owner.

10-42 Runway. The area on the airport prepared for the landing and takeoff of aircraft.

10-43 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.

10-44 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.

10-45 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; flexible and rigid pavements; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.

10-46 Subgrade. The soil that forms the pavement foundation.

10-47 Superintendent. The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the Engineer, and who shall supervise and direct the construction.

10-48 Supplemental agreement. A written agreement between the Contractor and the Owner covering (1) work that would increase or decrease the total amount of the awarded contract, or any major contract item, by more than 25%, such increased or decreased work being within the scope of the originally awarded contract; or (2) work that is not within the scope of the originally awarded contract.

10-49 Surety. The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.

10-50 Taxiway. For the purpose of this document, the term taxiway means 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.

10-51 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.

10-52 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.

END OF SECTION 10

Section 20 Proposal Requirements and Conditions

20-01 Advertisement (Notice to Bidders).

20-02 Qualification of bidders. Each bidder shall furnish the Owner satisfactory evidence of his or her competency to perform the proposed work. Such evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, a list of equipment that would be available for the work, and a list of key personnel that would be available. In addition, each bidder shall furnish the Owner satisfactory evidence of his or her financial responsibility. Such 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 his or her 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 he or she is prequalified with the State Highway Division and is on the current "bidder's list" of the state in which the proposed work is located. Such evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

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

20-03 Contents of proposal forms. The Owner shall furnish bidders with proposal forms. All papers bound with or attached to the proposal forms are necessary parts and must not be detached.

The plans, specifications, and other documents designated in the proposal form shall be considered a part of the proposal whether attached or not.

20-04 Issuance of proposal forms. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder should such bidder be 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 hereinafter provided in the subsection 40-02 titled ALTERATION OF WORK AND QUANTITIES of Section 40 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 as to the character, quality, and quantities of work to be performed, materials to be furnished, and as 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 as to the conditions to be encountered in performing the work and as to 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 his or her 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 his or her proposal on the forms furnished by the Owner. All blank spaces in the proposal forms 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 for which they propose to do for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall sign the proposal correctly and in ink. If the proposal is made by an individual, his or her 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 under the laws of which 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 his or her 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 Sponsor's invitation for bid. It is the Sponsor'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 49 CFR § 18.36(b)(8). 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.

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 certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such check, or collateral, shall be made payable to the Owner.

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 in writing or by fax 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 the subsection 20-04 titled ISSUANCE OF PROPOSAL FORMS of this section.

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 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 the subsection 20-09 titled IRREGULAR PROPOSALS of Section 20.

b. If the bidder is disqualified for any of the reasons specified in the subsection 20-14 titled DISQUALIFICATION OF BIDDERS of Section 20.

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 **90** calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

Award of the contract shall be made by the Owner to the lowest, qualified bidder whose proposal conforms to the cited requirements of the Owner.

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 the subsection 30-07 titled APPROVAL OF CONTRACT of this section.

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 subsection 30-01 titled CONSIDERATION OF PROPOSALS of this section. 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 the subsection 30-05 titled REQUIREMENTS OF CONTRACT BONDS of this section.

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 the subsection 30-05 titled 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 15 calendar day period specified in the subsection 30-06 titled 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 liquidation of damages to the Owner.

END OF SECTION 30

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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 and shall have the right to make such alterations in the work as may be necessary or desirable to complete the work originally intended in an acceptable manner. Unless otherwise specified herein, the Engineer shall be and is hereby authorized to make such alterations in the work as may increase or decrease the originally awarded contract quantities, provided that the aggregate of such alterations does not change the total contract cost or the total cost of any major contract item by more than 25% (total cost being based on the unit prices and estimated quantities in the awarded contract). Alterations that do not exceed the 25% limitation shall not invalidate the contract nor release the surety, and the Contractor agrees to accept payment for such alterations as if the altered work had been a part of the original contract. These alterations that are for work within the general scope of the contract shall be covered by "Change Orders" issued by the Engineer. Change orders for altered work shall include extensions of contract time where, in the Engineer's opinion, such extensions are commensurate with the amount and difficulty of added work.

Should the aggregate amount of altered work exceed the 25% limitation hereinbefore specified, such excess altered work shall be covered by supplemental agreement. 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.

Supplemental agreements shall be approved by the FAA and shall include all applicable Federal contract provisions for procurement and contracting required under AIP. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds.

40-03 Omitted items. The Engineer may, in the Owner's best interest, omit from the work any contract item, except major contract items. 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 the subsection 90-04 titled PAYMENT FOR OMITTED ITEMS of Section 90.

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work for which no basis of payment has been provided in the original contract or previously issued change orders or supplemental agreements, the same shall be called "Extra Work." Extra Work that is within the general scope of the contract shall be covered by written change order. Change orders for such 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 Engineer's opinion, is necessary for completion of such Extra Work.

When determined by the Engineer to be in the Owner's best interest, the Engineer may order the Contractor to proceed with Extra Work as provided in the subsection 90-05 titled PAYMENT FOR EXTRA WORK of Section 90. 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 the subsection 10-48 titled SUPPLEMENTAL AGREEMENT of Section 10.

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.

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 his or her own operations and the operations of all subcontractors as specified in the subsection 80-04 titled LIMITATION OF OPERATIONS of Section 80. 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 the subsection 70-15 titled CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS in Section 70.

b. With respect to his or her 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.

c. When the contract requires the maintenance of vehicular traffic on 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 such road, street, or highway open to all traffic and shall provide such maintenance as may be required to accommodate traffic. The Contractor shall be responsible for the repair 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 Engineer shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the Engineer in accordance with the provisions of the contract.

Except as provided in the subsection 40-07 titled RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK of this section, 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 either embankment or waste, the Contractor may at his or her option either:

a. Use such material in another contract item, providing such use is approved by the Engineer 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 Engineer; 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 Engineer's approval in advance of such use.

Should the Engineer 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 his or her own 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 Engineer 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 his or her 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 such property Owner.

END OF SECTION 40

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Section 50 Control of Work

50-01 Authority of the Engineer. The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the manner of performance and rate of progress of the work. The Engineer shall decide all questions that may arise as to the interpretation of the specifications or plans relating to the work. The Engineer shall determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for the under contract.

The Engineer does not have the authority to accept pavements that do not conform to FAA 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 Engineer 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 his or her opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the Engineer will advise the Owner of his or her determination that the affected work be accepted and remain in place. In this event, the Engineer 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. The Engineer's determination and recommended contract price adjustments will be based on sound engineering judgment and such tests or retests of the affected work as are, in the Engineer's opinion, needed. Changes in the contract price shall be covered by contract change order or supplemental agreement as applicable.

If the Engineer 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 Engineer's written orders.

For the purpose of this subsection, 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 Engineer'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 Engineer's opinion, such compliance is essential to provide an acceptable finished portion of the work.

For the purpose of this subsection, the term "reasonably close conformity" is also intended to provide the Engineer with the authority, after consultation with the FAA, to use sound engineering judgment in his or her determinations as to acceptance of work that is not in strict conformity, but will provide a finished product equal to or better than that intended by the requirements of the contract, plans and specifications.

The Engineer 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. 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 Engineer for an interpretation and decision, and such decision shall be final.

A1. LIST OF SPECIAL PROVISIONS

50-04 Cooperation of Contractor. The Contractor will be supplied with **five** copies each of the plans and specifications. The Contractor shall have available on the work at all times one copy each of the plans and specifications. Additional 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 Engineer and his or her 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 his or her 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 Engineer or his or her authorized representative.

50-05 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 so as 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 his or her contract and shall protect and save 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 his or her work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join his or her work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-06 Construction layout and stakes. The Engineer shall establish horizontal and vertical control only. The Contractor must establish all layout required for the construction of the work. Such stakes and markings as the Engineer may set for either their own or the Contractor's guidance shall be preserved by the Contractor. In case of negligence on the part of the Contractor, or their employees, resulting in the destruction of such stakes or markings, an amount equal to the cost of replacing the same may be deducted from subsequent estimates due the Contractor at the discretion of the Engineer.

The Contractor will be required to furnish all lines, grades and measurements from the control points necessary for the proper execution and control of the work contracted for under these specifications.

The Contractor must give copies of survey notes to the Engineer for each area of construction and for each placement of material as specified to allow the Engineer to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. All surveys must be provided to the Engineer prior to commencing work items that will cover or disturb the survey staking as set by the Contractor's surveyor. Survey(s) and notes shall be provided in the following format(s): **Electronic PDF.** 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.

Construction Staking and Layout includes but is not limited to:

a. Clearing and Grubbing perimeter staking

b. Rough Grade slope stakes at 100-foot (30-m) stations

c. Drainage Swales slope stakes and flow line blue tops at 50-foot (15-m) stations

Subgrade blue tops at 25-foot (7.5-m) stations and 25-foot (7.5-m) offset distance (maximum) for the following section locations:

a. Runway – minimum five (5) per station

b. Taxiways – minimum three (3) per station

c. Holding apron areas – minimum three (3) per station

d. Roadways – minimum three (3) per station

Base Course blue tops at 25-foot (7.5-m) stations and 25-foot (7.5-m) offset distance (maximum) for the following section locations:

a. Runway – minimum five (5) per station

b. Taxiways – minimum three (3) per station

c. Holding apron areas – minimum three (3) per station

Pavement areas:

a. Edge of Pavement hubs and tacks (for stringline by Contractor) at 100-foot (30-m) stations.

b. Between Lifts at 25-foot (7.5-m) stations for the following section locations:

(1) **(1)** Runways – each paving lane width

(2) **(2)** Taxiways – each paving lane width

(3) **(3)** Holding areas – each paving lane width

c. After finish paving operations at 50-foot (15-m) stations:

(4) **(1)** All paved areas – Edge of each paving lane prior to next paving lot

d. Shoulder and safety area blue tops at 50-foot (15-m) stations and at all break points with maximum of 50-foot (15-m) offsets.

e. Fence lines at 100-foot (30-m) stations minimum.

f. Electrical and Communications System locations, lines and grades including but not limited to duct runs, connections, fixtures, signs, lights, Visual Approach Slope Indicators (VASIs), Precision Approach Path Indicators (PAPIs), Runway End Identifier Lighting (REIL), Wind Cones, Distance Markers (signs), pull boxes and manholes.

g. Drain lines, cut stakes and alignment on 25-foot (7.5-m) stations, inlet and manholes.

h. Painting and Striping layout (pinned with 1.5 inch PK nails) marked for paint Contractor. (All nails shall be removed after painting).

i. Laser, or other automatic control devices, shall be checked with temporary control point or grade hub at a minimum of once per 400 feet (120 m) per pass (that is, paving lane).

The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor.

Controls and stakes disturbed or suspect of having been disturbed shall be checked and/or reset as directed by the Engineer without additional cost to the Owner.

50-07 Automatically controlled equipment. Whenever batching or mixing plant equipment is required to be operated automatically under the contract and a breakdown or malfunction of the automatic controls occurs, the equipment may be operated manually or by other methods for a period 48 hours following the breakdown or malfunction, provided this method of operations will produce results which conform to all other requirements of the contract.

50-08 Authority and duties of inspectors. Inspectors shall be authorized to inspect all work done and all material furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. Inspectors are not authorized to revoke, alter, or waive any provision of the contract. Inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

Inspectors are authorized to notify the Contractor or his or her 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 Engineer 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 Engineer 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 Engineer 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.

Any work done or materials used without supervision or inspection by an authorized representative of the Owner may be ordered removed and replaced at the Contractor's expense unless the Owner's representative failed to inspect after having been given reasonable notice in writing that the work was to be performed.

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 Engineer as provided in the subsection 50-02 titled CONFORMITY WITH PLANS AND SPECIFICATIONS of this section.

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 the subsection 70-14 titled CONTRACTOR'S RESPONSIBILITY FOR WORK of Section 70.

No removal work made under provision of this subsection shall be done without lines and grades having been established by the Engineer. Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans or as established by the Engineer, 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 Engineer made under the provisions of this subsection, the Engineer will have authority to cause unacceptable work to be remedied or removed and replaced and unauthorized work to be removed and to deduct the costs incurred by the Owner from any monies due or to become due 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 shall be responsible for all damage done by his or her hauling equipment and shall correct such damage at his or her own expense.

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 the subsection 50-12 titled MAINTENANCE DURING CONSTRUCTION of this section, the Engineer 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 Engineer'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 deducted from monies due or to become due 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 Engineer to make final inspection of that unit. If the Engineer finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the Engineer 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 Engineer 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 Engineer 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 Engineer will give the Contractor the necessary instructions for correction of same and the Contractor shall immediately comply with and execute such instructions. 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 Engineer 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 Engineer in writing of his or her 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 Engineer 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 Engineer 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 Engineer 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.

50-17 Cost reduction incentive. The provisions of this subsection will apply only to contracts awarded to the lowest bidder pursuant to competitive bidding.

On projects with original contract amounts in excess of $100,000, the Contractor may submit to the Engineer, in writing, proposals for modifying the plans, specifications or other requirements of the contract for the sole purpose of reducing the cost of construction. The cost reduction proposal shall not impair, in any manner, the essential functions or characteristics of the project, including but not limited to service life, economy of operation, ease of maintenance, desired appearance, design and safety standards. This provision shall not apply unless the proposal submitted is specifically identified by the Contractor as being presented for consideration as a value engineering proposal.
Not eligible for cost reduction proposals are changes in the basic design of a pavement type, runway and taxiway lighting, visual aids, hydraulic capacity of drainage facilities, or changes in grade or alignment that reduce the geometric standards of the project.

As a minimum, the following information shall be submitted by the Contractor with each proposal:

a. A description of both existing contract requirements for performing the work and the proposed changes, with a discussion of the comparative advantages and disadvantages of each.

b. An itemization of the contract requirements that must be changed if the proposal is adopted.

c. A detailed estimate of the cost of performing the work under the existing contract and under the proposed changes.

d. A statement of the time by which a change order adopting the proposal must be issued.

e. A statement of the effect adoption of the proposal will have on the time for completion of the contract.

f. The contract items of work affected by the proposed changes, including any quantity variation attributable to them.

The Contractor may withdraw, in whole or in part, any cost reduction proposal not accepted by the Engineer, within the period specified in the proposal. The provisions of this subsection shall not be construed to require the Engineer to consider any cost reduction proposal that may be submitted.
The Contractor shall continue to perform the work in accordance with the requirements of the contract until a change order incorporating the cost reduction proposal has been issued. If a change order has not been issued by the date upon which the Contractor's cost reduction proposal specifies that a decision should be made, or such other date as the Contractor may subsequently have requested in writing, such cost reduction proposal shall be deemed rejected.
The Engineer shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings from the adoption of all or any part of such proposal. In determining the estimated net savings, the Engineer may disregard the contract bid prices if, in the Engineer's judgment such prices do not represent a fair measure of the value of the work to be performed or deleted.
The Owner may require the Contractor to share in the Owner's costs of investigating a cost reduction proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall acknowledge acceptance of it in writing. Such acceptance shall constitute full authority for the Owner to deduct the cost of investigating a cost reduction proposal from amounts payable to the Contractor under the contract.
If the Contractor's cost reduction proposal is accepted in whole or in part, such acceptance will be by a contract change order that shall specifically state that it is executed pursuant to this subsection. Such change order shall incorporate the changes in the plans and specifications which are necessary to permit the cost reduction proposal or such part of it as has been accepted and shall include any conditions upon which the Engineer's approval is based. The change order shall also set forth the estimated net savings attributable to the cost reduction proposal. The net savings shall be determined as the difference in costs between the original contract costs for the involved work items and the costs occurring as a result of the proposed change. The change order shall also establish the net savings agreed upon and shall provide for adjustment in the contract price that will divide the net savings equally between the Contractor and the Owner.
The Contractor's 50% share of the net savings shall constitute full compensation to the Contractor for the cost reduction proposal and the performance of the work.

Acceptance of the cost-reduction proposal and performance of the cost-reduction work shall not extend the time of completion of the contract unless specifically provided for in the contract change order.

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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 complete statements to the Engineer as to the origin, composition, and manufacture of all materials to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the Engineer's option, materials may be approved at the source of supply before delivery is stated. 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 conforms to the requirements of cited materials specifications. In addition, where an FAA specification for airport lighting equipment is cited in the plans or specifications, the Contractor shall furnish such equipment that is:

a. Listed in advisory circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, and Addendum that is in effect on the date of advertisement; and,

b. Produced by the manufacturer as listed in the Addendum cited above for the certified equipment part number.

~~The following airport lighting equipment is required for this contract and is to be furnished by the Contractor in accordance with the requirements of this subsection: **[___]**.~~

60-02 Samples, tests, and cited specifications. Unless otherwise designated, all materials used in the work shall be inspected, tested, and approved by the Engineer before incorporation in the work. Any work in which untested materials are used without approval or written permission of the Engineer 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 Engineer, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests 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, will be made by and at the expense of the Engineer.

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, including the Contractor's representative at his or her request. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the Engineer. 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 Engineer.

The Contractor shall employ a testing organization to perform all Contractor required Quality Control tests. The Contractor shall submit to the Engineer resumes on all testing organizations and individual persons who will be performing the tests. The Engineer will determine if such persons are qualified. All the test data shall be reported to the Engineer after the results are known. A legible, handwritten copy of

all test data shall be given to the Engineer 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 Engineer showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

- **All test data from the Contractor shall be furnished in electronic format. The Engineer shall provide (following the award of contract) the acceptable format to be used.**

60-03 Certification of compliance. The Engineer may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's certificates of compliance 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.

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 Engineer.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "brand name," 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.

Should the Contractor propose to furnish an "or equal" material or assembly, the Contractor shall furnish the manufacturer's certificates of compliance as hereinbefore described for the specified brand name material or assembly. However, the Engineer shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The Engineer reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 Plant inspection. The Engineer or his or her 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 Engineer conduct plant inspections, the following conditions shall exist:

a. The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom the Engineer has contracted for materials.

b. The Engineer 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 Engineer, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Office or working space should be conveniently located 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 Engineer 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's field office. An Engineer's field office is not required.

60-06 Storage of materials. Materials shall be so stored as 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 Engineer. 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, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the Engineer. 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 Engineer 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 his or her entire 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 Engineer.

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 Engineer 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

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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 his or her 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) is indicated as follows: **None at this time.**

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 Engineer.

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 Engineer, 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 aid participation. For Airport Improvement Program (AIP) contracts, the United States Government has agreed to reimburse the Owner for some portion of the contract costs. Such reimbursement is made from time to time upon the Owner's request to the FAA. In consideration of the United States Government's (FAA's) agreement with the Owner, the Owner has included provisions in

this contract pursuant to the requirements of Title 49 of the USC and the Rules and Regulations of the FAA that pertain to the work.

As required by the USC, the contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator, and is further subject to those provisions of the rules and regulations that are cited in the contract, plans, or specifications.

No requirement of the USC, the rules and regulations implementing the USC, or this contract shall be construed as making the Federal Government 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 shall provide and maintain in a neat, sanitary condition such accommodations for the use of his or her employees as may be necessary to comply with the requirements of the state and local Board of Health, or of other bodies or tribunals having jurisdiction.

Attention is directed to Federal, state, and local laws, rules and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to his or her health or safety.

70-07 Public convenience and safety. The Contractor shall control his or her operations and those of his or her 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 his or her own operations and those of his or her subcontractors and all suppliers in accordance with the subsection 40-05 titled MAINTENANCE OF TRAFFIC of Section 40 hereinbefore specified and shall limit such operations for the convenience and safety of the traveling public as specified in the subsection 80-04 titled LIMITATION OF OPERATIONS of Section 80 hereinafter.

70-08 Barricades, warning signs, and hazard markings. The Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work. When used during periods of darkness, such barricades, warning signs, and hazard markings shall be suitably illuminated. Unless otherwise specified, barricades, warning signs, and markings for hazards that are in the air operations area (AOAs) shall be a maximum of 18 inches (0.5 m) high. Unless otherwise specified, barricades shall be spaced not more than 4 feet (1.2 m) apart. Barricades, warning signs, and markings shall be paid for under subsection 40-05.

For vehicular and pedestrian traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices.

When the work requires closing an air operations area of the airport or portion of such area, the Contractor shall furnish, erect, and maintain temporary markings and associated lighting conforming to the requirements of advisory circular (AC) 150/5340-1L, Standards for Airport Markings.

The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stock piles, and the Contractor's parked construction equipment that may be hazardous to the operation of emergency fire-rescue or maintenance vehicles on the airport in reasonable conformance to AC 150/5370-2G, Operational Safety on Airports During Construction.

The Contractor shall identify each motorized vehicle or piece of construction equipment in reasonable conformance to AC 150/5370-2G.

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

Open-flame type lights shall not be permitted.

70-09 Use of explosives. When the use of explosives is necessary for the execution of the work, the Contractor shall exercise the utmost care not to endanger life or property, including new work. The Contractor shall be responsible for all damage resulting from the use of explosives.

All explosives shall be stored in a secure manner in compliance with all laws and ordinances, and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided satisfactory to the Engineer and, in general, not closer than 1,000 feet (300 m) from the work or from any building, road, or other place of human occupancy.

The Contractor shall notify each property Owner and public utility company having structures or facilities in proximity to the site of the work of his or her intention to use explosives. Such notice shall be given sufficiently in advance to enable them to take such steps as they may deem necessary to protect their property from injury.

The use of electrical blasting caps shall not be permitted on or within 1,000 feet (300 m) of the airport property.

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 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 his or her own 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 save harmless the Engineer and the Owner and their officers, 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 his or her 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, his or her 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. Should it be 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 shall be specified herein and indicated on the plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified. The Contractor shall make his or her own estimate of the difficulties involved in arranging the work to permit such beneficial occupancy by the Owner as described below:

PHASING IS ADDRESSED IN DETAIL IN THE CONSTRUCTION SAFETY AND PHASING PLAN (CSPP), LOCATED IN THIS SPECIFICATION.

Upon completion of any portion of the work listed above, such portion shall be accepted by the Owner in accordance with the subsection 50-14 titled PARTIAL ACCEPTANCE of Section 50.

No portion of the work may be opened by the Contractor for public use until ordered by the Engineer in writing. Should it become necessary to open a portion of the work to public traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the Engineer, 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 his or her expense.

The Contractor shall make his or her 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.

Contractor shall be required to conform to safety standards contained AC 150/5370-2 (see Special Provisions).

Contractor shall refer to the approved Construction Safety Phasing Plan (CSPP) to identify barricade requirements and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor's responsibility for work. Until the Engineer's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with the subsection 50-14 titled PARTIAL ACCEPTANCE of Section 50, 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 his or her 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 the subsection 70-04 titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section, 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 the Owners are indicated as follows:

NONE KNOWN; HOWEVER, THE CONTRACTOR SHALL NOTIFY IOWA ONE-CALL, THE AIRPORT MANAGER, AND THE ENGINEER AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.

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 his or her plan of operations. Such notification shall be in writing addressed to THE PERSON TO CONTACT as provided in this subsection and subsection 70-04 titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section. A copy of each notification shall be given to the Engineer.

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 Engineer.

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 Engineer 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 Engineer 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 his or her surety.

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, his or her 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 his or her surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill his or her 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, bitumens, 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 his or her 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 Engineer. The Engineer 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 the subsection 40-04 titled EXTRA WORK of Section 40 and the subsection 90-05 titled PAYMENT FOR EXTRA WORK of Section 90. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with the subsection 80-07 titled DETERMINATION AND EXTENSION OF CONTRACT TIME of Section 80.

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 Engineer.

The Contractor shall provide copies of all subcontracts to the Engineer. **The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.**

Should the Contractor elect to assign his or her 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.

80-02 Notice to proceed. The notice to proceed shall state the date on which it is expected the Contractor will begin the construction and from which date contract time will be charged. The Contractor shall begin the work to be performed under the contract within 10 days of the date set by the Engineer in the written notice to proceed, but in any event, the Contractor shall notify the Engineer at least 24 hours in advance of the time actual construction operations will begin. The Contractor shall not commence any actual construction 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 progress schedule for the Engineer's approval within 10 days after the effective date of the notice to proceed. The Contractor's progress schedule, when approved by the Engineer, may be used to establish major construction operations and to check on the progress of the work. 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 Engineer'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 Engineer at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the notice to proceed is issued by the Owner.

80-04 Limitation of operations. The Contractor shall control his or her operations and the operations of his or her 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 his or her operations within an AOA of the airport, the work shall be coordinated with airport operations (through the Engineer) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the Engineer and until the necessary temporary marking and associated lighting is in place as provided in the subsection 70-08 titled BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS of Section 70.

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; 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 the satisfactory conditions are provided. The following AOA 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:

CLOSED AREAS AND LIMITATIONS AREA ADDRESSED IN DETAIL IN THE CONSTRUCTION SAFETY AND PHASING PLAN (CSPP), LOCATED IN THIS SPECIFICATION.

Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction (see Special Provisions).

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the project Construction Safety and Phasing Plan (CSPP) and the provisions set forth within the current version of AC 150/5370-2. 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 Safety Plan Compliance Document 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 that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP unless approved in writing by the Owner or Engineer.

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 Engineer, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer, be removed forthwith by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the Engineer.

Should the Contractor fail to remove such persons or person, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the Engineer 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 be such that no injury to previously completed work, adjacent property, or existing airport facilities will result from 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 others are authorized by the Engineer. 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 Engineer 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 Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this subsection.

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 as the Owner may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the execution of the work, or for such time as is 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 Engineer's order to suspend work to the effective date of the Engineer's order to resume the work. Claims for such compensation shall be filed with the Engineer within the time period stated in the Engineer's order to resume work. The Contractor shall submit with his or her claim information substantiating the amount shown on the claim. The Engineer 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, for suspensions made at the request of the Owner, or for any other delay provided for in the contract, plans, or specifications.

If it should become 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 or working days allowed for completion of the work shall be stated in the proposal and contract and shall be known as the CONTRACT TIME.

Should the contract time require extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

a. CONTRACT TIME based on WORKING DAYS shall be calculated weekly by the Engineer. The Engineer will furnish the Contractor a copy of his or her weekly statement of the number of working days charged against the contract time during the week and the number of working days currently specified for completion of the contract (the original contract time plus the number of working days, if any, that have been included in approved CHANGE ORDERS or SUPPLEMENTAL AGREEMENTS covering EXTRA WORK).

The Engineer shall base his or her weekly statement of contract time charged on the following considerations:

(5) **(1)** No time shall be charged for days on which the Contractor is unable to proceed with the principal item of work under construction at the time for at least six (6) hours with the normal work force employed on such principal item. Should the normal work force be on a double-shift, 12 hours shall be used. Should the normal work force be on a triple-shift, 18 hours shall apply. Conditions beyond the Contractor's control such as strikes, lockouts, unusual delays in transportation, temporary suspension of the principal item of work under construction or temporary suspension of the entire work which have been ordered by the Owner for reasons not the fault of the Contractor, shall not be charged against the contract time.

(6) **(2)** The Engineer will not make charges against the contract time prior to the effective date of the notice to proceed.

(7) **(3)** The Engineer will begin charges against the contract time on the first working day after the effective date of the notice to proceed.

(8) **(4)** The Engineer will not make charges against the contract time after the date of final acceptance as defined in the subsection 50-15 titled FINAL ACCEPTANCE of Section 50.

(9) **(5)** The Contractor will be allowed one (1) week in which to file a written protest setting forth his or her objections to the Engineer's weekly statement. If no objection is filed within such specified time, the weekly statement shall be considered as acceptable to the Contractor.

The contract time (stated in the proposal) is based on the originally estimated quantities as described in the subsection 20-05 titled INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES of Section 20. Should the satisfactory completion of the contract require performance of work in greater quantities than those estimated in the proposal, 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 contract time shall not consider either the cost of work or the extension of contract time that has been covered by change order or supplemental agreement and shall be made at the time of final payment.

b. 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.

c. When the contract time is a specified completion date, it shall be the date on which all contract work shall be substantially complete.

If the Contractor finds it impossible for reasons beyond his or her control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this subsection, the Contractor may, at any time prior to the expiration of the contract time as extended, make a written request to the Owner for an extension of time setting forth the reasons which the Contractor believes will justify the granting of his or her request. Requests for extension of time on calendar day projects, caused by inclement weather, shall be supported with National Weather Bureau data showing the actual amount of inclement weather exceeded what could normally be expected during the contract period. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the

supporting documentation justify the work was delayed because of conditions beyond the control and without the fault of the Contractor, the Owner may extend the time for completion by a change order that adjusts the contract time or completion date. The extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

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 the subsection 80-07 titled DETERMINATION AND EXTENSION OF CONTRACT TIME of this Section) the sum specified in the contract and proposal as liquidated damages will be deducted from any money due or to become due the Contractor or his or her 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 their contract.

Schedule	Liquidated Damages Cost	Allowed Construction Time
1	$500 / Working Days	33 Working Days

The maximum construction time allowed for Schedules as listed above will be the sum of the time allowed for individual schedules but not more than **33** days. 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 wavier 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 his or her 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 Engineer consider the Contractor in default of the contract for any reason above, the Engineer 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 Engineer 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 Engineer 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 Engineer.

Termination of the contract or a portion thereof shall neither relieve the Contractor of his or her responsibilities for the completed work nor shall it relieve his or her 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 Engineer 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 his or her work in such a manner as to ensure safety and a minimum of hindrance to flight operations. All Contractor equipment and material stockpiles shall be stored a minimum or 300 feet from the centerline of an active runway. No equipment will be allowed to park within the approach area of an active runway at any time. No equipment shall be within 66 feet of an active runway at any time.

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 Engineer, or his or her authorized representatives, using United States Customary Units of Measurement or the International System of Units.

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 Engineer.

Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

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.

In computing volumes of excavation the average end area method or other acceptable methods will be used.

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.

The term “ton” will mean the short ton consisting of 2,000 lb (907 km) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designed by the Engineer. 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 Engineer directs, and each truck shall bear a plainly legible identification mark.

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.

When requested by the Contractor and approved by the Engineer 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 Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Bituminous 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 or ASTM D633 for tars.

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 bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

When bituminous materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, may be used for computing quantities.

Cement will be measured by the ton (kg) or hundredweight (km).

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.

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.

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 by the Engineer in connection with force account work will be measured as agreed in the change order or supplemental agreement authorizing such force account work as provided in the subsection 90-05 titled PAYMENT FOR EXTRA WORK of this section.

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 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.

Scales shall be accurate within 1/2% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the inspector 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 one-tenth of 1% of the nominal rated capacity of the scale, but not less than 1 pound (454 grams). The use of spring balances will not be permitted.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the inspector 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.

Scales must be tested for accuracy and serviced before use at a new site. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.

Scales "overweighing" (indicating more than correct weight) will not be permitted to operate, and all materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of one-half of 1%.

In the event inspection reveals the scales have been underweighing (indicating less than correct weight), they shall be adjusted, and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.

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.

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 Engineer. 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 the subsection 70-18 titled NO WAIVER OF LEGAL RIGHTS of Section 70.

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 the subsection 40-02 titled ALTERATION OF WORK AND QUANTITIES of Section 40 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 his or her unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 Payment for omitted items. As specified in the subsection 40-03 titled OMITTED ITEMS of Section 40, the Engineer 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 Engineer 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 Engineer'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 Engineer'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 Engineer'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 the subsection 40-04 titled EXTRA WORK of Section 40, 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 Engineer, 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 the subsection 90-07 titled PAYMENT FOR MATERIALS ON HAND of this section. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

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. The Owner must ensure prompt and full payment of retainage from 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.

From the total of the amount determined to be payable on a partial payment, **ten (10) percent** of such total amount will be deducted and retained by the Owner until the final payment is made, except as may be provided (at the Contractor's option) in the subsection 90-08 titled PAYMENT OF WITHHELD FUNDS of this section. The balance (90 percent) of the amount payable, less all previous payments, shall be certified for payment. Should the Contractor exercise his or her option, as provided in the subsection 90-08 titled PAYMENT OF WITHHELD FUNDS of this section, no such percent retainage shall be deducted.

When at least 95% of the work has been completed, the Engineer 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 Engineer 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 the subsection 90-09 titled ACCEPTANCE AND FINAL PAYMENT of this section.

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. **Lien waivers prior to final release of retainage will be required from the Prime Contractor, all subcontractors, and all suppliers with a value of material/equipment supplied in excess of $500.**

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 Engineer at or on an approved site.

b. The Contractor has furnished the Engineer with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the Engineer 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 so stored or stockpiled.

e. The Contractor has furnished the Owner evidence that the material so 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 his or her 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 subsection.

90-08 Payment of withheld funds. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in subsection 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 the subsection 50-15 titled FINAL ACCEPTANCE of Section 50, the Engineer will prepare the final estimate of the items of work actually performed. The Contractor shall approve the Engineer's final estimate or advise the Engineer 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 Engineer 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 Engineer's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the Engineer'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 the subsection 50-16 titled CLAIMS FOR ADJUSTMENT AND DISPUTES of Section 50.

After the Contractor has approved, or approved under protest, the Engineer's final estimate, and after the Engineer's receipt of the project closeout documentation required in subsection 90-11 Project Closeout, 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 the subsection 50-16 titled CLAIMS FOR ADJUSTMENTS AND DISPUTES of Section 50 or under the provisions of this subsection, 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. 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. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work.

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of:

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The 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 Project closeout. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the Engineer approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

b. Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

c. Complete final cleanup in accordance with subsection 40-08, 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.

k. Security for Construction Warranty.

l. Equipment commissioning documentation submitted, if required.

END OF SECTION 90

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Section 100 Contractor Quality Control Program

100-01 General. When the specification requires a Contractor Quality Control Program, the Contractor shall establish, provide, and maintain an effective Quality Control Program 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 intent of this section is to enable the Contractor to establish a necessary level of control that will:

a. Adequately provide for the production of acceptable quality materials.

b. Provide sufficient information to assure both the Contractor and the Engineer that the specification requirements can be met.

c. Allow the Contractor as much latitude as possible to develop his or her own standard of control.

The Contractor shall be prepared to discuss and present, at the preconstruction conference, their understanding of the quality control requirements. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed and accepted by the Engineer. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed.

The quality control requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the acceptance testing requirements. Acceptance testing requirements are the responsibility of the Engineer.

Paving projects over $250,000 shall have a Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Contractor, subcontractors, testing laboratories, and Owner's representative and the FAA prior to or at start of construction. The workshop shall address QC and QA requirements of the project specifications. The Contractor shall coordinate with the Airport and the Engineer on time and location of the QC/QA workshop.

100-02 Description of program.

a. General description. The Contractor shall establish a Quality Control Program to perform quality control inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. This Quality Control Program shall ensure conformance to applicable specifications and plans with respect to materials, workmanship, construction, finish, and functional performance. The Quality Control Program shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.

b. Quality Control Program. The Contractor shall describe the Quality Control Program in a written document that shall be reviewed and approved by the Engineer prior to the start of any production, construction, or off-site fabrication. The written Quality Control Program shall be submitted to the Engineer for review and approval at least **5** calendar days before the **Preconstruction Meeting**. The

Contractor's Quality Control Plan and Quality Control testing laboratory must be approved in writing by the Engineer prior to the Notice to Proceed (NTP).

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

a. Quality control organization

b. Project progress schedule

c. Submittals schedule

d. Inspection requirements

e. Quality control testing plan

f. Documentation of quality control activities

g. Requirements for corrective action when quality control and/or acceptance criteria are not met

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

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

The organizational chart shall identify all quality control staff by name and function, and shall indicate the total staff required to implement all elements of the Quality Control Program, including inspection and testing for each item of work. If necessary, different technicians can be 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 Quality Control Program, the personnel assigned shall be subject to the qualification requirements of paragraph 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

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

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

Additional qualifications for the Program Administrator shall include at least one of the following requirements:

(1) Professional Engineer with one (1) year of airport paving experience.

(2) Engineer-in-training with two (2) years of airport paving experience.

(3) An individual with three (3) years of highway and/or airport paving experience, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

(4) Construction materials technician certified at Level III by the National Institute for Certification in Engineering Technologies (NICET).

(5) Highway materials technician certified at Level III by NICET.

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

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

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

b. Quality control technicians. A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program shall be provided. These personnel shall be either Engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II or higher construction materials technician or highway construction technician and shall have a minimum of two (2) years of experience in their area of expertise.

The quality control technicians shall report directly to the Program Administrator and shall perform the following functions:

(10) **(1)** Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by subsection 100-06.

(11) **(2)** Performance of all quality control tests as required by the technical specifications and subsection 100-07.

(12) **(3)** Performance of density tests for the Engineer when required by the technical specifications.

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

c. Staffing levels. The Contractor shall provide sufficient qualified quality control personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The Quality Control Program shall state where different technicians will be required for different work elements.

100-04 Project progress schedule. The Contractor shall submit a coordinated construction schedule for all work activities. The schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified in the contract. As a minimum, it shall provide information on the sequence of work activities, milestone dates, and activity duration.

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.

100-05 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:

a. Specification item number

b. Item description

c. Description of submittal

d. Specification paragraph requiring submittal

e. Scheduled date of submittal

100-06 Inspection requirements. Quality control inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by subsection 100-07.

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

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

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

100-07 Quality control testing plan. As a part of the overall Quality Control Program, the Contractor shall implement a quality control testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes.

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

a. Specification item number (for example, P-401)

b. Item description (for example, Plant Mix Bituminous Pavements)

c. Test type (for example, gradation, grade, asphalt content)

d. Test standard (for example, ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable)

e. Test frequency (for example, as required by technical specifications or minimum frequency when requirements are not stated)

f. Responsibility (for example, plant technician)

g. Control requirements (for example, target, permissible deviations)

The testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The Engineer shall be provided the opportunity to witness quality control sampling and testing.

All quality control test results shall be documented by the Contractor as required by subsection 100-08.

100-08 Documentation. The Contractor shall maintain current quality control records of all inspections and tests performed. These records shall include factual evidence that the required inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or

tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the Engineer daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the Contractor's Program Administrator.

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

a. Daily inspection reports. Each Contractor quality control technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations. These technician's daily reports shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:

(13) **(1)** Technical specification item number and description

(14) **(2)** Compliance with approved submittals

(15) **(3)** Proper storage of materials and equipment

(16) **(4)** Proper operation of all equipment

(17) **(5)** Adherence to plans and technical specifications

(18) **(6)** Review of quality control tests

(19) **(7)** Safety inspection.

The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

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

b. Daily test reports. The Contractor shall be responsible for establishing a system that will record all quality control test results. Daily test reports shall document the following information:

(20) **(1)** Technical specification item number and description

(21) **(2)** Test designation

(22) **(3)** Location

(23) **(4)** Date of test

(24) **(5)** Control requirements

(25) **(6)** Test results

(26) **(7)** Causes for rejection

(27) **(8)** Recommended remedial actions

(28) **(9)** Retests

Test results from each day's work period shall be submitted to the Engineer prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical quality control charts. The daily test reports shall be signed by the responsible quality control technician and the Program Administrator.

100-09 Corrective action requirements. The Quality Control Program shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail

what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the Quality Control Program as a whole, and for individual items of work contained in the technical specifications.

The Quality Control Program shall detail how the results of quality control inspections and tests will be used for determining the need for corrective action and shall contain clear sets of rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and use statistical quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

100-10 Surveillance by the Engineer. All items of material and equipment shall be subject to surveillance by the Engineer at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed here and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to surveillance by the Engineer at the site for the same purpose.

Surveillance by the Engineer does not relieve the Contractor of performing quality control inspections of either on-site or off-site Contractor's or subcontractor's work.

100-11 Noncompliance.

a. The Engineer will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the Engineer or his or her authorized representative to the Contractor or his or her authorized representative at the site of the work, shall be considered sufficient notice.

b. In cases where quality control activities do not comply with either the Contractor Quality Control Program or the contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the Engineer, the Engineer may:

(29) **(1)** Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors.

(30) **(2)** Order the Contractor to stop operations until appropriate corrective actions are taken.

END OF SECTION 100

Section 105 Mobilization

105-1 Description. This item shall consist of work and operations, 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.

105-1.1 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.

105-2 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, 25%.

b. When 25% or more of the original contract is earned, an additional 25%.

c. When 50% or more of the original contract is earned, an additional 40%.

d. After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials as required by 90-11, the final 10%.

END OF SECTION 105

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Section 110 Method of Estimating Percentage of Material Within Specification Limits (PWL)

110-01 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 (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.

110-02 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 sublot 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 (X) for all sublot values within the lot by using the following formula:

$$\mathbf{X = (x_1 + x_2 + x_3 + \ldots x_n) / n}$$

(31) Where: X = Sample average of all sublot values within a lot

(32) x_1, x_2 = Individual sublot values

(33) n = Number of sublots

e. Find the sample standard deviation (S_n) by use of the following formula:

$$\mathbf{S_n = [(d_1^2 + d_2^2 + d_3^2 + \ldots d_n^2)/(n-1)]^{1/2}}$$

(34) Where: S_n = Sample standard deviation of the number of sublot values in the set

(35) d_1, d_2 = Deviations of the individual sublot values x_1, x_2, … from the average value X

(36) that is: $d_1 = (x_1 - X)$, $d_2 = (x_2 - X)$ … $d_n = (x_n - X)$

(37) n = Number of sublots

f. For single sided specification limits (that is, L only), compute the Lower Quality Index Q_L by use of the following formula:

$$\mathbf{Q_L = (X - L) / S_n}$$

(38) Where: L = specification lower tolerance limit

(39) 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 (that is, L and U), compute the Quality Indexes Q_L and Q_U by use of the following formulas:

$$\mathbf{Q_L = (X - L) / S_n}$$
and
$$\mathbf{Q_U = (U - X) / S_n}$$

(40) Where: L and U = specification lower and upper tolerance limits

(41) 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:

$$\mathbf{PWL = (P_U + P_L) - 100}$$

(42) Where: P_L = percent within lower specification limit

(43) 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.

(44) A-1 = 96.60

(45) A-2 = 97.55

(46) A-3 = 99.30

(47) A-4 = 98.35

(48) n = 4

2. Calculate average density for the lot.

(49) $X = (x_1 + x_2 + x_3 + . . . x_n) / n$

(50) $X = (96.60 + 97.55 + 99.30 + 98.35) / 4$

(51) $X = 97.95\%$ density

3. Calculate the standard deviation for the lot.

(52) $S_n = \mathbf{[}((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2)) / (4 - 1)\mathbf{]}^{1/2}$

(53) $S_n = \mathbf{[}(1.82 + 0.16 + 1.82 + 0.16) / 3\mathbf{]}^{1/2}$

(54) $S_n = 1.15$

4. Calculate the Lower Quality Index Q_L for the lot. (L=96.3)

(55) $Q_L = (X - L) / S_n$

(56) $Q_L = (97.95 - 96.30) / 1.15$

(57) $Q_L = 1.4348$

5. Determine PWL by entering Table 1 with $Q_L = 1.44$ and n= 4.

(58) PWL = 98

B. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.

(59) A-1 = 5.00

(60) A-2 = 3.74

(61) A-3 = 2.30

(62) A-4 = 3.25

2. Calculate the average air voids for the lot.

(63) $X = (x_1 + x_2 + x_3 . . . n) / n$

(64) $X = (5.00 + 3.74 + 2.30 + 3.25) / 4$

(65) $X = 3.57\%$

3. Calculate the standard deviation S_n for the lot.

(66) $S_n = \mathbf{[}((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)\mathbf{]}^{1/2}$

(67) $S_n = \mathbf{[}(2.04 + 0.03 + 1.62 + 0.10) / 3\mathbf{]}^{1/2}$

(68) $S_n = 1.12$

4. Calculate the Lower Quality Index Q_L for the lot. (L= 2.0)

(69) $Q_L = (X - L) / S_n$

(70) $Q_L = (3.57 - 2.00) / 1.12$

(71) $Q_L = 1.3992$

5. Determine P_L by entering Table 1 with $Q_L = 1.41$ and n = 4.

(72) $P_L = 97$

6. Calculate the Upper Quality Index Q_U for the lot. (U= 5.0)

(73) $Q_U = (U - X) / S_n$

(74) $Q_U = (5.00 - 3.57) / 1.12$

(75) $Q_U = 1.2702$

7. Determine P_U by entering Table 1 with $Q_U = 1.29$ and n = 4.

(76) $P_U = 93$

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.

(77) A-3 = 99.30

(78) A-4 = 98.35

(79) A-2 = 97.55

(80) A-1 = 96.60

2. Use n=4 and upper 5% significance level of to find the critical value for test criterion = 1.463.

3. Use average density, standard deviation, and test criterion value to evaluate density measurements.

(81) **a.** For measurements greater than the average:

(82) If (measurement - average)/(standard deviation) is less than test criterion,

(83) then the measurement is not considered an outlier

(84) For A-3, check if (99.30 - 97.95) / 1.15 is greater than 1.463.

(85) Since 1.174 is less than 1.463, the value is not an outlier.

(86) **b.** For measurements less than the average:

(87) If (average - measurement)/(standard deviation) is less than test criterion,

(88) then the measurement is not considered an outlier.

(89) For A-1, check if (97.95 - 96.60) / 1.15 is greater than 1.463.

(90) 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:

(91) Greater than (97.95 + 1.463 × 1.15) = 99.63%

(92) OR

(93) less than (97.95 - 1.463 × 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

END OF SECTION 110

TECHNICAL SPECIFICATIONS

2017 Airport Improvements

City of Storm Lake, Iowa

T51.111257

AIP #3-19-0088-12

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Part 2 – Earthwork

Item P-101 Surface Preparation

DESCRIPTION

101-1.1 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 drawings.

EQUIPMENT

101-2.1 All equipment shall be specified here and in the following paragraphs or approved by the Engineer. The equipment shall not cause damage to the pavement to remain in place.

CONSTRUCTION

101-3.1 Removal of existing pavement.

a. Concrete pavement. The existing concrete pavement to be removed shall be freed from the pavement to remain by sawing through the complete depth of the slab one foot (30 cm) inside the perimeter of the final removal limits or outside the dowels, whichever is greater when the limits of removal are located on the joints. The pavement between the perimeter of the pavement removal and the saw cut shall be carefully broken up and removed using hand-held jackhammers, weighing 30 pounds (14 kg) or less, or other light-duty equipment which will not cause distress in the pavement which is to remain in place. The Contractor shall have the option of sawing through the dowels at the joint, removing the pavement and installing new dowels. Where the perimeter of the removal limits is not located on the joint and there are no dowels present, then the perimeter shall be saw cut the full depth of the pavement. The pavement inside the saw cut shall be removed by methods suitable to the Engineer which will not cause distress in the pavement which is to remain in place. If the material is to be wasted on the airport site, it shall be reduced to a maximum size designated by the Engineer. The Contractor's removal operation shall not cause damage to cables, utility ducts, pipelines, or drainage structures under the pavement. Concrete slabs that are damaged by under breaking shall be removed. Any damage shall be repaired at the Contractor's expense.

b. Asphalt concrete pavement. Asphalt concrete pavement to be removed shall be cut to the full depth of the bituminous material around the perimeter of the area to be removed. The pavement shall be removed so the joint for each layer of pavement replacement is offset 1 foot (30 cm) from the joint in the preceding layer. This does not apply if the removed pavement is to be replaced with concrete or soil. If the material is to be wasted on the airport site, it shall be broken to a maximum size as designated by the airport owner.

~~**101-3.2 Preparation of joints and cracks.** 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 Engineer. Fill all cracks, ignoring hairline cracks (< 1/4 inch (6 mm) wide) with a crack sealant per ASTM D6690. Wider cracks (over 1-1/2 inch wide (38 mm)), along with soft or sunken spots, indicate that the pavement or the pavement base should be repaired or~~

~~replaced as stated below. Any excess joint or crack sealer on the surface of the pavement shall also be removed from the pavement surface.~~

~~**101-3.3 Removal of paint and rubber.** All paint and rubber over 1 foot (30 cm) wide that will affect the bond of the new overlay shall be removed from the surface of the existing pavement. Chemicals, high-pressure water, heater scarifier (asphaltic concrete only), cold milling, or sandblasting may be used. Any methods used shall not cause major damage to the pavement. Major damage is defined as changing the properties of the pavement or removing pavement over 1/8 inch (3 mm) deep. If chemicals are used, they shall comply with the state's environmental protection regulations. No material shall be deposited on the runway 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.** The Contractors shall repair all spalled concrete as shown on the plans or as directed by the Engineer. The perimeter of the repair shall be saw cut a minimum of 2 inches (50 mm) outside the affected area and 2 inches (50 mm) deep. The deteriorated material shall be removed to a depth where the existing material is firm or cannot be easily removed with a geologist pick. The removed area shall be filled with asphaltic concrete with a minimum Marshall stability of 1,200 lbs (544 kg) and maximum flow of 20 (units of 0.01 in). The material shall be compacted with equipment approved by the Engineer until the material is dense and no movement or marks are visible. The material shall not be placed in lifts over 4 inches (100 mm) in depth. This method of repair applies only to pavement to be overlaid.~~

~~**b. Asphaltic concrete pavement repair.** The failed areas shall be removed as specified in paragraph 101-3.1b. All failed material including surface, base course, subbase course, and subgrade shall be removed. The base course and subbase shall be replaced if it has been infiltrated with clay, silt, or other material affecting the load-bearing capacity. Materials and methods of construction shall comply with the other applicable sections of this specification.~~

~~**101-3.5 Cold milling.** Milling shall be performed with a power-operated milling machine or grinder, capable of producing a finished surface that provides a good bond to the new overlay. The milling machine or grinder shall operate without tearing or gouging the under laying surface. The milling machine or grinder shall be equipped with automatic grade and slope controls. All millings shall be removed and disposed off Airport property, unless otherwise specified. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material that was removed with new material at no additional cost to the Owner.~~

~~**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 Engineer shall layout the area to be milled with a straightedge in increments of 1 foot (30 cm) 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 not be included in the measurement for payment.~~

~~**b. Profiling, grade correction, or surface correction.** The milling machine shall have a minimum width of [7] feet([2] m) and it shall be equipped with electronic grade control devices that will cut the surface to the grade and tolerances specified. The machine shall cut vertical edges. A positive method of dust control shall be provided. The machine shall have the ability to remove the millings or cuttings from the pavement and load them into a truck.~~

~~**c. Clean-up.** The Contractor shall sweep the milled surface daily and immediately after the milling until all residual aggregate and fines 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 any remaining aggregate or fines.~~

~~**101-3.6. Preparation of asphalt pavement surfaces.** Existing asphalt pavements indicated to be treated with a surface treatment shall be prepared as follows:~~

~~**a.** Patch asphalt pavement surfaces that have been softened by petroleum derivatives or have failed due to any other cause. Remove damaged pavement to the full depth of the damage and replace with new asphalt concrete similar to that of the existing pavement in accordance with paragraph 101-3.4.~~

~~**b.** Repair joints and cracks in accordance with paragraph 101-3.2.~~

~~**c.** Remove oil or grease that has not penetrated the asphalt pavement by scraping or by scrubbing with a detergent, then wash thoroughly with clean water. After cleaning, treat these areas with an oil spot primer.~~

~~**d.** Clean pavement surface immediately prior to placing the surface treatment by sweeping, flushing well with water leaving no standing water, or a combination of both, 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 Engineer. 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.**~~

~~**101-3.8.1 Removal of Existing Joint Sealant**. All existing joint sealants will be removed by plowing or use of hand tools. Any remaining sealant and or debris will be removed by use of wire brushes or other tools as necessary. Resaw joints removing no more than 1/16 inch (2 mm) from each joint face. Immediately after sawing, flush out joint with water and other tools as necessary to completely remove the slurry. Allow sufficient time to dry out joints prior to sealing.~~

~~**101-3.8.2 Cleaning prior to sealing**. Immediately before sealing, joints shall be cleaned by removing any remaining laitance and other foreign material. Clean joints by sandblasting, or other method approved by the Engineer, on each joint face with nozzle held at an angle and not more than three inches (75 mm) from face. Following sandblasting, clean joints with air free of oil and water. Joint surfaces will be surface-dry prior to installation of sealant.~~

~~**101-3.9.1 Preparation of Cracks in Flexible Pavement.**~~

~~**101-3.9.1 Preparation of Crack**. Widen crack with router by removing a minimum of 1/16 inch (2 mm) from each side of crack. Immediately before sealing, joints will be blown out with a hot air lance combined with oil and water-free compressed air.~~

~~**101-3.9.2 Removal of Existing 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.~~

METHOD OF MEASUREMENT

101-4.1 Pavement removal. The unit of measurement for pavement removal shall be the number of square yards (square meters) 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.

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

MATERIAL REQUIREMENTS

ASTM D6690	Standard Specification For Joint And Crack Sealants, Hot Applied, For Concrete And Asphalt Pavements

END OF ITEM P-101

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. Any material 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 Engineer.

CONSTRUCTION METHODS

152-2.1 General. Before beginning excavation, grading, and embankment operations in any area, the area shall be completely 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 Engineer. All unsuitable material shall be disposed of in waste areas shown on the plans. All waste areas shall be graded to allow positive drainage of the area and of adjacent areas. The surface elevation of waste areas shall not extend above the surface elevation of adjacent usable areas of the airport, unless specified on the plans or approved by the Engineer.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the Engineer notified per subsection 70-20. At the direction of the Engineer, 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.

Those areas outside of the limits of the pavement areas where the top layer of soil material has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches (100 mm), to loosen and pulverize the soil.

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 Engineer, who shall arrange for their removal if necessary. The Contractor, at his or her 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.

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the Engineer has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. 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 Engineer. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes shown on the plans. All unsuitable material shall be disposed of as shown on the plans.

When the volume of the excavation exceeds that required to construct the embankments to the grades indicated, the excess shall be used to grade the areas of ultimate development or disposed as directed by the Engineer. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

The grade shall be maintained so that the surface is well drained at all times. When necessary, temporary drains and drainage ditches shall be installed to intercept or divert surface water that may affect the work.

a. Selective grading. When selective grading is indicated on the plans, the more suitable material designated by the Engineer 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 so that it can be measured for payment as specified in paragraph 152-3.3.

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 (300 mm) below the subgrade or to the depth specified by the Engineer. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed off the airport. The cost is incidental to this item. 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.

c. Overbreak. Overbreak, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the Engineer. All overbreak shall be graded or removed by the Contractor and disposed of as directed by the Engineer. The Engineer shall determine if the displacement of such material was unavoidable and his or her decision shall be final. Payment will not be made for the removal and disposal of overbreak that the Engineer determines as avoidable. Unavoidable overbreak 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 someone other than the Contractor; for example, the utility unless otherwise shown on the plans. All existing foundations shall be excavated at least 2 feet (60 cm) below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the Engineer. All foundations thus excavated shall be backfilled with suitable material and compacted as specified.

e. Compaction requirements. The subgrade under areas to be paved shall be compacted to a depth of 12" 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 ±2% of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils).

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. Stones or rock fragments larger than 4 inches (100 mm) in their greatest dimension will not be permitted in the top 6 inches (150 mm) of the subgrade. The finished grading operations, conforming to the typical cross-section, shall be completed and maintained at least 1,000 feet (300 m) ahead of the paving operations or as directed by the Engineer.

All loose or protruding rocks on the back slopes of cuts shall be pried loose or otherwise removed to the slope finished grade line. All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the Engineer.

Blasting shall not be allowed.

~~**f. Proof rolling.** After compaction is completed, the subgrade area shall be proof rolled with a~~

~~20 ton (18.1 metric ton)Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 80/100/150 psi (0.551 MPa/0.689 MPa/1.034 MPa) in the presence of the Engineer. Apply a minimum of~~

~~[____] coverage, or as specified by the Engineer, to all paved 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 (25 mm) or show permanent deformation greater than 1 inch (25 mm) shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications.~~

152-2.3 Borrow excavation. Borrow areas within the airport property are indicated on the plans. Borrow excavation shall be made only at these designated locations and within the horizontal and vertical limits as staked or as directed by the Engineer.

When borrow sources are outside the boundaries of the airport property, it shall be the Contractor's responsibility to locate and obtain the borrow sources, subject to the approval of the Engineer. The Contractor shall notify the Engineer at least 15 days prior to beginning the excavation so necessary measurements and tests can be made. All borrow pits shall be opened up to expose the various strata of acceptable material to allow obtaining a uniform product. All unsuitable material shall be disposed of by the Contractor. Borrow pits shall be excavated to regular lines to permit accurate measurements, and they shall be drained and left in a neat, presentable condition with all slopes dressed uniformly.

152-2.4 Drainage excavation. Drainage excavation shall consist of excavating for drainage ditches such as intercepting; inlet or outlet ditches; for temporary levee construction; or for any other type as designed or as shown on the plans. The work shall be performed in sequence with the other construction. Intercepting ditches shall be constructed prior to starting adjacent excavation operations. All satisfactory material shall be placed in embankment fills; unsuitable material shall be placed in designated waste areas or as directed by the Engineer. All necessary work shall be performed true to final line, elevation, and cross-section. The Contractor shall maintain ditches constructed on the project to the required cross-section and shall keep them free of debris or obstructions until the project is accepted.

152-2.5 Preparation of embankment area. Where an embankment is to be constructed to a height of 4 feet (1.2 m) or less, 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 (150 mm) and shall then be compacted as indicated in paragraph 152-2.6. When the height of fill is greater than 4 feet (1.2 m), sod not required to be removed shall be thoroughly disked and recompacted to the density of the surrounding ground before construction of embankment.

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 (300 mm) 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.

152-2.6 Formation of embankments. Embankments shall be formed in successive horizontal layers of not more than 8 inches (200 mm) in loose depth for the full width of the cross-section, unless otherwise approved by the Engineer.

The layers shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the Engineer. 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 because of 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 layer shall be within ±2% of optimum moisture content before rolling to obtain the prescribed compaction. To achieve a uniform moisture content throughout the layer, the material shall be moistened or aerated as necessary. Samples of all embankment materials for testing, both before and after placement and compaction, will be taken for each 1000 square yards. Based on these tests, the Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

Rolling operations shall be continued until the embankment is compacted to not less than 95% of maximum density for noncohesive soils, and 90% 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 12" and to a density of not less than 95 percent of the maximum density as determined by ASTM D698.

On all areas outside of the pavement areas, no compaction will be required on the top 4 inches (100 mm).

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 Engineer's presence and provide the test results upon completion to the Engineer for acceptance**.**

Compaction areas shall be kept separate, and no layer shall be covered by another layer 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 layer is placed. Layer placement shall begin in the deepest portion of the embankment fill. As placement progresses, the layers shall be constructed approximately parallel to the finished pavement grade line.

When rock and other embankment material are excavated at approximately the same time, the rock shall be incorporated into the outer portion of the embankment and the other material shall be incorporated under the future paved areas. Stones or fragmentary rock larger than 4 inches (100 mm) in their greatest dimensions will not be allowed in the top 6 inches (150 mm) of the subgrade. Rockfill shall be brought up in layers as specified or as directed by the Engineer and the finer material shall be used to fill the voids with forming a dense, compact mass. Rock or boulders shall not be disposed of outside the excavation or embankment areas, except at places and in the manner designated on the plans or by the Engineer.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in layers of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in layers not exceeding 2 feet (60 cm) in thickness. Each layer shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The layer shall not be constructed above an elevation 4 feet (1.2 m) below the finished subgrade.

Area of Placement	ASTM STND	Density	Moisture
Subgrade beneath granular subbase	698	95	-1 - +4
Subgrade outside pavement area	698	90	-1 - +4
Utility Trenches beneath paving	698	95	-1 - +4
Utility Trenches outside paving area	698	90	-1 - +4
Landscape areas	698	92	-1 - +4

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in layers, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items.

152-2.7 Finishing and protection of subgrade. After the subgrade is substantially complete, the Contractor shall remove any soft or other unstable material over the full width of the subgrade that will not compact properly. All low areas, holes or depressions in the subgrade shall be brought to grade with suitable select material. 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.

Grading of the subgrade shall be performed so that it will drain readily. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes. All ruts or rough places that develop in the completed subgrade shall be graded and recompacted.

No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been approved by the Engineer.

152-2.8 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.

152-2.9 Tolerances. In those areas upon which a subbase or base course is to be placed, the top of the subgrade shall be of such smoothness that, when tested with a 12-foot (3.7-m) straightedge applied parallel and at right angles to the centerline, it shall not show any deviation in excess of 1/2 inch (12 mm), or shall not be more than 0.05 feet (15 mm) from true grade as established by grade hubs. Any deviation in excess of these amounts shall be corrected by loosening, adding, or removing materials; reshaping; and recompacting.

On safety areas, intermediate and other designated areas, the surface shall be of such smoothness that it will not vary more than 0.10 feet (3 mm) from true grade as established by grade hubs. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.10 Topsoil. When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall not be placed within 300 feet of runway pavement or 66 feet of taxiway pavement and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the Engineer, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further rehandling.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as directed, or as required in Item T-905.

No direct payment will be made for topsoil under Item P-152. The quantity removed and placed directly or stockpiled shall be paid for at the contract unit price per cubic yard (cubic meter) for “Unclassified Excavation.”

When stockpiling of topsoil and later rehandling of such material is directed by the Engineer, the material so rehandled shall be paid for at the contract unit price per cubic yard (cubic meter) for “topsoiling,” as provided in Item T-905.

METHOD OF MEASUREMENT

152-3.1 The quantity of excavation to be paid for shall be the number of cubic yards (cubic meters) 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.

152-3.4 For payment specified by the cubic yard (cubic meter), measurement for all excavation shall be computed by the average end area method. The end area is that bound by the original ground line established by field cross-sections and the final theoretical pay line established by excavation cross-sections shown on the plans, subject to verification by the Engineer. After completion of all excavation operations and prior to the placing of base or subbase material, the final excavation shall be verified by the Engineer by means of field cross-sections taken randomly at intervals not exceeding 500 linear feet (150 m).

152-3.5 The quantity of embankment in place shall be the number of cubic yards (cubic meters) measured in its final position.

BASIS OF PAYMENT

152-4.1 "Unclassified excavation" payment shall be incidental to Subgrade – Trim, Shape and Compact.

152-4.2 "Subgrade – Trim, Shape, and Compact", payment shall be made at the contract unit price per square yard (square meter). 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	Subgrade -Trim, Shape and Compact – per Square Yard

TESTING REQUIREMENTS

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 D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

END OF ITEM P-152

Item P-156 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control

DESCRIPTION

156-1.1 This item shall consist of temporary control measures as shown on the plans or as ordered by the Engineer during the life of a contract to control water pollution, soil erosion, and siltation through the use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be design, installed and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

MATERIALS

156-2.1 Grass. Grass that will not compete with the grasses sown later for permanent cover per Item T-901shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

156-2.2 Mulches. Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials per ItemT-908. Mulches shall not create a wildlife attractant.

156-2.3 Fertilizer. Fertilizer shall be a standard commercial grade and shall conform to all Federal and state regulations and to the standards of the Association of Official Agricultural Chemists.

156-2.4 Slope drains. Slope drains may be constructed of pipe, fiber mats, rubble, Portland cement concrete, bituminous concrete, or other materials that will adequately control erosion.

156-2.5 Silt fence. The silt fence shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life. Silt fence shall meet the requirements of ASTM D6461.

156-2.6 Other. All other materials shall meet commercial grade standards and shall be approved by the Engineer before being incorporated into the project.

CONSTRUCTION REQUIREMENTS

156-3.1 General. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The Engineer shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

156-3.2 Schedule. Prior to the start of construction, the Contractor shall submit schedules for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the Engineer.

The Engineer may direct the Contractor to install additional erosion control measures as necessary. Also, if construction and/or disturbed earth areas cause blowing dust or other air pollutants) to become an issue, the Engineer may direct the Contractor to implement methods of controlling said dust (or other air pollutants), such as use of water sprinkler trucks, covered haul trucks, limiting exposed eroded earth, or other methods agreed on by the Engineer and Contractor.

156-3.3 Construction details. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion may be a problem, clearing and grubbing operations should be scheduled and performed so that grading operations and permanent erosion control features can follow immediately if project conditions permit; otherwise, temporary erosion control measures may be required.

The Engineer shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the Engineer.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the Engineer. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the Engineer, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The Engineer may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be acceptably maintained by the Contractor during the construction period.

Whenever construction equipment must cross watercourses at frequent intervals, temporary structures should be provided.

Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

156-3.4 Installation, maintenance and removal of silt fences. Silt fences shall extend a minimum of 16 inches (41 cm) and a maximum of 34 inches (86 cm) above the ground surface. Posts shall be set no more than 10 feet (3 m) on center. Filter fabric shall be cut from a continuous roll to the length required minimizing joints where possible. When joints are necessary, the fabric shall be spliced at a support post with a minimum 12-inch (300-mm) overlap and securely sealed. A trench shall be excavated approximately 4 inches (100 mm) deep by 4 inches

(100 mm) wide on the upslope side of the silt fence. The trench shall be backfilled and the soil compacted over the silt fence fabric. The Contractor shall remove and dispose of silt that accumulates during construction and prior to establishment of permanent erosion control. The fence shall be maintained in good working condition until permanent erosion control is established. Silt fence shall be removed upon approval of the Engineer.

METHOD OF MEASUREMENT

156-4.1 Temporary erosion and pollution control work required will be performed as scheduled or directed by the Engineer. Completed and accepted work will be measured as follows:

~~**a.** Temporary seeding and mulching will be measured by the square yard (square meter).~~

~~**b.** Temporary slope drains will be measured by the linear foot (meter).~~

~~**c.** Temporary benches, dikes, dams, and sediment basins will be measured by the cubic yard (cubic meter) of excavation performed, including necessary cleaning of sediment basins, and the cubic yard (cubic meter) of embankment placed as directed by the Engineer.~~

~~**d.** All fertilizing will be measured by the ton (kg).~~

e. Installation and removal of silt fence will be measured by the linear foot

156-4.2 Control work performed for protection of construction areas outside the construction limits, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the Contractor.

BASIS OF PAYMENT

156-5.1 Accepted quantities of temporary water pollution, soil erosion, and siltation control work ordered by the Engineer and measured as provided in paragraph 156-4.1 will be paid for under:

Item P-156-5.1 Installation and removal of silt fence per linear feet

Where other directed work falls within the specifications for a work item that has a contract price, the units of work shall be measured and paid for at the contract unit price bid for the various items.

Temporary control features not covered by contract items that are ordered by the Engineer will be paid for in accordance with Section 90-05 Payment for Extra work.

MATERIAL REQUIREMENTS

ASTM D6461	Standard Specification for Silt Fence Materials
AC 150/5200-33	Hazardous Wildlife Attractants

END OF ITEM P-156

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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, or other objectionable materials. Aggregates shall contain no clay lumps or balls. Fine aggregate passing the No. 4 (4.75 mm) sieve shall consist of fines from the coarse aggregate crushing operation. If necessary, fine aggregate may be added to produce the correct gradation. The fine aggregate shall be produced by crushing stone, gravel, that meet the coarse aggregate requirements for wear and soundness.

The coarse aggregate portion, defined as the material retained on the No. 4 (4.75 mm) sieve, shall not have a loss of greater than 45% when tested per ASTM C131. The sodium sulfate soundness loss shall not exceed 12%, or the magnesium sulfate soundness loss shall not exceed 18%, after five cycles, when tested in accordance with ASTM C88. The aggregate shall contain no more than 15%, by weight, of flat, elongated, or flat and elongated particles per ASTM D4791. A flat particle is one having a ratio of width to thickness greater than 3; an elongated particle is one having a ratio of length to width greater than three (3). The aggregate shall have at least 90% by weight of particles with at least two fractured faces and 100% with at least one fractured face per ASTM D5821. 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.

a. Sampling and testing for initial aggregate base requirements. Samples shall be taken by the Contractor in the presence of the Engineer. Material shall meet the requirements in paragraph 209-2.1 and 209-2.2. This sampling and testing will be the basis for approval of the aggregate base quality requirements.

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 as defined by ASTM D2487 and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa. The fraction of material passing the No. 200 (0.075 mm) sieve shall not exceed one-half the fraction passing the No. 40 (0.45 mm) sieve.

Requirements For Gradation Of Aggregate Base

Sieve Size	Design Range Percentage by Weight	Contractor's Final Gradation	Job Control Grading Band Tolerances for Contractor's Final Gradation Percent
2 inch (50 mm)	100		0
1-1/2 inch (38 mm)	95-100		±5
1 inch (25 mm)	70-95		±8
3/4 inch (19 mm)	55-85		±8
No. 4 (4.75 mm)	30-60		±8
No. 40 (0.45 mm)	10-30		±5
No. 200 (0.075 mm)	0-8		±3

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.

a. Sampling and testing for gradation. Gradation tests shall be performed by the Contractor per ASTM C136 and sieve analysis on material passing the No. 200 sieve (75 mm) per ASTM C112. The Contractor shall take at least two aggregate base samples per lot to check the final gradation. Sampling shall be per ASTM D75. The lot will be consistent with the lot size used for density. The samples shall be taken from the in-place, un-compacted material in the presence of the Engineer. Sampling points and intervals will be designated by the Engineer.

CONSTRUCTION METHODS

209-3.1 Preparing underlying subgrade and/or subbase. The underlying subgrade and/or subbase shall be checked and accepted by the Engineer before base course placing and spreading operations begin. Re-proof rolling of the subgrade or proof rolling of the subbase in accordance with P-152, at the Contractor's expense, may be required by the Engineer 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.

209-3.2 Production. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 209-3.4, the approved material may be transported directly to the spreading equipment.

209-3.3 Placing. The aggregate base material shall be placed on the prepared underlying subgrade and/or subbase and compacted in layers to the thickness shown on the plans. Work shall progress without interruption. The material shall be deposited and spread in lanes in a uniform layer without segregation to such loose depth that, when compacted, the layer shall have the specified thickness. The aggregate base course shall be constructed in layers of uniform thickness of not less than 3 inches (75 mm) nor more than 6 inches (150 mm) of compacted thickness. The aggregate as spread shall be of uniform grading with no

pockets of fine or coarse materials. The aggregate, unless otherwise permitted by the Engineer, shall not be spread more than 2,000 square yards (1700 sq m) in advance of the rolling. Any necessary sprinkling shall be kept within these limits. Care shall be taken to prevent cutting into the underlying layer during spreading. No material shall be placed in snow or on a soft, muddy, or frozen course. The aggregate base material shall be spread by spreader boxes or other approved devices. This equipment shall have positive thickness controls that spread the aggregate in the required amount to avoid or minimize the need for hand manipulation. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

When more than one layer is required, the construction procedure described herein shall apply similarly to each layer.

209-3.4 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 moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM D6938.

209-3.5 Acceptance sampling and testing for density. Aggregate base course shall be accepted for density on a lot basis. A lot will consist of one day's production if it does not exceed 2,400 square yards (2000 sq m). A lot will consist of one-half day's production if a day's production consists of between 2,400 and 4,800 square yards (2000 and 4000 sq m). The Contractor's laboratory shall perform all density tests in the Engineer's presence and provide the test results upon completion daily to the Engineer for acceptance.

Each lot shall be divided into two equal sublots. One test shall be made for each sublot and shall consist of the average of two random locations for density determination. Sampling locations will be determined by the Engineer on a random basis per ASTM D3665.

Each lot will be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens. The specimens shall be compacted and tested per ASTM D698. The in-place field density shall be determined per 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 entire lot shall be reworked and/or recompacted and two additional random tests made at the Contractor's expense. This procedure shall be followed until the specified density is reached.

209-3.6 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 (75 mm), reshaped and recompacted to grade. until the required smoothness and accuracy are obtained and approved by the Engineer. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. 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 (9 mm) when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously at half the length of the 12-foot (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.

b. Accuracy. The grade and crown shall be measured on a 50-foot (15-m) grid and shall be within +0 and -1/2 inch (12 mm) of the specified grade.

209-3.7 Thickness control. The thickness of the base course shall be within +0 and -1/2 inch (12 mm) of the specified thickness as determined by depth tests taken by the Contractor in the presence of the Engineer. Tests shall be taken at intervals representing no more than 300 square yards (250 sq m) per test. Sampling locations will be determined by the Engineer per ASTM D3665. Where the thickness is deficient by more than 1/2 inch (12 mm), the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches (75 mm), adding new material of proper gradation, and the material shall be blended and recompacted to grade. Additional test holes may be required to identify the limits of deficient areas. The Contractor shall replace, at his expense, base material where depth tests have been taken.

209-3.8 Protection. Perform construction when the atmospheric temperature is above 35°F (2°C). When the temperature falls below 35°F (2°C), protect all completed areas by approved methods against detrimental effects of freezing. Correct completed areas damaged by freezing, rainfall, or other weather conditions to meet specified requirements. When the aggregates contain frozen materials or when the underlying course is frozen or wet, the construction shall be stopped. Hauling equipment may be routed over completed portions of the base course, provided no damage results. Equipment shall be routed over the full width of the base course to avoid rutting or uneven compaction. The Engineer will stop all hauling over completed or partially completed base course when, in the Engineer's opinion, such hauling is causing damage. Any damage to the base course shall be repaired by the Contractor at the Contractor's expense.

209-3.9 Maintenance. The Contractor shall maintain the base course in a satisfactory condition until the full pavement section is completed and accepted by the Engineer. The surface shall be kept clean and free from foreign material and properly drained at all times. Maintenance shall include immediate repairs to any defects and shall be repeated as often as necessary to keep the area intact. Any base course that is not paved over prior to the onset of winter shall be retested to verify that it still complies with the requirements of this specification. Any area of base course that is damaged shall be reworked or replaced as necessary to comply with this specification.

Equipment used in the construction of an adjoining section may be routed over completed base course, if no damage results and the equipment is routed over the full width of the base course to avoid rutting or uneven compaction.

The Contractor shall remove all survey and grade hubs from the base courses prior to placing any bituminous surface course.

METHOD OF MEASUREMENT

209-4.1 The quantity of crushed aggregate base course will be determined by measurement of the number of square yards of material actually constructed and accepted by the Engineer 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 square 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 square yard

TESTING REQUIREMENTS

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 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 D75	Standard Practice for Sampling Aggregates
ASTM D422	Standard Test Method for Particle-Size Analysis of Soils
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 D4718	Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversize Particles
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)

END OF ITEM P-209

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Part 6 – Rigid Pavement

Item P-501 Portland Cement Concrete (PCC) Pavement

DESCRIPTION

501-1.1 This work shall consist of pavement composed of portland cement concrete (PCC), with reinforcement constructed on a prepared underlying surface in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross-sections shown on the plans.

MATERIALS

501-2.1 Aggregates.

a. Reactivity. Fine and Coarse aggregates to be used in all concrete shall be evaluated and tested by the Contractor for alkali-aggregate reactivity in accordance with both ASTM C1260 and ASTM C1567. Aggregate and mix proportion reactivity tests shall be performed for each project.

(1) Coarse and fine aggregate shall be tested separately in accordance with ASTM C1260. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.10% at 28 days (30 days from casting).

(2) Combined coarse and fine aggregate shall be tested in accordance with ASTM C1567, modified for combined aggregates, using the proposed mixture design proportions of aggregates, cementitious materials, and/or specific reactivity reducing chemicals. If lithium nitrate is proposed for use with or without supplementary cementitious materials, the aggregates shall be tested in accordance with Corps of Engineers (COE) Concrete Research Division (CRD) C662. If lithium nitrate admixture is used, it shall be nominal 30% ±0.5% weight lithium nitrate in water.

(3) If the expansion of the proposed combined materials test specimens, tested in accordance with ASTM C1567, modified for combined aggregates, or COE CRD C662, does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion of the proposed combined materials test specimens is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

b. Fine aggregate. Fine aggregate shall conform to the requirements of ASTM C33. Grading of the fine aggregate, as delivered to the mixer, shall conform to the requirements of ASTM C33 and shall have a fineness modulus of not less than 2.50 nor more than 3.40. The soundness loss shall not exceed 10% when sodium sulfate is used or 15% when magnesium sulfate is used, after five cycles, when tested per ASTM C88.

The amount of deleterious material in the fine aggregate shall not exceed the following limits:

Limits for Deleterious Substances in Fine Aggregate for Concrete

Deleterious material	ASTM	Percentage by Mass
Clay Lumps and friable particles	ASTM C142	1.0
Material finer than 0.075mm (No. 200 sieve)	ASTM C117	3.0
Lightweight particles	ASTM C123 using a medium with a density of Sp. Gr. of 2.0	0.5
Total of all deleterious Material		3.0

c. Coarse aggregate. Gradation, within the separated size groups, shall meet the coarse aggregate grading requirements of ASTM C33 when tested in accordance with ASTM C136. When the nominal maximum size of the aggregate is greater than one inch (25 mm), the aggregates shall be furnished in two size groups.

Aggregates delivered to the mixer shall consist of crushed stone, crushed or uncrushed gravel, air-cooled iron blast furnace slag, crushed recycled concrete pavement, or a combination. The aggregates should be free of ferrous sulfides, such as pyrite, that would cause "rust" staining that can bleed through pavement markings. Steel blast furnace slag shall not be permitted. The aggregate shall be composed of clean, hard, uncoated particles. Dust and other coating shall be removed from the aggregates by washing.

The percentage of wear shall be no more than 40 percent when tested in accordance with ASTM C131.

The quantity of flat, elongated, and flat and elongated particles in any size group coarser than 3/8 sieve (9 mm) shall not exceed 8% by weight when tested in accordance with ASTM D4791. A flat particle is defined as one having a ratio of width to thickness greater than 5. An elongated particle is one having a ratio of length to width greater than 5.

The soundness loss shall not exceed 12% when sodium sulfate is used or 18% when magnesium sulfate is used, after five cycles, when tested per ASTM C88.

The amount of deleterious material in the coarse aggregate shall not exceed the following limits:

Limits for Deleterious Substances in Coarse Aggregate for Concrete

Deleterious material	ASTM	Percentage by Mass
Clay Lumps and friable particles	ASTM C142	1.0
Material finer than No. 200 sieve (0.075mm)	ASTM C117	1.0
Lightweight particles	ASTM C123 using a medium with a density of Sp. Gr. of 2.0	0.5
Chert (less than 2.40 Sp Gr.)	ASTM C123 using a medium with a density of Sp. Gr. of 2.0)	1.0
Total of all deleterious Material		3.0

Table 1. Gradation For Coarse Aggregate

(ASTM C33)

Sieve Designations (square openings)		Percentage by Weight Passing Sieves
inch	**mm**	
2-1/2	60	---
2	50	---
1-1/2	38	100
1	25	95-100
3/4	19	---
1/2	13	25-60
3/8	9	---
No. 4	4.75	0-10
No. 8	2.36	0-5

(1) Aggregate susceptibility to durability (D) cracking. Aggregates that have a history of D-cracking shall not be used.

Coarse aggregate may be accepted from sources that have a 20 year service history for the same gradation to be supplied with no durability issues. Aggregates that do not have a record of 20 years of service without major repairs (less than 5% of slabs replaced) in similar conditions without D-cracking shall not be used unless it meets the following:

(a) Material currently being produced shall have a durability factor ≥ 95 using ASTM C666 procedure B. Coarse aggregates that are crushed granite, calcite cemented sandstone, quartzite, basalt, diabase, rhyolite or trap rock are considered to meet the D-cracking test but must meet all other quality tests. Aggregates meeting State Highway Department material specifications may be acceptable.

(b) The Contractor shall submit a current certification that the aggregate does not have a history of D-cracking and that the aggregate meets the state specifications for use in PCC pavement for use on interstate highways. Certifications, tests and any history reports must be for the same gradation as being proposed for use on the project. Certifications which are not dated or which are over one (1) year old or which are for different gradations will not be accepted. Test results will only be accepted when tests were performed by a State Department of Transportation (DOT) materials laboratory or an accredited laboratory.

(2) Combined aggregate gradation. If substituted for the grading requirements specified for coarse aggregate and for fine aggregateand when approved by the Engineer, the combined aggregate grading shall meet the following requirements:

(a) The materials selected and the proportions used shall be such that when the Coarseness Factor (CF) and the Workability Factor (WF) are plotted on a diagram as described in d. below, the point thus determined shall fall within the parallelogram described therein.

(b) The CF shall be determined from the following equation:

CF = (cumulative percent retained on the 3/8 in. sieve)(100) / (cumulative percent retained on the No. 8 sieve)

(c) The Workability Factor WF is defined as the percent passing the No. 8 (2.36 mm) sieve based on the combined gradation. However, WF shall be adjusted, upwards only, by 2.5 percentage points for each 94 pounds (42 kg) of cementitious material per cubic meter yard greater than 564 pounds per cubic yard (335 kg per cubic meter).

(d) A diagram shall be plotted using a rectangular scale with WF on the Y-axis with units from 20 (bottom) to 45 (top), and with CF on the X-axis with units from 80 (left side) to 30 (right side). On this diagram a parallelogram shall be plotted with corners at the following coordinates (CF-75, WF-28), (CF-75, WF-40), (CF-45, WF-32.5), and (CF-45, WF-44.5). If the point determined by the intersection of the computed CF and WF does not fall within the above parallelogram, the grading of each size of aggregate used and the proportions selected shall be changed as necessary.

501-2.2 Cement. Cement shall conform to the requirements of ASTM C150 Type I or II, or ASTM C595 Type IP

If aggregates are deemed innocuous when tested in accordance with paragraph 501-2.1.a.1 and accepted in accordance with paragraph 501-2.1.a.2, higher equivalent alkali content in the cement may be allowed if approved by the Engineer and FAA. If cement becomes partially set or contains lumps of caked cement, it shall be rejected. Cement salvaged from discarded or used bags shall not be used.

501-2.3 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 for use in mitigating alkali-silica reactivity shall have a Calcium Oxide (CaO) content of less than 13% 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 mix design, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the Engineer.

b. Slag cement (ground granulated blast furnace(GGBF)). Slag cement shall conform to 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.

c. Raw or calcined natural pozzolan. Natural pozzolan shall be raw or calcined and conform to ASTM C618, Class N, including the optional requirements for uniformity and effectiveness in controlling Alkali-Silica reaction and shall have a loss on ignition not exceeding 6%. Class N pozzolan for use in mitigating Alkali-Silica Reactivity shall have a total available alkali content less than 3%.

501-2.4 Joint seal. The joint seal for the joints in the concrete pavement shall meet the requirements of Item P-605 and shall be of the type specified in the plans.

501-2.5 Isolation joint filler. Premolded joint filler for isolation joints shall conform to the requirements of ASTM D1751 and shall be where shown on the plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint, unless otherwise specified by the Engineer. When the use of more than one piece is required for a joint, the abutting ends shall be fastened securely and held accurately to shape by stapling or other positive fastening means satisfactory to the Engineer.

501-2.6 Steel reinforcement. Not Required.

501-2.7 Dowel and tie bars. Dowel bars shall be plain steel bars conforming to ASTM A615 and shall be free from burring or other deformation restricting slippage in the concrete. Before delivery to the construction site each dowel bar shall be epoxy coated per ASTM A1078. The dowels shall be coated with a bond-breaker recommended by the manufacturer. Dowel sleeves or inserts are not permitted. Grout

retention rings shall be fully circular metal or plastic devices capable of supporting the dowel until the grout hardens.

Tie bars shall be deformed steel bars and conform to the requirements of ASTM A615. Tie bars designated as Grade 60 in ASTM A615 or ASTM A706 shall be used for construction requiring bent bars.

501-2.8 Water. Water used in mixing or curing shall be potable, clean, free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product, except that non-potable water, or water from concrete production operations, may be used if it meets the requirements of ASTM C1602.

501-2.9 Material for curing concrete. Curing materials shall conform to one of the following specifications:

a. Liquid membrane-forming compounds for curing concrete shall conform to the requirements of ASTM C309, Type 2, Class B, or Class A if wax base only.

b. White polyethylene film for curing concrete shall conform to the requirements of ASTM C171.

c. White burlap-polyethylene sheeting for curing concrete shall conform to the requirements of ASTM C171.

d. Waterproof paper for curing concrete shall conform to the requirements of ASTM C171.

501-2.10 Admixtures. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the Engineer may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the Engineer from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of 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 admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the Engineer. 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.

d. Lithium Nitrate. The lithium admixture shall be a nominal 30% aqueous solution of Lithium Nitrate, with a density of 10 pounds/gallon (1.2 kg/L), and shall have the approximate chemical form as shown below:

Constituent	Limit (Percent by Mass)
LiNO3 (Lithium Nitrate)	30 ±0.5
SO4 (Sulfate Ion)	0.1 (max)
Cl (Chloride Ion)	0.2 (max)
Na (Sodium Ion)	0.1 (max)
K (Potassium Ion)	0.1 (max)

Provide a trained manufacturer's representative to supervise the lithium nitrate admixture dispensing and mixing operations.

501-2.11 Epoxy-resin. All epoxy-resin materials shall be two-component materials conforming to the requirements of ASTM C881, Class as appropriate for each application temperature to be encountered, except that in addition, the materials shall meet the following requirements:

a. Material for use for embedding dowels and anchor bolts shall be Type IV, Grade 3.

b. Material for use as patching materials for complete filling of spalls and other voids and for use in preparing epoxy resin mortar shall be Type III, Grade as approved.

c. Material for use for injecting cracks shall be Type IV, Grade 1.

d. Material for bonding freshly mixed Portland cement concrete or mortar or freshly mixed epoxy resin concrete or mortar to hardened concrete shall be Type V, Grade as approved.

501-2.12 Material acceptance. Prior to use of materials, the Contractor shall submit certified test reports to the Engineer for those materials proposed for use during construction. The certification shall show the appropriate ASTM test for each material, the test results, and a statement that the material passed or failed.

The Engineer may request samples for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

MIX DESIGN

501-3.1. General. No concrete shall be placed until the mix design has been submitted to the Engineer for review and the Engineer has taken appropriate action. The Engineer's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

501-3.2 Proportions. The laboratory preparing the mix design shall be accredited in accordance with ASTM C1077. The mix design for all Portland cement concrete placed under P-501 shall be stamped or sealed by the responsible professional Engineer of the laboratory. Concrete shall be proportioned to achieve a 28-day compressive strength that meets or exceeds the acceptance criteria contained in paragraph 501-5.2 for a compressive strength of 4,400 psi per ASTM C78. The mix shall be developed using the procedures contained in the Portland Cement Association's (PCA) publication, "Design and Control of Concrete Mixtures".

The minimum cementitious material shall be adequate to ensure a workable, durable mix. The minimum cementitious material (cement plus fly ash, or slag cement) shall be 517 pounds per cubic yard (310 kg per cubic meter). The ratio of water to cementitious material, including free surface moisture on the aggregates but not including moisture absorbed by the aggregates shall not be more than 0.42 by weight.

Compressive strength test specimens shall be prepared in accordance with ASTM C192 and tested in accordance with ASTM 39. The mix determined shall be workable concrete having a maximum allowable slump between one and two inches (25mm and 50 mm) as determined by ASTM C143. For slip-form concrete, the slump shall be between 1/2 inch (12 mm) and 1-1/2 inch (38 mm). At the start of the project, the Contractor shall determine a maximum allowable slump for slip-form pavement which will produce in-place pavement to control the edge slump. The selected slump shall be applicable to both pilot and fill-in lanes.

As the Contractor's option, a "strength curve" may be completed and used, using the following "Cylinder/Beam" method.

Cylinders/Beams

a. Fabricate all beams and cylinders for each mixture from the same batch or blend of batches. Fabricate and cure all beams and cylinders in accordance with ASTM C192,

using 6 × 6 inch (150 × 150 mm) steel beam forms and 6 × 12 inch (150 × 300 mm) single-use cylinder forms.

b. Cure test beams from each mixture for 3, 7, 14, 28-day flexural tests; six (6) beams to be tested per age.

c. Cure test cylinders from each mixture for 3, 7, 14, 28-day compressive strength tests; six (6) cylinders to be tested per age.

d. Test beams in accordance with ASTM C78, cylinders in accordance with ASTM C39.

e. Using the average strength for each w/c at each age, plot all results from each of the three mixtures on separate graphs for w/c versus:

3-day flexural strength

7-day flexural strength

14-day flexural strength

28-day flexural strength

90-day flexural strength

3-day compressive strength

7-day compressive strength

14-day compressive strength

28-day compressive strength

90-day compressive strength

f. From these graphs select a w/c that will produce a mixture giving a 28-day flexural strength equal to the required strength determined in accordance with the next paragraph.

g. Using the above selected w/c, select from the graphs the expected 3, 7, 14, 28-day flexural strengths and the expected 3, 7, 14, 28-day compressive strengths for the mixture.

h. From the above expected strengths for the selected mixture determine the following Correlation Ratios:

(1) Ratio of the 14-day compressive strength of the selected mixture to the 28-day flexural strength of the mixture (for acceptance).

(2) Ratio of the 7-day compressive strength of the selected mixture to the 28-day flexural strength of the mixture (for Contractor Quality Control control).

i. If there is a change in materials, additional mixture design studies shall be made using the new materials and new Correlation Ratios shall be determined.

j. No concrete pavement shall be placed until the Engineer has approved the Contractor's mixture proportions. The approved water-cementitious materials ratio shall not exceed the maximum value specified.

Before the start of paving operations and after approval of all material to be used in the concrete, the Contractor shall submit a mix design showing the proportions and compressive strength obtained from the concrete at seven (7) and 28 days. The mix design shall include copies of test reports, including test dates,

and a complete list of materials including type, brand, source, and amount of cement, fly ash, ground slag, coarse aggregate, fine aggregate, water, and admixtures. The mix design shall be submitted to the Engineer at least 30 days prior to the start of operations. The submitted mix design shall not be more than 90 days old. Production shall not begin until the mix design is approved in writing by the Engineer.

If a change in sources is made, or admixtures added or deleted from the mix, a new mix design must be submitted to the Engineer for approval.

The results of the mix design shall include a statement giving the maximum nominal coarse aggregate size and the weights and volumes of each ingredient proportioned on a one cubic yard (meter) basis. Aggregate quantities shall be based on the mass in a saturated surface dry condition. The recommended mixture proportions shall be accompanied by test results demonstrating that the proportions selected will produce concrete of the qualities indicated. Trial mixtures having proportions, slumps, and air content suitable for the work shall be based on methodology described in PCA's publication, Design and Control of Concrete Mixtures, modified as necessary to accommodate flexural strength.

The submitted mix design shall be stamped or sealed by the responsible professional Engineer of the laboratory and shall include the following items as a minimum:

a. Coarse, fine, and combined aggregate gradations and plots including fineness modulus of the fine aggregate.

b. Reactivity Test Results.

c. Coarse aggregate quality test results, including deleterious materials.

d. Fine aggregate quality test results, including deleterious materials.

e. Mill certificates for cement and supplemental cementitious materials.

f. Certified test results for all admixtures, including Lithium Nitrate if applicable.

g. Specified compressive strength, slump, and air content.

h. Recommended proportions/volumes for proposed mixture and trial water-cementitious materials ratio, including actual slump and air content.

i. Flexural and compressive strength summaries and plots, including all individual beam and cylinder breaks.

j. Correlation ratios for acceptance testing and Contractor Quality Control testing, when applicable.

k. Historical record of test results documenting production standard deviation, when applicable.

501-3.3 Cementitious materials.

a. Fly ash. When fly ash is used as a partial replacement for cement, the replacement rate shall be determined from laboratory trial mixes, and shall be between 20 and 30% by weight of the total cementitious material. If fly ash is used in conjunction with slag cement the maximum replacement rate shall not exceed 10% by weight of total cementitious material.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement may be used. The slag cement, or slag cement plus fly ash if both are used, may constitute between 25 to 55% of the total cementitious material by weight. If the concrete is to be used for slipforming operations and the air temperature is expected to be lower than 55°F (13°C) the percent slag cement shall not exceed 30% by weight.

c. Raw or calcined natural pozzolan. Natural pozzolan may be used in the mix design. When pozzolan is used as a partial replacement for cement, the replacement rate shall be determined from laboratory trial mixes, and shall be between 20 and 30% by weight of the total cementitious material. If

pozzolan is used in conjunction with slag cement the maximum replacement rate shall not exceed 10% by weight of total cementitious material.

501-3.4 Admixtures.

a. Air-entraining admixtures. Air-entraining admixture are to be added in such a manner that will ensure uniform distribution of the agent throughout the batch. The air content of freshly mixed air-entrained concrete shall be based upon trial mixes with the materials to be used in the work adjusted to produce concrete of the required plasticity and workability. The percentage of air in the mix shall be six (6) percent. Air content shall be determined by testing in accordance with ASTM C231 for gravel and stone coarse aggregate and ASTM C173 for slag and other highly porous coarse aggregate.

b. Water-reducing admixtures. Water-reducing admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted on trial mixes, with the materials to be used in the work, in accordance with ASTM C494.

c. Other admixtures. Set controlling, and other approved admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted on trial mixes, with the materials to be used in the work, in accordance with ASTM C 494.

d. Lithium nitrate. Lithium nitrate shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements in accordance with paragraph 501-2.10d.

501-3.5 Concrete mix design laboratory. The Contractor's laboratory used to develop the concrete mix design shall be accredited in accordance with ASTM C1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for developing the concrete mix design must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction

CONSTRUCTION METHODS

501-4.1 Equipment. Equipment necessary for handling materials and performing all parts of the work shall be approved by the Engineer, but does not relieve the Contractor of the responsibility for the proper operation of equipment and maintaining the equipment in good working condition. The equipment shall be at the jobsite sufficiently ahead of the start of paving operations to be examined thoroughly and approved.

a. Batch plant and equipment. The batch plant and equipment shall conform to the requirements of ASTM C94.

b. Mixers and transportation equipment.

(1) General. Concrete may be mixed at a central plant, or wholly or in part in truck mixers. Each mixer shall have attached in a prominent place a manufacturer's nameplate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades.

(2) Central plant mixer. Central plant mixers shall conform to the requirements of ASTM C94. The mixer shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4 inch (19 mm) or more. The Contractor shall have a copy of the manufacturer's design on hand showing dimensions and arrangement of blades in reference to original height and depth.

(3) Truck mixers and truck agitators. Truck mixers used for mixing and hauling concrete and truck agitators used for hauling central-mixed concrete shall conform to the requirements of ASTM C94.

(4) Nonagitator trucks. Nonagitating hauling equipment shall conform to the requirements of ASTM C94.

(5) Transfer and spreading equipment. Equipment for transferring concrete from the transporting equipment to the paving lane in front of the paver shall be specially manufactured, self-propelled transfer equipment which will accept the concrete outside the paving lane and will transfer and spread it evenly across the paving lane in front of the paver and strike off the surface evenly to a depth which permits the paver to operate efficiently.

c. Finishing equipment. The standard method of constructing concrete pavements shall be with an approved slip-form paving equipment designed and operated to spread, consolidate, screed, and float-finish the freshly placed concrete in one complete pass of the machine so that the end result is a dense and homogeneous pavement which is achieved with a minimum of hand finishing. The paver-finisher shall be a heavy duty, self-propelled machine designed specifically for paving and finishing high quality concrete pavements. It shall weigh at least 2,200 lbs per foot (3274 kg/m) of paving lane width and powered by an engine having at least 6.0 horsepower per foot of lane width.

On projects requiring less than 500 square yard (418 sq m) of cement concrete pavement or requiring individual placement areas of less than 500 square yard (418 sq m), or irregular areas at locations inaccessible to slip-form paving equipment, concrete pavement may be placed with approved placement and finishing equipment using stationary side forms. Hand screeding and float finishing may only be used on small irregular areas as allowed by the Engineer.

d. Vibrators. Vibrator shall be the internal type. Operating frequency for internal vibrators shall be between 8,000 and 12,000 vibrations per minute. Average amplitude for internal vibrators shall be 0.025-0.05 inch (0.06 - 0.13 cm).

The number, spacing, and frequency shall be as necessary to provide a dense and homogeneous pavement and meet the recommendations of American Concrete Institute (ACI) 309, Guide for Consolidation of Concrete. Adequate power to operate all vibrators shall be available on the paver. The vibrators shall be automatically controlled so that they shall be stopped as forward motion ceases. The Contractor shall provide an electronic or mechanical means to monitor vibrator status. The checks on vibrator status shall occur a minimum of two times per day or when requested by the Engineer.

Hand held vibrators may be used in irregular areas only, but shall meet the recommendations of ACI 309R, Guide for Consolidation of Concrete.

e. Concrete saws. The Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions. The Contractor shall provide at least one standby saw in good working order and a supply of saw blades at the site of the work at all times during sawing operations. Early-entry saws may be used, subject to demonstration and approval of the Engineer.

f. Side forms. Straight side forms shall be made of steel and shall be furnished in sections not less than 10 feet (3 m) in length. Forms shall have a depth equal to the pavement thickness at the edge, and a base width equal to or greater than the depth. Flexible or curved forms of proper radius shall be used for curves of 100-foot (31 m) radius or less. Forms shall be provided with adequate devices for secure settings so that when in place they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms with battered top surfaces and bent, twisted or broken forms shall not be used. Built-up forms shall not be used, except as approved by the Engineer. The top face of the form shall not vary from a true plane more than 1/8 inch (3 mm) in 10 feet (3 m), and the upstanding leg shall not vary more than 1/4 inch (6 mm). The forms shall contain provisions for

locking the ends of abutting sections together tightly for secure setting. Wood forms may be used under special conditions, when approved by the Engineer.

g. Pavers. The paver shall be fully energized, self-propelled, and designed for the specific purpose of placing, consolidating, and finishing the concrete pavement, true to grade, tolerances, and cross-section. It shall be of sufficient weight and power to construct the maximum specified concrete paving lane width as shown in the plans, at adequate forward speed, without transverse, longitudinal or vertical instability or without displacement. The paver shall be equipped with electronic or hydraulic horizontal and vertical control devices.

501-4.2 Form setting. Forms shall be set sufficiently in advance of the concrete placement to ensure continuous paving operation. After the forms have been set to correct grade, the underlying surface shall be thoroughly tamped, either mechanically or by hand, at both the inside and outside edges of the base of the forms. Forms shall be staked into place sufficiently to maintain the form in position for the method of placement.

Form sections shall be tightly locked and shall be free from play or movement in any direction. The forms shall not deviate from true line by more than 1/8 inch (3 mm) at any joint. Forms shall be so set that they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms shall be cleaned and oiled prior to the placing of concrete.

The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete.

501-4.3 Conditioning of underlying surface. The compacted underlying surface on which the pavement will be placed shall be widened approximately 3 feet (1 m) to extend beyond the paving machine track to support the paver without any noticeable displacement. After the underlying surface has been placed and compacted to the required density, the areas that will support the paving machine and the area to be paved shall be trimmed or graded to the plan grade elevation and profile by means of a properly designed machine. The grade of the underlying surface shall be controlled by a positive grade control system using lasers, stringlines, or guide wires. If the density of the underlying surface is disturbed by the trimming operations, it shall be corrected by additional compaction and retested at the option of the Engineer before the concrete is placed except when stabilized subbases are being constructed. If damage occurs on a stabilized subbase, it shall be corrected full depth by the Contractor. If traffic is allowed to use the prepared grade, the grade shall be checked and corrected immediately before the placement of concrete. The prepared grade shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from concrete. The underlying surface shall be protected so that it will be entirely free of frost when concrete is placed.

501-4.4 Conditioning of underlying surface, side-form and fill-in lane construction. The prepared underlying surface shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from the concrete. Damage caused by hauling or usage of other equipment shall be corrected and retested at the option of the Engineers. If damage occurs to a stabilized subbase, it shall be corrected full depth by the Contractor. A template shall be provided and operated on the forms immediately in advance of the placing of all concrete. The template shall be propelled only by hand and not attached to a tractor or other power unit. Templates shall be adjustable so that they may be set and maintained at the correct contour of the underlying surface. The adjustment and operation of the templates shall be such as will provide an accurate retest of the grade before placing the concrete thereon. All excess material shall be removed and wasted. Low areas shall be filled and compacted to a condition similar to that of the surrounding grade. The underlying surface shall be protected so that it will be entirely free from frost when the concrete is placed. The use of chemicals to eliminate frost in the underlying surface shall not be permitted.

The template shall be maintained in accurate adjustment, at all times by the Contractor, and shall be checked daily.

501-4.5 Handling, measuring, and batching material. The batch plant site, layout, equipment, and provisions for transporting material shall assure a continuous supply of material to the work. Stockpiles shall be constructed in such a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed and batched separately at the concrete batch plant.

Aggregates that have become segregated or mixed with earth or foreign material shall not be used. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Rail shipments requiring more than 12 hours will be accepted as adequate binning only if the car bodies permit free drainage.

Batching plants shall be equipped to proportion aggregates and bulk cement, by weight, automatically using interlocked proportioning devices of an approved type. When bulk cement is used, the Contractor shall use a suitable method of handling the cement from weighing hopper to transporting container or into the batch itself for transportation to the mixer, such as a chute, boot, or other approved device, to prevent loss of cement. The device shall be arranged to provide positive assurance that the cement content specified is present in each batch.

501-4.6 Mixing concrete. The concrete may be mixed at the work site, in a central mix plant or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time all materials, except water, are emptied into the drum. All concrete shall be mixed and delivered to the site in accordance with the requirements of ASTM C94.

Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators, or non-agitating trucks. The elapsed time from the addition of cementitious material to the mix until the concrete is deposited in place at the work site shall not exceed 30 minutes when the concrete is hauled in non-agitating trucks, nor 90 minutes when the concrete is hauled in truck mixers or truck agitators. Retempering concrete by adding water or by other means will not be permitted. With transit mixers additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements provided the addition of water is performed within 45 minutes after the initial mixing operations and provided the water/cementitious ratio specified in the approved mix design is not exceeded, and approved by the Engineer.

501-4.7 Limitations on mixing and placing. No concrete shall be mixed, placed, or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

a. Cold weather. Unless authorized in writing by the Engineer, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40°F (4°C) and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35°F (2°C).

The aggregate shall be free of ice, snow, and frozen lumps before entering the mixer. The temperature of the mixed concrete shall not be less than 50°F (10°C) at the time of placement. Concrete shall not be placed on frozen material nor shall frozen aggregates be used in the concrete.

When concreting is authorized during cold weather, water and/or the aggregates may be heated to not more than 150°F (66°C). The apparatus used shall heat the mass uniformly and shall be arranged to preclude the possible occurrence of overheated areas which might be detrimental to the materials.

b. Hot weather. During periods of hot weather when the maximum daily air temperature exceeds 85°F (30°C), the following precautions shall be taken.

The forms and/or the underlying surface shall be sprinkled with water immediately before placing the concrete. The concrete shall be placed at the coolest temperature practicable, and in no case shall the temperature of the concrete when placed exceed 90°F (32°C). The aggregates and/or mixing water shall be cooled as necessary to maintain the concrete temperature at or not more than the specified maximum.

The finished surfaces of the newly laid pavement shall be kept damp by applying a water-fog or mist with approved spraying equipment until the pavement is covered by the curing medium. When necessary, wind screens shall be provided to protect the concrete from an evaporation rate in excess of 0.2 psf (0.98 kg/m^2 per hour) per hour. When conditions are such that problems with plastic cracking can be expected, and particularly if any plastic cracking begins to occur, the Contractor shall immediately take such additional measures as necessary to protect the concrete surface. Such measures shall consist of wind screens, more effective fog sprays, and similar measures commencing immediately behind the paver. If these measures are not effective in preventing plastic cracking, paving operations shall be immediately stopped.

c. Temperature management program. Prior to the start of paving operation for each day of paving, the Contractor shall provide the Engineer with a Temperature Management Program for the concrete to be placed to assure that uncontrolled cracking is avoided. As a minimum the program shall address the following items:

(1) Anticipated tensile strains in the fresh concrete as related to heating and cooling of the concrete material.

(2) Anticipated weather conditions such as ambient temperatures, wind velocity, and relative humidity; and anticipated evaporation rate using Figure 11-8, PCA, Design and Control of Concrete Mixtures.

(3) Anticipated timing of initial sawing of joint.

(4) Anticipated number and type of saws to be used.

501-4.8 Placing concrete. At any point in concrete conveyance, the free vertical drop of the concrete from one point to another or to the underlying surface shall not exceed 3 feet (1 m). The finished concrete product must be dense and homogeneous, without segregation and conforming to the standards in this specification. Backhoes and grading equipment shall not be used to distribute the concrete in front of the paver. Front end loaders will not be used. All concrete shall be consolidated without voids or segregation, including under and around all load-transfer devices, joint assembly units, and other features embedded in the pavement. Hauling equipment or other mechanical equipment can be permitted on adjoining previously constructed pavement when the concrete strength reaches a compressive strength of 3,500 psi (24130 kPa, based on the average of four field cured specimens per 2,000 cubic yards (1,530 cubic meters) of concrete placed. Also, subgrade and subbase planers, concrete pavers, and concrete finishing equipment may be permitted to ride upon the edges of previously constructed pavement when the concrete has attained a minimum flexural strength of 400 psi (2757 kPa).

The Contractor shall have available materials for the protection of the concrete during inclement weather. Such protective materials shall consist of rolled polyethylene sheeting at least 4 mils (0.1 mm) thick of sufficient length and width to cover the plastic concrete slab and any edges. The sheeting may be mounted on either the paver or a separate movable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of the unhardened concrete with the protective covering.

a. Slip-form construction. The concrete shall be distributed uniformly into final position by a self-propelled slip-form paver without delay. The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose. The paver shall vibrate the concrete for the full width and depth of the strip of pavement being placed and the vibration shall be adequate to provide a consistency of concrete that will stand normal to the surface with sharp well defined edges. The sliding

forms shall be rigidly held together laterally to prevent spreading of the forms. The plastic concrete shall be effectively consolidated by internal vibration with transverse vibrating units for the full width of the pavement and/or a series of equally placed longitudinal vibrating units. The space from the outer edge of the pavement to longitudinal unit shall not exceed 9 inches (23 cm) for slipform and at the end of the dowels for the fill-in lanes the spacing of internal units shall be uniform and shall not exceed 18 inches (0.5 m).

The term internal vibration means vibrating units located within the specified thickness of pavement section.

The rate of vibration of each vibrating unit shall be within 8000 to 12000 cycles per minute and the amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete along the entire length of the vibrating unit and for a distance of at least one foot (30 cm). The frequency of vibration or amplitude shall vary proportionately with the rate of travel to result in a uniform density and air content. The paving machine shall be equipped with a tachometer or other suitable device for measuring and indicating the actual frequency of vibrations.

The concrete shall be held at a uniform consistency. The slip-form paver shall be operated with as nearly a continuous forward movement as possible and all operations of mixing, delivering, and spreading concrete shall be coordinated to provide uniform progress with stopping and starting of the paver held to a minimum. If for any reason, it is necessary to stop the forward movement of the paver, the vibratory and tamping elements shall also be stopped immediately. No tractive force shall be applied to the machine, except that which is controlled from the machine.

When concrete is being placed adjacent to an existing pavement, that part of the equipment which is supported on the existing pavement shall be equipped with protective pads on crawler tracks or rubber-tired wheels on which the bearing surface is offset to run a sufficient distance from the edge of the pavement to avoid breaking the pavement edge.

Not more than 15% of the total free edge of each 500 foot (150 m) segment of pavement, or fraction thereof, shall have an edge slump exceeding 1/4 inch (6 mm), and none of the free edge of the pavement shall have an edge slump exceeding 3/8 inch (9 mm). (The total free edge of 500 feet (150 m) of pavement will be considered the cumulative total linear measurement of pavement edge originally constructed as nonadjacent to any existing pavement; that is, 500 feet (150 m) of paving lane originally constructed as a separate lane will have 1,000 feet (300 m) of free edge, 500 feet (150 m) of fill-in lane will have no free edge, etc.). The area affected by the downward movement of the concrete along the pavement edge shall be limited to not more than 18 inches (0.5 m) from the edge. When excessive edge slump cannot be corrected before the concrete has hardened, the area with excessive edge slump shall be removed and replaced at the expense of the Contractor as directed by the Engineer.

b. Side-form construction. Side form sections shall be straight, free from warps, bends, indentations, or other defects. Defective forms shall be removed from the work. Metal side forms shall be used except at end closures and transverse construction joints where straight forms of other suitable material may be used.

Side forms may be built up by rigidly attaching a section to either top or bottom of forms. If such build-up is attached to the top of metal forms, the build-up shall also be metal.

Width of the base of all forms shall be equal to or greater than the specified pavement thickness.

Side forms shall be of sufficient rigidity, both in the form and in the interlocking connection with adjoining forms, that springing will not occur under the weight of subgrading and paving equipment or from the pressure of the concrete. The Contractor shall provide sufficient forms so that there will be no delay in placing concrete due to lack of forms.

Before placing side forms, the underlying material shall be at the proper grade. Side forms shall have full bearing upon the foundation throughout their length and width of base and shall be placed to the required grade and alignment of the finished pavement. They shall be firmly supported during the entire operation of placing, compacting, and finishing the pavement.

Forms shall be drilled in advance of being placed to line and grade to accommodate tie bars where these are specified.

Immediately in advance of placing concrete and after all subbase operations are completed, side forms shall be trued and maintained to the required line and grade for a distance sufficient to prevent delay in placing.

Side forms shall remain in place at least 12 hours after the concrete has been placed, and in all cases until the edge of the pavement no longer requires the protection of the forms. Curing compound shall be applied to the concrete immediately after the forms have been removed.

Side forms shall be thoroughly cleaned and oiled each time they are used and before concrete is placed against them.

Concrete shall be spread, screeded, shaped and consolidated by one or more self-propelled machines. These machines shall uniformly distribute and consolidate concrete without segregation so that the completed pavement will conform to the required cross-section with a minimum of handwork.

The number and capacity of machines furnished shall be adequate to perform the work required at a rate equal to that of concrete delivery.

Concrete for the full paving width shall be effectively consolidated by internal vibrators without causing segregation. Internal type vibrators' rate of vibration shall be not less than 7,000 cycles per minute. Amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete more than one foot (30 cm) from the vibrating element. The Contractor shall furnish a tachometer or other suitable device for measuring and indicating frequency of vibration.

Power to vibrators shall be connected so that vibration ceases when forward or backward motion of the machine is stopped.

The provisions relating to the frequency and amplitude of internal vibration shall be considered the minimum requirements and are intended to ensure adequate density in the hardened concrete.

c. Consolidation. Concrete shall be consolidated with the specified type of lane-spanning, gang-mounted, mechanical, immersion type vibrating equipment mounted in front of the paver, supplemented, in rare instances as specified, by hand-operated vibrators. The vibrators shall be inserted into the concrete to a depth that will provide the best full-depth consolidation but not closer to the underlying material than inches (50 mm). Excessive vibration shall not be permitted. If the vibrators cause visible tracking in the paving lane, the paving operation shall be stopped and equipment and operations modified to prevent it. Concrete in small, odd-shaped slabs or in isolated locations inaccessible to the gang-mounted vibration equipment shall be vibrated with an approved hand-operated immersion vibrator operated from a bridge spanning the area. Vibrators shall not be used to transport or spread the concrete. Hand-operated vibrators shall not be operated in the concrete at one location for more than 20 seconds. Insertion locations for hand-operated vibrators shall be between 6 to 15 inches (150 to 400 mm) on centers. For each paving train, at least one additional vibrator spud, or sufficient parts for rapid replacement and repair of vibrators shall be maintained at the paving site at all times. Any evidence of inadequate consolidation (honeycomb along the edges, large air pockets, or any other evidence) shall require the immediate stopping of the paving operation and adjustment of the equipment or procedures as approved by the Engineer.

If a lack of consolidation of the concrete is suspected by the Engineer, referee testing may be required. Referee testing of hardened concrete will be performed by the Engineer by cutting cores from

the finished pavement after a minimum of 24 hours curing. Density determinations will be made by the Engineer based on the water content of the core as taken. ASTM C642 shall be used for the determination of core density in the saturated-surface dry condition. When required, referee cores will be taken at the minimum rate of one for each 500 cubic yards (382 m^2) of pavement, or fraction. The Contractor shall be responsible for all referee testing cost if they fail to meet the required density.

The average density of the cores shall be at least 97% of the original mix design density, with no cores having a density of less than 96% of the original mix design density. Failure to meet the referee tests will be considered evidence that the minimum requirements for vibration are inadequate for the job conditions. Additional vibrating units or other means of increasing the effect of vibration shall be employed so that the density of the hardened concrete conforms to the above requirements.

501-4.9 Strike-off of concrete and placement of reinforcement. Following the placing of the concrete, it shall be struck off to conform to the cross-section shown on the plans and to an elevation that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the plans. When reinforced concrete pavement is placed in two layers, the bottom layer shall be struck off to such length and depth that the sheet of reinforcing steel fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off, and screeded. If any portion of the bottom layer of concrete has been placed more than 30 minutes without being covered with the top layer or if initial set has taken place, it shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be positioned in advance of concrete placement or it may be placed in plastic concrete by mechanical or vibratory means after spreading.

Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond. Reinforcing steel with rust, mill scale or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable ASTM specification requirements.

501-4.10 Joints. Joints shall be constructed as shown on the plans and in accordance with these requirements. All joints shall be constructed with their faces perpendicular to the surface of the pavement and finished or edged as shown on the plans. Joints shall not vary more than 1/2 inch (12 mm) from their designated position and shall be true to line with not more than 1/4 inch (6 mm) variation in 10 feet (3 m). The surface across the joints shall be tested with a 12 feet (3 m) straightedge as the joints are finished and any irregularities in excess of 1/4 inch (6 mm) shall be corrected before the concrete has hardened. All joints shall be so prepared, finished, or cut to provide a groove of uniform width and depth as shown on the plans.

a. Construction. Longitudinal construction joints shall be slip-formed or formed against side forms as shown in the plans.

Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for more than 30 minutes or it appears that the concrete will obtain its initial set before fresh concrete arrives. The installation of the joint shall be located at a planned contraction or expansion joint. If placing of the concrete is stopped, the Contractor shall remove the excess concrete back to the previous planned joint.

b. Contraction. Contraction joints shall be installed at the locations and spacing as shown on the plans. Contraction joints shall be installed to the dimensions required by forming a groove or cleft in the top of the slab while the concrete is still plastic or by sawing a groove into the concrete surface after the concrete has hardened. When the groove is formed in plastic concrete the sides of the grooves shall be finished even and smooth with an edging tool. If an insert material is used, the installation and edge finish shall be according to the manufacturer's instructions. The groove shall be finished or cut clean so that

spalling will be avoided at intersections with other joints. Grooving or sawing shall produce a slot at least 1/8 inch (3 mm) wide and to the depth shown on the plans.

c. Isolation (expansion). Isolation joints shall be installed as shown on the plans. The premolded filler of the thickness as shown on the plans, shall extend for the full depth and width of the slab at the joint, except for space for sealant at the top of the slab. The filler shall be securely staked or fastened into position perpendicular to the proposed finished surface. A cap shall be provided to protect the top edge of the filler and to permit the concrete to be placed and finished. After the concrete has been placed and struck off, the cap shall be carefully withdrawn leaving the space over the premolded filler. The edges of the joint shall be finished and tooled while the concrete is still plastic. Any concrete bridging the joint space shall be removed for the full width and depth of the joint.

d. Tie bars. Tie bars shall consist of deformed bars installed in joints as shown on the plans. Tie bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals shown on the plans. They shall be held in position parallel to the pavement surface and in the middle of the slab depth. When tie bars extend into an unpaved lane, they may be bent against the form at longitudinal construction joints, unless threaded bolt or other assembled tie bars are specified. Tie bars shall not be painted, greased, or enclosed in sleeves. When slip-form operations call for tie bars, two-piece hook bolts can be installed.

e. Dowel bars. Dowel bars or other load-transfer units of an approved type shall be placed across joints as shown on the plans. They shall be of the dimensions and spacings as shown and held rigidly in the middle of the slab depth in the proper horizontal and vertical alignment by an approved assembly device to be left permanently in place. The dowel or load-transfer and joint devices shall be rigid enough to permit complete assembly as a unit ready to be lifted and placed into position. The dowels shall be coated with a bond-breaker or other lubricant recommended by the manufacturer and approved by the Engineer.

f. Dowels bars at longitudinal construction joints shall be bonded in drilled holes.

g. Placing dowels and tie bars. The method used in installing and holding dowels in position shall ensure that the error in alignment of any dowel from its required horizontal and vertical alignment after the pavement has been completed will not be greater than 1/8 inch per feet (3 mm per 0.3 m). Except as otherwise specified below, horizontal spacing of dowels shall be within a tolerance of ±5/8 inch (16 mm). The vertical location on the face of the slab shall be within a tolerance of ±1/2 inch (12 mm). The vertical alignment of the dowels shall be measured parallel to the designated top surface of the pavement, except for those across the crown or other grade change joints. Dowels across crowns and other joints at grade changes shall be measured to a level surface. Horizontal alignment shall be checked perpendicular to the joint edge. The horizontal alignment shall be checked with a framing square. Dowels shall not be placed closer than 0.6 times the dowel bar length to the planned joint line. If the last regularly spaced longitudinal dowel is closer than that dimension, it shall be moved away from the joint to a location 0.6 times the dowel bar length, but not closer than 6 inches (150 mm) to its nearest neighbor. The portion of each dowel intended to move within the concrete or expansion cap shall be wiped clean and coated with a thin, even film of lubricating oil or light grease before the concrete is placed. Dowels shall be installed as specified in the following subparagraphs.

(1) Contraction joints. Dowels and tie bars in longitudinal and transverse contraction joints within the paving lane shall be held securely in place, as indicated, by means of rigid metal frames or basket assemblies of an approved type. The basket assemblies shall be held securely in the proper location by means of suitable pins or anchors. Do not cut or crimp the dowel basket tie wires. At the Contractor's option, in lieu of the above, dowels and tie bars in contraction joints shall be installed near the front of the paver by insertion into the plastic concrete using approved equipment and procedures. Approval will be

based on the results of a preconstruction demonstration, showing that the dowels and tie bars are installed within specified tolerances.

(2) Construction joints. Install dowels and tie bars by the cast-in- place or the drill-and-dowel method. Installation by removing and replacing in preformed holes will not be permitted. Dowels and tie bars shall be prepared and placed across joints where indicated, correctly aligned, and securely held in the proper horizontal and vertical position during placing and finishing operations, by means of devices fastened to the forms. The spacing of dowels and tie bars in construction joints shall be as indicated.

(3) Dowels installed in isolation joints and other hardened concrete. Install dowels for isolation joints and in other hardened concrete by bonding the dowels into holes drilled into the hardened concrete. The concrete shall have cured for seven (7) days or reached a minimum compressive strength of 2500 psi (17 MPa) before drilling commences. Holes 1/8 inch (3 mm) greater in diameter than the dowels shall be drilled into the hardened concrete using rotary-core drills. Rotary-percussion drills may be used, provided that excessive spalling does not occur to the concrete joint face. Modification of the equipment and operation shall be required if, in the Engineer's opinion, the equipment and/or operation is causing excessive damage. Depth of dowel hole shall be within a tolerance of ±1/2 inch (12 mm) of the dimension shown on the drawings. On completion of the drilling operation, the dowel hole shall be blown out with oil-free, compressed air. Dowels shall be bonded in the drilled holes using epoxy resin. Epoxy resin shall be injected at the back of the hole before installing the dowel and extruded to the collar during insertion of the dowel so as to completely fill the void around the dowel. Application by buttering the dowel will not be permitted. The dowels shall be held in alignment at the collar of the hole, after insertion and before the grout hardens, by means of a suitable metal or plastic grout retention ring fitted around the dowel. Dowels required to be installed in any joints between new and existing concrete shall be grouted in holes drilled in the existing concrete, all as specified above.

h. Sawing of joints. Joints shall be cut as shown on the plans. Equipment shall be as described in paragraph 501-4.1. The circular cutter shall be capable of cutting a groove in a straight line and shall produce a slot at least 1/8 inch (3 mm) wide and to the depth shown on the plans. The top of the slot shall be widened by sawing to provide adequate space for joint sealers as shown on the plans. Sawing shall commence, without regard to day or night, as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing and before uncontrolled shrinkage cracking of the pavement occurs and shall continue without interruption until all joints have been sawn. The joints shall be sawn at the required spacing. All slurry and debris produced in the sawing of joints shall be removed by vacuuming and washing. Curing compound or system shall be reapplied in the initial sawcut and maintained for the remaining cure period.

501-4.11 Finishing. Finishing operations shall be a continuing part of placing operations starting immediately behind the strike-off of the paver. Initial finishing shall be provided by the transverse screed or extrusion plate. The sequence of operations shall be transverse finishing, longitudinal machine floating if used, straightedge finishing, texturing, and then edging of joints. Finishing shall be by the machine method. The hand method shall be used only on isolated areas of odd slab widths or shapes and in the event of a breakdown of the mechanical finishing equipment. Supplemental hand finishing for machine finished pavement shall be kept to an absolute minimum. Any machine finishing operation which requires appreciable hand finishing, other than a moderate amount of straightedge finishing, shall be immediately stopped and proper adjustments made or the equipment replaced. Any operations which produce more than 1/8 inch (3 mm) of mortar-rich surface (defined as deficient in plus U.S. No. 4 (4.75 mm) sieve size aggregate) shall be halted immediately and the equipment, mixture, or procedures modified as necessary. Compensation shall be made for surging behind the screeds or extrusion plate and settlement during hardening and care shall be taken to ensure that paving and finishing machines are properly adjusted so that the finished surface of the concrete (not just the cutting edges of the screeds) will be at the required line and grade. Finishing equipment and tools shall be maintained clean and in an approved condition. At

no time shall water be added to the surface of the slab with the finishing equipment or tools, or in any other way, except for fog (mist) sprays specified to prevent plastic shrinkage cracking.

a. Machine finishing with slipform pavers. The slipform paver shall be operated so that only a very minimum of additional finishing work is required to produce pavement surfaces and edges meeting the specified tolerances. Any equipment or procedure that fails to meet these specified requirements shall immediately be replaced or modified as necessary. A self-propelled non-rotating pipe float may be used while the concrete is still plastic, to remove minor irregularities and score marks. Only one pass of the pipe float shall be allowed. If there is concrete slurry or fluid paste on the surface that runs over the edge of the pavement, the paving operation shall be immediately stopped and the equipment, mixture, or operation modified to prevent formation of such slurry. Any slurry which does run down the vertical edges shall be immediately removed by hand, using stiff brushes or scrapers. No slurry, concrete or concrete mortar shall be used to build up along the edges of the pavement to compensate for excessive edge slump, either while the concrete is plastic or after it hardens.

b. Machine finishing with fixed forms. The machine shall be designed to straddle the forms and shall be operated to screed and consolidate the concrete. Machines that cause displacement of the forms shall be replaced. The machine shall make only one pass over each area of pavement. If the equipment and procedures do not produce a surface of uniform texture, true to grade, in one pass, the operation shall be immediately stopped and the equipment, mixture, and procedures adjusted as necessary.

c. Other types of finishing equipment. Clary screeds, other rotating tube floats, or bridge deck finishers are not allowed on mainline paving, but may be allowed on irregular or odd-shaped slabs, and near buildings or trench drains, subject to the Engineer's approval.

Bridge deck finishers shall have a minimum operating weight of 7500 pounds (3400 kg) and shall have a transversely operating carriage containing a knock-down auger and a minimum of two immersion vibrators. Vibrating screeds or pans shall be used only for isolated slabs where hand finishing is permitted as specified, and only where specifically approved.

d. Hand finishing. Hand finishing methods will not be permitted, except under the following conditions: (1) in the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade and (2) in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical. Use hand finishing operations only as specified below.

(1) Equipment and screed. In addition to approved mechanical internal vibrators for consolidating the concrete, provide a strike-off and tamping screed and a longitudinal float for hand finishing. The screed shall be at least one foot (30 cm) longer than the width of pavement being finished, of an approved design, and sufficiently rigid to retain its shape, and shall be constructed of metal or other suitable material shod with metal. The longitudinal float shall be at least 10 feet (3 m) long, of approved design, and rigid and substantially braced, and shall maintain a plane surface on the bottom. Grate tampers (jitterbugs) shall not be used.

(2) Finishing and floating. As soon as placed and vibrated, the concrete shall be struck off and screeded to the crown and cross-section and to such elevation above grade that when consolidated and finished, the surface of the pavement will be at the required elevation. In addition to previously specified complete coverage with handheld immersion vibrators, the entire surface shall be tamped with the strike-off and tamping template, and the tamping operation continued until the required compaction and reduction of internal and surface voids are accomplished. Immediately following the final tamping of the surface, the pavement shall be floated longitudinally from bridges resting on the side forms and spanning but not touching the concrete. If necessary, additional concrete shall be placed, consolidated and screeded, and the float operated until a satisfactory surface has been produced. The floating operation shall be

advanced not more than half the length of the float and then continued over the new and previously floated surfaces.

e. Straightedge testing and surface correction. After the pavement has been struck off and while the concrete is still plastic, it shall be tested for trueness with a Contractor furnished 12-foot (3.7-m) straightedge swung from handles 3 feet (1 m) longer than one-half the width of the slab. The straightedge shall be held in contact with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more than one-half the length of the straightedge. Any excess water and laitance in excess of 1/8 inch (3 mm) thick shall be removed from the surface of the pavement and wasted. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the smoothness requirements of paragraph 501-5.2e(3). Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross-section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment. This straight-edging is not a replacement for the straightedge testing of paragraph 501-5.2e(3), Smoothness.

501-4.12 Surface texture. The surface of the pavement shall be finished with either a brush or broom, burlap drag, or artificial turf finish for all newly constructed concrete pavements. It is important that the texturing equipment not tear or unduly roughen the pavement surface during the operation. Any imperfections resulting from the texturing operation shall be corrected to the satisfaction of the Engineer.

a. Brush or broom finish. If the pavement surface texture is to be a type of brush or broom finish, it shall be applied when the water sheen has practically disappeared. The equipment shall operate transversely across the pavement surface, providing corrugations that are uniform in appearance and approximately 1/16 inch (2 mm) in depth.

501-4.13 Curing. Immediately after finishing operations are completed and marring of the concrete will not occur, the entire surface of the newly placed concrete shall be cured for a 7-day cure period in accordance with one of the methods below. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour during the curing period.

When a two-sawcut method is used to construct the contraction joint, the curing compound shall be applied to the sawcut immediately after the initial cut has been made. The sealant reservoir shall not be sawed until after the curing period has been completed. When the one cut method is used to construct the contraction joint, the joint shall be cured with wet rope, wet rags, or wet blankets. The rags, ropes, or blankets shall be kept moist for the duration of the curing period.

a. Impervious membrane method. The entire surface of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place. The curing compound shall not be applied during rainfall. Curing compound shall be applied by mechanical sprayers under pressure at the rate of one gallon (4 liters) to not more than 150 sq ft (14 sq m). The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application the compound shall be stirred continuously by mechanical means. Hand spraying of odd widths or shapes and concrete surfaces exposed by the removal of forms will be permitted. When hand spraying is approved by the Engineer, a double application rate shall be used to ensure coverage. The curing compound shall be of such character that the film will harden within 30 minutes after application. Should the film become damaged from any cause,

including sawing operations, within the required curing period, the damaged portions shall be repaired immediately with additional compound or other approved means. Upon removal of side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface. Curing shall be applied immediately after the bleed water is gone from the surface.

b. White burlap-polyethylene sheets. The surface of the pavement shall be entirely covered with the sheeting. The sheeting used shall be such length (or width) that it will extend at least twice the thickness of the pavement beyond the edges of the slab. The sheeting shall be placed so that the entire surface and both edges of the slab are completely covered. The sheeting shall be placed and weighted to remain in contact with the surface covered, and the covering shall be maintained fully saturated and in position for seven (7) days after the concrete has been placed.

c. Water method. The entire area shall be covered with burlap or other water absorbing material. The material shall be of sufficient thickness to retain water for adequate curing without excessive runoff. The material shall be kept wet at all times and maintained for seven (7) days. When the forms are stripped, the vertical walls shall also be kept moist. It shall be the responsibility of the Contractor to prevent ponding of the curing water on the subbase.

d. Concrete protection for cold weather. The concrete shall be maintained at an ambient temperature of at least 50°F (10°C) for a period of 72 hours after placing and at a temperature above freezing for the remainder of the curing time. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather; and any concrete damaged shall be removed and replaced at the Contractor's expense.

e. Concrete protection for hot weather. Concrete should be continuous moisture cured for the entire curing period and shall commence as soon as the surfaces are finished and continue for at least 24 hours. However, if moisture curing is not practical beyond 24 hours, the concrete surface shall be protected from drying with application of a liquid membrane-forming curing compound while the surfaces are still damp. Other curing methods may be approved by the Engineer.

501-4.14 Removing forms. Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has hardened sufficiently to permit removal without chipping, spalling, or tearing. After the forms have been removed, the sides of the slab shall be cured as per the methods indicated in paragraph 501-4.13. Major honeycombed areas shall be considered as defective work and shall be removed and replaced in accordance with paragraph 501-5.2(f).

501-4.15 Saw-cut grooving. If shown on the plans, grooved surfaces shall be provided in accordance with the requirements of Item P-621.

501-4.16 Sealing joints. The joints in the pavement shall be sealed in accordance with Item P-605.

501-4.17 Protection of pavement. The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by the Contractor's employees and agents until accepted by the Engineer. This shall include watchmen to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, crossovers, and protection of unsealed joints from intrusion of foreign material, etc. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor's expense.

Aggregates, rubble, or other similar construction materials shall not be placed on airfield pavements. Traffic shall be excluded from the new pavement by erecting and maintaining barricades and signs until the concrete is at least seven (7) days old, or for a longer period if directed by the Engineer.

In paving intermediate lanes between newly paved pilot lanes, operation of the hauling and paving equipment will be permitted on the new pavement after the pavement has been cured for seven (7) days and the joints have been sealed or otherwise protected, and the concrete has attained a minimum field

cured flexural strength of 550 psi (37928 kPa) and approved means are furnished to prevent damage to the slab edge.

All new and existing pavement carrying construction traffic or equipment shall be continuously kept completely clean, and spillage of concrete or other materials shall be cleaned up immediately upon occurrence.

Damaged pavements shall be removed and replaced at the Contractor's expense. Slabs shall be removed to the full depth, width, and length of the slab.

501-4.18 Opening to construction traffic. The pavement shall not be opened to traffic until test specimens molded and cured in accordance with ASTM C31 have attained a compressive strength of 4,400 lb / square inch (3.8 kPa) when tested in accordance with ASTM C78. If such tests are not conducted, the pavement shall not be opened to traffic until 14 days after the concrete was placed. Prior to opening the pavement to construction traffic, all joints shall either be sealed or protected from damage to the joint edge and intrusion of foreign materials into the joint. As a minimum, backer rod or tape may be used to protect the joints from foreign matter intrusion.

501-4.19 Repair, removal, or replacement of slabs.

a. General. New pavement slabs that are broken or contain cracks or are otherwise defective or unacceptable shall be removed and replaced or repaired, as directed by the Engineer and as specified hereinafter at no cost to the Owner. Spalls along joints shall be repaired as specified. Removal of partial slabs is not permitted. Removal and replacement shall be full depth, shall be full width of the slab, and the limit of removal shall be normal to the paving lane and to each original transverse joint. The Engineer will determine whether cracks extend full depth of the pavement and may require cores to be drilled on the crack to determine depth of cracking. Such cores shall be 4 inch (100 mm) diameter, shall be drilled by the Contractor and shall be filled by the Contractor with a well consolidated concrete mixture bonded to the walls of the hole with epoxy resin, using approved procedures. Drilling of cores and refilling holes shall be at no expense to the Owner. All epoxy resin used in this work shall conform to ASTM C881, Type V. Repair of cracks as described in this section shall not be allowed if in the opinion of the Engineer the overall condition of the pavement indicates that such repair is unlikely to achieve an acceptable and durable finished pavement. No repair of cracks shall be allowed in any panel that demonstrates segregated aggregate with an absence of coarse aggregate in the upper 1/8 inch (3 mm) of the pavement surface.

b. Shrinkage cracks. Shrinkage cracks, which do not exceed 4 inches (100 mm) in depth, shall be cleaned and then pressure injected with epoxy resin, Type IV, Grade 1, using procedures as approved by the Engineer. Care shall be taken to assure that the crack is not widened during epoxy resin injection. All epoxy resin injection shall take place in the presence of the Engineer. Shrinkage cracks, which exceed 4 inches (100 mm) in depth, shall be treated as full depth cracks in accordance with paragraphs 4.19b and 4.19c.

c. Slabs with cracks through interior areas. Interior area is defined as that area more than 6 inches (150 mm) from either adjacent original transverse joint. The full slab shall be removed and replaced at no cost to the Owner, when there are any full depth cracks, or cracks greater than 4 inches (100 mm) in depth, that extend into the interior area.

d. Cracks close to and parallel to joints. All cracks essentially parallel to original joints, extending full depth of the slab, and lying wholly within 6 inches (150 mm) either side of the joint shall be treated as specified here. Any crack extending more than 6 inches (150 mm) from the joint shall be treated as specified above in subparagraph c.

(1) Full depth cracks present, original joint not opened. When the original un-cracked joint has not opened, the crack shall be sawed and sealed, and the original joint filled with epoxy resin as

specified below. The crack shall be sawed with equipment specially designed to follow random cracks. The reservoir for joint sealant in the crack shall be formed by sawing to a depth of 3/4 inches (19 mm), ±1/16 inch (2 mm), and to a width of 5/8 inch (16 mm), ±1/8 inch (3 mm). Any equipment or procedure which causes raveling or spalling along the crack shall be modified or replaced to prevent such raveling or spalling. The joint sealant shall be a liquid sealant as specified. Installation of joint seal shall be as specified for sealing joints or as directed. If the joint sealant reservoir has been sawed out, the reservoir and as much of the lower saw cut as possible shall be filled with epoxy resin, Type IV, Grade 2, thoroughly tooled into the void using approved procedures.

If only the original narrow saw cut has been made, it shall be cleaned and pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. If filler type material has been used to form a weakened plane in the transverse joint, it shall be completely sawed out and the saw cut pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. Where a parallel crack goes part way across paving lane and then intersects and follows the original joint which is cracked only for the remained of the width, it shall be treated as specified above for a parallel crack, and the cracked original joint shall be prepared and sealed as originally designed.

(2) Full depth cracks present, original joint also cracked. At a joint, if there is any place in the lane width where a parallel crack and a cracked portion of the original joint overlap, the entire slab containing the crack shall be removed and replaced for the full lane width and length.

e. Removal and replacement of full slabs. Where it is necessary to remove full slabs, unless there are dowels present, all edges of the slab shall be cut full depth with a concrete saw. All saw cuts shall be perpendicular to the slab surface. If dowels, or tie bars are present along any edges, these edges shall be sawed full depth just beyond the end of the dowels or tie bars. These joints shall then be carefully sawed on the joint line to within one inch (25 mm) of the depth of the dowel or tie bar.

The main slab shall be further divided by sawing full depth, at appropriate locations, and each piece lifted out and removed. Suitable equipment shall be used to provide a truly vertical lift, and approved safe lifting devices used for attachment to the slabs. The narrow strips along doweled edges shall be carefully broken up and removed using light, hand-held jackhammers, 30 lb (14 kg) or less, or other approved similar equipment.

Care shall be taken to prevent damage to the dowels, tie bars, or to concrete to remain in place. The joint face below dowels shall be suitably trimmed so that there is not abrupt offset in any direction greater than 1/2 inch (12 mm) and no gradual offset greater than one inch (25 mm) when tested in a horizontal direction with a 12-foot (3.7-m) straightedge.

No mechanical impact breakers, other than the above hand-held equipment shall be used for any removal of slabs. If underbreak between 1-1/2 and 4 inches (38 and 100 mm) deep occurs at any point along any edge, the area shall be repaired as directed before replacing the removed slab. Procedures directed will be similar to those specified for surface spalls, modified as necessary.

If underbreak over 4 inches (100 mm) deep occurs, the entire slab containing the underbreak shall be removed and replaced. Where there are no dowels or tie bars, or where they have been damaged, dowels or tie bars of the size and spacing as specified for other joints in similar pavement shall be installed by epoxy grouting them into holes drilled into the existing concrete using procedures as specified. Original damaged dowels or tie bars shall be cut off flush with the joint face. Protruding portions of dowels shall be painted and lightly oiled. All four (4) edges of the new slab shall contain dowels or original tie bars.

Placement of concrete shall be as specified for original construction. Prior to placement of new concrete, the underlying material (unless it is stabilized) shall be re-compacted and shaped as specified in the appropriate section of these specifications. The surfaces of all four joint faces shall be cleaned of all loose material and contaminants and coated with a double application of membrane forming curing compound as bond breaker. Care shall be taken to prevent any curing compound from contacting dowels

or tie bars. The resulting joints around the new slab shall be prepared and sealed as specified for original construction.

f. Repairing spalls along joints. Where directed, spalls along joints of new slabs, and along parallel cracks used as replacement joints, shall be repaired by first making a vertical saw cut at least one inch (25 mm) outside the spalled area and to a depth of at least 2 inch (50 mm). Saw cuts shall be straight lines forming rectangular areas. The concrete between the saw cut and the joint, or crack, shall be chipped out to remove all unsound concrete and at least 1/2 inch (12 mm) of visually sound concrete. The cavity thus formed shall be thoroughly cleaned with high-pressure water jets supplemented with compressed air to remove all loose material. Immediately before filling the cavity, a prime coat of epoxy resin, Type III, Grade I, shall be applied to the dry cleaned surface of all sides and bottom of the cavity, except any joint face. The prime coat shall be applied in a thin coating and scrubbed into the surface with a stiff-bristle brush. Pooling of epoxy resin shall be avoided. The cavity shall be filled with low slump Portland cement concrete or mortar or with epoxy resin concrete or mortar. Concrete shall be used for larger spalls, generally those more than 1/2 cu. ft. (0.014 m^3) in size, and mortar shall be used for the smaller ones. Any spall less than 0.1 cu. ft. (0.003 m^3) shall be repaired only with epoxy resin mortar or a Grade III epoxy resin. Portland cement concrete and mortar mixtures shall be proportioned as directed and shall be mixed, placed, consolidated, and cured as directed. Epoxy resin mortars shall be made with Type III, Grade 1, epoxy resin, using proportions and mixing and placing procedures as recommended by the manufacturer and approved by the Engineer. The epoxy resin materials shall be placed in the cavity in layers not over 2 inches (50 mm) thick. The time interval between placement of additional layers shall be such that the temperature of the epoxy resin material does not exceed 140°F (60°C) at any time during hardening. Mechanical vibrators and hand tampers shall be used to consolidate the concrete or mortar. Any repair material on the surrounding surfaces of the existing concrete shall be removed before it hardens. Where the spalled area abuts a joint, an insert or other bond-breaking medium shall be used to prevent bond at the joint face. A reservoir for the joint sealant shall be sawed to the dimensions required for other joints, or as required to be routed for cracks. The reservoir shall be thoroughly cleaned and sealed with the sealer specified for the joints. If any spall penetrates half the depth of the slab or more, the entire slab shall be removed and replaced as previously specified If any spall would require over 25% of the length of any single joint to be repaired, the entire slab shall be removed and replaced. Repair of spalls as described in this section shall not be allowed if in the opinion of the Engineer the overall condition of the pavement indicates that such repair is unlikely to achieve an acceptable and durable finished pavement. No repair of spalls shall be allowed in any panel that demonstrates segregated aggregate with a significant absence of coarse aggregate in the upper one-eight (1/8th) inch of the pavement surface.

g. Diamond grinding of PCC surfaces. Diamond grinding of the hardened concrete with an approved diamond grinding machine should not be performed until the concrete is 14 days or more old and concrete has reached full minimum strength. When required, diamond grinding shall be accomplished by sawing with saw blades impregnated with industrial diamond abrasive. The saw blades shall be assembled in a cutting head mounted on a machine designed specifically for diamond grinding that will produce the required texture and smoothness level without damage to the pavement. The saw blades shall be 1/8-inch (3-mm) wide and there shall be a minimum of 55 to 60 blades per 12 inches (300 mm) of cutting head width; the actual number of blades will be determined by the Contractor and depend on the hardness of the aggregate. Each machine shall be capable of cutting a path at least 3 feet (0.9 m) wide. Equipment that causes ravels, aggregate fractures, spalls or disturbance to the joints will not be permitted. The area corrected by diamond grinding the surface of the hardened concrete should not exceed 10% of the total area of any sublot. The depth of diamond grinding shall not exceed 1/2 inch (13 mm) and all areas in which diamond grinding has been performed will be subject to the final pavement thickness tolerances specified. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. All pavement areas requiring plan grade or surface smoothness corrections in excess

of the limits specified above, may require removing and replacing in conformance with paragraph 501-4.19.

501-4.20 Existing concrete pavement removal and repair.

All operations shall be carefully controlled to prevent damage to the concrete pavement and to the underlying material to remain in place. All saw cuts shall be made perpendicular to the slab surface.

a. Removal of existing pavement slab.

When it is necessary to remove existing concrete pavement and leave adjacent concrete in place, unless there are dowels present, the joint between the removal area and adjoining pavement to stay in place, including dowels or tie bars, shall first be cut full depth with a standard diamond-type concrete saw. If dowels are present at this joint, the saw cut shall be made full depth just beyond the end of dowels. The edge shall then be carefully sawed on the joint line to within one inch (25 mm) of the top of the dowel. Next, a full depth saw cut shall be made parallel to the joint at least 24 inches (600 mm) from the joint and at least 12 inches (300 mm) from the end of any dowels. All pavement between this last saw cut and the joint line shall be carefully broken up and removed using hand-held jackhammers, 30 lb (14 kg) or less, or the approved light-duty equipment which will not cause stress to propagate across the joint saw cut and cause distress in the pavement which is to remain in place. Where dowels are present, care shall be taken to produce an even, vertical joint face below the dowels. If the Contractor is unable to produce such a joint face, or if underbreak or other distress occurs, the Contractor shall saw the dowels flush with the joint. The Contractor shall then install new dowels, of the size and spacing used for other similar joints, by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph 501-4.10g. All this shall be at no additional cost to the Owner. Dowels of the size and spacing indicated shall be installed as shown on the drawings by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph 501-4.10g. The joint face shall be sawed or otherwise trimmed so that there is no abrupt offset in any direction greater than 1/2 inches (12 mm) and no gradual offset greater than one inch (25 mm) when tested in a horizontal direction with a 12-foot (3.7-m) straightedge.

b. Edge repair.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Areas that are damaged during construction shall be repaired at no cost to the Owner.

(1) Spall repair. Spalls shall be repaired where indicated and where directed by the Engineer. Repair materials and procedures shall be as previously specified in subparagraph 501-4.19f.

(2) Underbreak repair. All underbreak shall be repaired. First, all delaminated and loose material shall be carefully removed. Next, the underlying material shall be recompacted, without addition of any new material. Finally, the void shall be completely filled with paving concrete, thoroughly consolidated. Care shall be taken to produce an even joint face from top to bottom. Prior to placing concrete, the underlying material shall be thoroughly moistened. After placement, the exposed surface shall be heavily coated with curing compound.

(3) Underlying material. The underlying material adjacent to the edge and under the existing pavement which is to remain in place shall be protected from damage or disturbance during removal operations and until placement of new concrete, and shall be shaped as shown on the drawings or as directed. Sufficient material shall be kept in place outside the joint line to prevent disturbance (or sloughing) of material under the pavement that is to remain in place. Any material under the portion of the concrete pavement to remain in place, which is disturbed or loses its compaction shall be carefully removed and replaced with concrete as specified in paragraph 501-4.20b(2). The underlying material outside the joint line shall be thoroughly compacted and moist when new concrete is placed.

MATERIAL ACCEPTANCE

501-5.1 Acceptance sampling and testing. All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section, with the exception of coring for thickness determination, will be performed by the Engineer at no cost to the Contractor. The Contractor shall bear the cost of providing curing facilities for the strength specimens, per paragraph 501-5.1a(3), and coring and filling operations, per paragraph 501-5.1b(1). Testing organizations performing these tests shall be accredited in accordance with ASTM C1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction.

Concrete shall be accepted for strength and thickness on a lot basis.

A lot shall be defined as one day's production, not to exceed 2,000 square yards. Daily pours of small areas (short runs and/or radius areas) shall be considered as one sublot if less than 500 square yards. Daily pour sizes shall be broken into sublots as defined below:

Daily Pour (SY)	Sublots
0 – 500	1
501 – 1000	2
1001 – 1500	3
> 1500	4

Any daily pour shall be considered a sublot.

a. Compressive strength.

(1) Sampling. Each lot shall be divided into four equal sublots. One sample shall be taken for each sublot from the plastic concrete delivered to the job site. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D3665. The concrete shall be sampled in accordance with ASTM C172.

(2) Testing. Two (2) specimens shall be made from each sample. Specimens shall be made in accordance with ASTM C31 and the compressive strength of each specimen shall be determined in accordance with ASTM C78. The compressive strength for each sublot shall be computed by averaging the results of the two test specimens representing that sublot.

Immediately prior to testing for compressive strength, the beam shall be weighed and measured for determination of a sample unit weight. Measurements shall be made for each dimension; height, depth, and length, at the mid-point of the specimen and reported to the nearest 1/10 inch (3 mm). The weight of the specimen shall be reported to the nearest 0.1 pound (45 gm). The sample unit weight shall be calculated by dividing the sample weight by the calculated volume of the sample. This information shall be reported as companion information to the measured compressive strength for each specimen.

The samples will be transported while in the molds. The curing, except for the initial cure period, will be accomplished using the immersion in saturated lime water method.

Slump, air content, and temperature tests will also be conducted by the quality assurance laboratory for each set of strength test samples, per ASTM C31.

(3) Curing. The Contractor shall provide adequate facilities for the initial curing of beams. During the 24 hours after molding, the temperature immediately adjacent to the specimens must be maintained in the range of 60° to 80°F (16° to 27°C), and loss of moisture from the specimens must be prevented. The specimens may be stored in tightly constructed wooden boxes, damp sand pits, temporary buildings at construction sites, under wet burlap in favorable weather, or in heavyweight closed plastic bags, or using other suitable methods, provided the temperature and moisture loss requirements are met.

(4) Acceptance. Acceptance of pavement for flexural strength will be determined by the Engineer in accordance with paragraph 501-5.2b.

b. Pavement thickness.

(1) Sampling. Each lot shall be divided into four equal sublots and one core shall be taken by the Contractor for each sublot. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D3665. Areas, such as thickened edges, with planned variable thickness, shall be excluded from sample locations.

Cores shall be neatly cut with a core drill. The Contractor shall furnish all tools, labor, and materials for cutting samples and filling the cored hole. Core holes shall be filled by the Contractor with a non-shrink grout approved by the Engineer within one day after sampling.

(2) Testing. The thickness of the cores shall be determined by the Engineer by the average caliper measurement in accordance with ASTM C174.

(3) Acceptance. Acceptance of pavement for thickness shall be determined by the Engineer in accordance with paragraph 501-5.2c.

c. Partial lots. When operational conditions cause a lot to be terminated before the specified number of tests have been made for the lot, or when the Contractor and Engineer agree in writing to allow overages or minor placements to be considered as partial lots, the following procedure will be used to adjust the lot size and the number of tests for the lot.

Where three sublots have been produced, they shall constitute a lot. Where one or two sublots have been produced, they shall be incorporated into the next lot or the previous lot and the total number of sublots shall be used in the acceptance criteria calculation, that is, n=5 or n=6.

d. Outliers. All individual compressive strength tests within a lot shall be checked for an outlier (test criterion) in accordance with ASTM E178, at a significance level of 5%. Outliers shall be discarded, and the percentage of material within specification limits (PWL) shall be determined using the remaining test values.

501-5.2 Acceptance criteria.

a. General. Acceptance will be based on the following characteristics of the completed pavement discussed in paragraph 501-5.2e:

(1) Compressive strength

(2) Thickness

(3) Smoothness

(4) Grade

(5) Edge slump

Compressive strength and thickness shall be evaluated for acceptance on a lot basis using the method of estimating PWL. Acceptance using PWL considers the variability (standard deviation) of the material and the testing procedures, as well as the average (mean) value of the test results to calculate the percentage of material that is above the lower specification tolerance limit (L).

Acceptance for compressive strength will be based on the criteria contained in accordance with paragraph 501-5.2e(1). Acceptance for thickness will be based on the criteria contained in paragraph 501-5.2e(2). Acceptance for smoothness will be based on the criteria contained in paragraph 501-5.2e(3). Acceptance for grade will be based on the criteria contained in paragraph 501-5.2e(4).

The Engineer may at any time, notwithstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of concrete mixture which is rendered unfit for use due to contamination, segregation, or improper slump. Such rejection may be based on only visual inspection. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the Engineer, and if it can be demonstrated in the laboratory, in the presence of the Engineer, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

b. Compressive strength. Acceptance of each lot of in-place pavement for compressive strength shall be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.

c. Pavement thickness. Acceptance of each lot of in-place pavement shall be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.

d. Percentage of material within limits (PWL). The PWL shall be determined in accordance with procedures specified in Section 110 of the General Provisions.

The lower specification tolerance limit (L) for compressive strength and thickness shall be:

Lower Specification Tolerance Limit (L)

Compressive Strength	L = 4,140 psi
Thickness	Lot Plan Thickness in inches, - 0.50 in

e. Acceptance criteria.

(1) Compressive Strength. If the PWL of the lot equals or exceeds 90%, the lot shall be acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph 501-8.1.

(2) Thickness. If the PWL of the lot equals or exceeds 90%, the lot shall be acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph 501-8.1.

(3) Smoothness. As soon as the concrete has hardened sufficiently, but not later than 48 hours after placement, the surface of each lot shall be tested in both longitudinal and transverse directions for smoothness to reveal all surface irregularities exceeding the tolerances specified. The Contractor shall furnish paving equipment and employ methods that produce a surface for each section of pavement having an average profile index meeting the requirements of paragraph 501-8.1c when evaluated with a profilograph; and the finished surface of the pavement shall not vary more than 1/4 inch (6mm) when evaluated with a 12-foot (3.7m) straightedge. When the surface smoothness exceeds specification tolerances which cannot be corrected by diamond grinding of the pavement, full depth removal and replacement of pavement shall be to the limit of the longitudinal placement. Corrections involving diamond grinding will be subject to the final pavement thickness tolerances specified.

(a) Transverse measurements. Transverse measurements will be taken for each lot placed. Transverse measurements will be taken perpendicular to the pavement centerline each 50 feet (15m) or more often as determined by the Engineer.

(i) Testing shall be continuous across all joints, starting with one-half the length of the straight edge at the edge of pavement section being tested and then moved ahead one-half the length of the straight edge for each successive measurement. Smoothness readings will not be made across grade changes or cross slope transitions; at these transition areas, the straightedge position shall be adjusted to

measure surface smoothness and not design grade or cross slope transitions. The amount of 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 these two high points. Deviations on final pavement > 1/4 inch (6mm) in transverse direction shall be corrected with diamond grinding per paragraph 501-4.19g or by removing and replacing full depth of pavement. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The area corrected by grinding should not exceed 10% of the total area and these areas shall be retested after grinding.

(ii) The joint between lots shall be tested separately to facilitate smoothness between lots. The amount of surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface, with half the straightedge on one side of the joint and the other half of the straightedge on the other side of the joint. Measure the maximum gap between the straightedge and the pavement surface in the area between these two high points. One measurement shall be taken at the joint every 50 feet (15m) or more often if directed by the Engineer. Maximum gap on final pavement surface > 1/4 inch (6mm) in transverse direction shall be corrected with diamond grinding per paragraph 501-4.19g or by removing and replacing full depth of surface. Each measurement shall be recorded and a copy of the data shall be furnished to the Engineer at the end of each days testing.

(b) Longitudinal measurements. Longitudinal measurements will be taken for each lot placed. Longitudinal tests will be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet (6m); and at the one third points of paving lanes when widths of paving lanes are 20 ft (6m) or greater.

(i) Longitudinal Short Sections. Longitudinal Short Sections are when the longitudinal lot length is less than 200 feet (60m) and areas not requiring a profilograph. When approved by the Engineer, the first and last 15 feet (4.5m) of the lot can also be considered as short sections for smoothness. The finished surface shall not vary more than 1/4 inch (6mm) when evaluated with a 12-foot (3.7m) straightedge. Smoothness readings will not be made across grade changes or cross slope transitions, at these transition areas, the straightedge position shall be adjusted to measure surface smoothness and not design grade or cross slope transitions. Testing shall be continuous across all joints, starting with one-half the length of the straight edge at the edge of pavement section being tested and then moved ahead one-half the length of the straight edge for each successive measurement. The amount of 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 these two high points. Deviations on final pavement surface > 1/4 inch (6mm) in longitudinal direction will be corrected with diamond grinding per paragraph 501-4.19g or by removing and replacing full depth of surface. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The area corrected by grinding should not exceed 10% of the total area and these areas shall be retested after grinding.

(ii) Profilograph Testing. Profilograph testing shall be performed by the contractor using approved equipment and procedures as described as ASTM E1274. 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 (5 mm) blanking band. The bump template must span one inch (25 mm) with an offset of 0.4 inches (10 mm). The profilograph must be calibrated prior to use and operated by a factory or State DOT approved operator. Profilograms shall be recorded on a longitudinal scale of one inch (25 mm) equals 25 feet (7.5 m) and a vertical scale of one inch (25 mm) equals one inch (25 mm). A copy of the reduced tapes shall be furnished to the Engineer at the end of each days testing.

The pavement must have an average profile index meeting the requirements of paragraph 501-8.1c. Deviations on final surface in longitudinal direction shall be corrected with diamond grinding per paragraph 501-4.19g or by removing and replacing full depth of pavement. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The area corrected by grinding should not exceed 10% of the total area and these areas shall be retested after grinding.

Where corrections are necessary, second profilograph runs shall be performed to verify that the corrections produced an average profile index of 15 inches (38 cm) per mile or less. If the initial average profile index was less than 15 inches (38 cm), only those areas representing greater than 0.4 inch (10 mm) deviation will be re-profiled for correction verification.

(iii) Final profilograph of runway. Final profilograph, full length of runway, shall be performed to facilitate testing of smoothness between lots. Profilograph testing shall be performed by the contractor using approved equipment and procedures as described as ASTM E1274. The pavement must have an average profile index meeting the requirements of paragraph 501-8.1c. 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 (5 mm) blanking band. The bump template must span one inch (25 mm) with an offset of 0.4 inches (10 mm). 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 (25 mm) equals 25 feet (7.5 m) and a vertical scale of one inch (25 mm) equals one inch (25 mm). A copy of the reduced tapes shall be furnished to the Engineer at the end of each days testing. Profilograph of final runway shall be performed one foot right and left of runway centerline and 15 feet right and left of centerline. Any areas that indicate "must grind" will be corrected as directed by the Engineer.

Smoothness testing indicated in the above paragraphs except paragraph (iii) shall be performed within 48 hours of placement of material. Smoothness texting indicated in paragraph (iii) shall be performed within 48 hours final paving completion. The primary purpose of smoothness testing is to identify areas that may be prone to ponding of water which could lead to hydroplaning of aircraft. If the contractor's machines and/or methods are producing significant areas that need corrective actions then production should be stopped until corrective measures can be implemented. If corrective measures are not implemented and when directed by the Engineer, production shall be stopped until corrective measures can be implemented.

(4) Grade. An evaluation of the surface grade shall be made by the Engineer for compliance to the tolerances contained below. The finish grade will be determined by running levels at intervals of 50 feet (15 m) or less longitudinally and all breaks in grade transversely (not to exceed 50 feet (15 m)) to determine the elevation of the completed pavement. The Contractor shall pay the costs of surveying the level runs, and this work shall be performed by a licensed surveyor. The documentation, stamped and signed by a licensed surveyor, shall be provided by the Contractor to the Engineer.

(a) Lateral deviation. Lateral deviation from established alignment of the pavement edge shall not exceed ±0.10 feet (3 mm) in any lane.

(b) Vertical deviation. Vertical deviation from established grade shall not exceed ±0.04 feet (12 mm) at any point.

(5) Edge slump. When excessive edge slump cannot be corrected before the concrete has hardened, the area with excessive edge slump shall be removed and replaced at the expense of the Contractor as directed by the Engineer in accordance with paragraph 501-4.8a.

f. Removal and replacement of concrete. Any area or section of concrete that is removed and replaced shall be removed and replaced back to planned joints. The Contractor shall replace damaged dowels and the requirements for doweled longitudinal construction joints in paragraph 501-4.10 shall apply to all contraction joints exposed by concrete removal. Removal and replacement shall be in accordance with paragraph 501-4.20.

CONTRACTOR QUALITY CONTROL

501-6.1 Quality control program. The Contractor shall develop a Quality Control Program in accordance with Section 100 of the General Provisions. The program shall address all elements that affect the quality of the pavement including but not limited to:

a. Mix Design

b. Aggregate Gradation

c. Quality of Materials

d. Stockpile Management

e. Proportioning

f. Mixing and Transportation

g. Placing and Consolidation

h. Joints

i. Dowel Placement and Alignment

j. Flexural or Compressive Strength

k. Finishing and Curing

l. Surface Smoothness

501-6.2 Quality control testing. The Contractor shall perform all quality control tests necessary to control the production and construction processes applicable to this specification and as set forth in the Quality Control Program. The testing program shall include, but not necessarily be limited to, tests for aggregate gradation, aggregate moisture content, slump, and air content.

A Quality Control Testing Plan shall be developed as part of the Quality Control Program.

a. Fine aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily in accordance with ASTM C136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C70 or ASTM C566.

b. Coarse Aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily for each size of aggregate. Tests shall be made in accordance with ASTM C136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C566.

c. Slump. Four slump tests shall be performed for each lot of material produced in accordance with the lot size defined in paragraph 501-5.1. One test shall be made for each sublot. Slump tests shall be

performed in accordance with ASTM C143 from material randomly sampled from material discharged from trucks at the paving site. Material samples shall be taken in accordance with ASTM C172.

d. Air content. Four air content tests, shall be performed for each lot of material produced in accordance with the lot size defined in paragraph 501-5.1. One test shall be made for each sublot. Air content tests shall be performed in accordance with ASTM C231 for gravel and stone coarse aggregate and ASTM C173 for slag or other porous coarse aggregate, from material randomly sampled from trucks at the paving site. Material samples shall be taken in accordance with ASTM C172.

e. Four unit weight and yield tests shall be made in accordance with ASTM C138. The samples shall be taken in accordance with ASTM C172 and at the same time as the air content tests.

501-6.3 Control charts. The Contractor shall maintain linear control charts for fine and coarse aggregate gradation, slump, moisture content and air content.

Control charts shall be posted in a location satisfactory to the Engineer and shall be kept up to date at all times. 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, or Specification 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 potential problem and the Contractor is not taking satisfactory corrective action, the Engineer may halt production or acceptance of the material.

a. Fine and coarse aggregate gradation. The Contractor shall record the running average of the last five gradation tests for each control sieve on linear control charts. Specification limits contained in the Lower Specification Tolerance Limit (L) table above and the Control Chart Limits table below shall be superimposed on the Control Chart for job control.

b. Slump and air content. The Contractor shall maintain linear control charts both for individual measurements and range (that is, difference between highest and lowest measurements) for slump and air content in accordance with the following Action and Suspension Limits.

Control Chart Limits

Control Parameter	Individual Measurements		Range Suspension Limit
	Action Limit	Suspension Limit	
Slip Form:			
Slump	+0 to -1 inch (0-25 mm)	+0.5 to -1.5 inch (13-38 mm)	±1.5 inch (38 mm)
Air Content	±1.2%	±1.8%	±2.5%
Side Form:			
Slump	+0.5 to -1 inch (13-25 mm)	+1 to -1.5 inch (25-38 mm)	±1.5 inch (38 mm)
Air Content	±1.2%	±1.8%	±2.5%

The individual measurement control charts shall use the mix design target values as indicators of central tendency.

501-6.4 Corrective action. The Contractor Quality Control Program shall indicate that appropriate action shall be taken when the process is believed to be out of control. The Contractor Quality Control Program shall detail what action will be taken to bring the process into control and shall contain sets of rules to

gauge when a process is out of control. As a minimum, a process shall be deemed out of control and corrective action taken if any one of the following conditions exists.

a. Fine and coarse aggregate gradation. When two consecutive averages of five tests are outside of the specification limits in paragraph 501-2.1, immediate steps, including a halt to production, shall be taken to correct the grading.

b. Fine and coarse aggregate moisture content. Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5%, the scale settings for the aggregate batcher and water batcher shall be adjusted.

c. Slump. The Contractor shall halt production and make appropriate adjustments whenever:

(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.

d. Air content. The Contractor shall halt production and adjust the amount of air-entraining admixture whenever:

(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.

Whenever a point falls outside the Action Limits line, the air-entraining admixture dispenser shall be calibrated to ensure that it is operating correctly and with good reproducibility.

METHOD OF MEASUREMENT

501-7.1 Portland cement concrete pavement shall be measured by the number of square yards of either plain or reinforced pavement as specified in-place, completed and accepted.

BASIS OF PAYMENT

501-8.1 Payment. Payment for concrete pavement meeting all acceptance criteria as specified in paragraph 501-5.2 Acceptance Criteria shall be based on results of **[** smoothness, **]** strength and thickness tests. Payment for acceptable lots of concrete pavement shall be adjusted in accordance with paragraph 501-8.1a for strength and thickness and 501-8.1c for smoothness, subject to the limitation that:

The total project payment for concrete pavement shall not exceed 100 percent of the product of the contract unit price and the total number of square yards of concrete pavement used in the accepted work (See Note 1 under the Price Adjustment Schedule table below).

Payment shall be full compensation for all labor, materials, tools, equipment, and incidentals required to complete the work as specified herein and on the drawings.

a. Basis of adjusted payment. The pay factor for each individual lot shall be calculated in accordance with the Price Adjustment Schedule table below. A pay factor shall be calculated for both flexural strength and thickness. The lot pay factor shall be the higher of the two values when calculations for both flexural strength and thickness are 100% or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either flexural strength or thickness is 100% or higher. The lot pay factor shall be the lower of the two values when calculations for both flexural strength and thickness are less than 100%.

Price Adjustment Schedule[1]

Percentage of Materials Within Specification Limits (PWL)	Lot Pay Factor (Percent of Contract Unit Price)
96 – 100	106
90 – 95	PWL + 10
75 – 90	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 in excess of 100% shall be subject to the total project payment limitation specified in paragraph 501-8.1.

[2] The lot shall be removed and replaced. However, the Engineer may have reasons to decide to allow the rejected lot to remain. In that case, the Engineer will consult and get concurrence from the FAA ADO, as stated in Section 50-02, to enter into a written agreement with the Contractor. This written agreement shall include the reasoning why the lot shall not be removed and that it shall be paid for at 50% of the contract unit price and the total project payment limitation shall be reduced by the amount withheld for the rejected lot.

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 501-8.1. Payment in excess of 100% for accepted lots of concrete pavement shall be used to offset payment for accepted lots of concrete pavement that achieve a lot pay factor less than 100%.

b. Payment. Payment shall be made under:

Item P-501-8.1a Portland Cement Concrete Pavement per square yard

c. Basis of adjusted payment for smoothness. Price adjustment for pavement smoothness will apply to the total area of concrete within a section of pavement and shall be applied in accordance the following equation and schedule:

(Square yard in section) × (original unit price per square yard) × PFm = reduction in payment for area within section

Average Profile Index (Inches Per Mile) Pavement Strength Rating			Contract Unit Price Adjustment (PFm)
Over 30,000 lb	30,000 lb or Less	Short Sections	
0 - 7	0 - 10	0 - 15	0.00
7.1 - 9	10.1 - 11	15.1 - 16	0.02
9.1 - 11	11.1 - 12	16.1 - 17	0.04
11.1 - 13	12.1 - 13	17.1 - 18	0.06
13.1 - 14	13.1 - 14	18.1 - 20	0.08
14.1 - 15	14.1 - 15	20.1 - 22	0.10
15.1 and up	15.1 and up	22.1 and up	Corrective work required

TESTING REQUIREMENTS

ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C70	Standard Test Method for Surface Moisture in Fine Aggregate
ASTM C78	Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
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 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 C138	Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C173	Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C174	Standard Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores
ASTM C227	Standard Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C289	Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)
ASTM C295	Standard Guide for Petrographic Examination of Aggregates for Concrete
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland Cement Concrete
ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregates by Drying
ASTM C642	Standard Test Method for Density, Absorption, and Voids in Hardened Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing

ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1567	Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM E178	Standard Practice for Dealing With Outlying Observations
ASTM E1274	Standard Test Method for Measuring Pavement Roughness Using a Profilograph
U.S. Army Corps of Engineers (USACE) Concrete Research Division (CRD) C662	Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials, Lithium Nitrate Admixture and Aggregate (Accelerated Mortar-Bar Method)

MATERIAL REQUIREMENTS

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 A714	Standard Specification for High-Strength Low-Alloy Welded and Seamless Steel Pipe
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A996	Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM A1078	Standard Specification for Epoxy-Coated Steel Dowels for Concrete Pavement
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C94	Standard Specification for Ready-Mixed Concrete

ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C595	Standard Specification for Blended Hydraulic Cements
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C881	Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber and Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving And Structural Construction
ACI 211.1	Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete
ACI 305R	Guide to Hot Weather Concreting
ACI 306R	Guide to Cold Weather Concreting
ACI 309R	Guide for Consolidation of Concrete
AC 150/5320-6	Airport Pavement Design and Evaluation
PCA	Design and Control of Concrete Mixtures

END ITEM P-501

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Part 9 – Drainage

Item D-705 Pipe Underdrains for Airports

DESCRIPTION

705-1.1 This item shall consist of the construction of pipe drains in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans.

MATERIALS

705-2.1 General. Materials shall meet the requirements shown on the plans and specified below.

705-2.2 Pipe. The pipe shall be of the type called for on the plans or in the proposal and shall be in accordance with the following appropriate requirements.

American Association of State Highway and Transportation Officials (AASHTO) M196	Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains
ASTM F949	Standard Specification for Poly (Vinyl Chloride)(PVC) Corrugated Sewer Pipe With a Smooth Interior and Fittings

705-2.3 Joint mortar. Pipe joint mortar shall consist of one part by volume of Portland cement and two parts sand. The Portland cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.

705-2.4 Elastomeric seals. Elastomeric seals shall conform to the requirements of ASTM F477.

705-2.5 Porous backfill. Porous backfill shall be free of clay, humus, or other objectionable matter, and shall conform to the gradation in Table 1 when tested in accordance with ASTM C136.

Table 1. Gradation of Porous Backfill

Sieve Designation (square openings)	Percentage by Weight Passing Sieves
	Porous Material No. *
1-1/2 inch (38 mm)	100
1 inch (25 mm)	90 - 100
3/8 inch (9 mm)	25 - 60
No. 4 (4.75 mm)	5 – 40
No. 8 (2.36 mm)	0 - 20
No. 16 (1.18 mm)	
No. 50 (0.30 mm)	
No. 100 (0.15 mm)	

~~When two courses of porous backfill are specified in the plans, the finer of the materials shall conform to particle size tabulated herein for porous material No. 1. The coarser granular material shall meet the gradation given in the tabulation for porous material No. 2.~~

705-2.6. Granular material. Granular material used for backfilling shall conform to the requirements of ASTM D2321 for Class IA, IB, or II materials, or shall meet the requirements of AASHTO Standard Specification for Highway Bridges Section 30.

705-2.7. Filter fabric. The filter fabric shall conform to the requirements of AASHTO M288 Class 2.

Table 2

Fabric Property	Test Method	Test Requirement
Grab Tensile Strength, lbs	ASTM D4632	125 min
Grab Tensile Elongation %	ASTM D4632	50 min
Burst Strength, psi	ASTM D3785	125 min
Trapezoid Tear Strength, lbs	ASTM D4533	55 min
Puncture Strength, lbs	ASTM D4833	40 min
Abrasion, lbs	ASTM D4886	15 max loss
Equivalent Opening Size	ASTM D4751	70-100
Permittivity sec^{-1}	ASTM D4491	0.80
Accelerated Weathering (UV Stability) (Strength Retained - %)	ASTM D4355 *(500 hrs exposure)	70

CONSTRUCTION METHODS

705-3.1 Equipment. All equipment required for the construction of pipe underdrains shall be on the project, in good working condition, and approved by the Engineer before construction is permitted to start.

705-3.2 Excavation. The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but shall not be less than the external diameter of the pipe plus 6 inches (150 mm) on each side of the pipe. The trench walls shall be approximately vertical.

Where rock, hardpan, or other unyielding material is encountered, it shall be removed below the foundation grade for a depth of at least 4 inches (100 mm). The excavation below grade shall be backfilled with selected fine compressible material, such as silty clay or loam, and lightly compacted in layers not over 6 inches (150 mm) in uncompacted depth to form a uniform but yielding foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The Engineer shall determine the depth of removal necessary. The granular material shall be compacted to provide adequate support for the pipe.

Excavated material not required or acceptable for backfill shall be disposed of by the Contractor as directed by the Engineer. The excavation shall not be carried below the required depth; if this occurs, the trench shall be backfilled at the Contractor's expense with material approved by the Engineer and compacted to the density of the surrounding material.

The pipe bed shall be shaped so at least the lower quarter of the pipe shall be in continuous contact with the bottom of the trench. Spaces for the pipe bell shall be excavated to allow the pipe barrel to support the entire weight of the pipe.

The Contractor shall do trench bracing, sheathing, or shoring necessary to perform and protect the excavation as required for safety and conformance to Federal, state and local laws. Unless otherwise provided, the bracing, sheathing, or shoring shall be removed by the Contractor after the backfill has reached at least 12 inches (300 mm) over the top of the pipe. The sheathing or shoring shall be pulled as the granular backfill is placed and compacted to avoid any unfilled spaces between the trench wall and the backfill material. The cost of bracing, sheathing, or shoring, and the removal of same, shall be included in the unit price bid per foot (meter) for the pipe.

705-3.3 Laying and installing pipe.

a. Concrete pipe. The laying of the pipe in the finished trench shall be started at the lowest point and proceed upgrade. When bell and spigot pipe is used, the bells shall be laid upgrade. If tongue and groove pipe is used, the groove end shall be laid upgrade. Holes in perforated pipe shall be placed down, unless otherwise shown on the plans. The pipe shall be firmly and accurately set to line and grade so that the invert will be smooth and uniform. Pipe shall not be laid on frozen ground.

Pipe which is not true in alignment, or which shows any settlement after laying, shall be taken up and relaid by the Contractor at no additional expense.

b. Metal pipe. The metal pipe shall be laid with the separate sections joined firmly together with bands, with outside laps of circumferential joints pointing upgrade, and with longitudinal laps on the sides. Any metal in the pipe or bands that is not protected thoroughly by galvanizing shall be coated with a suitable asphaltum paint.

During installation, the asphalt-protected pipe shall be handled without damaging the asphalt coating. Any breaks in the bitumen or treatment of the pipe shall be refilled with the type and kind of bitumen used in coating the pipe originally.

c. PVC or polyethylene pipe. PVC or polyethylene pipe shall be installed in accordance with the requirements of ASTM D2321 or AASHTO Standard Specification for Highway Bridges Section 30. Perforations shall meet the requirements of AASHTO M252 or AASHTO M294 Class 2, unless otherwise indicated on the plans. The pipe shall be laid accurately to line and grade.

d. All types of pipe. The upgrade end of pipelines, not terminating in a structure, shall be plugged or capped as approved by the Engineer.

Unless otherwise shown on the plans, a 4 inch (100 mm) bed of granular backfill material shall be spread in the bottom of the trench throughout the entire length under all perforated pipe underdrains.

Pipe outlets for the underdrains shall be constructed when required or shown on the plans. The pipe shall be laid with tight-fitting joints. Porous backfill is not required around or over pipe outlets for underdrains. All connections to other drainage pipes or structures shall be made as required and in a satisfactory manner. If connections are not made to other pipes or structures, the outlets shall be protected and constructed as shown on the plans.

e. Filter fabric. The filter fabric shall be installed in accordance with the manufacturer's recommendations, or in accordance with AASHTO M288 Appendix, unless otherwise shown on the plans.

~~**705-3.4 Mortar.** The mortar shall be of the desired consistency for caulking and filling the joints of the pipe and for making connections to other pipes or to structures. Mortar that is not used within 45 minutes after water has been added shall be discarded. Retempering of mortar shall not be permitted.~~

~~**705-3.5 Joints in concrete pipe.** When open or partly open joints are required or specified, they shall be constructed as indicated on the plans. The pipe shall be laid with the ends fitted together as designed. If bell and spigot pipe is used, mortar shall be placed along the inside bottom quarter of the bell to center the following section of pipe.~~

~~The open or partly open joints shall be surrounded with granular material meeting requirements of porous backfill No. 2 in Table 1 or as indicated on the plans. This backfill shall be placed so its thickness will be not less than 3 inches (75 mm) nor more than 6 inches (150 mm), unless otherwise shown on the plans.~~

~~When the original material excavated from the trench is impervious, commercial concrete sand or granular material meeting requirements of porous backfill No. 1 shall surround porous backfill No. 2 (Table 1), as shown on the plans or as directed by the Engineer.~~

~~When the original material excavated from the trench is pervious and suitable, it may be used as backfill in lieu of porous backfill No. 1, when indicated on the plans or as directed by the Engineer.~~

705-3.6 Backfilling.

a. Earth. All trenches and excavations shall be backfilled soon after the pipes are installed, unless additional protection of the pipe is directed. The backfill material shall be select material from excavation or borrow and shall be approved by the Engineer. The select material shall be placed on each side of the pipe out to a distance of the nominal pipe diameter and one foot (30 cm) over the top of the pipe and shall be readily compacted. It shall not contain stones 3 inches (75 mm) or larger in size, frozen lumps, chunks of highly plastic clay, or any other material that is objectionable to the Engineer. The material shall be moistened or dried, as required to aid compaction. Placement of the backfill shall not cause displacement of the pipe. Thorough compaction under the haunches and along the sides to the top of the pipe shall be obtained.

The backfill shall be placed in loose layers not exceeding 6 inches (150 mm) in depth under and around the pipe, and not exceeding 8 inches (200 mm) over the pipe. Successive layers shall be added and thoroughly compacted by hand and pneumatic tampers, approved by the Engineer, until the trench is completely filled and brought to the planned elevation. Backfilling shall be done to avoid damaging top or side pressures on the pipe.

In embankments and other unpaved areas, the backfill shall be compacted per Item P-152 to the density required for embankments in unpaved areas. Under paved areas, the subgrade and any backfill shall be compacted per Item P-152 to the density required for embankments for paved areas.

b. Granular backfill. When granular backfill is required, placement in the trench and about the pipe shall be as shown on the plans. The granular backfill shall not contain an excessive amount of foreign matter, nor shall soil from the sides of the trench or from the soil excavated from the trench be allowed to filter into the granular backfill. When required by the Engineer, a template shall be used to properly place and separate the two sizes of backfill. The backfill shall be placed in loose layers not exceeding 6 inches (150 mm) in depth. The granular backfill shall be compacted by hand and pneumatic tampers to the requirements as given for embankment. Backfilling shall be done to avoid damaging top or side pressure on the pipe. The granular backfill shall extend to the elevation of the trench or as shown on the plans.

When perforated pipe is specified, granular backfill material shall be placed along the full length of the pipe. The position of the granular material shall be as shown on the plans. If the original material excavated from the trench is pervious and suitable, it shall be used in lieu of porous backfill No. 1.

If porous backfill is placed in paved or adjacent to paved areas before grading or subgrade operations is completed, the backfill material shall be placed immediately after laying the pipe. The depth of the granular backfill shall be not less than 12 inches (300 mm), measured from the top of the underdrain. During subsequent construction operations, a minimum depth of 12 inches (300 mm) of backfill shall be maintained over the underdrains. When the underdrains are to be completed, any unsuitable material shall be removed exposing the porous backfill. Porous backfill containing objectionable material shall be removed and replaced with suitable material. The cost of removing and replacing any unsuitable material shall be at the Contractor's expense.

If a granular subbase blanket course is used which extends several feet beyond the edge of paving to the outside edge of the underdrain trench, the granular backfill material over the underdrains shall be placed in the trench up to an elevation of 2 inches (50 mm) above the bottom surface of the granular subbase blanket course. Immediately prior to the placing of the granular subbase blanket course, the Contractor shall blade this excess trench backfill from the top of the trench onto the adjacent subgrade where it can be incorporated into the granular subbase blanket course. Any unsuitable material that remains over the underdrain trench shall be removed and replaced. The subbase material shall be placed to provide clean contact between the subbase material and the underdrain granular backfill material for the full width of the underdrain trench.

c. Controlled low-strength material (CLSM). CLSM is not allowed.

d. Deflection testing. The Engineer may at any time, notwithstanding previous material acceptance, reject or require re-installation of pipe that exceeds 5% deflection when measured in accordance with ASTM D2321, including Appendices.

705-3.7 Connections. When the plans call for connections to existing or proposed pipe or structures, these connections shall be watertight and made to obtain a smooth uniform flow line throughout the drainage system.

705-3.8 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, soil, and rubbish from the site. Surplus soil may be deposited in embankments, shoulders, or as directed by the Engineer. Except for paved areas of the airport, the Contractor shall restore all disturbed areas to their original condition.

METHOD OF MEASUREMENT

705-4.1 The length of pipe shall be the number of linear feet (meters) of pipe underdrains in place, completed, and approved; measured along the centerline of the pipe from end or inside face of structure to the end or inside face of structure, whichever is applicable. The several classes, types, and sizes shall be measured separately. All fittings shall be included in the footage as typical pipe sections in the pipeline being measured.

705-4.2 Pourous backfill shall not be measured separately, but shall be considered incidental to the installation of the subdrain.

705-4.3 Filter fabric shall not be measured separately, but shall be considered incidental to the installation of the subdrain.

705-4.3 Cleanouts shall be measured by each completed, and shall include tie-ins to existing subdrain (if applicable), concrete collar, casting, and vertical riser pipe down to the perforated line. Solid vertical pipe from the cleanout to the subdrain shall not be measured under Item D-705-4.1.

705-4.4 Outlets shall be measured by each completed, and shall include field outlet and tie-ins to existing pipes.

BASIS OF PAYMENT

705-5.1 Payment will be made at the contract unit price per linear foot (meter) for pipe underdrains of the type, class, and size designated. These prices shall be full compensation for furnishing all materials and for all preparation, excavation, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item. **As noted above, this shall also include pourous backfill and filter fabric, which is incidental and not paid for separately.**

705-5.2 Payment will be made at the contract unit price each for each new subdrain cleanout completed, in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, and installation of these materials, and for all labor, equipment, tools, and incidentals **including porous backfill and filter fabric** necessary to complete the item.

705-5.3 Filter fabric and the quantity of porous backfill shall not be paid separately, but are considered incidental to longitudinal subdrain.

Payment will be made under:

Item D-705-5.1	4 inch perforated subdrain per linear foot complete (including porous backfill and filter fabric)
Item D-705-5.2	Subdrain Cleanout – per Each
Item D-705-5.3	Subdrain Outlet – per Each

MATERIAL REQUIREMENTS

ASTM A760	Standard Specification for Corrugated Steel Pipe, Metallic Coated for Sewers and Drains
ASTM A762	Standard Specification for Corrugated Steel Pipe, Polymer Precoated for Sewers and Drains

ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C444	Standard Specification for Perforated Concrete Pipe
ASTM C654	Standard Specification for Porous Concrete Pipe
ASTM D2321	Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM D3034	Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F758	Standard Specification for Smooth Wall Poly(Vinyl Chloride) (PVC) Plastic Underdrain Systems for Highway, Airport, and Similar Drainage
ASTM F794	Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe & Fittings Based on Controlled Inside Diameter
ASTM F949	Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings
ASTM F2562	Specification for Steel Reinforced Thermoplastic Ribbed Pipe and Fittings for Non-Pressure Drainage and Sewerage
AASHTO M190	Standard Specification for Bituminous - Coated Corrugated Metal Culvert Pipe and Pipe Arches
AASHTO M196	Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains
AASHTO M252	Standard Specification for Corrugated Polyethylene Drainage Pipe
AASHTO M288	Standard Specification for Geotextile Specification for Highway Applications
AASHTO M294	Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500- mm (12- to 60-in.) Diameter
AASHTO M304	Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter
AASHTO MP20	Standard Specification for Steel-Reinforced Polyethylene (PE) Ribbed Pipe, 300- to 900-mm (12- to 36-in.) diameter
AASHTO	Standard Specifications for Highway Bridges

END OF ITEM D-705

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Part 10 – Turfing

Item T-901 Seeding

DESCRIPTION

901-1.1 This item shall consist of soil preparation, seeding and fertilizing the areas shown on the plans or as directed by the Engineer 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 Engineer 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	Minimum Seed Purity (Percent)	Minimum Germination (Percent)	Rate of Application lb./acre
Bluegrass, Kentucky	98	85	120
Ryegrass, Perennial (Fineleaf Variety)	95	90	20
Fescue, Creeping Red	95	90	35

Seeding shall be performed during the period between **March 1 – May 21** and **August 10 – September 30** inclusive, unless otherwise approved by the Engineer.

~~**901-2.2 Lime.** Lime shall be ground limestone containing not less than 85% of total carbonates, and shall be ground to such fineness that 90% will pass through a No. 20 mesh sieve and 50% will pass through a No. 100 mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. Lime shall be applied at the rate of 450 lbs/acre. All liming materials shall conform to the requirements of ASTM C602.~~

901-2.3 Fertilizer. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They

shall be applied at the rate and to the depth specified, and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

c. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be 13-13-13 commercial fertilizer and shall be spread at the rate of **450 lbs/acre**.

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 Engineer 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. Fertilizing. Following advance preparations and cleanup fertilizer shall be uniformly spread at the rate that will provide not less than the minimum quantity stated in paragraph 901-2.3.

b. 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.

c. 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 (690 kPa). 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 (16 mm) 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 (6 to 30 m). One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-range jet nozzle. For case 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 (15 m) 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 (100 kg) of lime shall be added to and mixed with each 100 gallons (380 liters) of water. Seed and fertilizer shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds (100 kg) of these combined solids shall be added to and mixed with each 100 gallons (380 liters) 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. Brackish water shall not be used at any time. The Contractor shall identify to the Engineer all sources of water at least two (2) weeks prior to use. The Engineer 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 Engineer 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 (75 mm), 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 Engineer, 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 Engineer. 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 Engineer. A grass stand shall be considered adequate when bare spots are one square foot (0.01 sq m) 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 units acres measured on the ground surface, completed and accepted.

BASIS OF PAYMENT

901-5.1 Payment shall be made at the contract unit price 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

MATERIAL REQUIREMENTS

ASTM C602 Standard Specification for Agricultural Liming Materials

ASTM D977 Standard Specification for Emulsified Asphalt

FED SPEC JJJ-S-181, Federal Specification, Seeds, Agricultural

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Item T-908 Mulching

DESCRIPTION

908-1.1 This item shall consist of furnishing, hauling, placing, and securing mulch on surfaces indicated on the plans or designated by the Engineer.

MATERIALS

908-2.1 Mulch material. Acceptable mulch shall be the materials listed below or any approved locally available material that is similar to those specified. Mulch shall be free from noxious weeds, mold, and other deleterious materials. Mulch materials, which contain matured seed of species that would volunteer and be detrimental to the proposed overseeding, or to surrounding farm land, will not be acceptable. Straw or other mulch material which is fresh and/or excessively brittle, or which is in such an advanced stage of decomposition as to smother or retard the planted grass, will not be acceptable.

a. Hay. Hay shall be native hay in an air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Hay shall be sterile, containing no fertile seed.

b. Straw. Straw shall be the stalks from threshed plant residue of oats, wheat, barley, rye, or rice from which grain has been removed. Furnish in air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Straw shall contain no fertile seed.

c. Hay mulch containing seed. Hay mulch shall be mature hay containing viable seed of native grasses or other desirable species stated in the special provisions or as approved by the Engineer. The hay shall be cut and handled so as to preserve the maximum quantity of viable seed. Hay mulch that cannot be hauled and spread immediately after cutting shall be placed in weather-resistant stacks or baled and stored in a dry location until used.

d. Manufactured mulch. Cellulose-fiber or wood-pulp mulch shall be products commercially available for use in spray applications.

e. Asphalt binder. Asphalt binder material shall conform to the requirements of ASTM D977, Type SS-1 or RS-1.

908-2.2 Inspection. The Engineer shall be notified of sources and quantities of mulch materials available and the Contractor shall furnish him with representative samples of the materials to be used 30 days before delivery to the project. These samples may be used as standards with the approval of the Engineer and any materials brought on the site that do not meet these standards shall be rejected.

CONSTRUCTION METHODS

908-3.1 Mulching. Before spreading mulch, all large clods, stumps, stones, brush, roots, and other foreign material shall be removed from the area to be mulched. Mulch shall be applied immediately after seeding. The spreading of the mulch may be by hand methods, blower, or other mechanical methods, provided a uniform covering is obtained.

Mulch material shall be furnished, hauled, and evenly applied on the area shown on the plans or designated by the Engineer. Straw or hay shall be spread over the surface to a uniform thickness at the

rate of 2 to 3 tons per acre (1800 - 2700 kg per acre) to provide a loose depth of not less than 1-1/2 inches (38 cm) nor more than 3 inches (75 mm). Other organic material shall be spread at the rate directed by the Engineer. Mulch may be blown on the slopes and the use of cutters in the equipment for this purpose will be permitted to the extent that at least 95% of the mulch in place on the slope shall be 6 inches (150 mm) or more in length. When mulches applied by the blowing method are cut, the loose depth in place shall be not less than one inch (25 mm) nor more than 2 inches (50 mm).

908-3.2 Securing mulch. The mulch shall be held in place by light discing, a very thin covering of topsoil, pins, stakes, wire mesh, asphalt binder, or other adhesive material approved by the Engineer. Where mulches have been secured by either of the asphalt binder methods, it will not be permissible to walk on the slopes after the binder has been applied. When an application of asphalt binder material is used to secure the mulch, the Contractor must take every precaution to guard against damaging or disfiguring structures or property on or adjacent to the areas worked and will be held responsible for any such damage resulting from the operation.

If the "peg and string" method is used, the mulch shall be secured by the use of stakes or wire pins driven into the ground on 5-foot (1.5-m) centers or less. Binder twine shall be strung between adjacent stakes in straight lines and crisscrossed diagonally over the mulch, after which the stakes shall be firmly driven nearly flush to the ground to draw the twine down tight onto the mulch.

908-3.3 Care and repair.

a. The Contractor shall care for the mulched areas until final acceptance of the project. Care shall consist of providing protection against traffic or other use by placing warning signs, as approved by the Engineer, and erecting any barricades that may be shown on the plans before or immediately after mulching has been completed on the designated areas.

b. The Contractor shall be required to repair or replace any mulch that is defective or becomes damaged until the project is finally accepted. When, in the judgment of the Engineer, such defects or damages are the result of poor workmanship or failure to meet the requirements of the specifications, the cost of the necessary repairs or replacement shall be borne by the Contractor.

c. If the "asphalt spray" method is used, all mulched surfaces shall be sprayed with asphalt binder material so that the surface has a uniform appearance. The binder shall be uniformly applied to the mulch at the rate of approximately 8 gallons (32 liters) per 1,000 square feet (100 sq m), or as directed by the Engineer, with a minimum of 6 gallons (24 liters) and a maximum of 10 gallons (40 liters) per 1,000 square feet (100 sq m) depending on the type of mulch and the effectiveness of the binder securing it. Bituminous binder material may be sprayed on the mulched slope areas from either the top or the bottom of the slope. An approved spray nozzle shall be used. The nozzle shall be operated at a distance of not less than 4 feet (1.2 m) from the surface of the mulch and uniform distribution of the bituminous material shall be required. A pump or an air compressor of adequate capacity shall be used to ensure uniform distribution of the bituminous material.

d. If the "asphalt mix" method is used, the mulch shall be applied by blowing, and the asphalt binder material shall be sprayed into the mulch as it leaves the blower. The binder shall be uniformly applied to the mulch at the rate of approximately 8 gallons (32 liters) per 1,000 square feet (100 sq m) or as directed by the Engineer, with a minimum of 6 gallons (24 liters) and a maximum of 10 gallons (40 liters) per 1,000 square feet (100 sq m) depending on the type of mulch and the effectiveness of the binder securing it.

METHOD OF MEASUREMENT

908-4.1 Mulching shall be measured in acres on the basis of the actual surface area acceptably mulched.

BASIS OF PAYMENT

908-5.1 Payment will be made at the contract unit price per square yard (square meter) for mulching. The price shall be full compensation for furnishing all materials and for placing and anchoring the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-908-5.1	Mulching - per Acre

MATERIAL REQUIREMENTS

ASTM D977	Standard Specification for Emulsified Asphalt

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Part 7 – Miscellaneous

ITEM M-361 HOT-APPLIED JOINT AND CRACK SEALANTS FOR RIGID (PORTLAND CEMENT CONCRETE) AND FLEXIBLE (BITUMINOUS) PAVEMENTS

DESCRIPTION

361-1.1 This item consists of providing and installing a resilient and adhesive joint & crack sealant, hot-applied, capable of effectively sealing joints & cracks in rigid (PCC) or flexible (bituminous) pavements. This item includes the removal of existing, loose, or damaged sealant material where applicable, preparation of the joints & cracks, preparation of the sealant material, and the complete installation of the sealant repair system. The selection of sealant material products will be based on climate conditions, past performance of products, and at the discretion of the engineer.

MATERIALS

361-2.1 The repair material will be a hot-applied sealant conforming to the requirements of ASTM D 6690, as listed in Table 1, for the classification type specified below. The engineer will evaluate performance based on local conditions.

Type IV – A joint and crack sealant capable of maintaining an effective seal in climates experiencing very cold temperatures. The material is tested for low temperature performance at -29°C (-84.2°F) using 200% extension.

Table 1. Sealant Requirements per Classification Type	
Cone Penetration at 25°C (77°F), per ASTM D 5329	90-150
Softening Point, °C (°F), per ASTM D 36	80 (176) minimum
Bond, non-immersed, per ASTM D 5329	Three 12.7mm specimens pass[A] 3 cycles at 200% ext at 29°C (-84.2°F)
Bond, water immersed, per ASTM D 5329	-
Resilience, %, per ASTM D 5329	60 min.
Oven Aged Resilience, %, per ASTM D 5329	*
Asphalt Compatibility, per ASTM D 5329	Pass[B]

[A]The development of at any time during the test procedure of a crack, separation, or other opening over 6mm (0.24 in) deep, in the sealant or between the sealant and the concrete block will constitute failure of the test specimen. The depth of crack, separation or other opening will be measured perpendicular to the side of the sealant showing the defect.

[B]There will be no failure in adhesion, formation of an oily exudate at the interface between the sealant and asphaltic concrete of other deleterious effects on the asphaltic concrete or sealant when tested at 60°C (140°F).

361-2.2 Heating of Materials. The hot-applied sealant will be heated in conformance with ASTM D 5167, Standard Practice for Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation.

CONSTRUCTION METHODS

361-3.1 Time of Application. Joints & cracks will be sealed as soon after completion of the pavement preparation as feasible and preferably before the pavement is opened to traffic, including construction equipment. The pavement temperature must be above 50°F (10°C) at the time of installation of the hot-applied joint & crack sealing material.

361-3.2 Preparation of Joints in Rigid Pavements

a. Removal of Existing Joint Sealant. All existing joint sealants will be removed by routing / plowing. Any remaining sealant / debris will be removed by use of wire brushes or other tools as necessary. In some instances, re-sawing the joints may be required. This is only recommended in areas where the existing joint faces cannot be thoroughly cleaned to satisfactorily promote the effectiveness and adherence of the new sealant. If re-sawing the joints is required, immediately after sawing, the resulting slurry will be completely removed from the joint and adjacent area by flushing with a jet of water, and by use of other tools as necessary. The joints will be allowed sufficient time to dry prior to re-sealing. The joint reservoir width to depth ratio should be as close to 1:1 as practical when re-sawing is required. The use of backer material is recommended to obtain the desired ratio at the reservoir or as recommended by the sealant manufacturer.

b. Sealing. Immediately before sealing, the joints will be thoroughly cleaned of all remaining laitance, curing compound, and other foreign material. Cleaning will be accomplished by sandblasting. Sandblasting will be accomplished in a minimum of two passes. One pass per joint face with the nozzle held at an angle directly toward the joint face and not more that 3 inches from it. Upon completion of cleaning, the joints will be blown out with compressed air free of oil and water. Only air compressors with operable oil and water traps will be used to prepare the joints for sealing. The joint faces will be surface dry when the seal is applied. The surface of the installed sealant material will be 1/4-inch to 3/8inch below the existing pavement surface.

~~**361-3.3 Preparation of Joints in Flexible Pavements**~~

~~**a. Removal of Existing Joint Sealant.** All existing joint sealants will be removed by routing / plowing. Any remaining sealant / debris will be removed by use of a hot lance and compressed air free of oil and water. In some instances, re-sawing the joints may be required. This is only recommended in areas where the existing joint faces cannot be thoroughly cleaned to satisfactorily promote the effectiveness and adherence of the new sealant. If re-sawing the joints is required, immediately after sawing, the joint faces will be cleaned by use of a hot lance and compressed air free of oil and water. If wet sawing equipment is used, the joints will be allowed sufficient time to dry following preparation and prior to re-sealing. The joint reservoir width to depth ratio should be as close to 1:1 as practical when re-sawing is required. The use of backer material is recommended to obtain the desired ratio at the reservoir or as recommended by the sealant manufacturer.~~

~~**b. Sealing.** Immediately before sealing, the joints will be thoroughly cleaned of all remaining laitance and other foreign material. Cleaning will be accomplished by use of a hot lance. Upon completion of cleaning, the joints will be blown out with compressed air free of oil and water. Only air compressors with operable oil and water traps will be used to prepare the joints for sealing. The joint faces will be surface dry when the seal is applied. The surface of the installed sealant material will be 1/4-inch to 3/8-inch below the existing pavement surface.~~

361-3.4 Preparation of Cracks in Rigid Pavements

a. Sawing. All cracks will be cleaned of any debris or laitance by use of wire brushes or other tools as necessary. In some instances, sawing the cracks may be required. If sawing the joints is required, immediately after sawing, the resulting slurry will be completely removed from the crack and adjacent area by flushing with a jet of water, and by use of other tools as necessary. The crack will be allowed sufficient time to dry prior to sealing. When sawing cracks, the reservoir ratio should be 1:1 with a 3/8-inch minimum width recommended.

b. Sealing. Immediately before sealing, the cracks will be thoroughly cleaned of all remaining laitance, curing compound, and other foreign material. Cleaning will be accomplished by sandblasting. Sandblasting will be accomplished in a minimum of two passes. One pass per crack face with the nozzle held at an angle directly toward the crack face and not more that 3 inches from it. Upon completion of cleaning, the cracks will be blown out with compressed air free of oil and water. Only air compressors with operable oil and water traps will be used to prepare the cracks for sealing. The crack faces will be surface dry when the seal is applied. The surface of the installed sealant material will be 1/4-inch to 3/8inch below the existing pavement surface.

361-3.6 INSTALLATION OF SEALANTS. Joints & cracks will be inspected for proper width, depth, alignment, and preparation, and will be approved by the Engineer before sealing is allowed. Sealants will be installed in accordance with the following requirements:

a. Hot Poured Sealants. The joint & crack sealant will be applied uniformly solid from bottom to top and will be filled without formation of entrapped air or voids. The sealant surface when complete will be 1/4-inch and 3/8-inch below existing pavement surface. A backing material will be placed to obtain the desired width to depth ratio and will be both non-reactive and non-adhesive to the pavement or the sealant material. The heating kettle will be an indirect heating type, constructed as a double boiler. A positive temperature control and mechanical agitation will be provided. The sealant will not be heated to more than 20°F (-11°C) below the safe heating temperature. The safe heating temperature can be obtained from the manufacturer's shipping container. A direct connecting pressure type extruding device with nozzles shaped for insertion into the joint will be provided. Any sealant spilled on the surface of the pavement, structures and/or lighting fixtures will be removed immediately.

~~**b. Backer Rod Material.** The use of a backer rod material or bond breaker in the bottom of the joints & cracks to be filled is recommended to control the depth of the sealant, to achieve the desired shape factor, reservoir width to depth ration, and to support the sealant against indentation and sag. Backer rod materials and bond breakers should be compatible with the sealant, should not adhere to the sealant, should be compressible without extruding the sealant, and should recover to maintain contact with the joint & crack faces when the joint & crack is open. The backer rod will be 25 percent larger in diameter than the width of the reservoir.~~

METHOD OF MEASUREMENT

361-4.1 The sealant material will be measured by the **linear foot** of sealant in place, completed, and accepted. Shall also include the removal of existing joint material.

BASIS OF PAYMENT

361-5.1 Payment for sealing material will be made at the contract unit price bid per **linear foot**. This price will be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item M-361-5.1	Joint Sealant – per linear foot
Item M-361-5.2	Crack Sealant – per linear foot

TESTING REQUIREMENTS

ASTM D 36	Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)
ASTM D 5167	Standard Practice for Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation

MATERIAL REQUIREMENTS

ASTM D 6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

ITEM M-564 REPAIR OF PAVEMENT DISTRESSES IN RIGID (PORTLAND CEMENT CONCRETE) PAVEMENTS

DESCRIPTION

564-1.1 This item consists of repairing pavement distresses (e.g., cracks, spalls, corner breaks, etc.) in rigid (Portland Cement Concrete) pavements, as well as patching of small areas (less than 5 square feet) of PCC pavements. This work consists of: saw cutting, chipping, and removing the existing unsound PCC pavement; cleaning and preparing the area for the repair materials. This work also includes placing, vibrating, and finishing the repair material to reconstruct the PCC pavements, in accordance with this specification.

MATERIALS

564-2.1 The repair method and material will be of the type specified below for the appropriate application, as outlined in Table 1 – Repair Material Usage Matrix.

Table 1. Repair Material Usage Matrix PAVEMENT DISTRESS	**TYPE 1** (Conventional)	**TYPE 2A** (Pre-packaged w/ Aggregate)	**TYPE 2B** (Pre-packaged w/o Aggregate)	**TYPE 3** (Rapid Setting, Early Strength)
CORNER BREAKS	Permanent	Permanent	n/a	Permanent
DURABILITY "D" CRACKING	Permanent	Temporary/ Emergency	Temporary/ Emergency	Temporary/ Emergency
SCALING, MAP CRACKING AND CRAZING	Permanent	n/a	n/a	n/a
JOINT SPALLING	n/a	Permanent	Permanent	Permanent
CORNER SPALLING	n/a	Permanent	Permanent	Permanent
PATCHING, SMALL (less than 5 square feet)	n/a	Permanent	Permanent	Permanent
PATCHING, LARGE AND UTILITY CUTS	Permanent	n/a	n/a	Temporary/ Emergency
SHATTERED SLAB / INTERSECTING CRACKS	Permanent	n/a	n/a	n/a
BLOWUPS	Permanent	n/a	n/a	n/a

a. Type 1 – Conventional Concrete Mixture. The conventional concrete mixture will conform to FAA specification P-501 for materials. This repair method is considered a permanent, long term repair as it is typically used for large repair areas requiring 3 cubic yards or more of mix supplied by a local concrete mixing plant.

c. Type 2B – Pre-packaged Cementitious Mixture without Aggregate. The pre-packaged, one-component, cementitious mixture will have a minimum compressive strength of 5,000 psi in 7 days when tested in accordance with ASTM C 39. Bond strength will be 2,000 psi in 7 days when tested in accordance with ASTM C 882. If the repair size requires the addition of coarse aggregate, the aggregate to be added maximum size will be 3/8-inch and will conform to the requirements of ASTM C 33. The aggregate will be blended into the pre-packaged mixture per the manufacturer's requirements. This repair method may be used for either permanent or temporary/emergency repairs dependent on the distress type,

as noted in Table 1. Preparation of materials (mixing with potable water, blending, etc) will be per manufacturer's requirements for the product.

564-2.2 Nonabsorbent Board. The nonabsorbent board will be used as a joint form for the joint reservoir to be protected. The nonabsorbent board will be a standard 1/2-inch asphalt impregnated fiberboard. For joint widths greater than 1/2-inch, the width of the nonabsorbent board will be adjusted to fit the larger joint width.

564-2.3 Curing Compound. The curing compound will be a white pigmented impervious membrane conforming to the requirements of ASTM C 309. The curing compound will be of such character that the film will harden within 30 minutes after application.

CONSTRUCTION METHODS

564-3.1 Time of Application. The ambient temperature and concrete surface temperature will be within the range specified by the manufacturer's requirements for that product at the time of application.

564-3.2 Repair of Distresses in PCC Pavements.

a. Corner Breaks / Shattered Slabs / Blowups. These are considered structural failures and require full-depth repairs. The procedures for repairing these types of distresses are as follows:

(1) Make full-depth saw cuts at constructed joints. The FAA recommends that full-depth cuts be made at a distance of at least 2 feet beyond the limits of the break. Make the saw cuts so the repair area is rectangular. For corner cracks, cut the repair area square.

(2) Use appropriate-sized impact equipment (e.g., jackhammer) to remove material within the limits of the saw cuts. When using a hoe-ram or removing the concrete by lifting, make a second saw cut inside the perimeter cuts to provide expansion. Remove by hand any loose materials that remain. During the repair, try to minimize any disturbance to the subgrade soils or base materials.

(3) Restore subgrade or subbase materials to the base elevation of the panel being repaired.

(4) Use tie-bars consisting of #4 deformed bars (#5 bars for pavements more than 12 inches thick) in the faces of the parent panel. Install by drilling into the face and using an epoxy bonding agent. Use equidistant spacing of the bars, but do not install them more than 24 inches apart. When spacing bars, do not allow their ends to overlap with those of other tie-bars or dowels.

(5) Use dowel bars, of the type and size of the existing dowel bars, in the joint that parallels the direction of traffic. On aprons and areas where traffic may be oblique to joints, install dowels in both joint faces. Dowels are installed by drilling and epoxying. Dowel bars will spaced at least one bar spacing away from faces parallel to the dowel bar. Space dowel bar ends at least one bar spacing apart at corners of intersecting joints. Oil exposed dowel bar ends prior to backfilling with concrete.

(6) Install nonabsorbent board within the limits of the joint seal reservoirs along the adjacent concrete panels. When repairing multiple panels, restore the joint seal reservoirs with the nonabsorbent filler board.

(7) Fill the repair area with concrete, being sure to consolidate the concrete along the limits of repair. Exercise caution when working adjacent to existing concrete faces, particularly during

consolidation, and watch for segregation of the concrete. Finish the surface to match existing surface when practical.

(8) After the concrete cures, remove the nonabsorbent board by sawing. Reinstall joint seal material per specification M-361 or M-362.

b. Durability "D" Cracking. This type of distress usually requires repairing the complete slab since "D" cracking will normally reappear adjacent to the repaired areas. Temporary/emergency repairs can be made using the technique noted in paragraph 564-3.2.a (Corner Breaks/Shattered Slabs/Blowups). Another temporary/emergency repair, which is not a preferred method but is a rapid repair, is the partial depth repair by milling 2-3 inches in depth by 3-4 feet in length and width and filling the patch area with a high quality HMA.

c. Scaling, Map Cracking, and Crazing. If the distress is severe and produces FOD, the repair method is to remove and replace the area. Permanent repairs can be made using the technique noted in paragraph 564-3.2.a (Corner Breaks/Shattered Slabs/Blowups).

d. Joint Spalling and Corner Spalling. The procedure for the repair of spalls is as follows:

(1) Make a vertical cut with a concrete saw 2 inches in depth and approximately 2 inches outside of the spalled area. Saw cuts will be straight lines forming rectangular areas.

(2) Remove all unsound concrete until sound, intact material has been reached (into at least 1/2-inch of visually sound concrete). Break out the unsound concrete with air hammers or pneumatic drills and blow out the area with oil-free compressed air.

(3) Clean the area to be repaired with high-pressure water. Allow patch area to dry completely if required by the patch material specification.

(4) Treat the surface (all sides and bottom, except any joint face) with a neat cement grout mixture to ensure a good bond between the existing and new concrete. It is important to maintain the joint through the full depth of the spall repair and prevent a bond between the patch and the adjacent slab, thereby eliminating point-to-point loading. Apply the grout immediately before placing the patch mixture and spread with a stiff-bristle broom or brush to a depth of 1/16 inches. The use of liquid bonding agents will be acceptable if recommended by the manufacturer's requirements.

(5) Place the nonabsorbent board in the joint groove and vibrate or tamp the new mixture into the old surface.

(6) After edging the patch, finish it to a texture matching the adjacent area. After a proper cure period, remove the nonabsorbent board by sawing. Reinstall joint seal material per specification M361 or M-362.

(7) When there are adjacent spall repair areas within a slab, the minimum distance between repair areas is 1-1/2 feet. Therefore, when repairs areas are less than 1-1/2 feet apart, combine the repair areas into one repair. Similarly, when the repair areas are greater than 1-1/2 feet apart, maintain separate repair areas.

e. Patching, Small (less than 5 square feet). Patching repairs can be made using the technique noted in paragraph 564-3.2.d (Joint Spalling and Corner Spalling). For full-depth repairs, follow technique noted in paragraph 564-3.2.f (Patching, Large or Utility Cut).

f. Patching, Large or Utility Cut. The procedure for patching a large or utility cut areas of PCC pavement is as follows:

(1) Make a full-depth vertical cut with a concrete saw at the limits of the area to be patched (approximately 6 inches outside of each end of the broken area).
(2) Break out the concrete with pneumatic tools, and remove concrete down to the subbase/subgrade material.

(3) Add subbase material, if necessary, and compact.

(4) In reinforced pavement construction, use joint techniques to tie the new concrete to the old reinforced material. Dowel any replacement joints, and build them to joint specifications. Follow procedures in paragraph 564-3.2.a(4) or 564-3.2a.(5) as appropriate.

(5) Dampen the subgrade and the edges of existing PCC pavement. Place conventional concrete on the area to be patched. Finish the concrete so the surface texture approximates that of the existing pavement.

(6) Immediately after completing finishing operations, properly cure the surface with curing compound.

(7) After a proper cure period, fill the open joints with joint sealant per specification M-361 or M-362.

METHOD OF MEASUREMENT

564-4.1 The repair will be measured by the **square yard** for large areas and **Each** for small areas for the material in place, completed, and accepted.

BASIS OF PAYMENT 564-5.1

Payment for repairs will be made at the contract unit price bid per **square yard**. This price will be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item M-564-5.1 Type 1 (Panel Replacement) – per **square yard**

Item M-564-5.2 Type 2B (Partial Depth Repair) – per **Each**

TESTING REQUIREMENTS

ASTM C 39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

ASTM C 109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars(Using 2-in. or [50-mm] Cube Specimens)

ASTM C 882 Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear

MATERIAL REQUIREMENTS

ASTM C 33 Standard Specification for Concrete Aggregates

ASTM C 309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

END ITEM M-564

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APPENDICES

2017 AIRPORT IMPROVEMENTS

CITY OF STORM LAKE, IOWA

T51.111257

AIP # 3-19-0088-12

GEOTECHNICAL INVESTIGATION

FOR

STORM LAKE MUNICIPAL AIRPORT

RUNWAY 13/31 PAVEMENT REHABILITATION

STORM LAKE, IOWA

Prepared For:

Bolton & Menk, Inc.
2730 Ford Street
P.O. Box 668
Ames, IA 50010

Prepared By:

Construction Materials Testing, Inc.
1610 E. Madison Avenue
Des Moines, IA 50313

August 6, 2013

LICENSED PROFESSIONAL ENGINEER
SYBIL K. FERRIER
20479
IOWA

I herby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Sybil K Ferrier 8-6-13

Sybil K. Ferrier, P.E. Date
License No. 20479

My License renewal date is **December 31,** 2014.
Pages or sheets covered by this seal: All Pages.

1610 East Madison Ave. • Des Moines, Iowa 50313
(515) 263-0794 • Fax (515) 263-0851
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GEOTECHNICAL ENGINEERING REPORT

Storm Lake Municipal Airport

Runway 13/31 Pavement Rehabilitation

Storm Lake, Iowa

August 6, 2013

INTRODUCTION

Bolton & Menk is assisting the Storm Lake Municipal Airport in rehabilitating the pavement sections of Runway 13/31 and associated taxiway and apron pavements. Nine soil borings and nine pavement cores were completed around the site to evaluate the current pavement conditions. The soil borings were conducted to a depth of 5 feet below existing grades to evaluate the subgrade soil conditions. Individual Boring Logs and a Site Plan are included in the attachments of this report showing the findings and locations of the borings.

The purposes of this report are to describe the subsurface conditions encountered in the borings, analyze and evaluate the test data, and provide geotechnical recommendations regarding the design, construction, and rehabilitation of the pavements.

FIELD EXPLORATION

Field exploration was conducted on July 15th, 2013. The soil boring and pavement core locations were selected by Bolton & Menk and located in the field by CMT. A Site Plan indicating the approximate locations is enclosed in the appendix of this report.

The borings were drilled with a truck-mounted drill rig using continuous flight augers to advance the boreholes. Representative samples were obtained at various intervals using augers and split spoon samplers in general accordance with ASTM procedures. Field logs of each boring were recorded by the drill crew during drilling operations. These logs contain visual classifications of the materials encountered as well as the driller's interpretation of the subsurface conditions between samples during drilling. Soil samples were sealed and returned to the laboratory for further testing and classification. The final Boring Logs (see attached) represent an interpretation of the field logs and include modifications based on laboratory observations and test results for the samples.

SITE AND SUBSURFACE CONDITIONS

Site Description

The site is located on the southwest side of Storm Lake and this geologic region of Iowa is on the border of the Des Moines Glacial Lobe and Northwest Iowa Plains soil profiles. After the last glacier advanced through Iowa, it left behind a poorly drained landscape consisting of pebbly deposits striated with sand and gravel seams from glacial meltwater streams. Many of the natural soils present consist of Wisconsinan glacial till, loess and Pre-Illinoian glacial till underlain by the Pennsylvanian bedrock system. Wisconsinan glacial till typically consists of a lower sand content glacial till, generally mixed with sand seams and layers. The upper more weathered portion of the Pre-Illinoian glacial till, referred to as paleosol, is typically a higher clay content soil.

Soil Conditions

Specific subsurface soil conditions at each boring location are presented on the individual Boring Logs, enclosed in the appendix. The stratification boundaries shown on the Boring Logs represented the approximate boundary lines where changes in soil formations may occur. In-situ the transition between materials is more gradual than what is presented on the Boring Logs. Based on the borings, the subsurface conditions can be generalized as follows:

The borings consisted of approximately three feet of very dark brown to very dark gray lean clay (CL) topsoil in a damp to moist condition. This was underlain by loess soils comprised of very dark brown, very dark gray to brown and gray lean clay (CL), with some traces of sand. These loess soils were moist to very moist. Near a depth of 4 ft below existing grades, the loess graded to some localized pockets of glacial outwash soils, consisting of gray clayey sand (SP) and brown fine to coarse sand (SP). The glacial outwash soils were in a moist condition. The borings terminated near a depth of 5 feet below existing grades.

Groundwater Observations

No groundwater accumulation was noted during drilling operations, however very high soil moisture contents were observed. Based on boring data, past groundwater levels may have been as high as 3 feet below existing ground surface and have the potential to return to that level, should weather conditions allow. These short term observations are not necessarily an accurate indication of normal groundwater levels. Long-term observations would be required to better define the natural groundwater level. Fluctuations in groundwater can occur from varying amounts of precipitation, changes in surface coverage (i.e. adding pavements or vegetation), irrigation practices, etc. Brown-gray coloring is an indication of potential groundwater levels.
The groundwater levels observed during site exploration can be seen on the attached Boring Logs in the appendix.

PROCEDURES

Laboratory Testing

The soil samples were classified in the laboratory based on visual observations, moisture content and soil strength tests. The soil descriptions and group symbols presented on the Boring Logs for native soils are in general accordance with the Unified Soil Classification System (USCS).

In addition to obtaining continuous samples in the field, a calibrated hand penetrometer was used to estimate the compressive strength of several cohesive soil samples. The calibrated hand penetrometer has been correlated with unconfined compressive tests and provides a better estimate of soil strength than visual examination alone. The results of the laboratory tests are shown on the boring logs attached to this report.

ENGINEERING ANALYSIS AND RECOMMENDATIONS

Exterior Pavement Rehabilitation Design Considerations

Nine pavement cores were taken from within the existing runway and apron. Eight of the cores were obtained from Runway 13/31 and one core was taken from the south side of the fuel station on the apron. Locations of these cores can be seen on the attached site map. On average, the pavement tested consisted of 5 inches of Portland Cement concrete (PCC) underlain by 4 to 5 inches of hot mix asphalt (HMA). In two locations (Core Nos. 2 and 9), no HMA was noted. These two cores were taken in Taxiway 01 and the apron pavement around the fueling station. The core cross sections can be summarized as follows:

Core No.	PCC Length, inches	HMA Length, inches	Total Length, inches
1	5.75	5.25	11.00
2	5.50	0.00	5.50
3	5.75	4.50	10.50
4	5.00	4.00	9.00
5	5.00	4.50	9.50
6	5.50	4.00	9.50
7	5.75	3.75	9.50
8	5.50	2.50	8.00
9	6.25	0.00	6.25

Soils at this site were deemed non-expansive and high soil moisture contents were observed in several borings with the top six feet of the existing ground surface. Typically, moisture contents between 20-30% in these types of soils will reduce soil strength dramatically. This can also cause severe frost heave if the frost occurs when moisture contents are near this level. The soils immediately beneath the pavements are capable of providing adequate strength and bearing pressures to support the proposed traffic loads, however, fluctuating moisture contents create an unstable soil subgrade. As a result of fluctuating moisture contents and a lack of drainable subbase, joint deterioration has occurred and will continue to be a concern.

At the southeast end of Runway 13/31, a large number of voids are present which extend either completely through or partially through the concrete overlay. These voids appear to be caused by contamination of the aggregate stockpiles during production. Based on the localized locations of the voids at the end of the runway, it appears that during initial construction of the concrete overlay, this area may have been near the final stage of construction. When a project nears completion, aggregate stockpiles are at a minimal level and it is not uncommon for operators to inadvertently pick up soils when nearing the bottom of the stockpiles, thus contaminating the aggregate supply. This manifests itself as the voids being observed when the soil expands and

breaks the surface cream of the concrete and is then further exposed to moisture infiltration and freeze/thaw cycles.

Based on the current pavement materials and the relatively shallow water table, a large scale milling or remove/replace operation is not recommended at this time. The shallow water table creates high moistures and low strength soils within a few feet of the pavements. The smoothness of the pavement has been compromised by panel settling, deterioration of joints, and deleterious material contamination. In addition, there are small areas of D-cracking in panels which are candidates for a complete remove/replace operation.

For immediate rehabilitation, route and seal operations along with very limited remove/replace operations could be conducted, which would provide an acceptable short term solution.

For short term rehabilitation, there are two construction techniques which can be applied for correcting pavement distress. First, it is recommended to remove and replace any full panels or partial panels showing signs of settlement, D-cracking or deleterious material contamination. Most of the deleterious material contamination is occurring at the southeast end of Runway 13/31. Photographs of the cores removed from this area can be seen in the appendix of this report. For this construction method, the panels would be sawed out and the pavement sections removed. The replacement panel would need to be doweled into the adjacent panels to assist in proper load transfer across the joints. The subgrade in these areas would need to be tested for compaction/bearing and soil moisture content prior to replacing paving. These tests would also indicate if any additional measures are necessary, such as utilizing a granular subbase beneath the new pavement panels. The pavement could then be replaced with an IDOT C4WRC20 concrete mix or an FAA P-501 concrete mix with a target air content of 6 percent. This part of the design would have a life expectancy between 10-15 years. The second phase of the short term rehabilitation would be to address the observed joint deterioration. Panels which are suffering severe joint deterioration should be routed and sealed. These areas may require minimal grinding to avoid localized elevation changes. The route and seal technique will require maintenance and typically has a life expectancy of 5-10 years.

The short term rehabilitation option could also be coupled with subdrains or edge drains, which would extend the life expectancy of the rehabilitation efforts. The edge drains are designed to stabilize the moisture content of the subgrade within three feet of the bottom of the subbase, helping to provide consistent pavement support. Subdrains are typically a small investment at the time of construction and can enhance the life expectancy of any pavement dramatically.

For long term rehabilitation, based on the soil structure and the available in-place materials, it is recommended to recycle the existing pavement materials into a suitable subbase gradation and re-use the material for a granular subbase. The runway could then be reconstructed using a FAA P-501 mix placed at a thickness of 6 inches. Additional thickness could be added to the design if larger aircraft loads are anticipated in the future. The final phase to this rehabilitation would be the installation of edge drains along both sides of the runway. This design would be the most expensive, however it would have a life expectancy in excess of 30 years.

GENERAL CONSTRUCTION PRACTICES

Site Preparation

Site preparation will include the stripping of any organic or loose material, such as the existing pavement sections present near the surface. If encountered, any mature vegetation, roots, or other large areas of organic materials, should be removed from under the pavements and properly backfilled prior to further grading or construction operations. Topsoil could be stockpiled for re-use at a later date during construction operations.

During the initial site exploration, the moisture contents of the natural soils were generally above to well above the recommended moisture content for compaction. Adjustment of the moisture content will likely be required during grading operations to achieve the desired amount of compaction at the preferred moisture content. Weather permitting, soil farming is a very economical way to lower the moisture content of the soils. If farming is not a feasible option, chemical stabilization can be conducted with fly ash or quick lime.

Earthwork Considerations

It is anticipated that minor grading operations will be required to achieve the desired final grades across the site. The on-site natural soils would be suitable for general grading applications. It is recommended that any fill or borrow material needed consist of a non-expansive (CL) cohesive material, free of organics and rubble, or a granular material. Cohesive material should be compacted to a minimum of 95 percent of the maximum dry density as determined by ASTM D-698 (Standard Proctor Test) at a moisture content of -1 to +4 percent of optimum. No fill should be placed in lifts greater than one foot in thickness. A non-expansive cohesive fill material should exhibit a Liquid Limit less than 45 and a Plasticity Index less than 23 when tested in compliance with ASTM D-4318. All fill materials, cohesive or granular, should be pre-approved prior to placement.

Areas of increased sand content or sand pockets were identified during drilling operations. Sand seams or layers will not support trenching operations, especially if water is flowing freely through the excavation. All excavations should be adequately sloped or braced for safety if it is necessary for personnel to enter excavations. If moisture seepage is encountered during excavations, it can typically be controlled by allowing it to drain into temporary sumps and pumped outside the excavations. Excavation side slopes should be constructed and maintained in accordance with all local, state and federal requirements, including OSHA 29 CFR, part 1926.

Additional earthwork considerations will be completed through the plan development process. We recommend personnel be on-site during construction to verify compaction, bearing capacity or material suitability during the construction process.

GENERAL COMMENTS

The analysis and recommendations presented in this report are based upon the data obtained from the soil borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations, which may occur between borings. If, during construction, the nature and extent of such variations appear evident; it will be necessary to reevaluate the recommendations of this report.

The scope of service for this project does not include either specifically or by implication any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such contamination, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied are intended or made. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid, unless the changes are reviewed and the conclusions of this report are modified or verified in writing by the geotechnical engineer.

Sincerely,

Sybil K. Ferrier, P.E.
Principal Engineer

Doug Clement
President/CEO

Construction Materials Testing

APPENDIX

1610 East Madison Ave. • Des Moines, Iowa 50313
(515) 263-0794 • Fax (515) 263-0851
www.cmt-iowa.com

GENERAL NOTES - BORING LOG DESCRIPTIONS

Soil descriptions stated on the Boring Logs are based on the Unified Soil Classification System as stated in ASTM Designations D-2487 and D-2488. The Unified Soil Classification group symbol listed in the table below correlate to the group symbols listed on the Boring Logs. The classification is mainly based on visual observations to define the soil characteristics. If a more detailed soil description is required, additional soil testing will be conducted to better define the soil characteristics.

Group Symbol	Group Name	Group Symbol	Group Name	Group Symbol	Group Name	Group Symbol	Group Name
SW	Well-graded Sand	GW	Well-graded Gravel	CL	Lean Clay	CH	Fat Clay
SP	Poorly-graded Sand	GP	Poorly-graded Gravel	ML	Silt	MH	Elastic Silt
SM	Silty Sand	GM	Silty Gravel	OL or OH	Organic Silt Organic Clay	Pt	Peat
SC	Clayey Sand	GC	Clayey Gravel				

RELATIVE DENSITY OF COARSE-GRANED SOILS		CONSISTENCY OF FINE-GRAINED SOILS		
SPT, bpf	*Relative Density*	*Unconfined Compressive Strength, Q_u, psf*	*Consistency*	*SPT, bpf*
0-3	Very Loose	< 500	Very Soft	0 – 2
4-9	Loose	500 - 1,000	Soft	2 – 4
10-29	Medium Dense	1,001 - 2,000	Medium Stiff	4 – 8
30-49	Dense	2,001 – 4,000	Stiff	8 – 15
50-80	Very Dense	4,001 – 8,000	Very Stiff	15 – 30
80+	Extremely Dense	8,001 – 16,000	Hard	30 – 100
		>16,000	Very Hard	>100

GRAIN SIZE TERMINOLOGY		RELATIVE PROPORTIONS		
Major Component of Sample	*Size Range*	*Descriptive Terms(s) (of components also present in sample)*	*Fines Percent of Dry Weight*	*Sand and Gravel Percent of Dry Weight*
Cobbles	12 in. to 3 in. (300 mm to 75 mm)	Trace	< 5	< 15
Gravel	3 in. to #4 sieve (75 mm to 4.75 mm)	With	5 – 12	15 – 29
Sand	#4 to #200 sieve (4.75 mm to 0.074 mm)	Modifier	> 12	> 30
Silt or Clay	Passing #200 sieve (> 0.074 mm)			

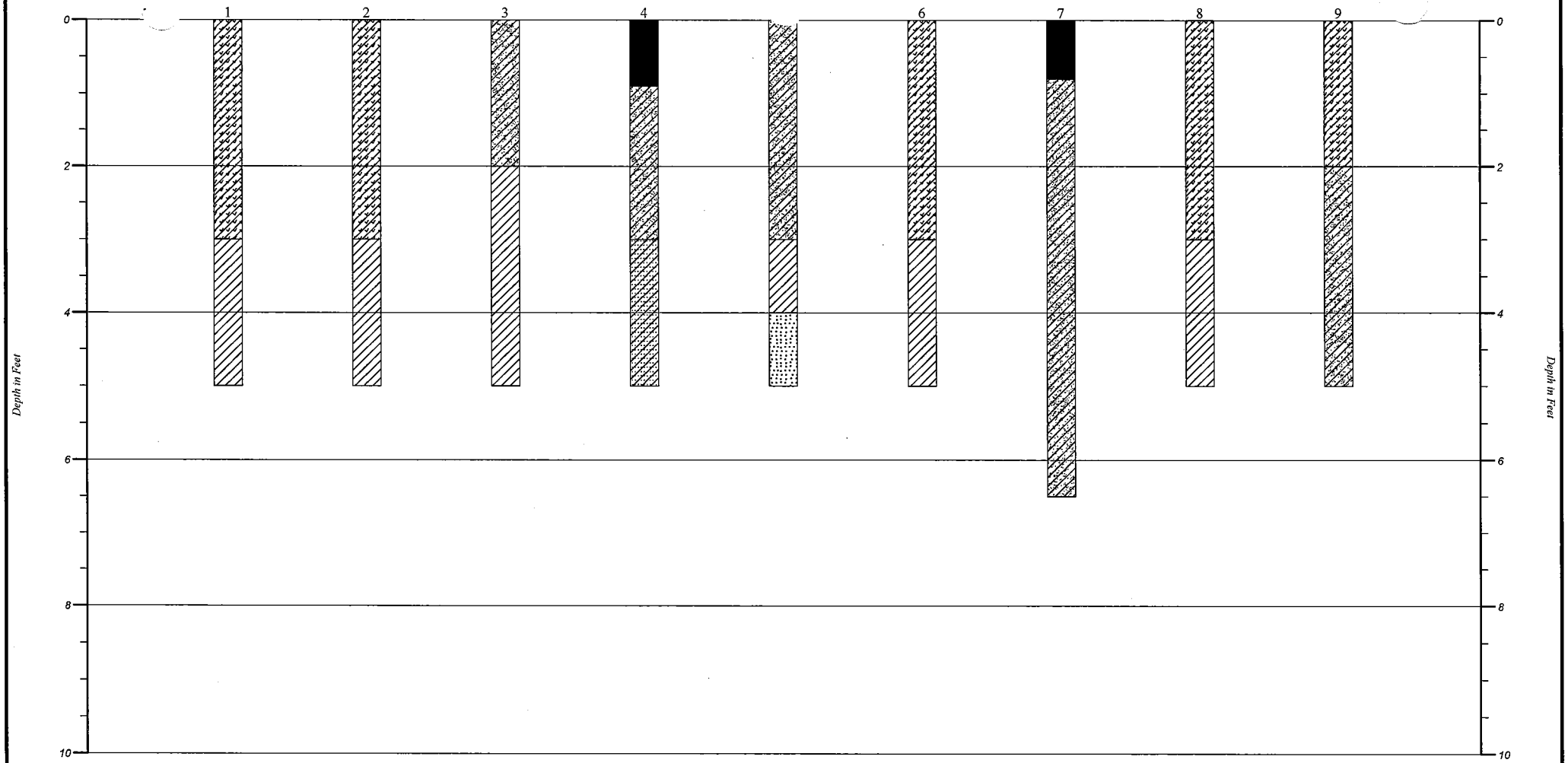
DRILLING AND SAMPLING ABBREVIATIONS

Drilling Methods

CFA – Continuous Flight Auger; typically, 4, 6, or 8 inches in diameter (ASTM D 1452)
HSA – Hollow Stem Auger; 6 or 8 inches in diameter, continuous flight auger remains in bore hole with undisturbed soil samples obtained from center of auger.
HA – Hand Auger; typically with a 4 inch or less diameter auger

Sample Types

SS - Split Spoon; samples obtained with a 140 lb manual hammer in accordance with ASTM D1586.
SSA – Split Spoon; samples obtained with a 140 lb automatic hammer in accordance with ASTM D 1586.
ST – Shelby Tube; thin walled tube samples, typically for cohesive soils, in accordance with ASTM D1587.
SPT- Standard Penetration Test: The number of blows required to drive a sampler, either split spoon or drive cone, into the soil with a 140 lb mass dropped a distance of 30 inches, in accordance with ASTM D 1586, and the number of blows are recorded in each 6 inch interval over a distance of 18 inches. Blow counts are reported for each 6 inch interval or the sum of the last two intervals is reported. The sum of the last two intervals is referred to as N, in blows per foot.
BS – Bulk Disturbed Sample
CPT – Cone Penetration Test; A device in which a 60° cone is pushed continuously into the soil and the cone end resistance is measured for skin friction and end bearing (ASTM D3441).



Strata symbols

- Topsoil
- Lean clay
- Sandy lean clay
- Paving
- Clayey sand
- Poorly graded sand

CONSTRUCTION MATERIALS TESTING GENERALIZED SOIL PROFILE		
HORIZONTAL SCALE: VERTICAL SCALE: 1"=2'	DRAWN BY/APPROVED BY	DATE DRAWN 8/6/2013
Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport		
PROJECT NO.		FIGURE NUMBER

CONSTRUCTION MATERIALS TESTING

Project Runway 13/31 & Taxiway Rehabilitation
Storm Lake Municipal Airport

Boring # 1

Client Bolton & Menk

Surface Elev. Ground Surface

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description * * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.	USCS	Water Level
0								Very dark brown clay, moist	CL	
								TOPSOIL		
2	1	CS		21.3		1,500**				
								Gray lean clay, moist to very moist	CL	
4	2	CS		26.3		1,000**		LOESS		
								End of Boring **Estimated using calibrated penetrometer No groundwater noted during drilling operations.		
6										
8										
10										
12										

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CONSTRUCTION MATERIALS TESTING

Project	**Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport**
Boring #	**2**
Client	**Bolton & Menk**
Surface Elev.	**Ground Surface**

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description * * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.	USCS	Water Level
0								Very dark brown clay, damp TOPSOIL	CL	
2	1	CS		13.7		2,000**				
								Brown lean clay, very moist LOESS	CL	
4	2	CS		28.3		500**				
								End of Boring **Estimated using calibrated penetrometer No groundwater noted during drilling operations.		
6										
8										
10										
12										

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CMT
CONSTRUCTION MATERIALS TESTING

Project	**Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport**
Boring #	**3**
Client	**Bolton & Menk**
Surface Elev.	**Ground Surface**

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	**Material Description** * * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.	USCS	Water Level
0								Brown very sandy clay, traces of pea gravel, dry TOPSOIL	CL	
2	1	CS		5.0		3,000**		Dark brown lean clay, trace pea gravel, moist LOESS Brown after 4 feet	CL	
4	2	CS		21.2		1,500**				
6								End of Boring **Estimated using calibrated penetrometer No groundwater noted during drilling operations.		
8										
10										
12										

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CONSTRUCTION MATERIALS TESTING

Project Runway 13/31 & Taxiway Rehabilitation
Storm Lake Municipal Airport

Boring # 4

Client Bolton & Menk

Surface Elev. Ground Surface

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description * * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.	USCS	Water Level
0								± 10.5 inches Pavement		
								Very dark gray lean clay with sand, moist to very moist	CL	
2	1	CS		29.2		500**		LOESS Gray after 2 feet		
								Gray clayey sand, moist	SC	
4	2	CS		16.0		2,000**		GLACIAL OUTWASH		
								End of Boring **Estimated using calibrated penetrometer No groundwater noted during drilling operations.		
6										
8										
10										
12										

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CONSTRUCTION MATERIALS TESTING

Project Runway 13/31 & Taxiway Rehabilitation
Storm Lake Municipal Airport

Boring # 5

Client Bolton & Menk

Surface Elev. Ground Surface

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description * * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.	USCS	Water Level
0								Very dark brown sandy clay, dry to moist TOPSOIL	CL	
2	1	CS		19.8		2,000**				
								Brown lean clay, very moist LOESS	CL	
4	2	CS		27.0		500**		Brown fine to coarse sand, very moist GLACIAL OUTWASH	SP	
								End of Boring **Estimated using calibrated penetrometer No groundwater noted during drilling operations.		
6										
8										
10										
12										

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CONSTRUCTION MATERIALS TESTING

Project	**Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport**
Boring #	**6**
Client	**Bolton & Menk**
Surface Elev.	**Ground Surface**

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	**Material Description** * * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.	USCS	Water Level
0								Very dark gray lean clay, moist	CL	
								TOPSOIL		
2	1	CS		20.8		1,500**				
								Brown lean clay, very moist	CL	
4	2	CS		27.0		1,000**		LOESS		
								End of Boring **Estimated using calibrated penetrometer No groundwater noted during drilling operations.		
6										
8										
10										
12										

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CONSTRUCTION MATERIALS TESTING

Project Runway 13/31 & Taxiway Rehabilitation
Storm Lake Municipal Airport

Boring # 7

Client Bolton & Menk

Surface Elev. Ground Surface

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description * * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.	USCS	Water Level
0								± 9.5 inches Pavement		
								Very dark gray lean clay with sand, moist to very moist	CL	
								Gray after 1 foot		
2	1	CS		30.9		500**				
								LOESS Very dark gray after 3 feet		
4	2	CS		20.7		1,500**				
								Wet after 5 feet		
6	3	CS		29.9		500**				
								End of Boring **Estimated using calibrated penetrometer No groundwater noted during drilling operations.		
8										
10										
12										

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CONSTRUCTION MATERIALS TESTING

Project Runway 13/31 & Taxiway Rehabilitation
Storm Lake Municipal Airport

Boring # 8

Client Bolton & Menk

Surface Elev. Ground Surface

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description *	USCS	Water Level
0								Very dark gray lean clay, damp to moist TOPSOIL	CL	
2	1	CS		24.1		1,000**				
								Very dark gray lean clay, very moist LOESS	CL	
4	2	CS		28.0		500**				
6								End of Boring **Estimated using calibrated penetrometer No groundwater noted during drilling operations.		
8										
10										
12										

* The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.

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CONSTRUCTION MATERIALS TESTING

Project	**Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport**
Boring #	**9**
Client	**Bolton & Menk**
Surface Elev.	**Ground Surface**

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description * * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.	USCS	Water Level
0								Very dark brown sandy clay, moist TOPSOIL	CL	
2	1	CS		23.7		1,500**		Brown lean clay with sand, moist LOESS Increasing sand content near 4 feet.	CL	
4	2	CS		17.4		2,000**				
6								End of Boring **Estimated using calibrated penetrometer No groundwater noted during drilling operations.		
8										
10										
12										

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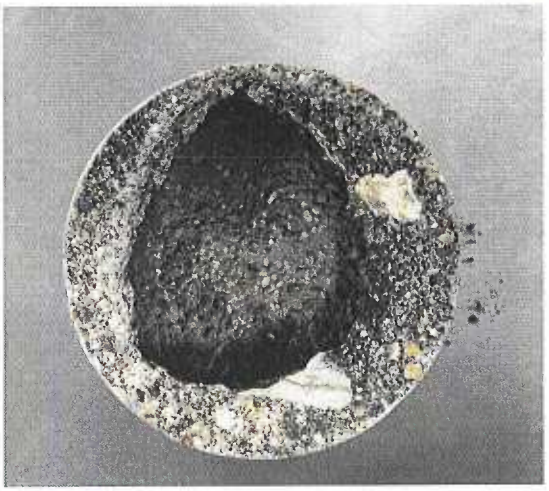
Construction Materials Testing

Storm Lake Municipal Airport

Runway 13/31 Rehabilitation

Core No. 6



Core No. 8

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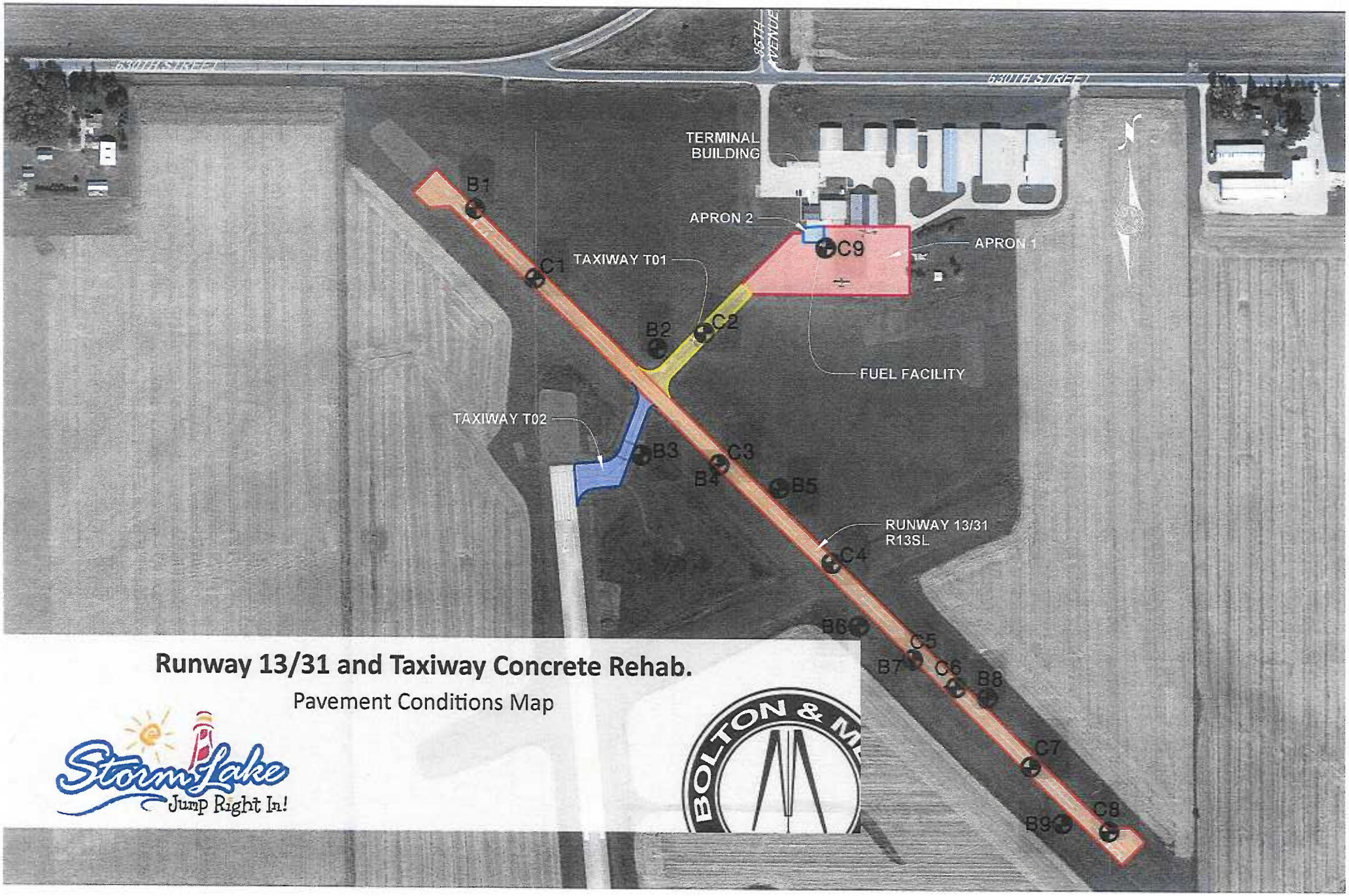


Runway 13/31 and Taxiway Concrete Rehab.

Pavement Conditions Map

Storm Lake
Jump Right In!

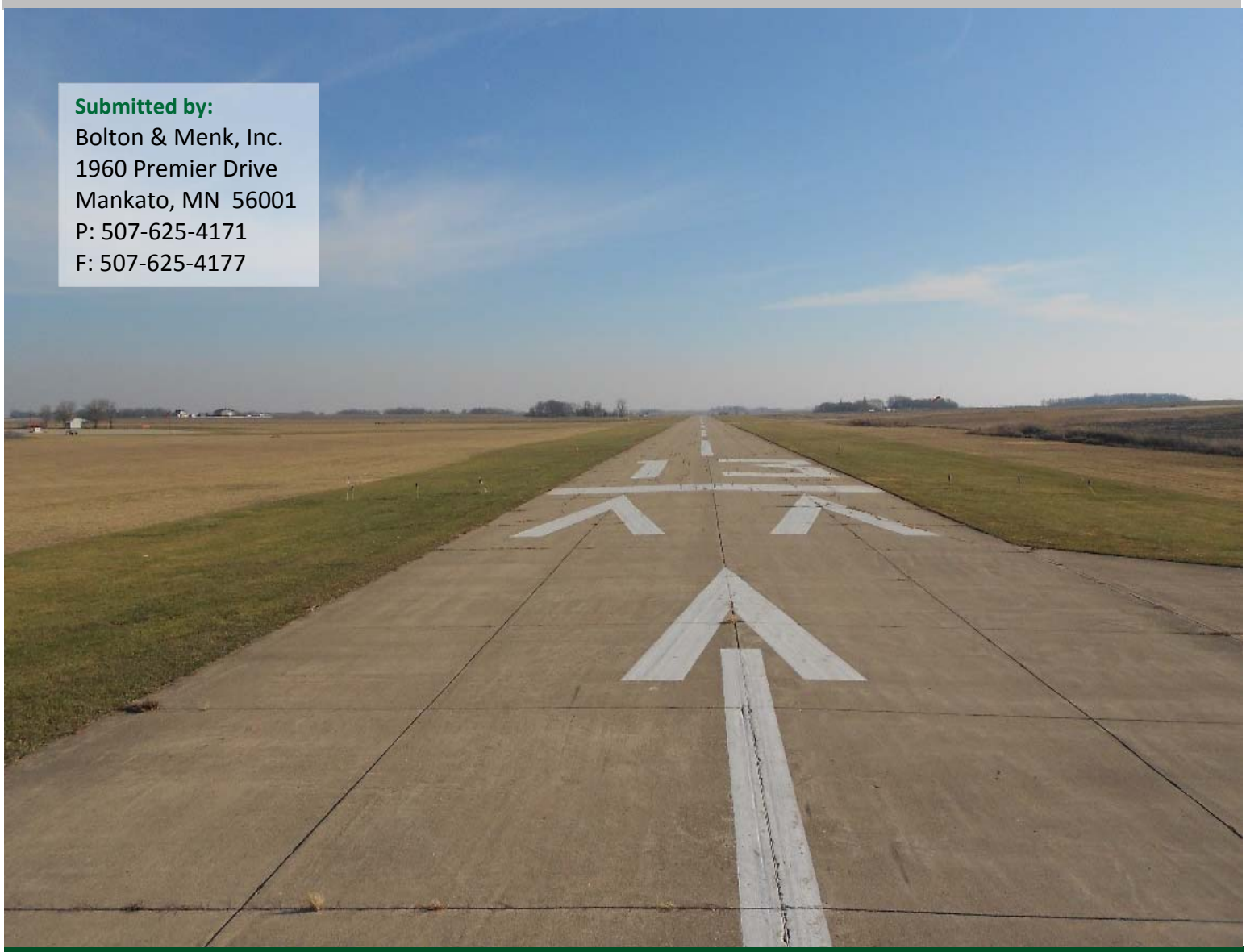
BOLTON & M

Real People. Real Solutions.

Construction Safety and Phasing Plan (CSPP)

2017 Airport Improvements

City of Storm Lake, IA
February 2017



Submitted by:
Bolton & Menk, Inc.
1960 Premier Drive
Mankato, MN 56001
P: 507-625-4171
F: 507-625-4177

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TABLE OF CONTENTS

OVERVIEW

This document presents the Construction Safety and Phasing Plan (CSPP) for the proposed 2017 Airport Improvements project at the Storm Lake Municipal Airport being performed under the Federal Aviation Administration (FAA) Airport Improvement Program (AIP). The City anticipates authorizing onsite work to commence on or about September of 2017, pending execution and approval of the grant documents by the FAA. Final completion of the project is expected to be in Fall of 2017 or early 2018 depending on weather.

The objective of this CSPP is to provide a general outline of the construction safety and phasing provisions for working in or near the Air Operations Area (AOA) contained in the bid documents (Project Plans and Specifications), and to explain how those provisions will be implemented during construction.

PURPOSE

The Plan provides single source procedural information for all key project personnel to use during construction. The CSPP defines the specific responsibilities of the Airport Operator, the Contractor, Airport tenants, and the Project Engineer.

Requirements for maintaining operational safety during construction are in conformance with FAA Advisory Circular 150/5370-2F, "Operational Safety on Airports During Construction." The project specific Construction Operations, Safety and Phasing plan for the project is shown on Plan Sheets 5-9 and is attached to this report as *Attachment 1*.

CONSTRUCTION SAFETY AND PHASING RESPONSIBILITIES

Airport Operator. The Airport Operator is responsible for operational safety on the Airport at all times. The City of Storm Lake is the Airport Operator. The City will issue Notice to Airmen (NOTAMS) whenever construction activities occur in the AOA. The City 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 and approve a Safety Plan Compliance Document (SPCD) from the Contractor prior to the Notice to Proceed. The SPCD outline is attached to this report as *Attachment 3*.

Construction Contractor. 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 prior to the Notice to Proceed.

Airport Tenants. The City will notify Airport tenants of all pending construction activities that impact them and advise the tenants of planned pavement closures and other activities in the AOA that will affect aircraft operations.

Project Engineer. As part of the Project Construction Management, Inspection, 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 2*) to ensure an appropriate level of priority is given to safety. Any discrepancies in safety will be immediately brought to the Contractor's and City's attention for corrective action implementation.

CONSTRUCTION SAFETY AND PHASING

1. Coordination

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 sponsor's engineer, resident engineer, airport management, testing laboratory representative, contactor and subcontractor(s), contractor's project superintendent, contractor's project clerk, airport users, utility companies, federal, state, or local agencies affected by the proposed construction, and FAA representative.

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. Date, time, and location of the progress meetings will be determined at the pre-construction meeting.

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

2. Construction Phasing

The project will be split into 4 phases. Details of each phase are listed below.

a. Phase 1
   - Scope of Work – Subdrain Installation on Runway 13/31 South of Taxiway A and North 539' of Runway 13/31.
   - Area closed to aircraft operations – Runway 13/31 & Runway 06/24.
   - Duration – 16 days
   - Taxi route – N/A
   - Emergency vehicle access routes – Not affected
   - Construction staging area – See plan set sheet 6
   - Construction access and haul route – See plan set sheet 6
   - Impacts to NAVAIDs – N/A
   - Lighting and marking changes – Runway13/31 & Runway 06/24 lights shall be disconnected or turned off.
   - Required hazard marking and lighting – Low profile barricades and runway closure X's per plans.
   - Lead times for required notification – 48 hours

b. Phase 2
   - Scope of Work – Subdrain Installation at the intersection of Runway 13/31 and Taxiway A and 393' North on Runway 13/31
   - Area closed to aircraft operations – Runway 13/31 & Runway 17/35.
   - Duration – 4 days
   - Taxi route – N/A
   - Emergency vehicle access routes – Not affected, Airport Closed
   - Construction staging area – See plan set sheet 7
   - Construction access and haul route – See plan set sheet 7
   - Impacts to NAVAIDs – N/A

- Lighting and marking changes – Runway13/31 & Runway 06/24 lights shall be disconnected or turned off.
- Required hazard marking and lighting – Low profile barricades and runway closure X's per plans.
- Lead times for required notification – 48 hours

c. Phase 3
- Scope of Work – Pavement Rehabilitation on Taxiway A
- Area closed to aircraft operations – Runway 13/31, Runway 17/35 & Runway 06/24.
- Duration – 3 days
- Taxi route – N/A
- Emergency vehicle access routes – Not affected
- Construction staging area – See plan set sheet 8
- Construction access and haul route – See plan set sheet 8
- Impacts to NAVAIDs – N/A
- Lighting and marking changes – Runway 13/31, Runway 17/35 & Runway 06/24 lights shall be disconnected or turned off.
- Required hazard marking and lighting – Low profile barricades and runway closure X's per plans.
- Lead times for required notification – 48 hours

d. Phase 4
- Scope of Work – Work on apron area
- Area closed to aircraft operations – Apron area
- Duration – 10 days
- Taxi route – Taxiway A to Runway 17/35
- Emergency vehicle access routes – Not affected
- Construction staging area – See plan set sheet 9
- Construction access and haul route – See plan set sheet 9
- Impacts to NAVAIDs – N/A
- Lighting and marking changes – N/A
- Required hazard marking and lighting – Low profile barricades
- Lead times for required notification – 48 hours

e. Construction Safety Drawings

A drawing specifically indicating construction operations and safety has been developed for each schedule and phase. This drawing has been included in *Attachment 1* and can also be found in the contract drawing bid package (Plan Sheets 5-9).

3. Areas and operations affected by the construction activities

Refer to the table below to view the affected airport elements during the different phases on the project.

Operational Impact Table					
Element	Existing	Phase 1	Phase 2	Phase 3	Phase 4
Taxiway A					
ADG	II	II	Closed	Closed	II
Width	35’	35	-	-	35’
TSA	79’	79’	-	-	79’
TOFA	131’	131’	-	-	131’
Runway 13/31					
RDC	B-I	Closed	Closed	Closed	B-I
Width	50’	-	-	-	50’
RSA	120’	-	-	-	120’
ROFA	400’	-	-	-	400’
Runway 17/35					
RDC	B-II	B-II	Closed	Closed	B-II
Width	75’	75’	-	-	75’
RSA	150’	150’	-	-	150’
ROFA	500’	500’	-	-	500’
Runway 06/24					
RDC	A-I	Closed	Closed	Closed	A-I
Width	95’	-	-	-	95’
RSA	120’	-	-	-	120’
ROFA	400’	-	-	-	400’

*Runway 17/35 shall be closed when construction equipment is in approach/departure surface.

**Runway 06/24 shall be closed when Runway 17/35 is closed during phase 2.

4. Protection of navigational aids (NAVAIDs)
   a. Precision approach path indicators (PAPIs)

      Two box PAPI’s are located on both ends of Runway 17/35. When Runway 17/35 is closed the PAPI’s shall be turned off. Contractor shall coordinate with FAA to turn off PAPI’s

   b. Runway end identified lights (REILs)

      The REIL’s are located on Runway 17. When Runway 17/35 is closed the REIL’s shall be turned off. Contractor shall coordinate with FAA to turn off REIL’s

5. Contractor access
   a. Location of stockpiled construction materials

      Location of stockpiled materials and equipment storage shall be in the staging area or as approved by the City.

      Stockpiling materials and equipment outside the staging areas shall receive prior approval from the City and will be subjected to the restrictions described in this paragraph.

Stockpiled materials and equipment storage are not permitted within the RSA or OFZ, and if possible should not be placed within the OFA of an operational runway. See Section 17 – Protection of Runway and Taxiway Safety Areas for requirements of stockpiled materials inside the ROFA.

Stockpiles shall be restricted to a maximum height of 15-feet. Stockpiled material shall meet the requirements of Section 6 – Wildlife Management to prevent the stockpile location(s) from becoming wildlife attractants.

b. Vehicle and pedestrian operations

i. Construction site parking

Employees' vehicles shall be parked in the staging area designated on the plans. No employee vehicles will be allowed into the worksite beyond the staging area limits.

ii. Construction equipment parking

Contractor employees must park and service all construction vehicles in an area designated by the airport operator outside the OFZ and never in the safety area of an active runway or taxiway. Unless a complex setup procedure makes movement of specialized equipment infeasible, inactive equipment must not be parked on a closed taxiway or runway. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees should also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active).

iii. Access and haul roads

The contractor will be restricted to use the haul route(s) shown on the drawings. Right-of-way shall be given to all emergency vehicles. See paragraphs (v.) and (vii.) in this section for requirements operating within the airfield environment.

iv. Marking and lighting of vehicles

Only marked Contractor-owned or operated vehicles required for the proper execution of the work will be allowed in the work area. All vehicles and equipment shall have an omni-directional amber flashing light and/or 3-foot by 3-foot flag having a checkered pattern of international orange and white squares at least one foot on each side. All vehicles and equipment must be equipped with an omni-directional amber flashing light for all airfield activities between sunset and sunrise or when visibility is low. Vehicles within the airfield environment shall display company identification markings on both sides of the vehicle. Non-motorized equipment shall have a reflective devise displayed on the front, back and sides. All supervisory and survey personnel vehicles which operate within the airfield environment but outside the work area shall 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.

v. Required escorts

Escorts will not be required on project.

vi. Situational awareness

While driving or working on the airfield environment, there shall be no devices in or on ears other than those used to protect hearing or communicate company business. Yield right-of-way to emergency vehicles displaying rotating 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.

vii. Two-way radio communication procedures

All activities within aircraft movement areas will require two-way radio communication. In the event the contractor needs to access a movement area, all radio communications will be performed by the City using the Common Traffic Advisory Frequency (CTAF). Frequency that will be used by City personnel is:

CTAF – 122.70 MHz

viii. Maintenance of the secured area of the airport

Airport operators and contractors must take care to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates should be equipped so they can be securely closed and locked to prevent access by animals and unauthorized people.

6. Wildlife management

a. Trash

Receptacles shall 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 as to not attract wildlife.

b. Standing water

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

c. Tall grass and seeds

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

d. Disruption of existing wildlife habitat

Contractor personnel should immediately notify the airport operator of wildlife sighing.

7. Foreign object debris (FOD) management

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. Take extreme care to ensure no work-related debris or other loose items are allowed to be blown by wind or aircraft engine blast. The Contractor shall 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. 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 shall provide the means and methods to remove these materials prior to the vehicle exiting the controlled area. Equipment operated on haul routes over existing pavements shall be kept free of material spillage and foreign matter at all times. Standby equipment is required to be onsite and operational at all times throughout the project and shall include, at a minimum, a self-propelled regenerative air sweeper and a water truck kept loaded at all times.

8. Hazardous materials (HAZMAT) management

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 shall have a qualified person available onsite when shipments are received or made who is current with U.S. Department of Transportation (DOT) approved training for the transportation of hazardous materials. Contractor shall properly characterize and manifest waste material leaving 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 shall sign the manifest and return a copy to the City within 35 days to confirm receipt.

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 MSDS for recommended actions for spills or container leaks. Additionally, MSDS's provided emergency phone numbers and occupational health hazard information.

Semi-significant spills can be controlled by the first responder along with the aid of other personnel such as laborers and 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.

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 and proper county officials. Notify 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 staffs have arrived at the job site. Other agencies which may need to be consulted include, but are not limited to, the Fire Department, the Public Works and Engineering Department, the Highway Patrol, the City/County Police Department, and the Department of Toxic Substance.

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 material safety data sheets (MSDS) for all hazardous material being delivered to the site.

The storage and shipment of hazardous waste shall also comply with the requirements of this section.

It is emphasized, however, that although spills resulting from incidents or accidents should be responded to, securing the well-being of people comes first.

Good housekeeping practices should be utilized during equipment fueling and maintenance operations. Inspect fueling equipment for leaks prior to dispensing. Fueling operations shall be continuously attended while dispensing fuel. Fueling and maintenance operations shall 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.

9. Notification of construction activities
    a. Responsible representatives/points of contact

Points of Contact			
Name	**Representing**	**Office**	**Cell**
Keri Navratil	City of Storm Lake	712-732-8000	
Jim Bartholomew	FBO	712-732-6495	
Anthony Pollard	Federal Aviation Administration	816-329-2619	
Matt Ferrier	Bolton & Menk	515-233-6100	515-306-7026
Greg Broussard	Bolton & Menk	515-233-6100	515-509-1287

    b. Notices to Airmen (NOTAMs)

        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 – Jim Bartholomew – 712-732-6495 (office), Alternate Contact – Keri Navratil – 712-732-8000.

    c. Emergency notification procedures
        - Emergency – DIAL 911
        - City of Storm Lake – 712-732-8000 (Keri Navratil – Assistant City Manager)
        - CTAF radio emergency – 122.70 MHz
        - Storm Lake Police Department – 712-732-8010
        - Storm Lake Fire Department – 712-732-8010
        - Hospital – Buena Vista Regional Medical Center -712-732-4030
        - Iowa Poison Control – 800-222-1222

    d. Notification to the FAA
        i. Part 77

            The project will affect navigable airspace. Therefore, the City will file an FAA 7460-1, Notice of Proposed Construction or Alteration, for the project. Any equipment, (cranes, graders, other equipment) used by the contractor that exceed the 20' height limitation must also have a 7460-1 airspace evaluation and determination prior to use.

10. Inspection requirements
    a. 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 shall be given to areas shared by construction traffic and air traffic. The City will have the final authority in determining if the area is suitable for aircraft use. *Attachment 2* contains a safety inspection checklist that may be used by the Contractor or City. Any deficiencies, whether caused by negligence, oversight, or project scope change are to be addressed immediately.

    b. Final inspection

        A final inspection shall be conducted by the City prior to the commissioning of any newly constructed areas open to air traffic. The City will have the final authority in determining

if the area is suitable for aircraft use. *Attachment 2* contains a safety inspection checklist that may be used by the Contractor or City.

11. Underground utilities

Notify Iowa One Call and owners of underground utilities within the construction area or within affected public rights-of-way or easements, via the "one-call" notification system (1-800-222-1222) in advance of the commencement of excavation activities. Notify the City when the "one-call" request is being initiated. Contractor shall 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 shall install suitable temporary service until permanent repair is completed.

12. Penalties

The Contractor is responsible for compliance with the CSPP as detailed herein. 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. Refer to General Provision Section 80-06, Temporary Suspension of the Work, for further details. Failure to comply with the CSPP is a failure on the part of the contractor to carry out orders given or perform any provisions of the contract.

13. Special conditions

Low visibility conditions will trigger specific safety mitigation actions outlined in this CSPP. For the purposes of this project, low visibility conditions will exist when the prevailing visibility is less than 1 statute mile and/or the runway visual range (RVR) is less than 6,000-feet. The City will notify the Contractor when these conditions exist so adequate safety measures can be taken by the Contractor.

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 and/or Air Traffic instructions. Various circumstances, such as an aircraft accident, security breach, or other unforeseen event may require suspension of the construction. The City will notify the Contractor when suspension of the work will be required. See Section 9 – Notification of Construction Activities for emergency contact information.

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 the City. 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 5 – Contractor Access for vehicle and pedestrian operations and two-way radio communication requirements.

14. Runway and taxiway visual aids

a. General

Temporary airport markings must be clearly visible to pilots, not misleading, confusing, or deceptive. All temporary markings must be secured in place to prevent movement by prop wash, jet blast, wing vortices, or other wind currents and constructed of materials that would minimize damage to an aircraft in the event of inadvertent contact.

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

b. Markings

(i) Temporarily Closed Runway

Runway 13/31 will be closed for the duration of Phases 1, 2 & 3.
Runway 17/35 will be closed for the duration of Phase 2 & 3.
Runway 06/24 will be closed during Phase 1, 2 & 3.

(ii) Temporarily closed taxiways

Temporarily closed taxiways are identified on the Construction Operations & Safety Plan and identified in Section 2 – Construction Phasing. Temporarily closed taxiways at runway/taxiway intersections shall have low-profile barricades placed outside the RSA or OFZ, whichever is greater.

c. Lighting and visual NAVAIDs

There is no additional lighting or visual NAVAID's being installed as part of this project

d. Signs

Any time a sign does not serve its normal function; it must be covered or removed to prevent misdirecting pilots.

15. Marking and signs for access routes

The Contractor shall place traffic control signs and/or devices, as appropriate, to advise other road users of construction operations and hauling. Signs and/or devices shall conform with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD), 2009 edition. Signs adjacent to areas used by aircraft must comply with the frangibility requirements of AC 150/5220-23.

16. Hazard marking and lighting

Before starting work, the contractor shall provide and have available all signs, barricades, 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 shall be weighted or anchored to prevent overturning from wind or aircraft engine blast.

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. Contractor will be required to fill the low-level barricades with water. Barricaded shall be spaced according to the function. For aircraft movement areas barricades shall be placed at 10' on center. For vehicle movement areas barricades shall be placed at 4' on center. For personnel movement area barricades shall be placed with 0' spacing.

The Contractor shall 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 shall be checked for proper operation at least once per day, preferably at dusk.

Open trenches, excavations, or obstructions not being actively worked shall be marked with lighted and weighted barricades which can be seen from a reasonable distance.

17. Protection of safety areas

a. Runway Safety Area (RSA)

No construction may occur within the existing RSA while the runway is open for aircraft operations. Open trenches or excavations are not permitted within the RSA while the runway is open. If possible, backfill trenches before the runway is opened. If the runway must be opened before excavations are backfilled, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the runway across the trench without 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.

Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting the occasional passage of aircraft without causing structural damage to the aircraft.

Grading tolerances inside the safety area shall be 5% maximum grade with no humps/depressions/drop-offs greater than 3-inches. The RSA is depicted on the Construction Operations, Safety, and Phasing plan contained in *attachment 1*. The dimension for the Runway 13/31 RSA is 120-FT each side of centerline and 240-FT beyond each runway end.

b. Runway Object Free Area (ROFA)

Construction, including excavations, may be permitted within the ROFA. However, equipment must be removed from the ROFA when not in use and material should not be stockpiled in the ROFA if not necessary. Stockpiling material in the ROFA requires submittal of a 7460-1 form and City approval. The dimension for the Runway 13/31 ROFA is 250-FT each side of centerline and 240-FT beyond each runway end.

c. Taxiway Safety Area (TSA)

No construction may occur in the TSA while the taxiway is open to aircraft operations. Open trenches or excavations are not permitted within the TSA while the taxiway is open. If possible, backfill trenches before the taxiway is opened. If the taxiway must be opened before excavations are backfilled, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operations of the heaviest aircraft 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.

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 capable, under dry conditions, of supporting the occasional passage of aircraft without causing structural damage to the aircraft.

Grading tolerances inside the safety area shall be 5% maximum grade with no humps/depressions/drop-offs greater than 3-inches. For this project, the TSA will be 39.5-FT each side of centerline for all taxiways.

d. Taxiway Object Free Area (TOFA)

No construction will be allowed within the taxiway object free area while the taxiway is open to aircraft operations. For this project, the TOFA will be 65.5-FT each side of centerline for all taxiways.

e. Obstacle Free Zone (OFZ)

Personnel, material, and/or equipment may not penetrate the OFZ while the runway is open to aircraft operations. The runway OFZ is depicted on the Construction Operations, Safety, and Phasing plan contained in *Attachment 1*. The dimension for Runway 13/31 OFZ is 200-FT each side of centerline and 200-FT beyond each runway end.

f. Runway approach/departure surfaces

All personnel, material, and/or equipment must remain clear of the threshold siting surfaces (approach and departure surfaces).

i. Runway 17/35 Approach Surface

Runway 15/33 will be a instrument runway during construction. Using Table 3-2 and Figure 3-3 from AC150/5300-13A for Runway Type 4, the resulting approach surface begins at the runway threshold and consists of a trapezoid with the following dimensions:

- Width at inner approach (runway threshold) – 400-feet
- Width at outer approach – 3,800-feet
- Length of approach – 10,000-feet
- Approach slope – 20:1

ii. Runway 17/35 Departure Surface

Runway 17/35 will be a visual use runway during construction. Using Table 3-2 and Figure 3-4 from AC150/5300-13 for Runway Type 9, the resulting departure surface begins at the runway threshold and consists of a trapezoid with the following dimensions:

- Width at inner departure (runway threshold) – 1000-feet
- Width at outer departure – 6,466-feet
- Length of departure – 10,200-feet
- Departure slope – 40:1

18. Other limitations on construction

a. Prohibitions

- Open flame welding or torches are prohibited unless fire safety precautions are provided and the airport has approved their use.
- Electrical blasting caps are prohibited on or within 1,000-feet of the airport property.
- The use of flare pots are prohibited within the Airport Operations Area (AOA).

- No smoking will be allowed within the airfield environment except as designated by the City.

b. Restrictions
   - Construction sequence, duration, and time limitations can be found in Section 2 – Construction Phasing and *attachment 1*.

APPENDIX - 1

CONSTRUCTION SAFETY PHASING PLAN

PROJECT DESCRIPTION:
RUNWAY 13/31 REHABILITATION.

GENERAL CONSTRUCTION SAFETY:

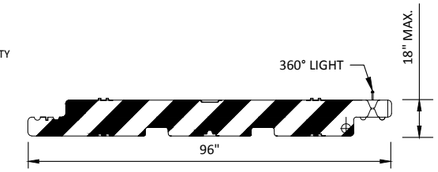
1. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS SET FORTH IN FAA AC 150/5370-2F "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION", WHICH IS INCLUDED IN THE PROJECT MANUAL APPENDIX. CONSTRUCTION SAFETY SHALL BE DISCUSSED DURING THE PRE CONSTRUCTION MEETING AND AT WEEKLY PROJECT MEETING
2. CONTRACTOR IS RESPONSIBLE FOR ALL PUBLIC AND PRIVATE UTILITY LOCATIONS DURING CONSTRUCTION.

CONSTRUCTION EQUIPMENT:

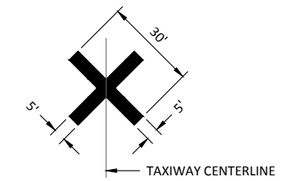
3. ALL CONSTRUCTION EQUIPMENT SHALL BE PARKED IN DESIGNATED STAGING/STORAGE AREAS WHEN NOT IN USE OR OVERNIGHT. ALL BOOMS SHALL BE LOWERED WHEN NOT IN USE.
4. THE EXPECTED MAXIMUM HEIGHT OF CONSTRUCTION EQUIPMENT IS 20 FEET AT ANY LOCATION. THE CONTRACTOR SHALL VERIFY ANY EQUIPMENT HEIGHT MORE THAN 20 FEET AND NOTIFY THE ENGINEER AND OWNER A MINIMUM OF 72 HOURS IN ADVANCE OF ANY CONSTRUCTION THAT REQUIRES EQUIPMENT WITH HEIGHTS OF MORE THAN 20 FEET SO THAT THE APPROPRIATE NOTICE TO AIRMEN (NOTAM) MAY BE ISSUED.
5. ALL EQUIPMENT WORKING ON THE AIRPORT CONSTRUCTION SITE MUST HAVE A ROTATING BEACON AND/OR WARNING FLAG. THE VEHICLE WARNING FLAGS SHALL BE AS PER DETAIL ON SHEET. THE FLAG SHALL BE SECURELY ATTACHED TO THE HIGHEST POINT ON THE CONSTRUCTION EQUIPMENT OR VEHICLE AND BE VISIBLE AT ALL TIMES. AMBER FLASHING BEACONS MOUNTED ON THE HIGHEST POINT OF THE CONSTRUCTION EQUIPMENT OR VEHICLE ARE ALSO REQUIRED TO BE INSTALLED AND OPERATIONAL.
6. VEHICULAR TRAFFIC LOCATED IN OR CROSSING ACTIVE MOVEMENT AREAS MUST HAVE A WORKING TWO-WAY RADIO CONTACT WITH AIRPORT OPERATIONS OR BE ESCORTED BY A PERSON IN RADIO CONTACT. THE DRIVER, THROUGH PERSONAL OBSERVATION, SHOULD CONFIRM THAT NO AIRCRAFT ARE APPROACHING THE VEHICLES POSITION. CONSTRUCTION PERSONNEL MAY OPERATE IN A MOVEMENT AREA WITHOUT TWO-WAY RADIO COMMUNICATION PROVIDED A NOTAM IS ISSUED CLOSING THE AREA AND THE AREA IS PROPERLY MARKED TO PREVENT INCURSIONS.

HAUL ROUTES, TRAFFIC CONTROL & ACCESS CONTROL

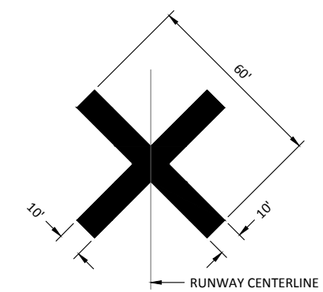
7. ALL TEMPORARY ACCESS, STORAGE/STAGING AREAS AND ROADS SHALL BE RESTORED TO ORIGINAL CONDITION, INCLUDING TOPSOILING, RESEEDING, IF NECESSARY, AFTER USE BY THE CONTRACTOR.
8. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL TRAFFIC CONTROL DEVICES AS NECESSARY.
9. THIS LAYOUT IS A MINIMUM REQUIREMENT NECESSARY TO ASSIST THE CONTRACTOR IN DETERMINING THE COST FOR PROVIDING NECESSARY TRAFFIC CONTROL. THE CONTRACTOR MAY ADD ADDITIONAL WARNING DEVICES UPON APPROVAL OF THE ENGINEER.
10. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER A MINIMUM OF 72 HOURS IN ADVANCE OF ANY PROPOSED CONSTRUCTION WITHIN THE APRON OR TAXIWAY SAFETY AREAS, RUNWAY PROTECTION ZONES, APPROACH AREAS OR REQUIRED CLOSURE AREAS SO THAT THE APPROPRIATE NOTICE TO AIRMEN (NOTAM) MAY BE ISSUED. THE OWNER WILL ALSO ISSUE TIMELY NOTAMS WHICH SPECIFICALLY DETAIL THE CURRENT STATUS OF THE AIRPORT DURING CONSTRUCTION, INCLUDING CLOSURE STATUS. THE NOTAM SHALL INCLUDE THE PROPOSED LOCATION, TIME AND DATE OF COMMENCEMENT OF CONSTRUCTION.
11. INSPECT FOR AND REMOVE FOREIGN OBJECT DEBRIS (FOD) ON OR NEAR AIRCRAFT MOVEMENT AREAS BY SWEEPING DAILY AT TIMES OF CONCURRENT CONSTRUCTION AND AIRCRAFT OPERATIONS. WASTE AND LOOSE MATERIAL MUST NOT BE PLACED IN ACTIVE MOVEMENT AREAS. MATERIALS TRACKED ONTO THESE AREAS MUST BE REMOVED CONTINUOUSLY DURING THE PROJECT. THE CONSTRUCTION SITE, INCLUDING THE STAGING AREA, SHALL BE KEPT CLEAN OF ALL PERSONNEL DEBRIS.
12. THERE SHALL BE NO UNAUTHORIZED PERSONNEL ON AIRFIELD. CONTRACTOR SHALL USE THE DESIGNATED AIRPORT ACCESS ROUTE WHEN ENTERING AIRPORT PROPERTY. NO GATES ARE TO BE LEFT OPENED AND UNATTENDED.
13. AT ALL TIMES, WHILE CONSTRUCTION IS IN PROGRESS, THE CONTRACTOR SHALL HAVE A DESIGNATED PERSON MONITORING THE UNICOM OR CTAF.
14. PERSONAL VEHICLES SHALL NOT BE ALLOWED ON THE AIRFIELD. ALL PERSONAL VEHICLES SHOULD BE PARKED IN A DESIGNATED STAGING/STORAGE AREA OR ANOTHER AREA AS DESIGNATED BY THE AIRPORT MANAGER.
15. WHEN ACCESS POINTS ARE CREATED IN THE SECURITY FENCING TO PERMIT THE PASSAGE OF CONSTRUCTION VEHICLES OR PERSONNEL, TEMPORARY GATES SHOULD BE EQUIPPED SO THEY CAN BE SECURELY CLOSED AND LOCKED TO PREVENT ACCESS BY ANIMALS AND PEOPLE.
16. LIGHTED BARRIERS (FLASHERS) SHALL BE INSPECTED AT DUSK EACH DAY TO ENSURE ALL FLASHERS ARE PROPERLY WORKING.
17. PROMINENTLY MARK OPEN TRENCHES, EXCAVATIONS AND STOCKPILED MATERIALS AND LIGHT THESE OBSTACLES DURING HOURS OF RESTRICTED VISIBILITY AND DARKNESS. CONSTRAIN STOCKPILED MATERIAL TO PREVENT ITS MOVEMENT AS A RESULT OF THE MAXIMUM ANTICIPATED AIRCRAFT BLAST AND FORECAST WIND CONDITIONS.
18. PRIOR TO OPENING OR RE-OPENING ANY CLOSED PAVEMENT AREA, THE CONTRACTOR, TOGETHER WITH THE AIRPORT OPERATOR SHALL INSPECT THE PAVEMENT, SAFETY AREAS AND PRIMARY SURFACE FOR ANY OBSTRUCTION OR FOD.
19. WHEN THE AIRFIELD IS CLOSED FOR CONSTRUCTION (RUNWAY CLOSURES), THE BEACON SHALL BE DISENGAGED (TURNED-OFF).
20. ALL AIRFIELD GUIDANCE SIGNS (INCLUDING HOLD SIGNS) SHALL BE COVERED OR OTHERWISE REMOVED FROM SERVICE IF THE PAVEMENT SAID SIGNS ARE IDENTIFYING ARE CLOSED FOR CONSTRUCTION.
21. THE CONTRACTOR SHALL NOTIFY AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF) PERSONNEL, MUTUAL AID PROVIDERS AND OTHER EMERGENCY SERVICES IF CONSTRUCTION REQUIRES SHUTTING OFF OR OTHERWISE DISTRUPTING ANY WATER LINE OR FIRE HYDRANT ON THE AIPORT OR ADJOINING AREAS AND IF CONTRACTORS WORK WITH HAZARDOUS MATERIAL ON THE AIRFIELD. NOTIFICATION MUST ALSO BE MADE WHEN THE WORK PERFORMED WILL CLOSE OR AFFECT ANY EMERGENCY ROUTES. ALSO MAKE NOTIFICATION WHEN SERVICES ARE RESTORED.



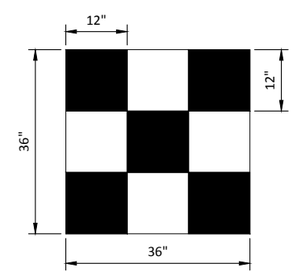
A/5 LOW PROFILE AIRPORT BARRICADE
NOT TO SCALE



B/5 TAXIWAY CLOSURE MARKER
NOT TO SCALE



C/5 RUNWAY CLOSURE MARKER
NOT TO SCALE



NOTE: FLAG SHALL HAVE A CHECKERED PATTERN OF INTERNATIONAL ORANGE AND WHITE SQUARES

D/5 VEHICLE WARNING FLAG
NOT TO SCALE

LEGEND

- PHASE 1 CONSTRUCTION
- PHASE 2 CONSTRUCTION
- PHASE 3 CONSTRUCTION
- PHASE 4 CONSTRUCTION

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BOLTON & MENK
2730 FORD ST, P.O. BOX 668
AMES, IOWA 50010
Phone: (515)-233-6100
Email: Ames@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

DESIGNED DJM
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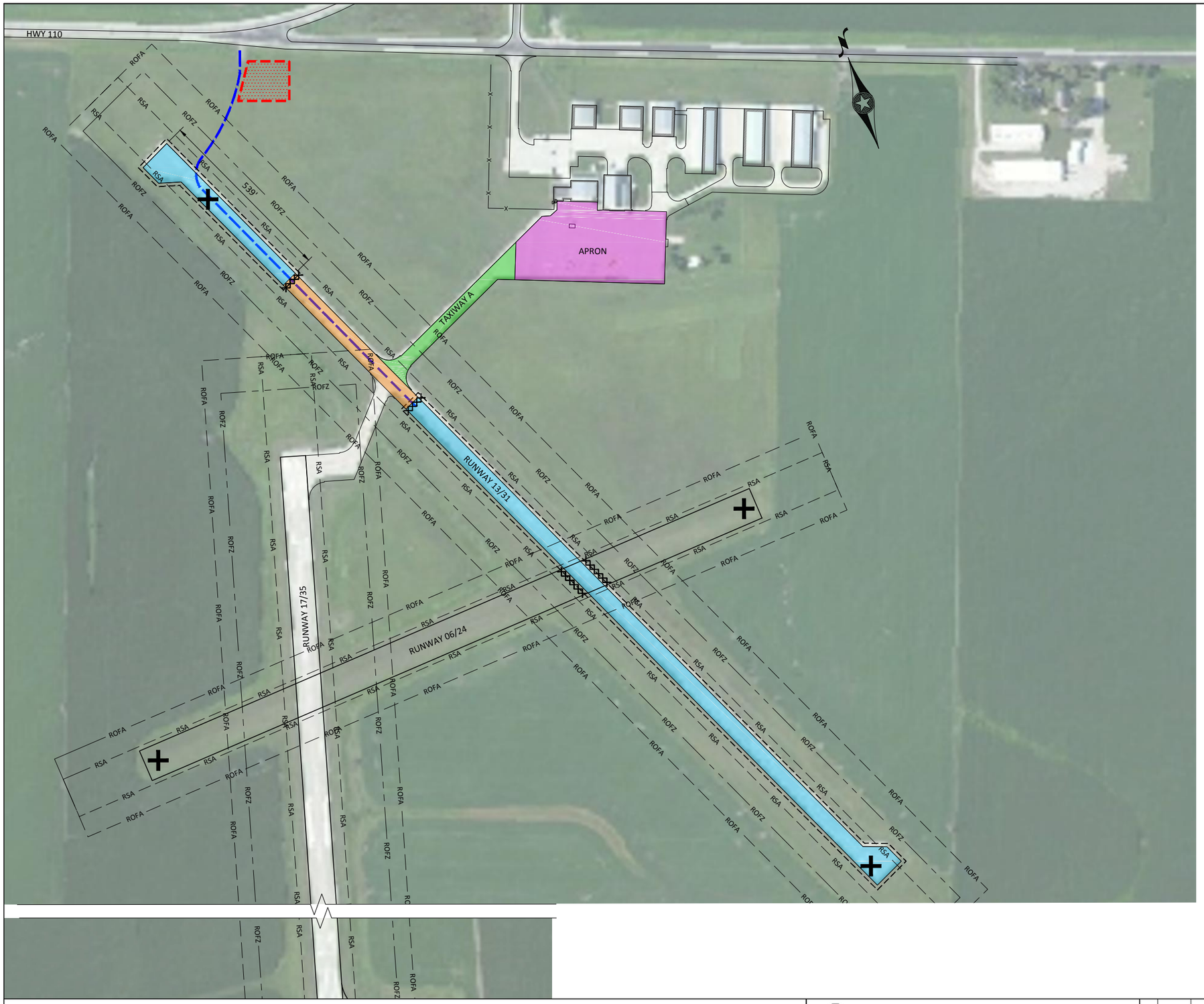
STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
CSPP - OVERALL LAYOUT



PHASE 1 NOTES:

PHASE 1 WORK ELEMENTS:
- SUBDRAIN INSTALLATION

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL BE CLOSED FOR PHASE 1.
- RUNWAY 06/24 SHALL BE CLOSED FOR PHASE 1.
- RUNWAY 17/35 SHALL REMAIN OPEN DURING PHASE 1..
- TAXIWAY A SHALL REMAIN OPEN DURING PHASE 1.

PHASE DURATION
- PHASE 1 SHALL BE COMPLETED IN 16 WORKING DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER AND FBO FOR ISSUANCE OF NOTAM's.

BARRICADE INFORMATION
- BARRICADES SHALL BE PLACED AT 10' SPACING TO PREVENT AIRCRAFT FROM ENTERING RUNWAY 13/31.
- CONTRACTOR SHALL PROVIDE FLAGGER OR CONTRACTOR PERSONNEL TO MAN THE INTERSECTION OF TAXIWAY A WITH RUNWAY 13/31.

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL BE DISCONNECTED OR COVERED DURING PHASE 1.
- LIGHT ON RUNWAY 17/35 SHALL REMAIN ON DURING PHASE 1
- TAXIWAY LIGHT SHALL REMAIN ON DURING PHASE 1

LEGEND

- PHASE 1 CONSTRUCTION
- CONTRACTORS ACCESS ROUTE
- CONSTRUCTION LIMITS
- LOW PROFILE BARRICADES
- RUNWAY/TAXIWAY CLOSURE MARKER
- CONSTRUCTION STAGING/STORAGE

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2730 FORD ST, P.O. BOX 668
AMES, IOWA 50010
Phone: (515)-233-6100
Email: Ames@bolton-menk.com
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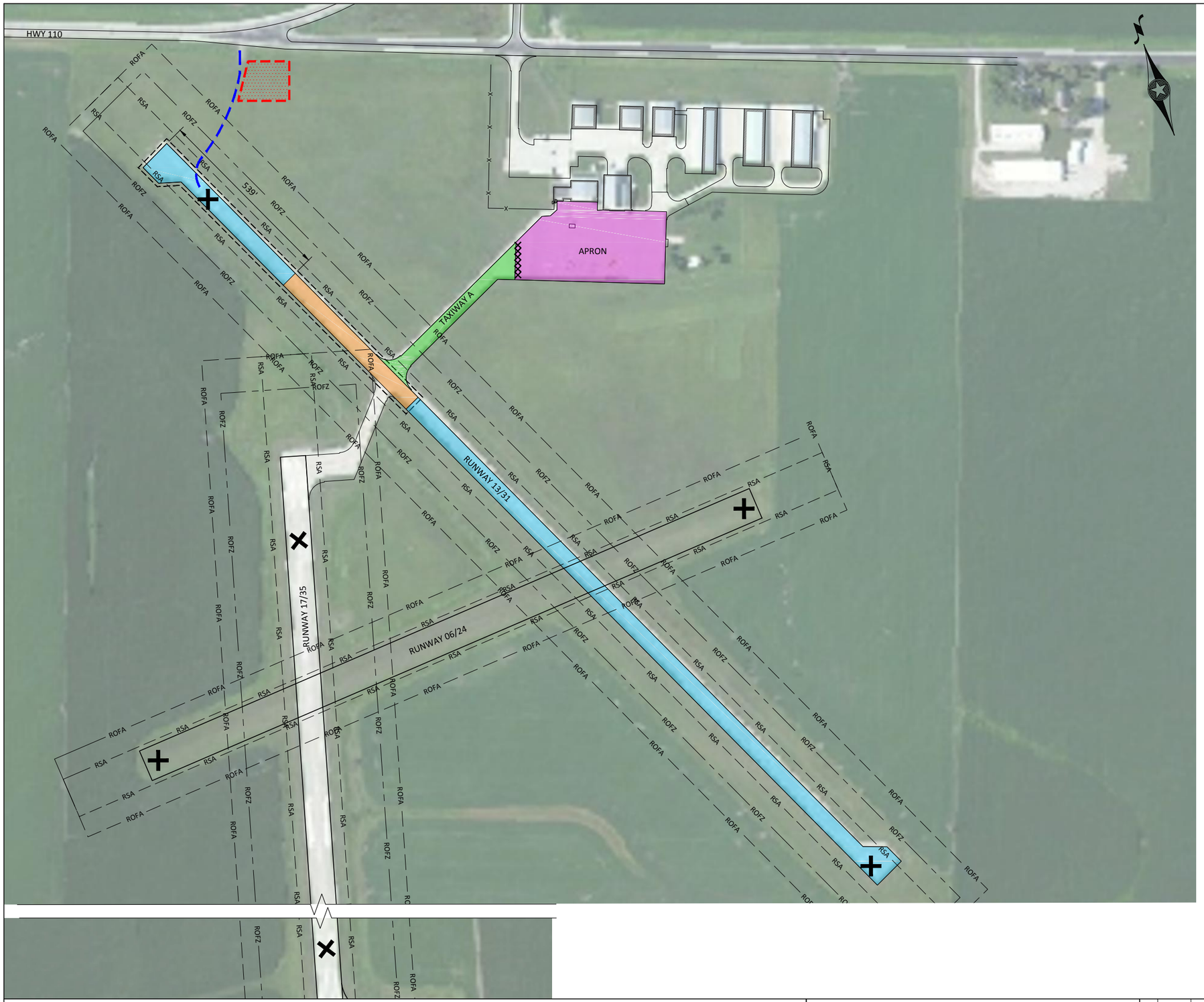
STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
CSPP - PHASE 1



PHASE 2 NOTES:

PHASE 2 WORK ELEMENTS:
- SUBDRAIN INSTALLATION

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL BE CLOSED FOR PHASE 2
- RUNWAY 06/24 SHALL BE CLOSED FOR PHASE 2
- RUNWAY 17/35 SHALL BE CLOSED FOR PHASE 2
- TAXIWAY A SHALL BE CLOSED FOR PHASE 2

PHASE DURATION
- PHASE 2 SHALL BE COMPLETED IN 4 WORKING DAYS. PHASE 2 CAN BE COMPLETED AT THE SAME TIME AT PHASE 3 WITH THE RUNWAY CLOSURE LIMITED TO A MAXIMUM OF 4 DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER AND FBO FOR ISSUANCE OF NOTAM's.
- NOTAM WILL BE ISSUED FOR WORKERS AND EQUIPMENT ON RUNWAY 13 FOR APPROACH AND DEPARTURE OF RUNWAY 17/35

BARRICADE INFORMATION
- BARRICADES SHALL BE PLACED AT 10' SPACING TO PREVENT AIRCRAFT FROM ENTERING RUNWAY 13/31.

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL BE DISCONNECTED OR COVERED DURING PHASE 2.
- LIGHT ON RUNWAY 17/35 SHALL BE DISCONNECTED OR COVERED DURING PHASE 2.
- TAXIWAY LIGHT SHALL BE DISCONNECTED OR COVERED DURING PHASE 2.

LEGEND

- PHASE 2 CONSTRUCTION
- CONTRACTORS ACCESS ROUTE
- CONSTRUCTION LIMITS
- LOW PROFILE BARRICADES
- RUNWAY/TAXIWAY CLOSURE MARKER
- CONSTRUCTION STAGING/STORAGE

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2730 FORD ST, P.O. BOX 668
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Email: Ames@bolton-menk.com
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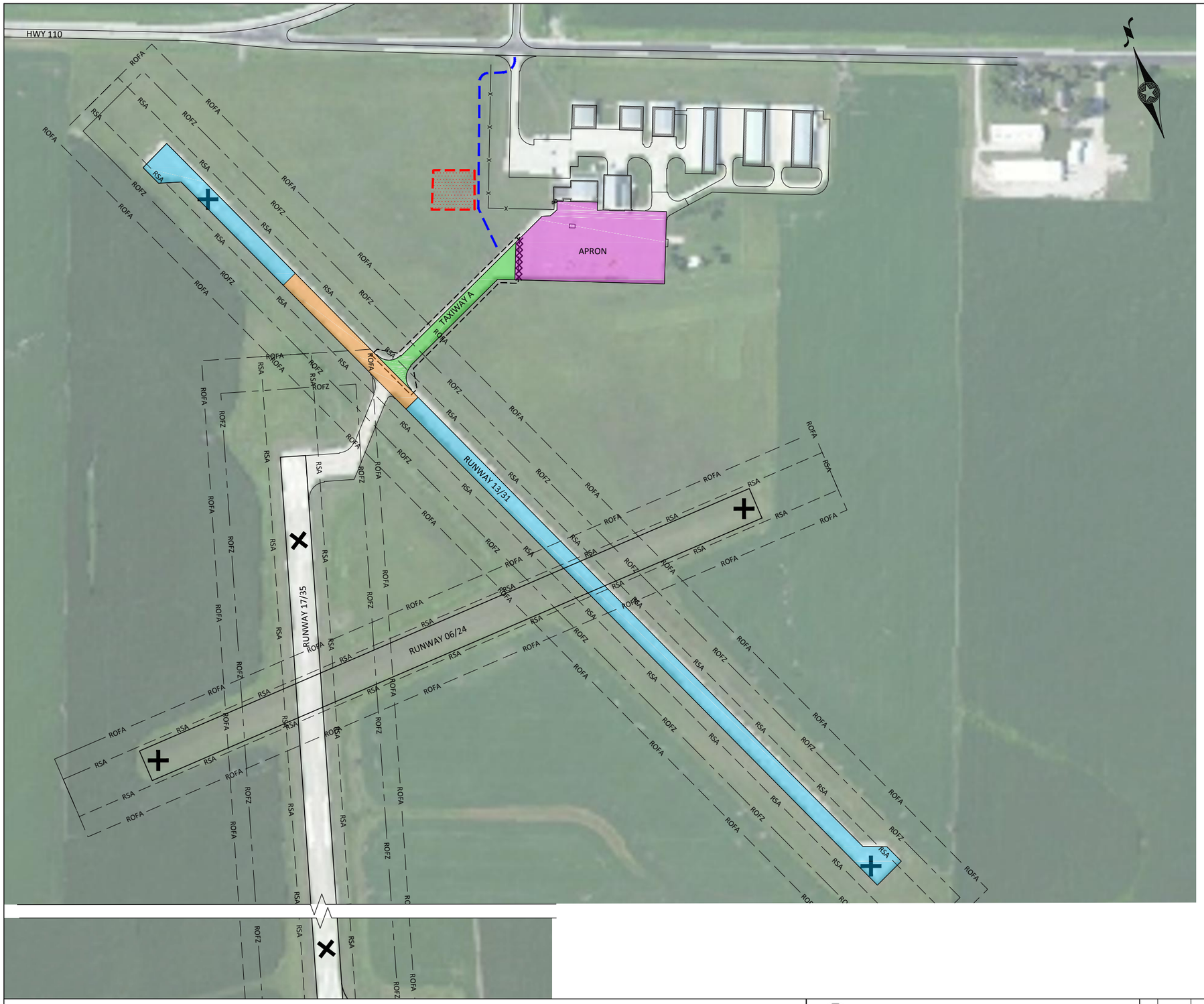
REV	ISSUED FOR	DATE

DESIGNED DJM
DRAWN DJM
CHECKED GAB

STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
CSPP - PHASE 2



PHASE 3 NOTES:

PHASE 3 WORK ELEMENTS:
- JOINT AND CRACK SEALING
- PANEL REPLACEMENT

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL BE CLOSED FOR PHASE 3.
- RUNWAY 06/24 SHALL BE CLOSED FOR PHASE 3.
- RUNWAY 17/35 SHALL BE CLOSED FOR PHASE 3.
- TAXIWAY A SHALL BE CLOSED DURING PHASE 3.

PHASE DURATION
- PHASE 3 SHALL BE COMPLETED IN 3 WORKING DAYS. PHASE 3 CAN BE COMPLETED AT THE SAME TIME AT PHASE 2 WITH THE RUNWAY CLOSURE LIMITED TO A MAXIMUM OF 4 DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER AND FBO FOR ISSUANCE OF NOTAM's.

BARRICADE INFORMATION
- BARRICADES SHALL BE PLACED AT 10' SPACING TO PREVENT AIRCRAFT FROM ENTERING TAXIWAY A.

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL BE DISCONNECTED OR COVERED DURING PHASE 3.
- LIGHT ON RUNWAY 17/35 SHALL BE DISCONNECTED OR COVERED DURING PHASE 3
- TAXIWAY LIGHT SHALL BE DISCONNECTED OR COVERED DURING PHASE 3

LEGEND

- PHASE 3 CONSTRUCTION
- CONTRACTORS ACCESS ROUTE
- CONSTRUCTION LIMITS
- LOW PROFILE BARRICADES
- RUNWAY/TAXIWAY CLOSURE MARKER
- CONSTRUCTION STAGING/STORAGE

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REV	ISSUED FOR	DATE

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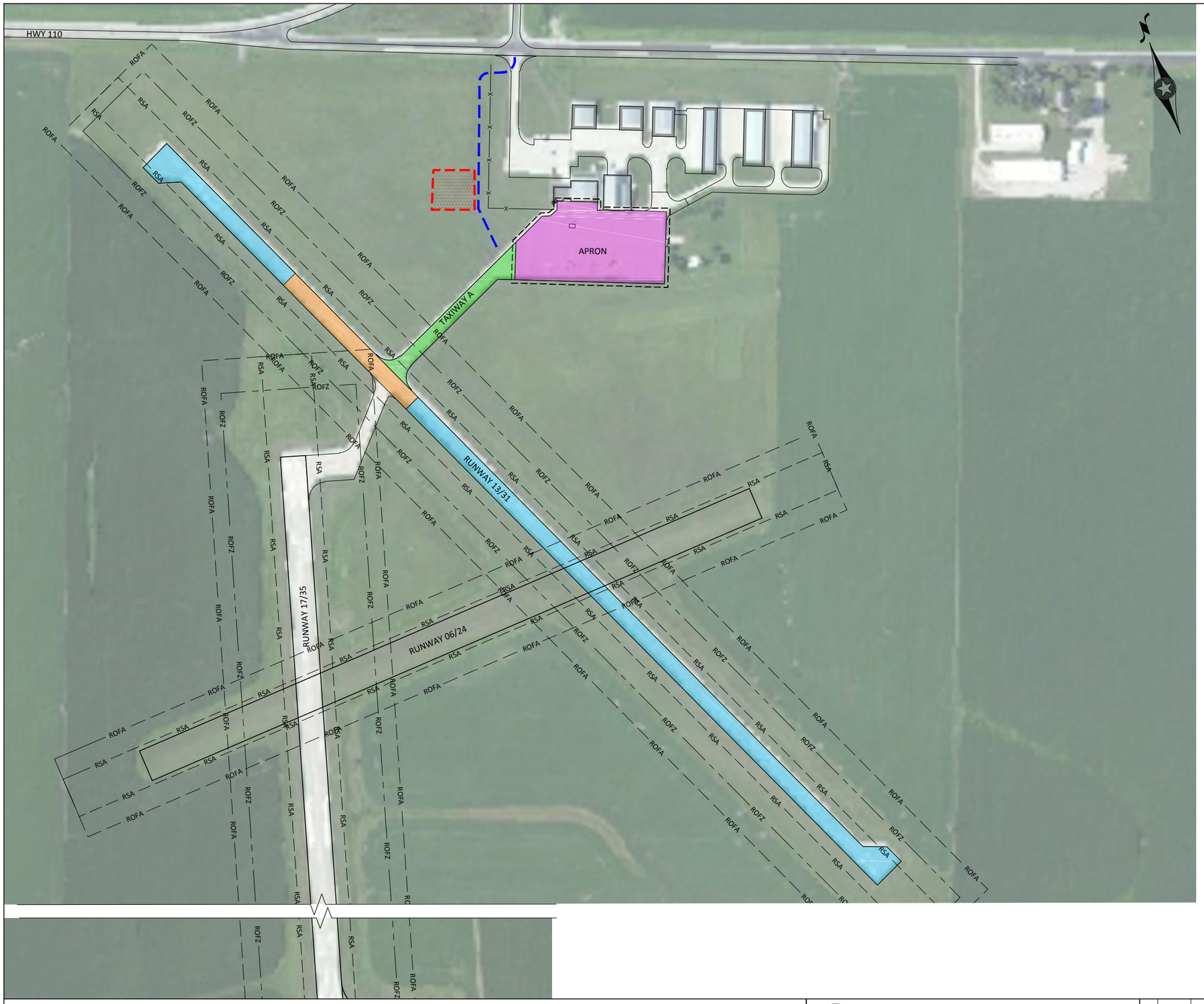
DRAWN DJM
CHECKED GAB

STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
CSPP - PHASE 3



PHASE 4 NOTES:

PHASE 4 WORK ELEMENTS:
- JOINT AND CRACK SEALING
- PARTIAL DEPTH PATCHING
- PANEL REPLACEMENTS

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL REMAIN OPEN DURING PHASE 4.
- RUNWAY 06/24 SHALL REMAIN OPEN DURING 4.
- RUNWAY 17/35 SHALL REMAIN OPEN DURING PHASE 4.
- TAXIWAY A SHALL REMAIN OPEN DURING PHASE 4.
- PHASE 4 SHALL BE CONSTRUCTED TO ALLOW AIRCRAFT ACCESS TO TAXIWAY A AT ALL TIMES. IF AIRPORT ACTIVITY IS PRESENT, A FLAGGER SHALL BE PRESENT TO DIRECT AIRPORT TRAFFIC FROM CONSTRUCTION ACTIVITY.

PHASE DURATION
- PHASE 4 SHALL BE COMPLETED IN 10 WORKING DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER FOR ISSUANCE OF NOTAM's.

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL REMAIN ON DURING PHASE 4
- LIGHT ON RUNWAY 17/35 SHALL REMAIN ON DURING PHASE 4.
- TAXIWAY LIGHT SHALL REMAIN ON DURING PHASE 4.

LEGEND
- PHASE 4 CONSTRUCTION
- CONTRACTORS ACCESS ROUTE
- CONSTRUCTION LIMITS
- LOW PROFILE BARRICADES
- RUNWAY/TAXIWAY CLOSURE MARKER
- CONSTRUCTION STAGING/STORAGE

HORIZ. 0 150 300
SCALE FEET

H:\SMLK\T51111257\CAD\C3D\Sheets\111257CSPP.dwg 2/16/2017 3:58 PM

BOLTON & MENK
2730 FORD ST, P.O. BOX 668
AMES, IOWA 50010
Phone: (515)-233-6100
Email: Ames@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

DESIGNED DJM
DRAWN DJM
CHECKED GAB

STORM LAKE MUNICIPAL AIRPORT
2016 AIRPORT IMPROVEMENTS
CSPP - PHASE 4

APPENDIX - 2

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	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 NAVAIDs 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.		☐
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 NOTAMs 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 buildings.		☐
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.		☐
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 of designated work areas and out of phase.		☐

APPENDIX - 3

SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) REQUIREMENTS

Safety Plan Compliance Document

The Safety Plan Compliance Document (SPCD) should include a general statement by the construction contractor that he/she has read and will abide by the CSPP. In addition, the SPCD must include all supplemental information that could not be included in the CSPP prior to the contract award. The contractor statement should include the name of the contractor, the title of the project CSPP, the approval date of the CSPP, and a reference to any supplemental information (that is, "I , Name of Contractor , have read the Title of Project CSPP, approved on Date , and will abide by it as written and with the following additions as noted:"). The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, "No supplemental information," should be written after the corresponding subject title. The SPCD should not duplicate information in the CSPP:

(1) **Coordination**. Discuss details of proposed safety meetings with the airport operator and with contractor employees and subcontractors.

(2) **Phasing**. Discuss proposed construction schedule elements, including:
   - (a) Duration of each phase.
   - (b) Daily start and finish of construction, including "night only" construction.
   - (c) Duration of construction activities during:
     - (i) Normal runway operations.
     - (ii) Closed runway operations.
     - (iii) Modified runway "Aircraft Reference Code" usage.

(3) **Areas and operations affected by the construction activity**. These areas and operations should be identified in the CSPP and should not require an entry in the SPCD.

(4) **Protection of NAVAIDs**. Discuss specific methods proposed to protect operating NAVAIDs.

(5) **Contractor access**. Provide the following:
   - (a) Details on how the contractor will maintain the integrity of the airport security fence (gate guards, daily log of construction personnel, and other).
   - (b) Listing of individuals requiring driver training (for certificated airports and as requested).
   - (c) Radio communications.
     - (i) Types of radios and backup capabilities.
     - (ii) Who will be monitoring radios.
     - (iii) Whom to contact if the ATCT cannot reach the contractor's designated person by radio.
   - (d) Details on how the contractor will escort material delivery vehicles.

(6) **Wildlife management**. Discuss the following:
   - (a) Methods and procedures to prevent wildlife attraction.
   - (b) Wildlife reporting procedures.

(7) **Foreign Object Debris (FOD) management**. Discuss equipment and methods for control of FOD, including construction debris and dust.

(8) **Hazardous material (HAZMAT) management**. Discuss equipment and methods for responding to hazardous spills.

(9) **Notification of construction activities**. Provide the following:
   - (a) Contractor points of contact.
   - (b) Contractor emergency contact.
   - (c) Listing of tall or other requested equipment proposed for use on the airport and the timeframe for submitting 7460-1 forms not previously submitted by the airport operator.

(d) Batch plant details, including 7460-1 submittal.

(10) **Inspection requirements**. Discuss daily (or more frequent) inspections and special inspection procedures.

(11) **Underground utilities**. Discuss proposed methods of identifying and protecting underground utilities.

(12) **Penalties**. Penalties should be identified in the CSPP and should not require an entry in the SPCD.

(13) **Special conditions**. Discuss proposed actions for each special condition identified in the CSPP.

(14) **Runway and taxiway visual aids**. Including marking, lighting, signs, and visual NAVAIDs. Discuss proposed visual aids including the following:

(a) Equipment and methods for covering signage and airfield lights.

(b) Equipment and methods for temporary closure markings (paint, fabric, other).

(c) Types of temporary Visual Guidance Slope Indicators (VGSI).

(15) **Marking and signs for access routes**. Discuss proposed methods of demarcating access routes for vehicle drivers.

(16) **Hazard marking and lighting**. Discuss proposed equipment and methods for identifying excavation areas.

(17) **Protection of runway and taxiway safety areas**. Including object free areas, obstacle free zones, and approach/departure surfaces. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:

(a) Equipment and methods for maintaining Taxiway Safety Area standards.

(b) Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.

(18) **Other limitations on construction** should be identified in the CSPP and should not require an entry in the SPCD.

Staff Summary

3/13/2017
Agenda Item # 7.

City of Storm Lake

PO Box 1086

Storm Lake, IA 50588

p (712) 732-8000

f (712) 732-4114

REPORT TO: Airport Commission

FROM: Tyler Gibbins, Staff Accountant

SUBJECT: **Terminal Sitting Room Remodel/Technology Upgrades**

BACKGROUND: The Commission received a generous donation from one of the hangar tenants and requested the funds be used by the Commission as they see fit. The only recommendation was to add more attention to the 24/7 restroom cleaning and increasing the amount of lighting. This is something that should be done on a regular basis and will come from the general budget.

As directed by the Commission, City Staff began looking around for ideas and costs to upgrade some of the furniture in terminal sitting area. There are several ideas of which the commission could proceed. In addition to the furniture, there are quotes for a new flight plan computer and wireless printer for pilot's use during their travels.

At this time the Commission should select a route to take to allocate these funds.

FISCAL IMPACT: The amount of the donation was $2,500. If the cost is above this amount the difference will come from the general budget and cut backs in other areas will need to be made to stay within the adopted budget.

In addition to the overtures coming from the general budget, any painting will also come from the general budget.

RECOMMENDATION: Direct City Staff on the direction they would like to take in allocating these funds.

ATTACHMENTS:

	Description	Type
🗋	Flight Plan Computer Replacement	Backup Material
🗋	Wireless Printer	Backup Material
🗋	Carey's Furniture	Backup Material
🗋	Furniture Mart	Backup Material
🗋	Elements by K Sorbe	Backup Material

Rebnord Technologies, Inc.
1044 West Milwaukee Ave.
Storm Lake, IA 50588
(712) 732-6449
http://www.rebtech.com
http://www.myhosteddesktop.com

QUOTE

Number AAAQ2041

Date Feb 28, 2017

Sold To	Ship To	Your Sales Rep
City of Storm Lake Tyler Gibbins	**City of Storm Lake** Tyler Gibbins	**jesse.arellano** 712-732-6449 jesse@rebtech.com
Phone **Fax**	**Phone** **Fax**	

Terms	P.O. Number	Ship Via

Line	Qty	Description	Unit Price	Ext. Price
1	1	Dual-Core Intel® Core™ i3-6320 3.90GHz 4MB Cache ASUS H110M-C/CSM - mATX - Intel® H110 Chipset 2 x Crucial 4GB PC4-17000 2133MHz DDR4 Apex TX-606 - mATX Mini Tower - USB 3.0 - 300 Watt Power Supply - Black Included Power Supply (Chassis must include power to select this option) 1.0TB SATA 6.0Gb/s 7200RPM - 3.5" - Western Digital Black WD1003FZEX LG 24x Super Multi DVD+/-RW with M-DISC (SATA) Integrated Video (Included with Motherboard) Microsoft Windows 10 Professional (64-bit) with Recovery Partition and DVD (DPK) (OA) System Assembly and Testing (Desktop) System Packaging Label - Certera - 1.0" x 1.0" Three Year Warranty with Advanced Parts Replacement and RSL	$817.68	$817.68

SubTotal	$817.68
Tax	$57.24
Shipping	$0.00
Total	**$874.92**

Rebnord Technologies, Inc.
1044 West Milwaukee Ave.
Storm Lake, IA 50588
(712) 732-6449
http://www.rebtech.com
http://www.myhosteddesktop.com

QUOTE

Number AAAQ2042

Date Feb 28, 2017

Sold To	Ship To	Your Sales Rep
City of Storm Lake Tyler Gibbins	**City of Storm Lake** Tyler Gibbins	**jesse.arellano** 712-732-6449 jesse@rebtech.com
Phone **Fax**	**Phone** **Fax**	

Terms	P.O. Number	Ship Via

Line	Qty	Description	Unit Price	Ext. Price
1	1	HP LaserJet Pro MFP M426fdw	$359.99	$359.99

SubTotal	$359.99
Tax	$25.20
Shipping	$0.00
Total	**$385.19**

Carey's —FURNITURE—

712-225-4501

Home / Living Room / Living Room Groups

Living Room Groups

Per Page: 36

Janley - Slate - Sofa & Loveseat

$789.99 ~~$899.99~~

Gayler - Steel - Sofa & Loveseat

$789.99 ~~$899.99~~

Brindon - Charcoal - Sofa & Loveseat

$789.99 ~~$899.99~~

Havilyn - Charcoal - Sofa & Loveseat

$939.99 ~~$1,059.99~~

Kinlock - Charcoal - Sofa & Loveseat

$789.99 ~~$899.99~~

Gilmer - Gunmetal - Sofa & Loveseat

$979.99 ~~$1,109.99~~

Inmon - Charcoal - Sofa & Loveseat

$789.99 ~~$899.99~~

Pelsor - Gray - Sofa & Loveseat

$789.99 ~~$899.99~~

Furniture MART shop smart style

Search

CART (0)

LIVING ROOM DINING BEDROOM MATTRESS OFFICE TV STANDS KIDS DÉCOR & ACCENT CLEARANCE WEEKLY AD

CHAT

Home > Living Room > Chairs

Shop By: Filter Results

PRICE Clear
- $0-49.99 (1) ☑
- $50-99.99 (5) ☑
- $150-199.99 ☐
- $200-299.99 ☐
- $400-499.99 ☐
- $500-699.99 ☐
- $700-899.99 ☐
- $900-1099.99 ☐
- $1100-1399.99 ☐
- $1400-1699.99 ☐
- $1700-1999.99 ☐
- + See More

TYPE Clear
- Arm Chairs ☐
- Chaise ☐
- Decorative (1) ☐
- Glider ☐
- High Leg (1) ☐
- Lift ☐
- Oversized ☐
- Power ☐
- Reclining ☐
- Rocker ☐
- Sculpture ☐
- + See More

ROOM Clear
- Decor & Accent (5) ☐
- Dining Room (1) ☐
- Living Rooms (6) ☐

MATERIAL Clear
- Bonded Leather ☐
- Hardwood with Venee.. (1) ☐
- Leather ☐
- Upholstery (5) ☐
- Vinyl ☐

COLOR Clear

STYLE Clear
- Casual ☐
- Contemporary (1) ☐
- Modern ☐
- Rustic (2) ☐
- Traditional ☐
- Transitional (5) ☐
- Vintage (2) ☐

BRAND Clear
- Affordable Furnitur.. ☐
- Albany ☐
- Ashley Furniture ☐
- Ashley Signature ☐
- Bassett Mirror Comp.. ☐
- Bauhaus USA Inc. ☐
- Best Chairs ☐
- Craftmaster Furnitu.. ☐
- England Furniture ☐
- Four Hands ☐

Chairs

Find the perfect living room chair to give that added look and seating to your den or living room with The Furniture Mart!

6 items, Showing **1 - 6 (1 Pages)** 15 per page, Sort by Popularity Go

HOT BUY

Chalkboard Muslin Side Chair

$98.99 ~~169.99~~

ADD TO CART

HOT BUY

Jordan Upholstered Side Chair

$48.99 ~~48.99~~

ADD TO CART

HOT BUY

Chalkboard Black Side Chair

$98.99 ~~169.99~~

ADD TO CART

HOT BUY

Sachi Charcoal Side Chair

$98.99 ~~169.99~~

ADD TO CART

HOT BUY

Sachi Platinum Side Chair

$98.99 ~~169.99~~

ADD TO CART

HOT BUY

Sachi Ivory Side Chair

$98.99 ~~169.99~~

ADD TO CART

6 items, Showing **1 - 6 (1 Pages)** << Previous Page 1 Next Page >>

CHAT

Products
- Living Room
- Dining
- Bedroom
- Mattress
- Office
- Entertainment
- Youth
- Accessories
- TV/Appliances
- Clearance

Company Info
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- Careers
- Site map
- Privacy policy
- Terms Of Use
- Terms And Conditions
- Manufacturer Sites
- Furniture Care Tips
- Charity Golf Event

Customer Service
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- Contact Us
- Apply for financing
- Delivery or FREE Pickup
- Track Your Delivery

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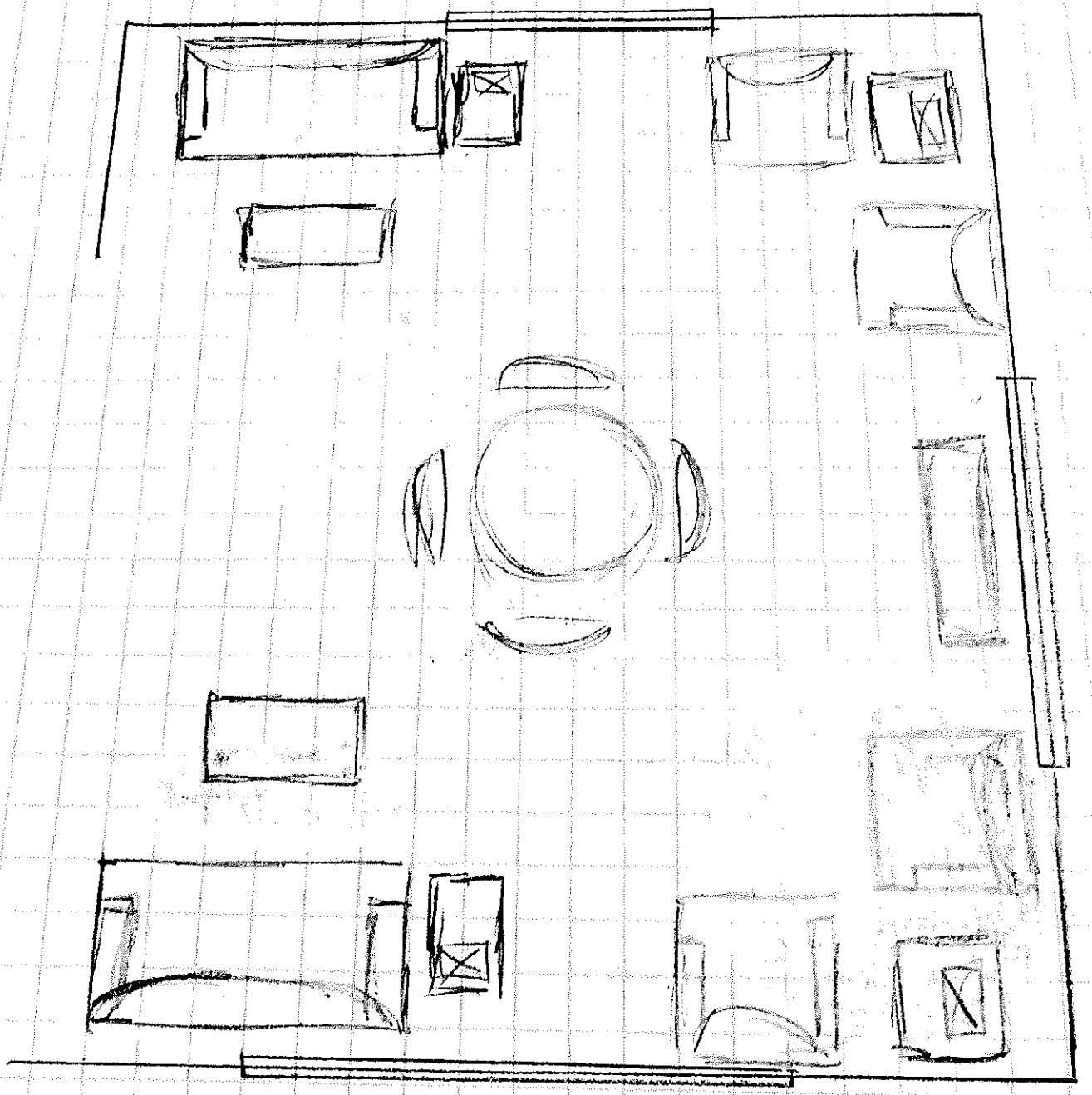

Tyler Gibbins

From: The Elements <info@elementsbyksorbe.com>
Sent: Friday, March 10, 2017 9:13 AM
To: Tyler Gibbins
Subject: Fwd: Airport
Attachments: Doc - Mar 8 2017 - 7-40 PM.pdf

So sorry Tyler!
Let me know if you have questions!
Thanks!
Mishelle

Begin forwarded message:

From: The Elements <info@elementsbyksorbe.com>
Subject: Airport
Date: March 8, 2017 at 9:56:51 PM CST
To: gibbons@stormlake.org

Hi Tyler,
Here is our wish list of items for the airport. I have attached the floor plan as well. If you have approximately $2000 to spend on furniture, we would suggest starting with the 4 chairs and 2 lamps. We will rearrange the remainder of the furniture to make the space look as good as possible. Labor charges and taxes are not included. Let us know if you have questions!
Thanks Tyler!
Mishelle

Carpet: Commercial Grade
Approximately $2000
Paint: SW 7507 Stone Lion

Furniture:
4 Chairs $399 ea
$1596
2 End tables $250 ea
$ 500
2 Sofas $1800 ea
$3600
2 Coffee tables $449 ea
$ 898
4 Lamps $250 ea
$1000
2 Side tables $150 ea

$ 300
4 Dining chairs $200 ea
$ 800
1 Bench $300
$ 300
2 Art $400 ea
$ 800
2 Pots of foliage $200 ea
$ 400
Accessories $1000
$1000
Use existing Table