

VERTICAL CONTROL STATEMENT

Vertical Datum:  
GPS derived orthometric heights in U.S. Survey Feet, that approximate NAVD88, holding published NAD83(CORS96) (Epoch 2002.0) ellipsoid heights at NGS CORS Stations "Cold Bay 2 Antenna Reference Point (ARP)" (PID: AF9584) as 163.58, "Kenai 1 ARP" (PID: AF9548) as 182.48, and "Kodiak 1 ARP" (PID: AF9549) as 87.20 and applying GEOID99 values.

Methodology:  
The NGS Online Positioning User Service (OPUS) was used to solve ellipsoid heights and approximate NAVD88 elevations using the GEOID99 model during two independent observations at each static GPS station. The average resulting elevation of 68.69245 at station 45 was held as the basis for differential leveling which was performed between all vertical control stations listed on this plat. No separation and/or deflection parameters were applied.

HORIZONTAL CONTROL STATEMENT

Coordinate System:  
This project is located entirely within a local surface grid developed by Alaskan Consulting Surveyors, Inc. (ACS), for a survey performed between September 1996 and June 1997, for Alaska DOT&PF, Central Region. Record grid coordinates were taken from an unsigned Survey Control Diagram (SCD) dated May 20, 1998, provided to USKH by the Alaska DOT&PF Central Region Survey Department. Coordinates were provided in meters and converted by USKH to U.S. Survey Feet.

Basis of Geodetic Coordinates  
This survey was performed by USKH using local static and kinematic GPS vectors, minimally constrained using a least squares network adjustment holding the NAD83(CORS96) (EPOCH 2002.0) position of station 45, which was determined using the average of two independent NGS OPUS solutions. OPUS solutions utilized base station data from NGS CORS Stations "Cold Bay 2 Antenna Reference Point (ARP)" (PID: AF9584) as 55°11'25.511" N, 162°42'24.279" W, "Kenai 1 ARP" (PID: AF9548) as 60°40'30.284" N, 151°21'00.570" W, and "Kodiak 1 ARP" (PID: AF9549) as 57°37'03.689" N, 152°11'36.264" W.

Basis of Geodetic Bearings:  
Measured Geodetic Bearings are True NAD83 bearings consistent with "free" GPS baseline vectors, where no distortion or rotation of the observations is required.

Basis of Grid Coordinates:  
An equal weighted least squares error distribution adjustment was utilized to site calibrate the USKH minimally constrained GPS survey, projected using a local transverse mercator and fixed ground scale factor, with the existing ACS coordinate system holding record grid positions of recovered stations 20, 41, 42, 61, 503, 511, 512 and 513 as parameters, having a maximum 2D residual of 0.27". The resulting site definition has been archived by USKH as a Trimble Coordinate System File (727910-site-final.csf) for any future GPS work performed at this location.

Basis of Grid Bearings:  
Local grid bearings are oriented to the ACS Record Mean Geodetic Bearing of the runway centerline bearing N 17°59'17" E from the ACS SCD described above. Existing South end runway centerline monumentation was determined to be out of tolerance by USKH during this survey, and therefore the Basis of Grid Bearings has been perpetuated using a "best fit" of recovered local control elements resulting from the over determined site calibration method.

HORIZONTAL SITE CALIBRATION DETAILS					Projection Type: Transverse Mercator Origin: 58°49'39.17025" N, 158°32'02.94004" W False N, E: 30284.78202 N, 37185.61687 E Grid Scale Factor: 1.0000056939 Adjustment Type: Fixed Scale Plane Base Point: 32095.01708 N, 37228.81867 E Translation North: +0.86884 Translation East: +0.37035 Rotation: -0°00,05.596226"
Point	N. [REC]	E. [REC]	N. [MEAS]	E. [MEAS]	
20	33192.480	36621.768	33192.423	36621.654	
41	34107.357	38426.766	34107.226	38426.742	
42	34158.016	38270.742	34157.935	38270.674	
61	33645.458	36313.671	33645.300	36313.846	
503	29756.707	37883.820	29756.676	37883.814	
511	31073.856	37882.848	31073.923	37882.727	
512	31076.352	37191.562	31076.587	37191.494	
513	29756.862	35242.336	29757.018	35242.561	

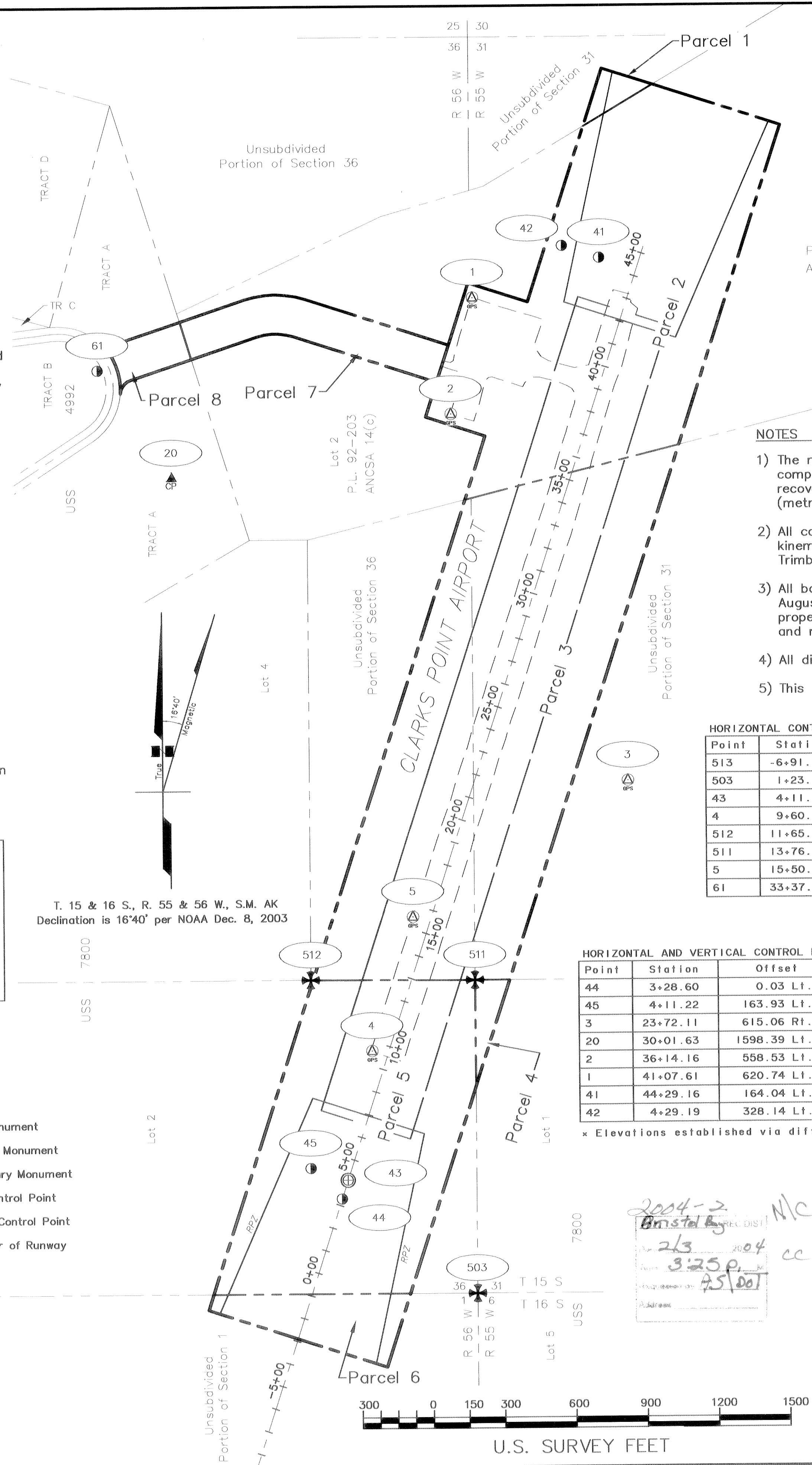
- Translation Parameters:  
Conversion from State Plane, Zone 6, NAD83 Feet to Local Feet:  
1. Scale State Plane coordinates using 1.000094189  
2. Translate resulting coordinates using -1,733,696.5465 N -1,502,160.2239 E  
3. Rotate resulting coordinates around 0+125 R/W C/L Lt 50m RP by -00° 27' 31"
- Conversion from Local Feet to State Plane, Zone 6, NAD83 Feet:  
1. Rotate coordinates around 0+125 R/W C/L Lt 50m RP by 00° 27' 31"  
2. Translate local coordinates using +1,733,696.5465 N +1,502,160.2239 E  
3. Scale resulting coordinates using .99990582

Surveyor's Certificate

I hereby certify that I am properly Registered and Licensed to practice Land Surveying in the State of Alaska, and that this drawing represents a survey made by me or under my direct supervision, and that the monuments shown hereon actually exist as described, and that all dimensions and other details are correct to the extent shown hereon.

Marshall L. Hetlet  
LS-9108  
Date 1-9-04

- LEGEND
- BLM Monument
  - Primary Monument
  - Secondary Monument
  - GPS Control Point
  - Survey Control Point
  - Shoulder of Runway



GEODETTIC POSITIONS - NAD83(CORS96) (EPOCH2002.0)			
Point	Latitude	Longitude	Ellipsoid Ht
1	58°50'15.19121"N	158°31'49.50319"W	106.37862
2	58°50'10.37887"N	158°31'51.27535"W	105.14285
3	58°49'55.17118"N	158°31'37.35787"W	90.91914
4	58°49'44.01775"N	158°31'57.96363"W	121.80274
5	58°49'49.56560"N	158°31'54.62627"W	118.21693
20	58°50'07.80363"N	158°32'13.66221"W	134.32555
41	58°50'16.81399"N	158°31'39.36208"W	101.74185
42	58°50'17.31368"N	158°31'42.32760"W	99.51144
43	58°49'38.67297"N	158°31'59.98087"W	120.98667
44	58°49'37.89754"N	158°32'00.46350"W	128.96879
45	58°49'39.17025"N	158°32'02.94004"W	119.44202
61	58°50'12.26463"N	158°32'19.51114"W	145.07695
503	58°49'33.95918"N	158°31'49.68564"W	128.26195
511	58°49'46.93482"N	158°31'49.70424"W	118.78423
512	58°49'46.96143"N	158°32'02.83596"W	104.97902
513	58°49'33.96198"N	158°32'39.85773"W	153.04737

NOTES

- The runway centerline was computed using the record bearing of N 17°59'17" E and the computed position of the North end runway centerline monument, using the line connecting recovered accessories 42 and 41, extended 164.042' right, and held as station 44+29.125 (metric station 1+350.000).
- All control points shown on this plat were established by USKH using networked static and kinematic GPS techniques using Trimble 5700 series receivers with TSC1 data collectors and Trimble Geomatics Office v1.61 post-processing software.
- All background information shown herein was obtained from the Airport Property Plan dated August 26, 1998 and is provided for orientation purposes only and may not reflect legal property line locations. Point descriptors for recovered boundary monuments are assumed and may not reflect the legal corner.
- All dimensions and coordinates shown are in U.S. Survey Feet unless otherwise noted.
- This survey was completed during November 22 through December 14, 2003.

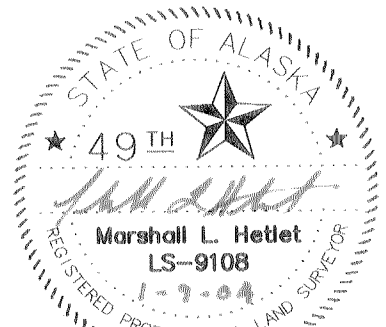
HORIZONTAL CONTROL (MEASURED LOCAL COORDINATES)					
Point	Station	Offset	Northing	Easting	Description
513	-6+91.75	1849.16 Lt.	29757.01817	35242.56125	Fd BC [BLM]:C8L4/C4L2 USS7800 1988
503	1+23.59	663.10 Rt.	29756.67568	37883.81376	Fd BC [BLM]:T15816S R56855W 1974
43	4+11.32	0.18 Lt.	30235.17279	37341.81419	Fd AC [LS4408]:0+125 R/W C/L 1997
4	9+60.18	66.76 Lt.	30777.76332	37447.97975	Set RPC [LS9108]:USKH Ctrl Pt 2003
512	11+65.19	402.99 Lt.	31076.58693	37191.49390	Fd BC [BLM]:C6L4/L2 USS7800 1988
511	13+76.12	255.27 Rt.	31073.92324	37882.72658	Fd BC [BLM]:C2L2/C4L1 USS7800 1988
5	15+50.10	73.64 Lt.	31340.97390	37623.62249	Set RPC [LS9108]:USKH Ctrl Pt 2003
61	33+37.31	2031.01 Lt.	33645.29973	36313.84633	Fd AC [LS4408]:0+015 A/R C/L RP 1997

HORIZONTAL AND VERTICAL CONTROL POINTS (MEASURED LOCAL COORDINATES)						
Point	Station	Offset	Northing	Easting	xElev.	Description
44	3+28.60	0.03 Lt.	30156.45273	37316.41056	78.22245	Fd AC [LS4408]:0+100 R/W C/L 1997
45	4+11.22	163.93 Lt.	30285.64982	37186.03634	68.69245	Fd AC [LS4408]:0+125 R/W C/L Lt 50 RP 1997
3	23+72.11	615.06 Rt.	31910.12444	38532.50799	40.15245	Set RPC [LS9108]:USKH Ctrl Pt 2003
20	30+01.63	1598.39 Lt.	33192.42342	36621.65440	83.58245	Fd 5/8 RB: PP307
2	36+14.16	558.53 Lt.	33453.88832	37799.84622	54.38745	Set RPC [LS9108]:USKH Ctrl Pt 2003
1	41+07.61	620.74 Lt.	33942.43043	37893.07158	55.63745	Set RPC [LS9108]:USKH Ctrl Pt 2003
41	44+29.16	164.04 Lt.	34107.22558	38426.74218	50.99745	Fd AC [LS4408]:1+350 R/W C/L Lt 50 RP 1997
42	4+29.19	328.14 Lt.	34157.93465	38270.67381	48.78245	Fd AC [LS4408]:1+350 R/W C/L Lt 100 RP 1997

\* Elevations established via differential leveling

Bristol Bay  
Dillingham Recording District  
State Business - No Fee

This survey does not constitute a subdivision as defined by AS 40.15.290



STATE OF ALASKA  
DEPARTMENT OF TRANSPORTATION  
&  
PUBLIC FACILITIES  
Survey Control Sheet  
Record Of Survey  
AKSAS 55598  
Clarks Point Airport - Phase II

DRAWN	DJB	DATE	1/8/04	SCALE	1"=300'
CHECKED	MLH	DATE	1/9/04	SHEET	1 OF 1