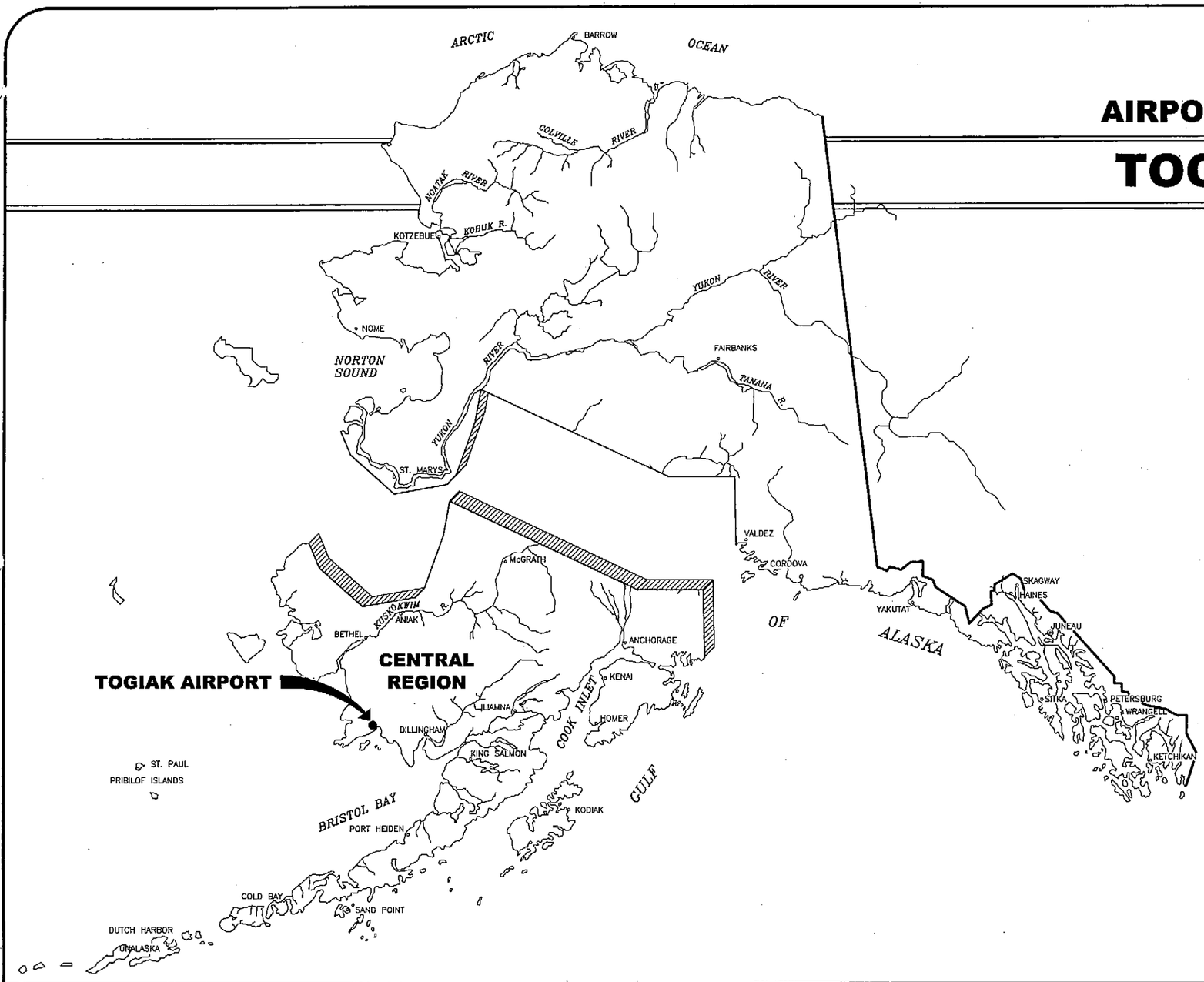
AIRPORT LAYOUT PLAN FOR

TOGIAK AIRPORT

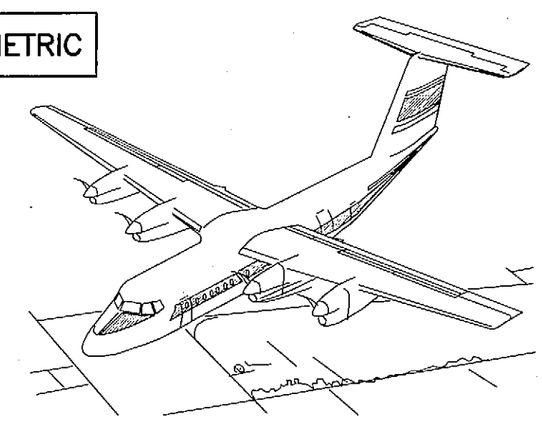
2001



DRAWING INDEX

1 – COVER SHEET AND INDEX
2 – VICINITY MAP AND DATA TABLES
3 – AIRPORT PLAN
4 – RUNWAY PROFILES
5 – TERMINAL AREA PLAN
6 – RUNWAY 03/21 APPROACH SURFACES PLAN AND PROFILE
7 – RUNWAY 10/28 APPROACH SURFACES PLAN AND PROFILE
8 – F.A.R. PART 77 SURFACES
9 – PROPERTY PLAN
10 – NARRATIVE REPORT

METRIC



SPONSORED BY
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

CONCUR Richard C. Keith **DATE** 6/21/01
DAVID R. EBERLE **REGIONAL DIRECTOR**

APPROVED Steven R. Horn **DATE** 6/21/01
STEVEN R. HORN, P.E. **REGIONAL PRECONSTRUCTION ENGINEER**

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED 8/23/01
By: J. M. Scott DATE: 8/23/01
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER
01-AAL-063-NRA

TOGIAK AIRPORT

AIRPORT LAYOUT PLAN

SHEET 1 OF 10

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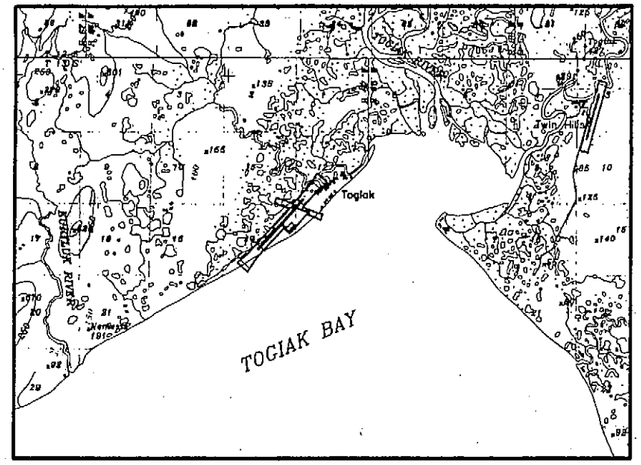
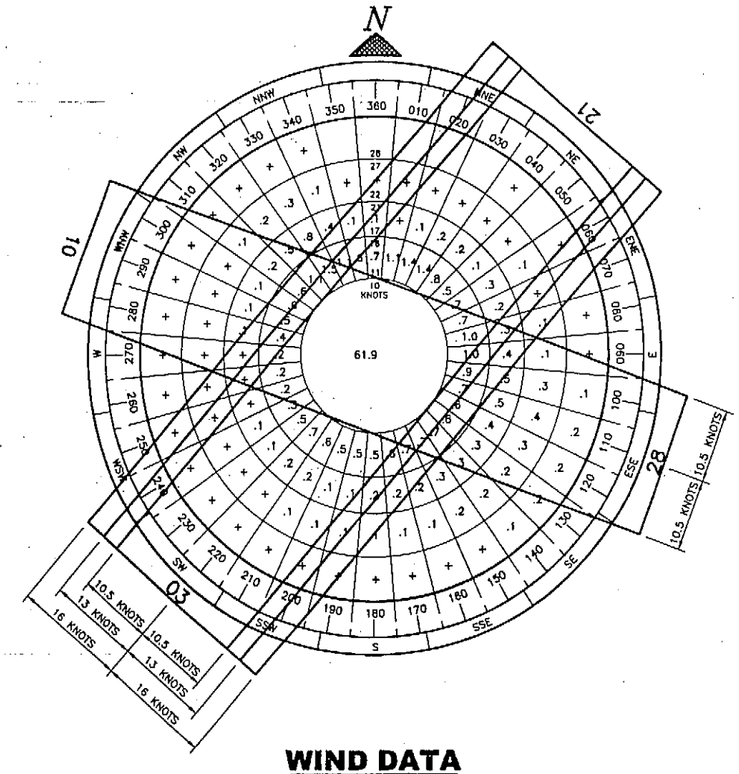


VICINITY MAP

1:63,360
T 13 S, R 67 W, SEC. 11, 12, 13, & 14
SEWARD MERIDIAN
U.S.G.S. GOODNEWS (A-4), ALASKA 1954



WIND DATA

WIND COVERAGE:

SPEED	R/W 03/21	R/W 10/28	COMBINED
10.5 KNOTS	78.8%	81.9%	93.7%
13 KNOTS	85.3%		85.3%
16 KNOTS	91.7%		91.7%

SOURCE: WIND STUDY AT TOGIAK AIRPORT, 99,614 OBSERVATIONS BY ALASKA CLIMATE CENTER, ENRI, UAA

PERIOD: 1 JANUARY 1992 THROUGH 30 JUNE 1996

CONVERSION FACTORS FROM SI UNITS

TO CONVERT FROM	TO	MULTIPLY BY
STATION (1000 METERS)	FEET	3280.84
KILOMETER (km)	MILE	0.6214
METER (m)	MILE	0.00062137
METER (m)	FOOT	3.28084
MILLIMETER (mm)	FOOT	0.00328084
MILLIMETER (mm)	INCH	0.3937008
SQUARE METER (m^2)	SQUARE FOOT	10.76391042
SQUARE METER (m^2)	SQUARE YARD	1.19599
HECTARE	ACRE	2.4711
CUBIC METER (m^3)	CUBIC FOOT	35.3146667
CUBIC METER (m^3)	CUBIC YARD	1.3079506
CUBIC METER (m^3)	GALLON (US LIQUID)	264.17204
CUBIC METER (m^3)	M. GAL.	0.26417204
KILOGRAM (kg)	POUND-MASS (LBM)	2.2046225
MEGAGRAM (Mg)	TON (SHORT)	1.10231
NEWTON (n)	POUND-FORCE (LBF)	0.2248089
LUX (lx)	FOOTCANDLE	0.092903
DEGREE CELSIUS (°C)	DEGREE FAHRENHEIT (°F)	T°F=(1.8 x T°C)+32

NON-STANDARD CONDITIONS

ITEM	EXISTING	STANDARD	FUTURE
RUNWAY WIDTH 03/21	30m	23m	23m
TAXIWAY WIDTH	21m	12m	12m

DATA TABLES

RUNWAY DATA

ITEM			RUNWAY 03/21 EXISTING	RUNWAY 03/21 FUTURE	RUNWAY 10/28 EXISTING	RUNWAY 10/28 FUTURE
RUNWAY SURFACE			GRAVEL	ASPHALT	GRAVEL	GRAVEL
PAVEMENT STRENGTH	SINGLE WHEEL (S)	kg	N/A	20 500	N/A	N/A
		[lb.]	N/A	[45,000]	N/A	N/A
	TANDEM WHEEL (T)	kg	N/A	45 500	N/A	N/A
		[lb.]	N/A	[100,000]	N/A	N/A
	SINGLE-TANDEM (ST)	kg	N/A	47 200	N/A	N/A
		[lb.]	N/A	[155,000]	N/A	N/A
APPROACH VISIBILTY MINIMA			1600m - V [1 MILE - V]	1600m - V [1 MILE - V]	V - V [V - V]	V - V [V - V]
RUNWAY LIGHTING			M.I.	M.I.	NONE	NONE
RUNWAY MARKING			NONE	NP	NONE	NONE
VISUAL APPROACH AIDS			VASI (20)	PAPI	NONE	NONE
AIRCRAFT APPROACH CATEGORY			B	B	A	A
AIRCRAFT DESIGN GROUP			II	II	I	I
RUNWAY DIMENSION			30m x 1341m [98'x4400']	23m x 1341m [75'x4400']	15m x 365m [49'x1198']	18m x 299m [59'x981']
RUNWAY SAFETY AREA DIMENSION			45m x 1524m [148'x5000']	90m x 1524m [295'x5000']	15m x 390m [49'x1280']	36m x 443m [118'x1453']
RUNWAY OBJECT FREE AREA DIMENSION			150m x 1524m [492'x5000']	150m x 1524m [492'x5000']	75m x 390m [246'x1280']	75m x 443m [246'x1453']
RUNWAY OBSTACLE FREE ZONE DIMENSION			120m x 1461m [394'x4793']	120m x 1461m [394'x4793']	75m x 390m [246'x1280']	75m x 419m [246'x1375']
GEODETIC POSITIONS (N.A.D. 83)						
THRESHOLD 2		LAT.		59°02'55.11"N		
		LONG.		160°24'22.26"W		
THRESHOLD 20		LAT.		59°03'26.89"N		
		LONG.		160°23'25.07"W		
THRESHOLD 9		LAT.				59°03'24.04"N
		LONG.				160°23'36.42"W
THRESHOLD 27		LAT.				59°03'20.47"N
		LONG.				160°23'18.97"W

AIRPORT DATA

ITEM		EXISTING	FUTURE
AIRPORT ELEVATION (M.S.L.)		6.32m [20.73']	6.32m [20.73']
AIRPORT REFERENCE POINT (A.R.P.)	LAT.	59°03'13.05"N	
	LONG.	160°23'48.93"W	
TAXIWAY LIGHTING		M.I.	M.I.
RAMP LIGHTING		FLOOD	FLOOD
MEAN MAX. TEMPERATURE, HOTTEST MONTH (JULY)		17°C (63°F)	17°C (63°F)
MAGNETIC DECLINATION, YEAR		16°21.4'E,2000	16°21.4'E,2000
AIRPORT REFERENCE CODE		B-II	B-II
AIRPORT AND TERMINAL NAVIGATION AIDS		NONE	NONE
AIRPORT NAVIGATION AIDS		ROT. BEACON NDB/DME	ROT. BEACON NDB/DME

LEGEND

ITEM	EXISTING	FUTURE
PROPERTY LINE		
BUILDING RESTRICTION LINE	BRL	BRL
AVIGATION & HAZARD EASEMENT		
AIRPORT REFERENCE POINT (A.R.P.)		
WIND CONE AND SEGMENTED CIRCLE		
CONTOURS	100	100
ROADWAYS		
BUILDINGS		
ROTATING BEACON		
SHORELINE		
ANTENNA		
VASI		
BLUFF		
FENCE	X X X	X X X
MALSF		
REIL		

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DATE: 05/14/01 1=1 dave0

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL
BY: FAA AIRPORTS DIVISION ALASKAN REGION, AAL-600
DATE: 8/22/01
FAA AIRSPACE REVIEW NUMBER: 01-AAL-083-NRA

BY	DATE	REVISIONS
	5-9-02	CORRECTED LONGITUDES

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION
APPROVED: STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: JOHN G. WAHL, P.E. — PROJECT MANAGER

DATE 6/21/01
DESIGN VLC
DRAWN
CHECKED

TOGIAK AIRPORT

AIRPORT LAYOUT PLAN

VICINITY MAP AND DATA TABLES

SHEET 2 OF 10

EXISTING 20:1 APPROACH SURFACE

RPZ 75 x 150 x 300 FUTURE

DECLIN=14°06' JUNE, 2001

1+085.5 END RSA FUTURE EL. 5.00

14+013.5 END RUNWAY FUTURE EL. 5.71

1+001.846 END RSA EXISTING EL. 6.00

0+998.799 END RWY EXISTING EL. 6.02

EXISTING 150x1524 OFA

FUTURE PAPI

EXISTING 30 x 1341.06 RUNWAY ON 45 x 1524 RUNWAY SAFETY AREA

FUTURE PAVED 23w1341 RUNWAY

EXISTING 75 x 150 x 300 RUNWAY PROTECTION ZONE

SUBDIVISION ACCESS ROAD

EXISTING 34:1 APPROACH SURFACE

STA. 10+000.00 BEGIN RUNWAY SAFETY AREA EL. 6.32

STA. 10+031.44 BEGIN RUNWAY EL. 6.32

R/W 3/21 STA. 10+784.58 R/W 6.32 EL. 6.32 20+000

STA. 11+432.50 END RUNWAY EL. 6.32

STA. 11+524.00 END RUNWAY SAFETY AREA EL. 6.32

N 59°03'24.04" W 160°23'36.42"

N 59°03'13.05" W 160°23'48.93"

N 41°25'37" E

EXISTING 150 x 210 x 300 RUNWAY PROTECTION ZONE

AIRPORT REFERENCE POINT (A.R.P.) STA. 10+859.934, 12.183 RT.

N 59°03'26.89" W 160°23'25.07"

RUNWAY VISIBILITY ZONE

N 68°49'45" W

EXISTING 4 BOX VASI FUTURE PAPI

EXISTING 34:1 APPROACH SURFACE

RPZ 150 x 210 x 300

N 59°02'55.11" W 160°24'22.26"

N 59°03'20.47" W 160°23'18.97"

FIRST AVE.

EXISTING 15 x 365 RUNWAY ON 15 TO 30 x 390 RUNWAY SAFETY AREA FUTURE 18 x 299 RUNWAY ON 36 x 443.259 RUNWAY SAFETY AREA

TOGIAK BAY

04+714.241 BEGIN RUNWAY FUTURE EL. 5.91

04+842.241 BEGIN RSA FUTURE EL. 5.91

04+657.305 BEGIN RUNWAY EXISTING EL. 5.91

STA. 04+611.827 BEGIN RSA EXISTING EL. 6.10

NO OFZ PENETRATIONS

NO THRESHOLD SITING SURFACE PENETRATIONS

PROPOSED 75 x 150 x 300 RUNWAY PROTECTION ZONE

EXISTING 75 x 150 x 300 RUNWAY PROTECTION ZONE

EXISTING 20:1 APPROACH SURFACE

50 0 50 100

DIMENSIONS IN METERS

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DATE: 05/14/01 1=1 v=plan daveb/vlc

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED 8/23/01

By: [signature] DATE: 8/24/01
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 01-AAL-063-NRA

BY	DATE	REVISIONS
	8-9-02	CORRECTED LONGITUDES

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: [signature] STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: [signature] JOHN G. WAHL, P.E. — PROJECT MANAGER

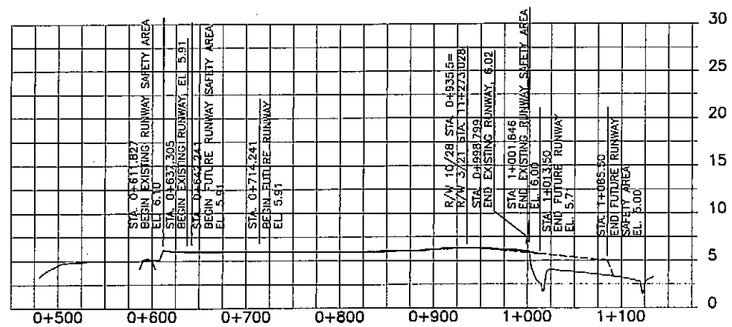
DATE 6/1/01
DESIGN VLC
DRAWN [illegible]
CHECKED [illegible]

TOGIAK AIRPORT

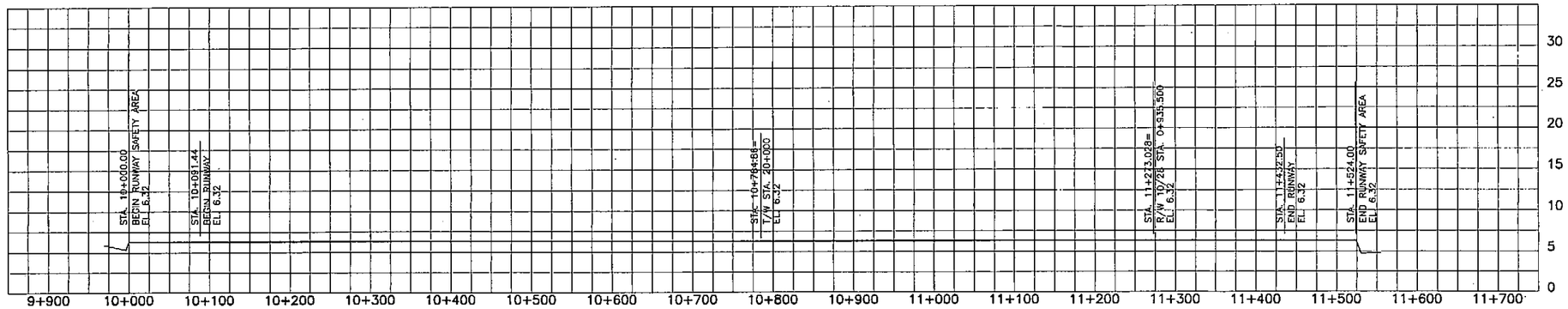
AIRPORT LAYOUT PLAN

AIRPORT PLAN

SHEET 3 OF 10



RUNWAY 10/28



RUNWAY 03/21

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AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL 8/23/01
SUBJECT TO ALP APPROVAL LETTER DATED

By: DATE: 8/23/01
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 01-AAL-063-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: JOHN C. WAHL, P.E. — PROJECT MANAGER

DATE 6/21/01
DESIGN VLC
DRAWN
CHECKED

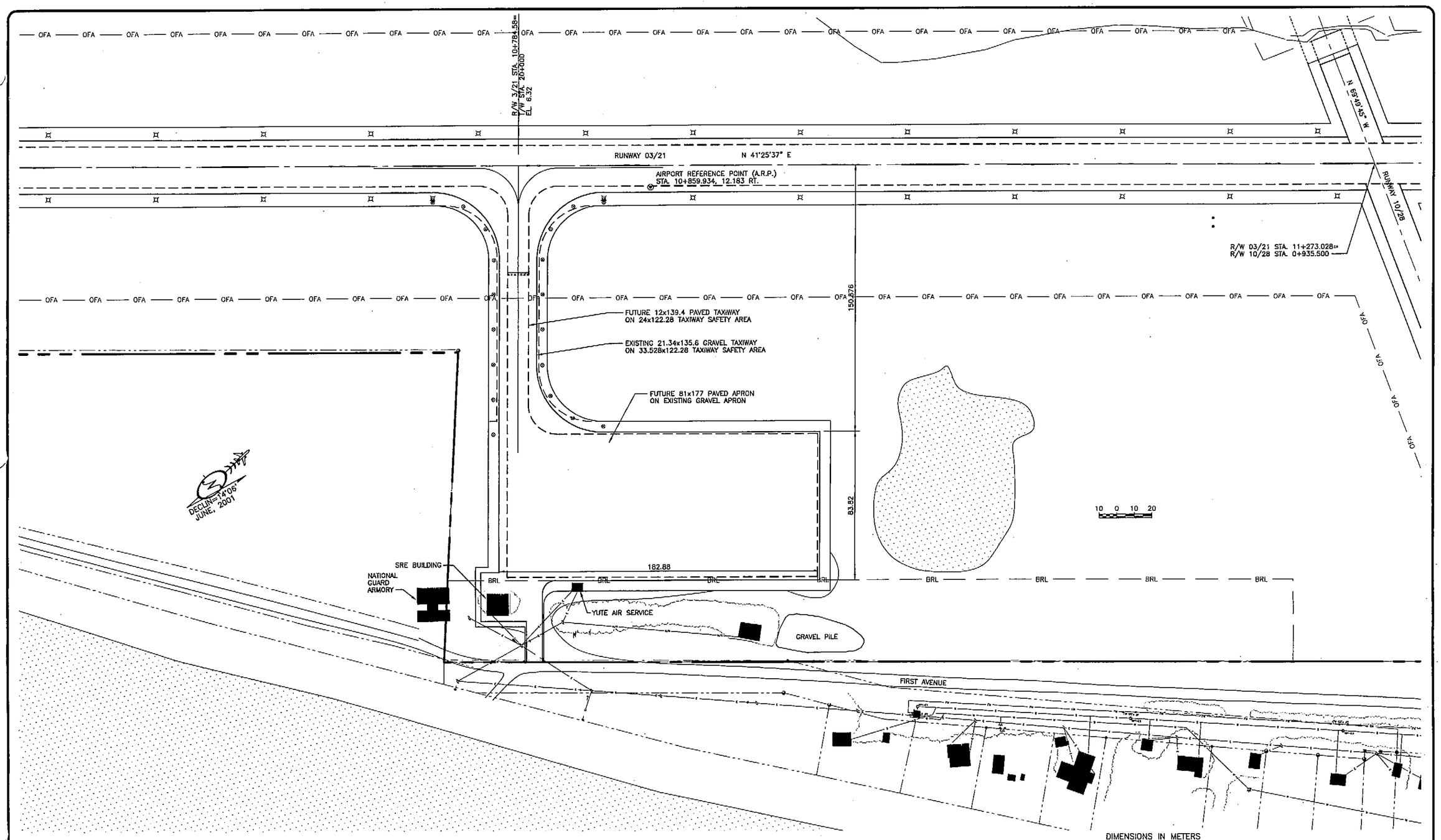
TOGIAK AIRPORT

AIRPORT LAYOUT PLAN

RUNWAY PROFILES

SHEET 4 OF 10

Jun 07 08:26:57 2001



AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL
SUBJECT TO ALP APPROVAL LETTER DATED 6/22/01

By: _____ DATE: 6/22/01
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 01-AAL-063-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: _____
STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: _____
JOHN G. WAHL, P.E. — PROJECT MANAGER

DATE 6/4/01
DESIGN VLC
DRAWN
CHECKED JGW

TOGIAK AIRPORT

AIRPORT LAYOUT PLAN

TERMINAL AREA PLAN

SHEET 5 OF 10

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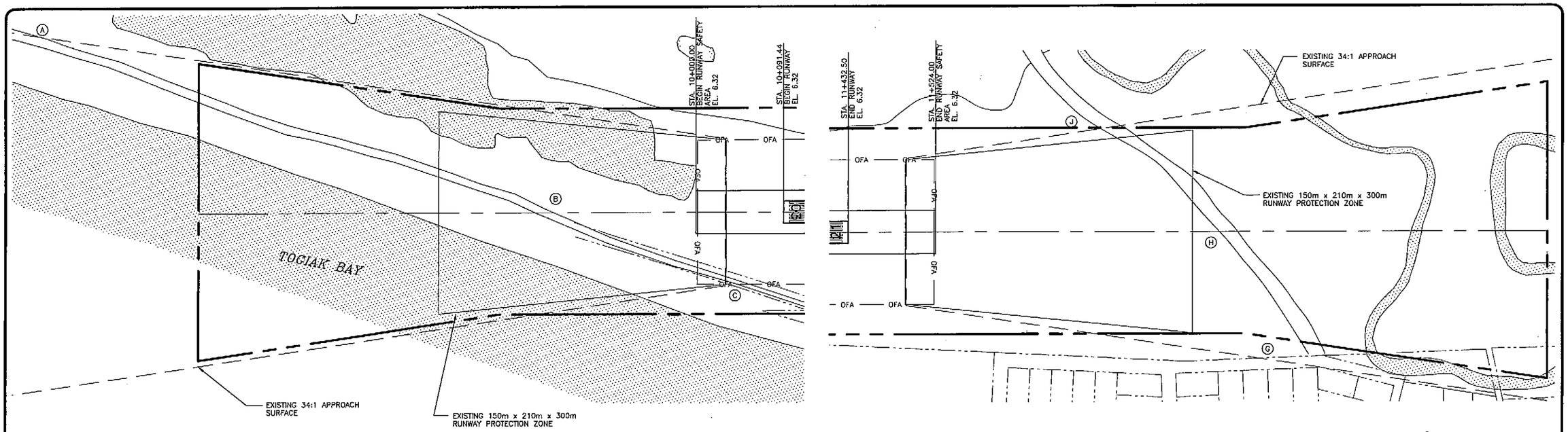
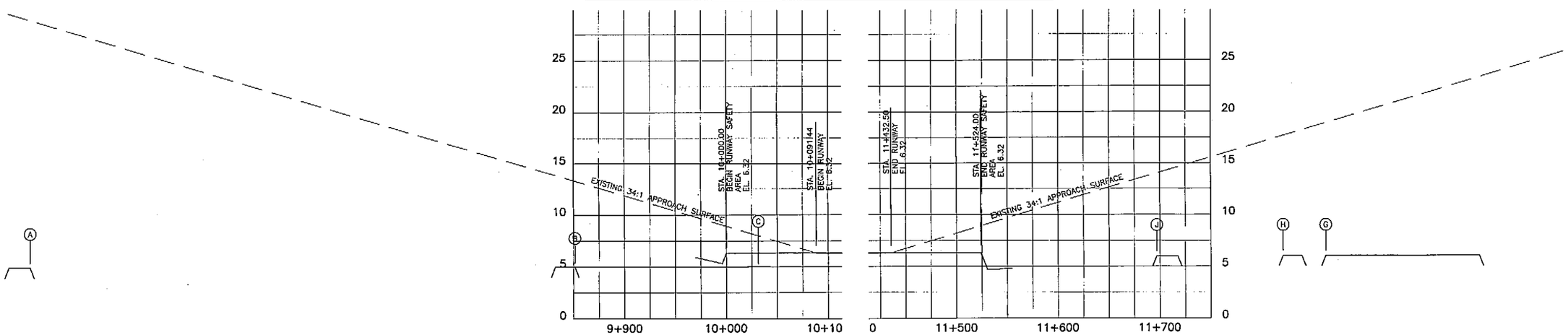


TRAVERSE WAYS TABLE

NUMBER	TRAVERSE WAY	RUNWAY STATION	RUNWAY OFFSET	TRAVERSE WAY ELEVATION	OBJECT HEIGHT	TRAVERSE WAY CLEARANCE
A	TRAIL	9+315.168	183.496 LT.	5.0	3.0	24.2
B	TRAIL	9+851.396	0.0 LT.	5.0	3.0	8.4
C	TRAIL	10+031.44	87.108 RT.	5.0	3.0	3.1
G	ROAD	11+696.922	106.414 LT.	6.0	4.6	13.0
H	ROAD	11+820.926	0.0 LT.	6.0	4.6	11.7
J	ROAD	11+862.779	131.588 RT.	6.0	4.6	8.1



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AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL
SUBJECT TO ALP APPROVAL LETTER DATED 7/23/01
By: [signature] DATE: 07/23/01
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 01-AAL-063-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: [signature] STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: [signature] JOHN C. WAHL, P.E. — PROJECT MANAGER

DATE 6/21/01
DESIGN VLC
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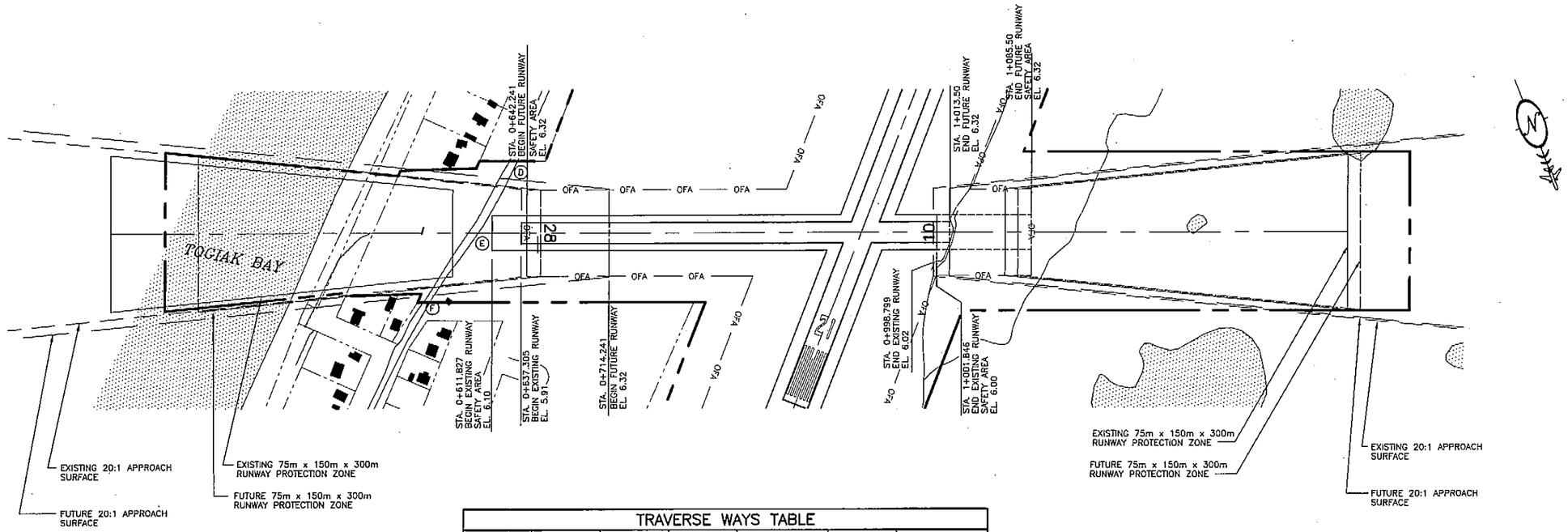
TOGIAK AIRPORT

AIRPORT LAYOUT PLAN
RUNWAY 03/21 APPROACH SURFACES
PLAN AND PROFILE

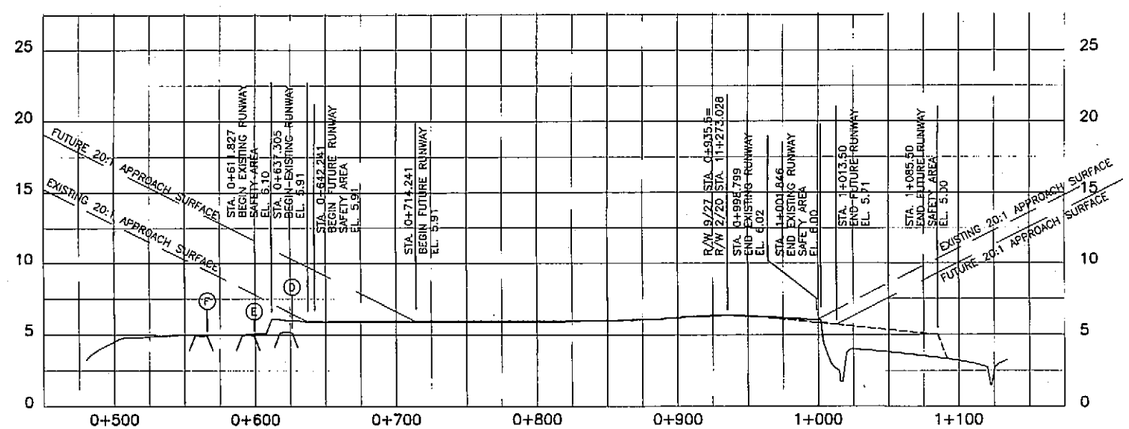
SHEET 6 OF 10

Thu Jun 07 08:28:01 2001



TRAVERSE WAYS TABLE

NUMBER	TRAVERSE WAY	RUNWAY STATION	RUNWAY OFFSET	TRAVERSE WAY ELEVATION	OBJECT HEIGHT	TRAVERSE WAY CLEARANCE
D	FIRST AVE.	0+623.8	47.1 LT.	5.2	4.6	5.2
E	FIRST AVE.	0+599.2	0.0 LT.	5.0	4.6	6.7
F	FIRST AVE.	0+569.1	46.0 RT.	5.0	4.6	8.2



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AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED 8/23/01

By: [signature] DATE: 8/23/01
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-600

FAA AIRSPACE REVIEW NUMBER: 01-AAL-063-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: [signature] STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: [signature] JOHN G. WAHL, P.E. — PROJECT MANAGER

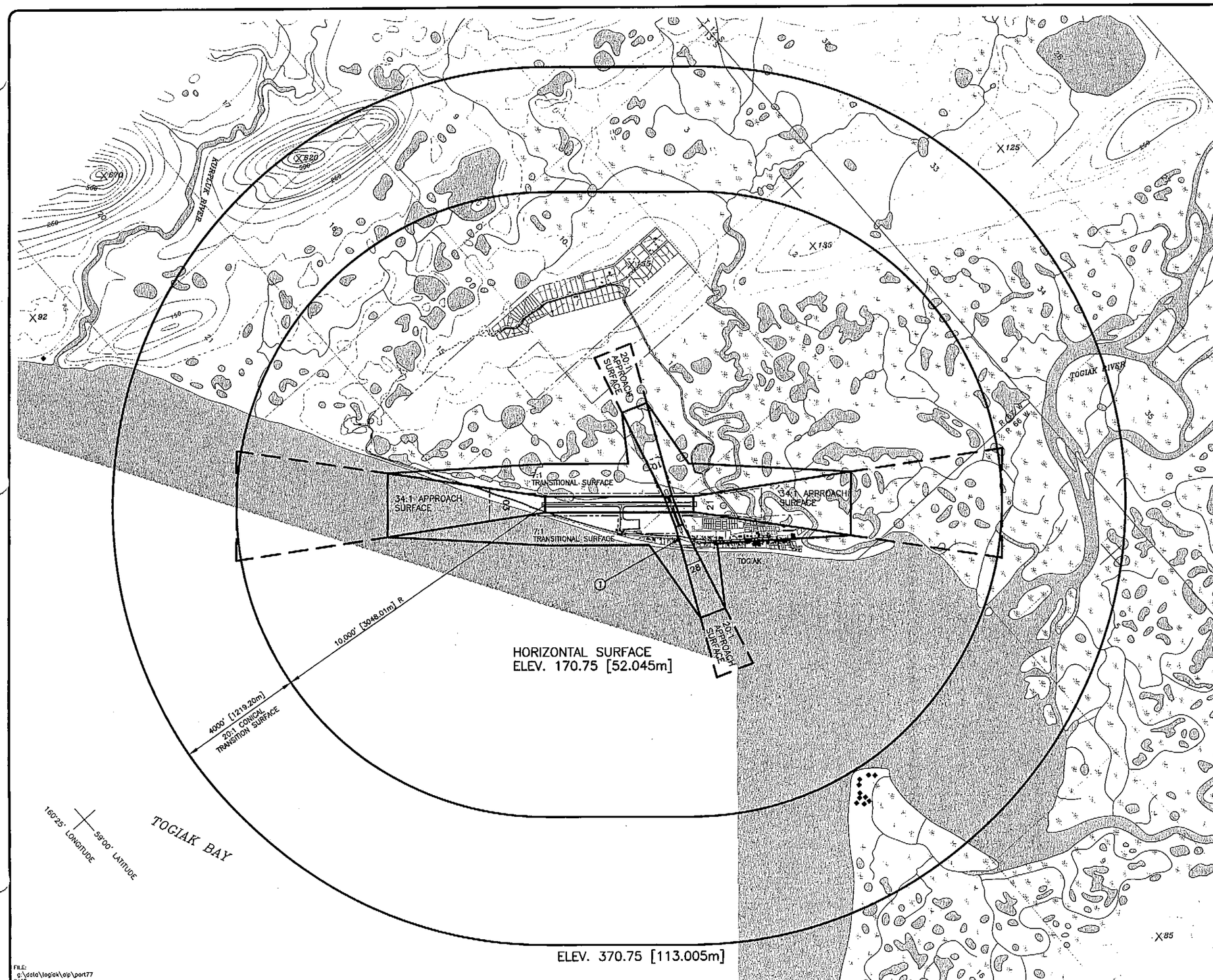
DATE 6/21/01
DESIGN VLC
DRAWN LD
CHECKED KW

TOGIAK AIRPORT

AIRPORT LAYOUT PLAN
RUNWAY 10/28 APPROACH SURFACES
PLAN AND PROFILE

SHEET 7 OF 10

Thu Jun 07 08:26:27 2001



FILE:
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DATE:
05/14/01 1=1 daveb

SCALE IN FEET: 2000' 1000' 0 1000' 2000' 3000' 4000'

SCALE IN METERS: 400m 0 400m 800m

LEGEND

WATER SURFACE

X Feet [Meters] SPOT ELEVATIONS

NOTES

1. AIRPORT ELEVATION IS 20.75' [6.32m].
2. TOPOGRAPHY IS BASED ON GOODNEWS (A-4), ALASKA DATED 1954 WITH AIRPORT BASED ON 10/85 AS-BUILT.

OBSTRUCTION DATA TABLE

NUMBER	PENETRATION DISTANCE FEET [METERS]	DESCRIPTION	DISPOSITION
1	0-11.5 [0-3.5]	1st AVE.	SHIFT RUNWAY

FAA AIRSPACE REVIEW NUMBER:
01-AAL-063-NRA

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL

By: [signature]
FAA, AIRPORTS DIVISION
ALASKAN REGION, AAL-600

DATE: 6/23/01

BY	DATE	REVISIONS

DATE 6/1/01
DESIGN [signature]
DRAWN [signature]
CHECKED [signature]

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

DESIGN SECTION CHIEF

APPROVED: [signature]
STEPHEN N. RYAN, P.E.
APPROVED: [signature]
JOHN G. WALL, P.E.
PROJECT MANAGER

TOGIAK AIRPORT

AIRPORT LAYOUT PLAN

F.A.R. PART 77

SHEET 8 OF 10

LEGEND

- A.D.A. BRASS MONUMENT
- B.L.M. BRASS CAPPED IRON POST

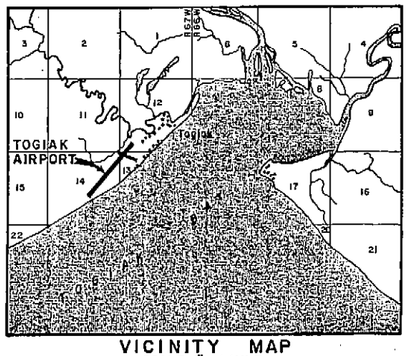
NOTE:

1. ALL BEARINGS, DISTANCES & AREAS ARE SUBJECT TO VERIFICATION BY BLM FIELD SURVEY PURSUANT TO ANCSA AS SET FORTH IN 43 CFR 2650.5-4(b).
2. ADMINISTRATION OF BLM AIRPORT LEASE #AA660 TRANSFERRED TO TOGIAK NATIVES LIMITED, THRU U.S.F&W JULY 7, 1982. LEASE EXPIRES APRIL 12, 1992. SEE PROPERTY PLAN DATED 6/4/70. REVISED THRU 6/7/79 FOR LEASE AREA.
3. D.O.T. & P.F. EXECUTED A RELEASE OF INTEREST IN LEASE ON OCTOBER 9, 1984, RELINQUISHING THE STATES INTEREST IN 20 YEAR AIRPORT LEASE ISSUED BY B.L.M.

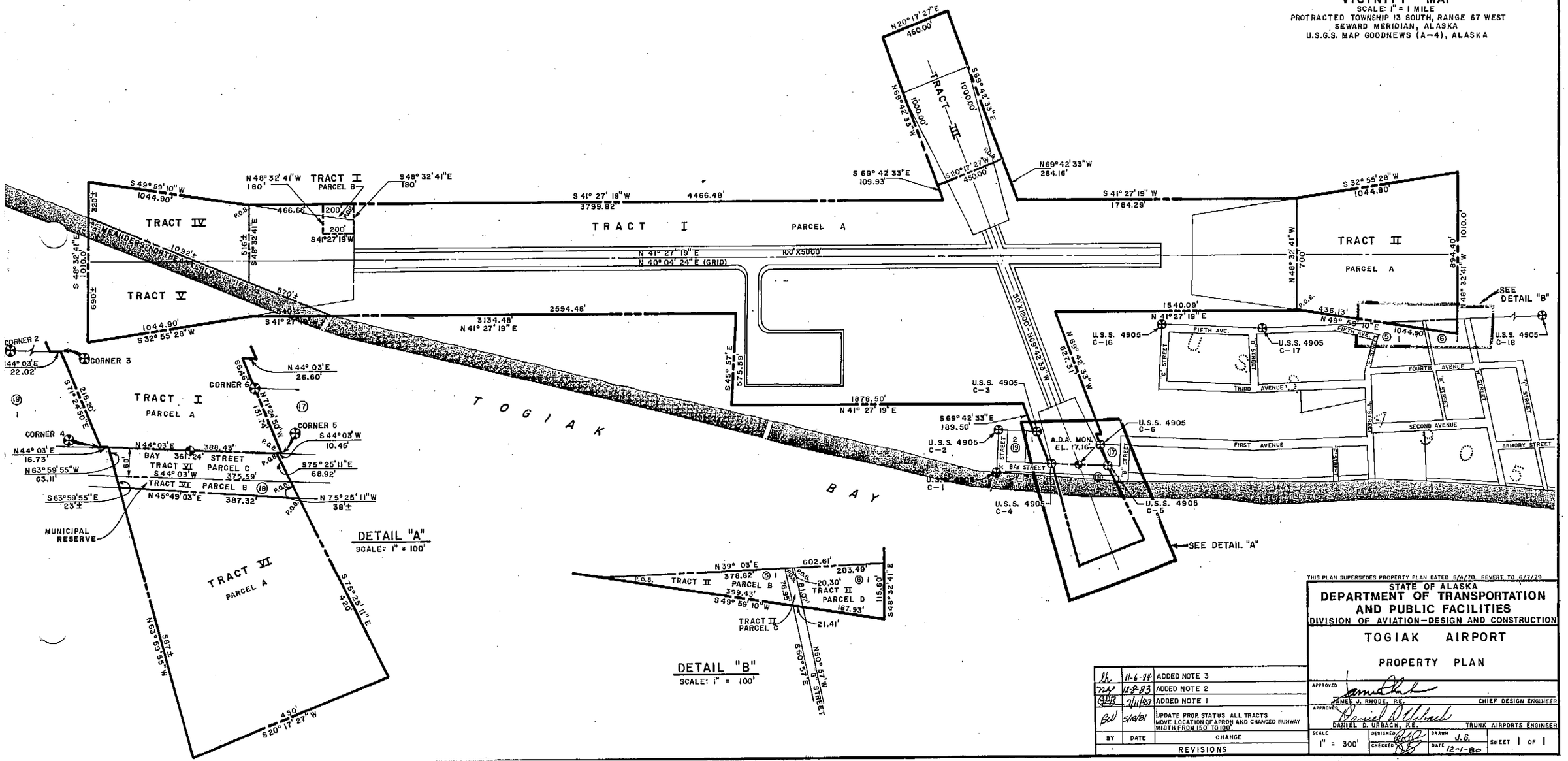
PROPERTY STATUS

TRACT	PARCEL	A.D.A. No.	AREA ACRES	INTERESTS	DATE ACQUIRED
*I	A	11398	140.682	FEE TITLE CITY OF TOGIAK	3-24-81
	B	11399	.826	AVIGATION & HAZARD EASM'T. " " "	4-9-81
*II	A	11400	19.484	" " " " " " "	4-9-81
	B	11400	.329	" " " " " " "	4-9-81
	C	11400	.036	" " " " " " "	4-9-81
	D	11400	.433	" " " " " " "	4-9-81
*III		11401	10.331	" " " " " " "	4-9-81
*IV		11402	9.923	" " " " " " "	4-9-81
V		11403	11.500	" " " " DEPT. OF NAT. RESOUR.	4-20-81
VI	A	11404	4.614	" " " " " " " "	4-20-81
*	B	11405	.239	" " " " CITY OF TOGIAK	4-9-81
*	C	11405	.507	" " " " CITY OF TOGIAK	4-9-81

* SEE NOTE 1



VICINITY MAP
SCALE: 1" = 1 MILE
PROTRACTED TOWNSHIP 13 SOUTH, RANGE 67 WEST
SEWARD MERIDIAN, ALASKA
U.S.G.S. MAP GOODNEWS (A-4), ALASKA



THIS PLAN SUPERSEDES PROPERTY PLAN DATED 6/4/70. REVERT TO 6/7/79

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
DIVISION OF AVIATION-DESIGN AND CONSTRUCTION

TOGIAK AIRPORT

PROPERTY PLAN

BY	DATE	CHANGE
dh	11-6-84	ADDED NOTE 3
TAP	11-8-83	ADDED NOTE 2
GDB	7/11/83	ADDED NOTE 1
BW	5/14/81	UPDATE PROP. STATUS ALL TRACTS MOVE LOCATION OF APRON AND CHANGED RUNWAY WIDTH FROM 150' TO 100'.

REVISIONS

APPROVED: JAMES J. RHODE, P.E. — CHIEF DESIGN ENGINEER
APPROVED: DANIEL D. URBACH, P.E. — TRUNK AIRPORTS ENGINEER

SCALE	DESIGNED	DRAWN	SHEET
1" = 300'	CHECKED	J.S. DATE 12-1-80	1 OF 1

I. PURPOSE

THIS NARRATIVE REPORT IS INCLUDED WITH THE AIRPORT LAYOUT PLAN ACCORDING TO FEDERAL AVIATION ADMINISTRATION (FAA) AIRPORT DESIGN ADVISORY CIRCULAR 150/5300-13, CHANGE 6. DIMENSIONS FOR FUTURE CONSTRUCTION ITEMS CONFORM TO THE STANDARDS SET FORTH IN THAT PUBLICATION. THIS REPORT DESCRIBES THE DESIGN RATIONALE FOR THE TOGIAK AIRPORT AND FOR POTENTIAL GROWTH OF THIS FACILITY.

THIS AIRPORT LAYOUT PLAN (ALP) REPLACES ONE THAT WAS APPROVED BY THE FAA ON SEPTEMBER 25, 1985. THIS ALP UPDATE SHOWS THE AIRPORT AS IT WOULD BE CHANGED BY A PROPOSED ROADWAY RECONSTRUCTION PROJECT. THAT PROJECT WILL AFFECT THE AIRPORT'S CROSSWIND RUNWAY.

THIS UPDATE SHOWS IMPROVED CLEARANCE OF THE APPROACH TO RUNWAY 27 AND RUNWAY SAFETY AREA EXTENSIONS BEYOND BOTH CROSSWIND RUNWAY THRESHOLDS. SHIFTING THE CROSSWIND RUNWAY THRESHOLD AWAY FROM THE TRAVELED WAY IMPROVES THE CLEARANCE OVER THE RECONSTRUCTED ROAD. A RUNWAY SAFETY AREA EXTENSION AT EACH END OF THE CROSSWIND RUNWAY USES A COMBINATION OF NEW EMBANKMENT AND FORMER RUNWAY.

FUTURE PAVING OF THE MAIN RUNWAY, TAXIWAY AND APRON IS ALSO SHOWN ON THIS UPDATE. WHEN PLACED, PAVEMENT WILL HARDEN THE OPERATING SURFACES AND REDUCE DUST IMPACTS ON THE COMMUNITY THAT ARE CAUSED BY AIRPORT OPERATIONS.

II. INTRODUCTION

TOGIAK IS LOCATED ON THE NORTHWEST SHORE OF BRISTOL BAY, ABOUT 58 NAUTICAL MILES WEST OF DILLINGHAM.

AIRCRAFT PROVIDE THE ONLY YEAR-ROUND PUBLIC TRANSPORTATION SERVICE TO TOGIAK. BARGE SERVICE IS SEASONABLY AVAILABLE. LOCAL TRANSPORTATION IS ACCOMPLISHED WITH LIGHT AIRCRAFT, RIVERBOATS, ATVS, SNOW MACHINES AND TRUCKS. THERE ARE NO ROAD LINKS TO OTHER COMMUNITIES.

TOGIAK HAD A PERMANENT POPULATION OF 824 PERSONS IN 1999. POPULATION RECORDS INDICATE AN AVERAGE ANNUAL GROWTH RATE OF 2-3%. FOR THE BASIS OF FORECASTS IN THIS REPORT, THE PERMANENT POPULATION GROWTH RATE IS ASSUMED TO BE 2%.

THE ALASKA AVIATION SYSTEM PLAN (AASP) DESIGNATES THIS AIRPORT AS A "COMMUNITY" CLASS FACILITY. THE AIRPORTS IN THIS CLASS PROVIDE PRIMARY ACCESS TO A SMALL RURAL COMMUNITY OF AT LEAST 25 PERMANENT RESIDENTS WITHOUT RELIABLE ALTERNATIVE YEAR ROUND ACCESS.

III. AIRPORT USAGE AND FORECASTS

THE AIRPORT MASTER RECORD, FAA FORM 5010-1, LAST REVISED 4/16/99, REPORTS THE FOLLOWING DATA FOR ANNUAL AIRCRAFT OPERATIONS: 10,000 AIR TAXI, 5,000 ITINERANT GENERAL AVIATION AND 2,000 LOCAL GENERAL AVIATION. THESE TRAFFIC SEGMENTS TOTAL 17,000 OPERATIONS FOR THE PRECEDING 12 MONTHS.

VOLUNTARY REPORTS FROM AIR CARRIERS LIST ENPLANEMENTS AS FOLLOWS:

TABLE 1: REPORTED ANNUAL ENPLANEMENTS

1996	4991
1997	4492
1998	3429
1999	3845

SUCH VOLUNTARY REPORTS USUALLY INDICATE FEWER FLIGHTS THAN ARE ACTUALLY FLOWN. BASE-YEAR (2000) OPERATIONS ARE ESTIMATED FROM THESE DATA. PROJECTIONS OF FUTURE AIRCRAFT OPERATIONS (TABLE 2) ARE BASED ON AN ASSUMED 2% PER YEAR POPULATION GROWTH RATE. THE LOCAL GA OPERATIONS ARE ATTRIBUTABLE TO THE EIGHT AIRCRAFT BASED AT TOGIAK.

TABLE 2: FORECAST OF FUTURE OPERATIONS

	2000	2005	2015	2020
TOTAL ANNUAL OPERATIONS	17340	19145	21137	25766
ANNUAL LOCAL GA OPERATIONS	2040	2252	2487	3031
ANNUAL ITINERANT GA OPERATIONS	5100	5631	6095	7578
ANNUAL ENPLANEMENTS	3251	3589	3963	4830
ANNUAL INSTRUMENT APPROACHES	N/A			
ANNUAL OPERATIONS (CURRENT CRITICAL AIRCRAFT)*	13872	15316	16910	20613
ANNUAL OPERATIONS (FUTURE CRITICAL AIRCRAFT)**	87	116	148	242

* ASSUME: CURRENT CRITICAL AIRCRAFT=80% OF TOTAL OPERATIONS
** ASSUME: FUTURE CRITICAL AIRCRAFT = 0.5% OF TOTAL OPERATIONS, INCREASING AT ABOUT 5% PER YEAR

IV. DESIGN RATIONALE

THIS SECTION DISCUSSES THE DESIGN AIRCRAFT, THE AIRPORT REFERENCE CODE AND RUNWAY LENGTH REQUIRED FOR EFFECTIVE SERVICE BY THESE AIRPLANES. ADDITIONAL SUBSECTIONS DISCUSS AND SUMMARIZE THE PROPOSED PRIMARY FEATURE DIMENSIONS (TABLE 3).

A. DESIGN AIRCRAFT

TO DETERMINE THE DESIGN AIRCRAFT, AIR CARRIERS WITH SCHEDULED FLIGHTS WERE ASKED ABOUT THEIR CURRENT FLEET AND WHAT AIRPLANES WOULD BE SERVING THIS AREA WITHIN THE PLANNING INTERVAL. THEIR RESPONSES INDICATE THAT PASSENGER SERVICE AT A NEW AIRPORT WOULD BE ACCOMPLISHED BY AIRCRAFT OF DESIGN GROUP I AND II FOR THE FORESEEABLE FUTURE. PENAIR CURRENTLY FLIES NAVAJO CHIEFTAIN (PA-31-350), CHEROKEE SIX (PA-32) AND CARAVAN (CESSNA 208) AMONG OTHERS.

ACCORDING TO FAA ADVISORY CIRCULAR 150/5325-4A, SECTION 1.2.A, A FAMILY OR GROUP OF AIRPLANES SHOULD BE SELECTED FOR DESIGN AIRCRAFT WHEN CONSIDERING AIRPORTS OF THIS SIZE. THE PERTINENT CIRCUMSTANCES IN THE DISCUSSION ABOVE SUPPORT AIRPLANE DESIGN GROUP B-II AS THE NEAR-TERM DESIGN AIRCRAFT. THE FOLLOWING SECTIONS APPLY THIS CHOICE TO THE STANDARDS PROPOSED FOR THE AIRPORT.

B. AIRPORT REFERENCE CODE

THE DESIGN AIRCRAFT IS THE B-II FAMILY OF AIRCRAFT. FEATURES OF THE EXISTING PRIMARY RUNWAY MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THIS DESIGN GROUP, BUT THE CROSS-WIND RUNWAY CAN ACCOMMODATE ONLY SMALL AIRCRAFT OF DESIGN GROUP A-I THAT OPERATE WITH A LESSER CROSSWIND ALLOWANCE.

SOME AIRCRAFT LARGER THAN THE SELECTED DESIGN AIRCRAFT CURRENTLY USE THIS AIRPORT; THESE FLIGHTS ARE PRIMARILY CARGO OPERATIONS BY DC-6. THE CURRENT USE BY DESIGN GROUP B-III AIRCRAFT IS ESTIMATED AT ABOUT 3 TO 4 FLIGHTS PER MONTH IN THE WINTER AND 10 TO 15 FLIGHTS PER MONTH IN THE SUMMER. NEAR-TERM ANNUAL DEMAND PROBABLY FALLS WITHIN THE RANGE OF 50 TO 150 FLIGHTS PER YEAR. TO WARRANT BEGINNING THE IMPROVEMENT TO B-III STANDARDS, THE ANNUAL DEMAND FOR SUCH AIRCRAFT SHOULD EXCEED 150 FLIGHTS OR 300 OPERATIONS PER YEAR WITH PROJECTIONS FOR DEMAND GROWTH TO A LEVEL EXCEEDING 500 OPERATIONS PER YEAR.

C. WIND COVERAGE

THE UNIVERSITY OF ALASKA SUPPLIED 4 YEARS OF WIND DATA FROM THEIR AUTOKATED WEATHER OBSERVATION SYSTEM. THESE DATA INCLUDED WIND VELOCITY AND DIRECTION BETWEEN DECEMBER 31, 1991 AND JUNE 30, 1996. WIND ANALYSES ACCORDING TO AC 150/5300-13, APPENDIX 1 WERE PERFORMED FOR THE EXISTING RUNWAYS USING THIS DATA.

D. RUNWAYS

ACCORDING TO COMMON PRACTICES FOR RURAL ALASKA AIRPORTS, THE EXISTING RUNWAYS CONSIST OF A SAND AND GRAVEL EMBANKMENT CAPPED WITH CRUSHED AGGREGATE SURFACING. OVER STABLE EMBANKMENTS AND WHERE SUFFICIENT DEMAND WARRANTS THE EXPENSE, ASPHALT PAVEMENT PROVIDES A SMOOTH, FIRM, DUST-FREE OPERATING SURFACE THAT REQUIRES LESS-FREQUENT MAINTENANCE EFFORTS THAN GRAVEL SURFACING. THE MAIN RUNWAY SHOULD EVENTUALLY BE PAVED AT THIS AIRPORT. OPERATORS OF MANY SMALL AIRCRAFT PREFER GRAVEL SURFACING ON THE CROSSWIND RUNWAY.

THE MAIN RUNWAY LENGTH OF 1540 METERS (5052.5') WAS EVALUATED BY THE DESIGN PROGRAM FROM CHAPTER 2 OF AC 150/5325-4A, RUNWAY LENGTH REQUIREMENTS. THIS PROGRAM RECOMMENDS A LENGTH OF 1000 METERS (3280') FOR 100% OF SMALL AIRCRAFT OF LESS THAN 10 PASSENGERS. FOR 75% OF THE CARGO AIRCRAFT FLEET THAT ARE LESS THAN 27 200 KG (60,000#), THE PROGRAM RECOMMENDS A LENGTH RANGE OF 1600 TO 2020 METERS AT 60% TO 90% OF USEFUL LOAD.

THE EXISTING MAIN RUNWAY GRAVEL SURFACING IS 30.5 METERS (100 FEET) WIDE BY 1341 METERS (4400') LONG. THE SAFETY AREA IS 45 METERS (148') WIDE WITH 91.44 METERS (300') BEYOND EACH RUNWAY END. FUTURE PAVING FOR THE DESIGN AIRCRAFT WOULD BE 23 METERS (75') WIDE WITH THE SAME LENGTH RUNWAY AS EXISTING.

THE CROSSWIND RUNWAY SERVES ONLY THE SMALLEST AIRCRAFT, DUE TO THE LIMITED LENGTH AVAILABLE. THIS PLAN REVISION INCLUDES MINIMUM SAFETY AREA EXTENSIONS BEYOND THE RUNWAY ENDS AND A SHIFT AWAY FROM THE ROAD TO IMPROVE APPROACH CLEARANCES.

E. TAXIWAY

THE AIRPORT LAYOUT INCLUDES A SINGLE EXIT TAXIWAY CONNECTING THE RUNWAY TO THE APRON. THIS TAXIWAY WAS CONSTRUCTED AS PART OF THE INITIAL DEVELOPMENT. ADDITIONAL TAXIWAYS MAY BE ADDED TO THE PLAN WHEN WARRANTED BY OPERATIONAL ANALYSIS. INITIAL DEVELOPMENT PROVIDED A WIDTH GREATER THAN MINIMUM TO INCREASE OPERATIONAL TOLERANCE IN ADVERSE CONDITIONS SUCH AS CROSSWINDS OVER ICY SURFACES. THE FUTURE PAVED TAXIWAY MATCHES GROUP II STANDARDS WITH A 12-METER WIDTH.

F. AIRCRAFT PARKING AREA

THE DISTANCE FROM THE RUNWAY CENTERLINE TO THE NEAR EDGE OF THE APRON IS 150.88 METERS (495 FEET). THIS AIRCRAFT PARKING AREA MEETS THE GUIDELINES OF THE ALASKA AVIATION SYSTEMS PLAN FOR COMMUNITY CLASS AIRPORTS. AN AVIATION SUPPORT AREA LIES ADJACENT TO THE GRAVEL-SURFACED APRON. THE APRON AND PARKING AREA SHOULD BE PAVED DURING FUTURE PROJECTS. AT LEAST FIVE AIRCRAFT TIE-DOWNS SHOULD BE PLACED ON THE APRON. FUTURE PROJECTS CAN ADD ADDITIONAL APRON AS REQUIRED BY OPERATIONAL DEMAND.

G. ACCESS ROAD

AN EXISTING ROAD PARALLELS THE BEACH EAST OF THE NEW AIRPORT SITE AND CONNECTS THE AIRPORT TO HE COMMUNITY. NEAR TERM RECONSTRUCTION OF THIS ROAD IS PLANNED BY THE BUREAU OF INDIAN AFFAIRS.

H. AIRPORT LIGHTING

A PREVIOUS CONSTRUCTION PROJECT INSTALLED MEDIUM INTENSITY LIGHTING TO THE MAIN RUNWAY AND TAXIWAY. A LIGHTED WINDCONE WAS INSTALLED. A ROTATING BEACON WAS PLACED ON THE SNOW REMOVAL EQUIPMENT (SRE) STORAGE BUILDING. CROSSWIND RUNWAY LIGHTING WILL NOT BE INSTALLED.

J. DIMENSION SUMMARY

RUNWAY 2-20

FEATURE	EXISTING METERS	EXISTING FEET	STANDARD METERS	STANDARD FEET	FUTURE METERS	FUTURE FEET
RUNWAY LENGTH	1341	4400	1000	3280	1344	4409.5
RUNWAY WIDTH	30.5	100	23	75.5	23	75.5
RUNWAY SAFETY AREA WIDTH	45.7	150	45.7	150	45.7	150
RUNWAY SAFETY AREA LENGTH BEYOND RUNWAY ENDS	91.44	300	90	295.3	90	295.3
RUNWAY OBJECT FREE AREA WIDTH	150	500	150	500	150	500
TAXIWAY WIDTH	21.34	70	10.5	35	12	39.4
TAXIWAY SAFETY AREA WIDTH	33.53	110	24	78.7	24	78.7
TAXIWAY OBJECT FREE AREA WIDTH	40	131.2	40	131.2	40	131.2
RUNWAY CENTERLINE TO EDGE OF AIRCRAFT PARKING	150.88	495	75	246.1	150.88	495
RPZ LENGTH	300	984.3	300	984.3	300	984.3
RPZ INNER WIDTH	150	492.1	150	492.1	150	492.1
RPZ OUTER WIDTH	210	689	210	689	210	689
APPROACH INNER WIDTH	152.4	500	152.4	500	152.4	500
APPROACH OUTER WIDTH	1066.8	3500	1066.8	3500	1066.8	3500
APPROACH LENGTH	3048	10,000	3048	10,000	3048	10,000
APPROACH SLOPE ANGLE	34:1	34:1	34:1	34:1	34:1	34:1

STANDARD VALUES ARE FROM FAA AC 150/5300-13, TABLES 2-4, 3-1, 4-1, GROUP B-II, NON-PRECISION APPROACH WITH VISIBILITY MINIMUM >1 MILE ACCORDING TO FAR PART 77C.
"FUTURE" COLUMN MATCHES STANDARD VALUES FOR DESIGN GROUP B-II.
NARRATIVE SECTION IV.E DISCUSSES THE RUNWAY LENGTH STANDARD.

RUNWAY 9-27

FEATURE	EXISTING METERS	EXISTING FEET	STANDARD METERS	STANDARD FEET	FUTURE METER	FUTURE FEET
RUNWAY LENGTH	365	1198	1000	3280	299	981
RUNWAY WIDTH	15	50	18	60	18	60
RUNWAY SAFETY AREA WIDTH	15	50	36	120	36	120
RUNWAY SAFETY AREA LENGTH BEYOND RUNWAY ENDS	3-25	10-84	72	240	72	240
RUNWAY OBJECT FREE AREA WIDTH	75	250	75	250	75	250
RPZ LENGTH	300	1000	300	1000	300	1000
RPZ INNER WIDTH	75	250	75	250	75	250
RPZ OUTER WIDTH	150	500	150	500	150	500
APPROACH INNER WIDTH	76.2	250	76.2	250	76.2	250
APPROACH OUTER WIDTH	381	1250	381	1250	381	1250
APPROACH LENGTH	1524	5000	1524	5000	1524	5000
APPROACH SLOPE ANGLE	1:20	1:20	1:20	1:20	1:20	1:20

STANDARD VALUES ARE FROM FAA AC 150/5300-13, TABLES 2-4, 3-1, 4-1, GROUP A-I, SMALL AIRCRAFT AND NON-PRECISION APPROACH WITH VISIBILITY MINIMUM>1 MILE ACCORDING TO FAR PART 77C.
"FUTURE" COLUMN MATCHES STANDARD VALUES FOR DESIGN GROUP A-I, SMALL AIRCRAFT. NARRATIVE SECTION IV.E DISCUSSES THE RUNWAY LENGTH STANDARD.

V. STAGED DEVELOPMENT

DEVELOPMENT OF THE TOGIAK AIRPORT WILL BE ACCOMPLISHED IN NEAR-TERM, MID-TERM, AND LONG-TERM PHASES. NEAR TERM DEVELOPMENT WILL OCCUR IN 1-5 YEARS. MID-TERM DEVELOPMENT WILL OCCUR IN 6-10 YEARS OR WITH OBSERVED OPERATIONS OF B-II AIRCRAFT GREATER THAN 300 PER YEAR AND PROJECTED TO GROW BEYOND 500 OPERATIONS PER YEAR. LONG-TERM DEVELOPMENT WILL OCCUR IN ABOUT 11-20 YEARS. EACH STAGE IS DISCUSSED IN MORE DETAIL IN THE FOLLOWING SECTIONS.

A. NEAR-TERM DEVELOPMENT

NEAR-TERM DEVELOPMENT WILL INCLUDE EXTENDING THE CROSSWIND RUNWAY SAFETY AREA AND SHIFTING THE RUNWAY TO THE WEST TO PROVIDE APPROACH SURFACE CLEARANCE OVER THE RECONSTRUCTED ROADWAY THAT PASSES UNDER THE RUNWAY 9 APPROACH.

B. MID-TERM DEVELOPMENT

THIS WORK WILL COST $2 TO $2.5 MILLION.
MID-TERM WORK ELEMENTS

1. ADD CRUSHED AGGREGATE BASE COURSE AND ASPHALT PAVEMENT TO THE MAIN RUNWAY, TAXIWAY AND APRON. REPLENISH THE AGGREGATE SURFACE COURSE FOR THE CROSSWIND RUNWAY.
2. WIDEN THE EXISTING VARIABLE WIDTH CROSSWIND RUNWAY SAFETY AREA TO THE B-I STANDARD: 36 METERS (118 FEET). WIDENING HAS BEEN CONSIDERED FOR PREVIOUS PROJECTS. A 1980 CULTURAL RESOURCES SURVEY BY THE UNIVERSITY OF ALASKA MUSEUM FOUND EVIDENCE THAT THE AREA ALONG THE EAST END OF THE CROSSWIND RUNWAY HOLDS ARTIFACTS WORTHY OF SCIENTIFIC INTEREST. POLICIES AGAINST DISTURBING SUCH ITEMS PREVENTED WIDENING THE SAFETY AREA UNDER A PREVIOUS CONTRACT. THE NEAR-TERM PROJECT SHIFTING THE RUNWAY 9 THRESHOLD TO THE WEST SHOULD REDUCE THE AREA AFFECTED, BUT PRECISE LOCATION OF THE ARCHAEOLOGICAL ITEMS WILL BE REQUIRED BEFORE PROJECT EARTHWORK OCCURS ON THIS TASK.
3. REPLACE AIRPORT LIGHTING SYSTEM.
4. REPLACE EXISTING RUNWAY 2/20 VASI WITH PAPI VISUAL APPROACH AID.

C. LONG-TERM DEVELOPMENT

MID-TERM DEVELOPMENT TASKS THAT FAIL TO ATTRACT FUNDING IN THAT INTERVAL MAY BE DEFERRED TO A LATER PROJECT. OTHER THAN THAT, NO LONG-TERM DEVELOPMENT IS CURRENTLY PROPOSED. AIRPORT FEATURES MAY BE EXPANDED OR UPGRADED ACCORDING TO OPERATIONAL NEEDS THAT ARE IDENTIFIED WITHIN THE PLANNING INTERVAL.

VI. PROPERTY STATUS

SUFFICIENT PROPERTY INTEREST HAS BEEN ACQUIRED TO CONTAIN THE AIRPORT FEATURES DESCRIBED IN THIS PLAN.

VII. COMMUNITY INVOLVEMENT

THE RESIDENTS OF TOGIAK HAVE BEEN INFORMED OF THE PLANNED DEVELOPMENT BY THE ALASKA DOT&PF. LETTERS AND COMMENTS FROM RESIDENTS AND LOCAL GOVERNMENT OFFICIALS REMAIN FILED WITH DOT&PF, CENTRAL REGION OFFICES. THE COMMUNITY SUPPORTS THE PROPOSED DEVELOPMENT PROGRAM.

VIII. MODIFICATIONS TO DESIGN STANDARDS

PARTS OF THE CROSSWIND RUNWAY SAFETY AREA ARE NARROWER THAN CURRENT DESIGN STANDARDS. THIS PROJECT REDUCES THE LENGTH OF SAFETY AREA THAT IS NARROWER THAN STANDARD FOR AIRPORT REFERENCE CODE A1. FUTURE PROJECTS WILL ELIMINATE THIS DEFICIENCY.
THE EXISTING TAXIWAY AND TAXIWAY SAFETY AREA WIDTHS AND THE DISTANCE FROM THE RUNWAY CENTERLINE TO THE AIRCRAFT PARKING APRON EXCEED THE MINIMUM REQUIREMENTS OF THIS DESIGN STANDARD.

IX. ENCROACHMENTS INTO PART 77 SURFACE

NONE.

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DATE: 06/07/01 1=1 dawab

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL SUBJECT TO ALP APPROVAL LETTER DATED 8/23/01
By: [signature] DATE: 8/23/01
FAA AIRPORTS DIVISION ALASKAN REGION, AAL-___

FAA AIRSPACE REVIEW NUMBER: 01-AAL-063-NRA

BY	DATE	REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: [signature] STEPHEN M. RYAN, P.E. — DESIGN SECTION CHIEF
APPROVED: [signature] JOHN G. WAHL, P.E. — PROJECT MANAGER

DATE 6/22/01
DESIGN VLB
DRAWN [illegible]
CHECKED [illegible]

TOGIAK AIRPORT
NAME, ALASKA
AIRPORT LAYOUT PLAN
NARRATIVE REPORT

SHEET 10 OF 10