

ENNIS AIRPORT

Branch: 50A APRON

A-1

Length: 0 LF Width: 0 LF Area: 112,350 SF Last Const: 1990 Family: ACAM
 From: APRON SOUTHERN PORTION To: Surface: AC

Inspections

Samples Surveyed: 5 Total Samples: 24 Last Inspection Date: 8/27/2012 **PCI: 75**

Sample # 1	Distress Description LONGITUDINAL/TRANSVERSE CRACKING LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L M L	Quantity 124 LF 30 LF 4,154 SF	Area: 4,615 SF
Sample # 5	Distress Description LONGITUDINAL/TRANSVERSE CRACKING LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L M L	Quantity 120 LF 118 LF 3,923 SF	Area: 4,615 SF
Sample # 13	Distress Description LONGITUDINAL/TRANSVERSE CRACKING LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L M L	Quantity 180 LF 68 LF 4,384 SF	Area: 4,615 SF
Sample # 17	Distress Description LONGITUDINAL/TRANSVERSE CRACKING LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L M L	Quantity 144 LF 102 LF 4,384 SF	Area: 4,615 SF
Sample # 21	Distress Description LONGITUDINAL/TRANSVERSE CRACKING LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L M L	Quantity 276 LF 17 LF 4,489 SF	Area: 4,725 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
LONGITUDINAL/TRANSVERSE CRACKING	L	4,090 LF	3.64%	11.65
LONGITUDINAL/TRANSVERSE CRACKING	M	1,623 LF	1.44%	13.34
WEATHERING	L	103,380 SF	92.02%	5.89

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

0.0 % Load 100.0 % Climate/Durability 0.0 % Other

ENNIS AIRPORT

Branch: 50A

APRON

A-2

Length: 408 LF Width: 216 LF Area: 88,128 SF Last Const: 1992 Family: ACAM
 From: APRON NORTHERN PORTION To: Surface: AC

Inspections

Samples Surveyed: 5 Total Samples: 18 Last Inspection Date: 8/27/2012 **PCI: 68**

Sample # 2	Distress Description LONGITUDINAL/TRANSVERSE CRACKING LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L M L	Quantity 650 LF 15 LF 3,475 SF	Area: 4,964 SF
Sample # 6	Distress Description BLEEDING LONGITUDINAL/TRANSVERSE CRACKING LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity N L M L	Quantity 1 SF 528 LF 25 LF 3,971 SF	Area: 4,964 SF
Sample # 8	Distress Description LONGITUDINAL/TRANSVERSE CRACKING LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L M L	Quantity 414 LF 7 LF 3,475 SF	Area: 4,964 SF
Sample # 15	Distress Description BLOCK CRACKING LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L L L	Quantity 84 SF 278 LF 2,978 SF	Area: 4,964 SF
Sample # 16	Distress Description BLOCK CRACKING LONGITUDINAL/TRANSVERSE CRACKING WEATHERING	Severity L L L	Quantity 1,156 SF 340 LF 3,971 SF	Area: 4,964 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
BLEEDING	N	4 SF	0.00%	0.00
BLOCK CRACKING	L	4,403 SF	5.00%	13.57
LONGITUDINAL/TRANSVERSE CRACKING	L	7,847 LF	8.90%	21.72
LONGITUDINAL/TRANSVERSE CRACKING	M	167 LF	0.19%	4.98
WEATHERING	L	63,451 SF	72.00%	5.54

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

0.0 % Load 100.0 % Climate/Durability 0.0 % Other

ENNIS AIRPORT

Branch: 50R

RUNWAY

R-11

Length: 6,600 LF Width: 75 LF Area: 495,000 SF Last Const: 2008 Family: ACRMU
 From: R/W 34-16 STA 0+00 To: R/W 34-16 STA 66+00 Surface: AC

Inspections

Samples Surveyed: 7 Total Samples: 104 Last Inspection Date: 8/27/2012 **PCI: 90**

Sample #	Distress Description	Severity	Quantity	Area:
10	LONGITUDINAL/TRANSVERSE CRACKING	L	36 LF	4,950 SF
	WEATHERING	L	99 SF	
25	LONGITUDINAL/TRANSVERSE CRACKING	L	43 LF	4,950 SF
	WEATHERING	L	99 SF	
40	ALLIGATOR CRACKING	L	55 SF	4,950 SF
	LONGITUDINAL/TRANSVERSE CRACKING	L	31 LF	
	WEATHERING	L	99 SF	
55	ALLIGATOR CRACKING	L	34 SF	4,950 SF
	LONGITUDINAL/TRANSVERSE CRACKING	L	4 LF	
	WEATHERING	L	99 SF	
70	WEATHERING	L	99 SF	4,950 SF
85	ALLIGATOR CRACKING	L	22 SF	4,950 SF
	WEATHERING	L	99 SF	
100	WEATHERING	L	99 SF	4,950 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
ALLIGATOR CRACKING	L	1,582 SF	2.98%	11.20
LONGITUDINAL/TRANSVERSE CRACKING	L	1,629 LF	21.43%	3.70
WEATHERING	L	9,900 SF	1.37%	0.68

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

72.0 % Load 28.0 % Climate/Durability 0.0 % Other

ENNIS AIRPORT

Branch: 50T TAXIWAY

T-1

Length: 2,755 LF Width: 35 LF Area: 96,425 SF Last Const: 1990 Family: ACRMU
 From: T/W 0+00 To: T/W 27+55 Surface: AC

Inspections

Samples Surveyed: 5 Total Samples: 19 Last Inspection Date: 8/27/2012 **PCI: 76**

Sample # 2 Area: 5,075 SF

Distress Description	Severity	Quantity
BLEEDING	N	18 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	155 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	58 LF
WEATHERING	L	4,821 SF

Sample # 6 Area: 5,075 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	43 LF
WEATHERING	L	4,568 SF

Sample # 10 Area: 5,075 SF

Distress Description	Severity	Quantity
DEPRESSION	H	1 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	404 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	21 LF
WEATHERING	L	4,568 SF

Sample # 14 Area: 5,075 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	164 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	48 LF
WEATHERING	L	4,568 SF

Sample # 18 Area: 5,075 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	98 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	122 LF
PATCHING	L	1 SF
WEATHERING	L	4,568 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
BLEEDING	N	67 SF	0.07%	0.00
DEPRESSION	H	4 SF	0.00%	12.00
LONGITUDINAL/TRANSVERSE CRACKING	L	3,283 LF	3.40%	11.07
LONGITUDINAL/TRANSVERSE CRACKING	M	946 LF	0.98%	11.14
PATCHING	L	4 SF	0.00%	2.00
WEATHERING	L	87,746 SF	91.00%	5.88

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

0.0 % Load 71.0 % Climate/Durability 29.0 % Other

ENNIS AIRPORT

Branch: 50T TAXIWAY

T-2

Length: 3,365 LF Width: 35 LF Area: 117,775 SF Last Const: 1992 Family: ACRMU
 From: T/W 27+55 To: T/W 61+20 Surface: AC

Inspections

Samples Surveyed: 5 Total Samples: 24 Last Inspection Date: 8/27/2012 **PCI: 50**

Sample # 1 Area: 5,075 SF

Distress Description	Severity	Quantity
BLOCK CRACKING	L	1,832 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	11 LF
WEATHERING	L	4,060 SF

Sample # 6 Area: 5,075 SF

Distress Description	Severity	Quantity
ALLIGATOR CRACKING	L	711 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	43 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	3 LF
PATCHING	L	1 SF
WEATHERING	L	3,045 SF

Sample # 11 Area: 5,075 SF

Distress Description	Severity	Quantity
ALLIGATOR CRACKING	L	711 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	501 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	23 LF

Sample # 16 Area: 5,075 SF

Distress Description	Severity	Quantity
BLOCK CRACKING	L	864 SF
DEPRESSION	L	1 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	440 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	13 LF

Sample # 21 Area: 5,075 SF

Distress Description	Severity	Quantity
BLOCK CRACKING	L	1,160 SF
DEPRESSION	M	800 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	211 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	6 LF
WEATHERING	L	2,538 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
ALLIGATOR CRACKING	L	6,600 SF	5.60%	37.32
BLOCK CRACKING	L	17,897 SF	15.20%	19.45
DEPRESSION	M	3,713 SF	3.15%	26.37
DEPRESSION	L	5 SF	0.00%	0.30
LONGITUDINAL/TRANSVERSE CRACKING	M	209 LF	0.18%	4.80
LONGITUDINAL/TRANSVERSE CRACKING	L	5,598 LF	4.75%	14.23
PATCHING	L	5 SF	0.00%	2.00
WEATHERING	L	44,755 SF	38.00%	4.19

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

34.0 % Load 41.0 % Climate/Durability 25.0 % Other

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FIRST YEAR LOCAL: 2013

LOCAL REPAIR COST: \$7,467

Section	Distress Description	Severity	Quantity	Work Description	Quantity	Cost	Poliv
A-1	L & T CR	M	1,623 LF	Crack Sealing - AC	1,623 LF	\$4,058	PREV.
A-2	L & T CR	M	167 LF	Crack Sealing - AC	167 LF	\$417	PREV.
T-1	DEPRESSION	H	4 SF	Patching - AC Deep	16 SF	\$626	PREV.
T-1	L & T CR	M	946 LF	Crack Sealing - AC	946 LF	\$2,366	PREV.

FIFTEEN YEAR PROJECTIONS

ESTIMATED AVERAGE ANNUAL COST: \$131,037

Plan Year: 2013		Estimated Cost: \$511,140					PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-1	Global MR + Preventive	\$4,054	\$28,088	\$0	\$0	\$32,142	73	79
A-2	Preventive	\$7,279	\$0	\$0	\$0	\$7,279	67	67
T-1	Preventive	\$2,974	\$0	\$0	\$0	\$2,974	75	75
T-2	Major Below Critical	\$0	\$0	\$468,745	\$0	\$468,745	49	100
Plan Year: 2014		Estimated Cost: \$15,946					PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-1	Preventive	\$2,911	\$0	\$0	\$0	\$2,911	76	76
A-2	Preventive	\$9,249	\$0	\$0	\$0	\$9,249	65	65
T-1	Preventive	\$3,786	\$0	\$0	\$0	\$3,786	73	73
Plan Year: 2015		Estimated Cost: \$20,033					PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-1	Preventive	\$4,177	\$0	\$0	\$0	\$4,177	74	74
A-2	Preventive	\$11,257	\$0	\$0	\$0	\$11,257	63	63
T-1	Preventive	\$4,599	\$0	\$0	\$0	\$4,599	71	71
Plan Year: 2016		Estimated Cost: \$25,770					PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-1	Preventive	\$5,440	\$0	\$0	\$0	\$5,440	71	72
A-2	Preventive	\$13,319	\$0	\$0	\$0	\$13,319	61	61
R-11	Preventive	\$1,217	\$0	\$0	\$0	\$1,217	87	87
T-1	Preventive	\$5,647	\$0	\$0	\$0	\$5,647	70	70
T-2	Preventive	\$146	\$0	\$0	\$0	\$146	89	89
Plan Year: 2017		Estimated Cost: \$33,472					PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-1	Preventive	\$7,271	\$0	\$0	\$0	\$7,271	69	69
A-2	Preventive	\$15,742	\$0	\$0	\$0	\$15,742	59	60
R-11	Preventive	\$2,419	\$0	\$0	\$0	\$2,419	84	84
T-1	Preventive	\$7,499	\$0	\$0	\$0	\$7,499	68	68
T-2	Preventive	\$542	\$0	\$0	\$0	\$542	86	86
Plan Year: 2018		Estimated Cost: \$75,495					PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-1	Global MR + Preventive	\$10,159	\$32,561	\$0	\$0	\$42,721	67	72
A-2	Preventive	\$18,849	\$0	\$0	\$0	\$18,849	58	58
R-11	Preventive	\$3,595	\$0	\$0	\$0	\$3,595	82	82
T-1	Preventive	\$9,402	\$0	\$0	\$0	\$9,402	67	67
T-2	Preventive	\$929	\$0	\$0	\$0	\$929	83	83
Plan Year: 2019		Estimated Cost: \$47,920					PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-1	Preventive	\$7,392	\$0	\$0	\$0	\$7,392	69	70
A-2	Preventive	\$22,114	\$0	\$0	\$0	\$22,114	56	56
R-11	Preventive	\$5,711	\$0	\$0	\$0	\$5,711	79	79
T-1	Preventive	\$11,398	\$0	\$0	\$0	\$11,398	65	65
T-2	Preventive	\$1,305	\$0	\$0	\$0	\$1,305	81	81
Plan Year: 2020		Estimated Cost: \$61,785					PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After
A-1	Preventive	\$10,474	\$0	\$0	\$0	\$10,474	67	68
A-2	Preventive	\$25,590	\$0	\$0	\$0	\$25,590	54	54
R-11	Preventive	\$9,832	\$0	\$0	\$0	\$9,832	77	77
T-1	Preventive	\$13,532	\$0	\$0	\$0	\$13,532	64	64
T-2	Preventive	\$2,358	\$0	\$0	\$0	\$2,358	78	79

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Plan Year: 2021		Estimated Cost: \$76,230					PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-1	Preventive	\$13,578	\$0	\$0	\$0	\$13,578	65	66	
A-2	Preventive	\$29,306	\$0	\$0	\$0	\$29,306	53	53	
R-11	Preventive	\$13,859	\$0	\$0	\$0	\$13,859	75	75	
T-1	Preventive	\$15,805	\$0	\$0	\$0	\$15,805	62	62	
T-2	Preventive	\$3,681	\$0	\$0	\$0	\$3,681	76	76	

Plan Year: 2022		Estimated Cost: \$91,148					PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-1	Preventive	\$16,740	\$0	\$0	\$0	\$16,740	64	64	
A-2	Preventive	\$33,288	\$0	\$0	\$0	\$33,288	51	51	
R-11	Preventive	\$17,846	\$0	\$0	\$0	\$17,846	73	73	
T-1	Preventive	\$18,293	\$0	\$0	\$0	\$18,293	60	61	
T-2	Preventive	\$4,980	\$0	\$0	\$0	\$4,980	74	75	

Plan Year: 2023		Estimated Cost: \$574,276					PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-1	Global MR + Preventive	\$19,976	\$37,748	\$0	\$0	\$57,724	62	66	
A-2	Major Below Critical	\$0	\$0	\$466,689	\$0	\$466,689	49	100	
R-11	Preventive	\$21,806	\$0	\$0	\$0	\$21,806	72	72	
T-1	Preventive	\$21,791	\$0	\$0	\$0	\$21,791	59	59	
T-2	Preventive	\$6,267	\$0	\$0	\$0	\$6,267	73	73	

Plan Year: 2024		Estimated Cost: \$77,129					PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-1	Preventive	\$17,433	\$0	\$0	\$0	\$17,433	64	64	
R-11	Preventive	\$26,129	\$0	\$0	\$0	\$26,129	70	70	
T-1	Preventive	\$26,008	\$0	\$0	\$0	\$26,008	57	57	
T-2	Preventive	\$7,558	\$0	\$0	\$0	\$7,558	71	71	

Plan Year: 2025		Estimated Cost: \$96,221					PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-1	Preventive	\$20,871	\$0	\$0	\$0	\$20,871	62	62	
R-11	Preventive	\$35,090	\$0	\$0	\$0	\$35,090	68	68	
T-1	Preventive	\$30,706	\$0	\$0	\$0	\$30,706	55	55	
T-2	Preventive	\$9,554	\$0	\$0	\$0	\$9,554	69	69	

Plan Year: 2026		Estimated Cost: \$117,472					PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-1	Preventive	\$24,402	\$0	\$0	\$0	\$24,402	60	60	
A-2	Preventive	\$273	\$0	\$0	\$0	\$273	88	88	
R-11	Preventive	\$44,348	\$0	\$0	\$0	\$44,348	67	67	
T-1	Preventive	\$35,960	\$0	\$0	\$0	\$35,960	53	53	
T-2	Preventive	\$12,488	\$0	\$0	\$0	\$12,488	68	68	

Plan Year: 2027		Estimated Cost: \$141,525					PCI		
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-1	Preventive	\$29,365	\$0	\$0	\$0	\$29,365	58	59	
A-2	Preventive	\$717	\$0	\$0	\$0	\$717	85	85	
R-11	Preventive	\$54,078	\$0	\$0	\$0	\$54,078	65	65	
T-1	Preventive	\$41,830	\$0	\$0	\$0	\$41,830	51	51	
T-2	Preventive	\$15,534	\$0	\$0	\$0	\$15,534	66	66	

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A-1, Surface detail with crack



A-1, Overview



A-2, Surface detail with crack



A-2, Overview

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R-11, Overview



R-11, Surface detail with cracking



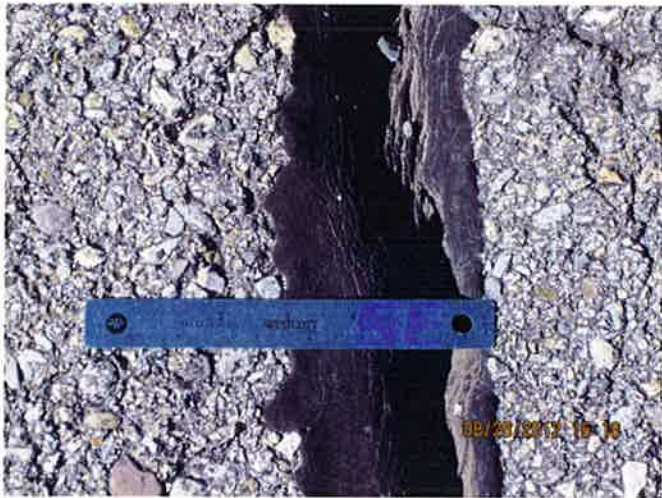
R-11, Surface detail with weathering and crack



T-1, Overview

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T-1, Surface detail with crack



T-1, Surface detail with patch



T-2, Hangar area surface detail with cracking



T-2, Overview hangar area

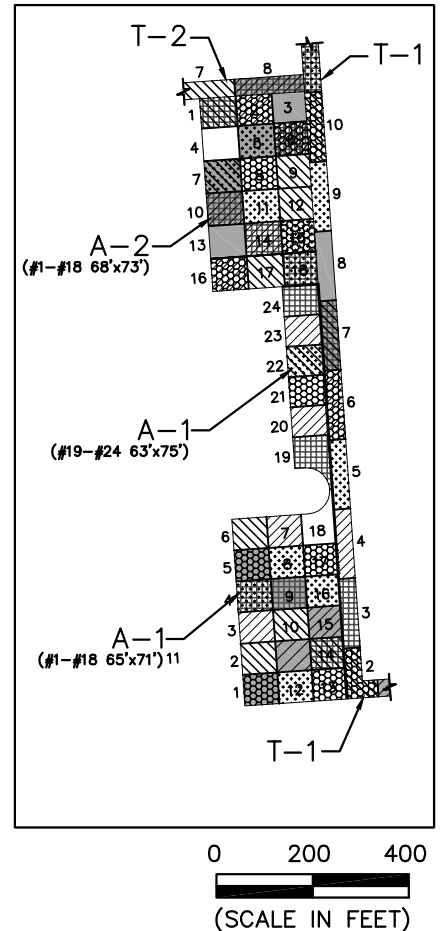
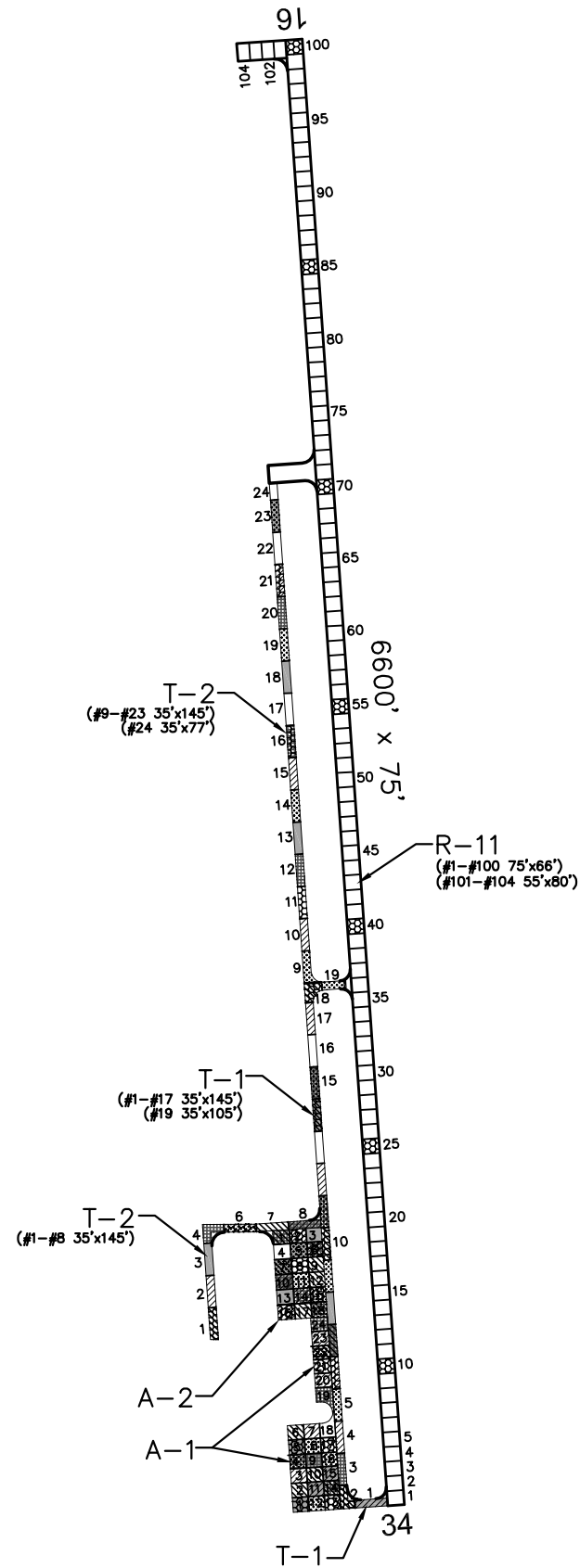
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T-2, Overview with cracks and depression

ENNIS



PAVEMENT STRENGTH SURVEY/PAVEMENT CONDITION SURVEY

PAVE. IDENT.	SOIL CLASS	SUB GRADE CLASS	SUBBASE COURSE	BASE COURSE	SURFACE COURSE	OVERLAY	PAVEMENT STRENGTH			REMARKS
							MAX. GROSS LOAD (LBS)			
							SINGLE	DUAL	DUAL TAN.	
RUNWAYS										
R-11	CBR=20		P-152	4"P-208/3"P-207	3" P-401		12,500	18,000		◁
TAXIWAYS										
T-1	CBR=4			8" P-208	3" P-401	P-609	12,500			◁◁◁
T-2			P-152	8" P-208	3" P-401	P-609	12,500			◁◁◁
APRONS										
A-1	CBR=4			8" P-208	3" P-401	P-609	12,500			◁◁◁
A-2			P-152	8" P-208	3" P-401	P-609	12,500			◁◁◁

REMARKS:

- ◁ AIP-02, 1990, ALL NEW CONSTRUCTION.
- ◁ AIP-03, 1992, CONSTRUCT PARALLEL TAXIWAY EXTENSION, APRON AND ACCESS TAXIWAY.
- ◁ AIP-05, 2001, CRACK SEAL, FOG SEAL, AND REMARK ALL PAVEMENTS.
- ◁ AIP-010, 2008, REHABILITATE (RECONSTRUCT) RUNWAY; CONSTRUCT RUNWAY EXTENSION AND HAMMERHEAD; CRACK SEAL, FOG SEAL, COAL TAR, AND REMARK ALL REMAINING PAVEMENTS.

LEGEND 	DATE OF PAVEMENT STRENGTH SURVEY:	MAR. 12, 1990	MONTANA AVIATION SYSTEM PLAN 2012 UPDATE - PAVEMENT CONDITION INDEXES	
	EVALUATED BY:	S. DALTON	ENNIS - BIG SKY AIRPORT	
	DATE OF MOST RECENT PAVEMENT CONDITION SURVEY:	AUG. 27, 2012		ENNIS MONTANA DATE: DEC. 2012
	EVALUATED BY:	S. BROWN		

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