

**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
RNAV (GPS) STANDARD INSTRUMENT APPROACH PROCEDURE
TITLE 14 CFR PART 97.33**

Bearings, headings, courses, tracks and radials are magnetic. Elevations and altitudes are in feet, MSL, except HAT, HAA, TCH, and RA. Altitudes are minimum altitudes unless otherwise indicated.
Ceilings are in feet above airport elevation. Distances are in nautical miles unless otherwise indicated, except visibilities which are in statute miles or feet RVR.

<u>AIRPORT ID</u> HWD	<u>PROCEDURE NAME</u> RNAV (GPS) RWY 28L	<u>ORIGINAL/AMENDMENT</u> 1E	<u>CITY</u> HAYWARD	<u>STATE</u> CA
<u>AIRPORT ELEVATION</u> 52	<u>TDZE</u> 50	<u>SUPERSEDED</u> RNAV (GPS) RWY 28L	<u>DATED</u> 05/20/2021	<u>MAG VAR</u> 15E
<u>FACILITY</u> RNAV	<u>COORDINATES OF FACILITIES</u>	<u>ACTUAL EFFECTIVE DATE</u>	<u>REQUIRED EFFECTIVE DATE</u> ROUTINE	<u>EPOCH YEAR</u> 2005
				<u>CANCEL/SUSPEND</u>

TERMINAL ROUTES

<u>FROM</u>	<u>FIX TYPE</u>	<u>TO</u>	<u>FIX TYPE</u>	<u>LEG TYPE</u>	<u>FO/FB</u>	<u>RNP</u>	<u>COURSE</u>	<u>DISTANCE</u>	<u>ALTITUDE</u>
SUNOL		JOBUS		TF	FO	1.00	151.70	6.42	5700
SJC VOR/DME		JOBUS		TF	FO	1.00	031.11	10.95	5700
VINCO	IAF	JOBUS	NOPT	TF	FB	1.00	323.17	8.06	5700
JOBUS	IF/IAF	OKIVY		TF	FB	1.00	285.06	3.24	4800
OKIVY		WESCH		TF	FB	1.00	285.03	3.24	3900
WESCH		SUDGE		TF	FB	1.00	284.99	2.52	3200
SUDGE	FAF	FENRA/6.20 NM TO RW28L		TF	FB	0.30	284.97	3.27	
FENRA/6.20 NM TO RW28L		BOGRE/3.90 NM TO RW28L		TF	FB	0.30	284.97	2.30	
BOGRE/3.90 NM TO RW28L		HUZBY/2.80 NM TO RW28L		TF	FB	0.30	284.97	1.10	
HUZBY/2.80 NM TO RW28L		RW28L	MAP	TF	FO	0.30	284.97	2.80	
RW28L	MAP	600 MSL		CA			284.97		600
600 MSL		OAK VOR/DME		DF	FO	1.00			2100

MISSED APPROACH

MAP:

LPV: DA
LNAV/VNAV: DA
LNAV: RW28L

MISSED APPROACH INSTRUCTIONS:

CLIMB TO 600 THEN CLIMBING RIGHT TURN TO 2100 DIRECT OAK VOR/DME AND HOLD.

ALTERNATE MISSED APPROACH INSTRUCTIONS:



PROFILE:

1. **PT** **SIDE OF COURSE** **OUTBOUND** **FT WITHIN** **MILES OF** (IAF)
2. HOLD E JOBUS, RT, 285.06 INBOUND, 5700 FT. IN LIEU OF PT (IAF), MAX 10000.
3. **FAC:** 284.97 **FAF:** SUDGE **DIST FAF TO MAP:** 9.47 **DIST FAF TO THLD:** 9.47
4. **MIN ALT:** JOBUS 5700, OKIVY 4800, WESCH 3900, SUDGE 3200, FENRA/6.20 NM TO RW28L 2120, BOGRE/3.90 NM TO RW28L 1360, HUZBY/2.80 NM TO RW28L 1000
5. **DIST TO THLD FROM OM:** **MM:** **IM:** **150 HAT:** **298 HAT:** 0.80 **GS ANT:**
6. **MIN GP INCPT:** 3200 **GP ALT AT PFAF:** SUDGE 3200 **OM:** **MM:** **IM:**
7. **GP ANGLE:** 3.10 **34:1:** IS NOT CLEAR **20:1:** IS CLEAR **TCH:** 35.0
8. **MSA FROM:** RW28L 5300

PBN REQUIREMENTS NOTE:

RNP APCH - GPS.

NOTES:

CHART PROFILE NOTE: VGS1 AND RNAV GLIDEPATH NOT COINCIDENT (VGS1 ANGLE {ANGLE}/TCH {FEET}).
 CHART NOTE: BARO-VNAV NA.
 CHART NOTE: CIRCLING RWY 10L, 28R NA AT NIGHT.
 CHART NOTE: RWY 28L HELICOPTER VISIBILITY REDUCTION BELOW 3/4 SM NOT AUTHORIZED.
 CHART NOTE: WHEN LOCAL ALTIMETER SETTING NOT RECEIVED, USE OAK ALTIMETER SETTING AND INCREASE LPV DA TO 370 FEET; INCREASE LNAV/VNAV DA TO 461 FEET; INCREASE ALL MDAS 40 FEET AND LNAV VISIBILITY CAT C/D 1/4 SM, AND CIRCLING VISIBILITY CAT D 1/4 SM.
 CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVALS AT VINCO ON V107 SOUTHEAST BOUND AND ON T331 SOUTHBOUND.
 CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVALS AT SUNOL ON V301 NORTHWEST BOUND AND ON V334 NORTHBOUND.
 CHART NOTE: CIRCLING NA N OF RWY 10L-28R.

ADDITIONAL FLIGHT DATA:

HOLD NW, RT, 122.00 INBOUND.
 CHART FAS OBST: 157 TOWER (06-006187) 373912N/1220601W.
 CHART 519 TREE 373834N/1220259W.
 CHART VDP AT 0.88 NM TO RW28L.
 WAAS CHANNEL # 40330
 REFERENCE PATH ID: W28A
 LTP HAE: -17.2 M

MINIMUMS:

TAKEOFF: SEE FAA FORM 8260-15A FOR THIS AIRPORT

ALTERNATE: NA STANDARD - CAT D 900-2 3/4, NA WHEN LOCAL WEATHER NOT AVAILABLE.

CATEGORY:	A			B			C			D			E			
	FINAL TYPE	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA
LPV DA	348	1	298	348	1	298	348	1	298	348	1	298				
LNAV/VNAV DA	439	1 1/8	389	439	1 1/8	389	439	1 1/8	389	439	1 1/8	389				
LNAV MDA	460	1	410	460	1	410	460	1 1/8	410	460	1 1/8	410				
CIRCLING	540	1	488	540	1	488	540	1 1/2	488	920	2 3/4	868				



CHANGES - REASONS

1. INCORPORATED CHANGES FROM P-NOTAM FOR AMDT 1C AND 1D INTO FORM – IAW 8260.19J PARA 8-3-4.C (3).
2. TERMINAL ROUTES: UPDATED ALL FINAL AND MAP COURSES FROM 284.93/284.90/284.89 TO 284.97 – UPDATED DUE TO NEW FINAL EVALUATION, NO CHANGE IN GROUND TRACK.
3. PROFILE: LINE 2 ADDED "MAX 10000" – IAW 8260.19J, 8-6-7.B. (2).
4. PROFILE: LINE 7 ADDED 20:1 IS CLEAR - NO PENETRATIONS EXIST AND IAW 8260.19J, 8-6-7.G. (3).
5. PBN REQUIREMENTS NOTE: CHANGED FROM "RNP APCH." TO "RNP APCH – GPS." – IAW 8260.19J 8-6-8.B (2).
6. CHART NOTE: DELETED "LNAV ONLY" - NO LONGER REQUIRED PER CURRENT CRITERIA.
7. CHART NOTE: ADDED "CIRCLING RWY 10L, 28R NA AT NIGHT." – INCORPORATES NOTAM FDC 3/0502, NEW TARGETS IDENTIFIED 20:1 OBSTACLES AND IAW 8260.19J, 8-6-12.O (2) (G).
8. CHART NOTE: CHANGED FROM "WHEN LOCAL ALTIMETER SETTING NOT RECEIVED, USE OAKLAND ALTIMETER SETTING: INCREASE ALL DA/MDA 20 FEET, AND LNAV/VNAV ALL CATS AND LNAV CAT C/D VISIBILITY 1/8 SM AND CIRCLING CAT D VISIBILITY ¼ SM." TO "WHEN LOCAL ALTIMETER SETTING NOT RECEIVED, USE OAK ALTIMETER SETTING AND INCREASE LPV DA TO 370 FEET; INCREASE LNAV/VNAV DA TO 461 FEET; INCREASE ALL MDAS 40 FEET AND LNAV VISIBILITY CAT C/D 1/4 SM, AND CIRCLING VISIBILITY CAT D 1/4 SM." – UPDATED LNAV/VNAV WITH NEW REMOTE ALTIMETER ADJUSTMENT AND IAW 8260.19J, 8-6-10 F (4).
9. CHART NOTE: UPDATED AND SEPARATED NOTE "PROCEDURE NA FOR ARRIVALS AT SJC VOR/DME ON T259, ARRIVALS AT VINCO ON V107 SOUTHEAST BOUND, AND ARRIVALS AT SUNOL ON V301 NORTHWEST.": DELETED "PROCEDURE NA FOR ARRIVALS AT SJC VOR/DME ON T259." AND UPDATED NOTES TO "PROCEDURE NA FOR ARRIVALS AT VINCO ON V107 SOUTHEAST BOUND AND T331 SOUTHBOUND." AND "PROCEDURE NA FOR ARRIVALS AT SUNOL ON V301 NORTHWEST BOUND AND V334 NORTHBOUND." – SJC NO LONGER ON T259 AND ADDED T331 AND V334 TO RESPECTIVE NOTES.
10. ADDITIONAL FLIGHT DATA: REMOVED "919 AAO 373753N/1220152W." AND NOTE PLACED IN PART C: GENERAL REMARKS – IAW 8260.19J, 8-6-11.E.(2) AND IMPLEMENTATION OF FAA ORDER 8260.19J, DATED JUNE 1, 2023.
11. ADDITIONAL FLIGHT DATA: ADDED "CHART VDP AT 0.88 NM TO RW28L." – NO 20:1 PENETRATIONS.
12. ALTERNATE MINIMUMS: UPDATED FROM "STANDARD EXCEPT CAT D 900 - 2 3/4, NA WHEN CONTROL TOWER CLOSED, NA WHEN LOCAL WEATHER NOT AVAILABLE." TO "STANDARD – CAT D 900-2 ¾, NA WHEN LOCAL WEATHER NOT AVAILABLE." – UPDATED IAW 8260.3F, 3-4-1.
13. MINIMUMS: LNAV/VNAV DA/HAT RAISED FROM "400/350" TO "439/359" – DUE TO NEW OBSTACLE EVALUATION AND INCORPORATES NOTAM FDC 3/0502.
14. FAS DATA: LTP/FPT CHANGED FROM 373918.6640N/1220653.1315W TO 373918.6720N/1220653.1350W – UPDATED AIRNAV DATA.
15. FAS DATA: FPAP CHANGED FROM 374003.0660N/1220830.4530W TO 374003.0750N/1220830.4550W – UPDATED AIRNAV DATA.
16. FAS DATA: CRC CHANGED FROM 40227B2E TO 3DB0931A – LTP/FPT AND FPAP CHANGED DUE TO UPDATED AIRNAV DATA.

12/16/2024: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 08/14/2024.

1. CHART PLANVIEW NOTE: CHANGED FROM "PROCEDURE NA FOR ARRIVALS AT SUNOL ON V301 NORTHWEST BOUND AND V334 NORTHBOUND." TO "PROCEDURE NA FOR ARRIVALS AT SUNOL ON V301 NORTHWEST BOUND AND ON V334 NORTHBOUND."
2. CHART PLANVIEW NOTE: CHANGED FROM "PROCEDURE NA FOR ARRIVALS AT VINCO ON V107 SOUTHEAST BOUND AND T331 SOUTHBOUND." TO "PROCEDURE NA FOR ARRIVALS AT VINCO ON V107 SOUTHEAST BOUND AND ON T331 SOUTHBOUND."

COORDINATED WITH:

A4A
 ALPA
 AOPA
 APA
 HAI
 NBAA

OTHER: ZOA, HWD ATCT, OAK ATCT, NORCAL APP CON, AMGR.

FLIGHT CHECKED BY

JOEL P MURPHY

Digitally signed by

CASIMIR L TABAKA

Dec 16, 2024

OFFICE

AJF

DATE

01/02/2025

DEVELOPED BY

JOSEPH L. ZEDER (CHRISTOPHER D. WILKINSON)

Digitally signed by

CASIMIR L TABAKA

Dec 16, 2024

OFFICE

AJV-A432

DATE

08/14/2024

APPROVED BY

JOSEPH L. ZEDER

Digitally signed by

CASIMIR L TABAKA

Dec 16, 2024

OFFICE

AJV-A432

DATE

TITLE

MANAGER



AIRPORT ID
HWD

PROCEDURE NAME
RNAV (GPS) RWY 28L

ORIGINAL/AMENDMENT
1E

CITY
HAYWARD

STATE
CA

FAS DATA BLOCK INFORMATION

<u>DATA FIELD</u>	<u>DATA</u>
OPERATION TYPE	0
SBAS SERVICE PROVIDER IDENTIFIER	0
AIRPORT IDENTIFIER	KHWD
RUNWAY	RW28L
APPROACH PERFORMANCE DESIGNATOR	0
ROUTE INDICATOR	
REFERENCE PATH DATA SELECTOR	0
REFERENCE PATH IDENTIFIER (APPROACH ID)	W28A
LTP/FTP LATITUDE	373918.6720N
LTP/FTP LONGITUDE	1220653.1350W
LTP/FTP ELLIPSOIDAL HEIGHT	-00172
FPAP LATITUDE	374003.0750N
FPAP LONGITUDE	1220830.4550W
THRESHOLD CROSSING HEIGHT (TCH)	00035.0
TCH UNITS SELECTOR (METERS OR FEET USED)	F
GLIDEPATH ANGLE (GPA)	03.10
COURSE WIDTH AT THRESHOLD	106.75
LENGTH OFFSET	1224
HORIZONTAL ALERT LIMIT (HAL)	40.0
VERTICAL ALERT LIMIT (VAL)	50.0

CRC REMAINDER 3DB0931A

ADDITIONAL PATH POINT RECORD INFORMATION

ICAO CODE	K2
LTP ORTHOMETRIC HEIGHT	+00152
FPAP ORTHOMETRIC HEIGHT	+00152



**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD**

<u>AIRPORT ID</u> HWD	<u>PROCEDURE NAME</u> RNAV (GPS) RWY 28L	<u>AMDT NO.</u> 1E	<u>CITY</u> HAYWARD	<u>STATE</u> CA	<u>AIRPORT ELEVATION</u> 52	<u>FACILITY</u> RNAV
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PART A: OBSTRUCTION DATA SEGMENTS

FEEDER

<u>FROM</u> SUNOL	<u>TO</u> JOBUS
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<u>RNP</u> 1.00	<u>DISTANCE</u> 6.42	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>	<u>HMAS</u>
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OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	373039.00N/1214421.00W	3544	100	125	3E	2000				AT156	5700
TERRAIN	373039.00N/1214421.00W	3344 (3300)								AS1500	4800

COMPUTATIONS

<u>ALT</u>	<u>KIAS</u>	<u>KTAS</u>	<u>HAA</u>	<u>VKTW</u>	<u>TR</u>	<u>BA</u>	<u>DTA</u>	<u>COURSE CHANGE</u>	<u>DVEB</u>	<u>VEB OCS</u>	<u>RF CENTER FIX/DISTANCE</u>
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SEGMENT REMARKS:

FEEDER

<u>FROM</u> SJC VOR/DME	<u>TO</u> JOBUS
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<u>RNP</u> 1.00	<u>DISTANCE</u> 10.95	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>	<u>HMAS</u>
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OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	372836.00N/1214506.00W	3078	100	3	3A	2000				AT622	5700
TERRAIN	372836.00N/1214506.00W	2878 (2900)								AS1500	4400

COMPUTATIONS

<u>ALT</u>	<u>KIAS</u>	<u>KTAS</u>	<u>HAA</u>	<u>VKTW</u>	<u>TR</u>	<u>BA</u>	<u>DTA</u>	<u>COURSE CHANGE</u>	<u>DVEB</u>	<u>VEB OCS</u>	<u>RF CENTER FIX/DISTANCE</u>
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SEGMENT REMARKS:



AIRPORT ID
HWD

PROCEDURE NAME
RNAV (GPS) RWY 28L

AMDT NO.
1E

CITY
HAYWARD

STATE
CA

AIRPORT ELEVATION
52

FACILITY
RNAV

INITIAL

FROM
VINCO

TO
JOBUS

RNP
1.00

DISTANCE
8.06

PAT

MAP

HAT

HMAS

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	372518.00N/1214157.00W	3977	100	3	3A	1000				PR340 AT383	5700
TERRAIN	372518.00N/1214157.00W	3777 (3800)								AS1500	5300

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

INTERMEDIATE

FROM
JOBUS (IF/IAF)

TO
OKIVY

RNP
1.00

DISTANCE
3.24

PAT

MAP

HAT

HMAS

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	373039.00N/1214421.00W	3544	100	125	3E	500				AC102 PR300	4500
TERRAIN	373039.00N/1214421.00W	3344 (3300)								AS1500	4800

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



AIRPORT ID
HWD

PROCEDURE NAME
RNAV (GPS) RWY 28L

AMDT NO.
1E

CITY
HAYWARD

STATE
CA

AIRPORT ELEVATION
52

FACILITY
RNAV

INTERMEDIATE: STEPDOWN

FROM
OKIVY **TO**
WESCH

RNP 1.00 **DISTANCE** 3.24 **PAT** **MAP** **HAT** **HMAS**

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TOWER (06-002266)	372956.77N/1215219.84W	3049	250	50	4D	500				SA-233 PR200	3600
TERRAIN	373015.00N/1215209.00W	2415 (2400)								AS1500	3900

COMPUTATIONS

ALT **KIAS** **KTAS** **HAA** **VKTW** **TR** **BA** **DTA** **COURSE CHANGE** **DVEB** **VEB OCS** **RF CENTER FIX/DISTANCE**

SEGMENT REMARKS:

INTERMEDIATE: STEPDOWN

FROM
WESCH **TO**
SUDGE

RNP 1.00 **DISTANCE** 2.52 **PAT** **MAP** **HAT** **HMAS**

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	373124.00N/1215348.00W	1874	100	125	3E	500				PR170 AC102	2700
TERRAIN	373124.00N/1215348.00W	1674 (1700)								AS1500	3200

COMPUTATIONS

ALT **KIAS** **KTAS** **HAA** **VKTW** **TR** **BA** **DTA** **COURSE CHANGE** **DVEB** **VEB OCS** **RF CENTER FIX/DISTANCE**

SEGMENT REMARKS:



AIRPORT ID
HWD

PROCEDURE NAME
RNAV (GPS) RWY 28L

AMDT NO.
1E

CITY
HAYWARD

STATE
CA

AIRPORT ELEVATION
52

FACILITY
RNAV

FINAL: LPV

FROM
SUDGE

TO
RW28L

RNP
0.30

DISTANCE
9.47

PAT

MAP
DA

HAT
298

HMAS

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TREE (KHWDL049)	373903.64N/1220626.40W	119	20	10	1B		32.9:1			AC10 PR25 XP23	348

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

XP 23 TO MATCH PUBLISHED PROCEDURE.

FINAL: LNAV/VNAV

FROM
SUDGE

TO
RW28L

RNP
0.30

DISTANCE
9.47

PAT

MAP
DA

HAT
389

HMAS

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TREE (06-305991)	373928.77N/1220629.46W	197	20	3	1A	161				PR36 MA45	439

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



AIRPORT ID
HWD

PROCEDURE NAME
RNAV (GPS) RWY 28L

AMDT NO.
1E

CITY
HAYWARD

STATE
CA

AIRPORT ELEVATION
52

FACILITY
RNAV

FINAL: LNAV

FROM
SUDGE

TO
FENRA/6.20 NM TO RW28L

RNP
0.30

DISTANCE
3.27

PAT

MAP

HAT

HMAS

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	373604.02N/1215816.84W	1552	50	20	2C	250				RA20 PR90 XL174 DG34	2120

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

FINAL: LNAV STEPDOWN

FROM
FENRA/6.20 NM TO RW28L

TO
BOGRE/3.90 NM TO RW28L

RNP
0.30

DISTANCE
2.30

PAT

MAP

HAT

HMAS

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	373714.83N/1220008.00W	1319	50	20	2C	250				RA20 PR70 XL10 SA-327	1360

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



AIRPORT ID
HWD

PROCEDURE NAME
RNAV (GPS) RWY 28L

AMDT NO.
1E

CITY
HAYWARD

STATE
CA

AIRPORT ELEVATION
52

FACILITY
RNAV

FINAL: LNAV STEPDOWN

FROM
BOGRE/3.90 NM TO RW28L

TO
HUZBY/2.80 NM TO RW28L

RNP
0.30

DISTANCE
1.10

PAT

MAP

HAT

HMAS

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	373820.64N/1220230.45W	939	50	20	2C	250				RA20 SA-265 DG56	1000

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

FINAL: LNAV STEPDOWN

FROM
HUZBY/2.80 NM TO RW28L

TO
RW28L

RNP
0.30

DISTANCE
2.80

PAT

MAP
RW28L

HAT
410

HMAS

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TOWER (06-006187)	373912.00N/1220601.00W	157	250	50	4D	250				AC50	460

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



AIRPORT ID
HWD

PROCEDURE NAME
RNAV (GPS) RWY 28L

AMDT NO.
1E

CITY
HAYWARD

STATE
CA

AIRPORT ELEVATION
52

FACILITY
RNAV

HOLD-IN-LIEU OF PT

FROM
JOBUS

TO
P-6

RNP

DISTANCE

PAT
P-6

MAP

HAT

HMAS

<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
AAO	372845.00N/1213321.00W	4295	100	3	3A	1000				PR350	5700
TERRAIN	372845.00N/1213321.00W	4095 (4100)								AS1500	5600

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

MISSED APPROACH: LPV

FROM
DA

TO
OAK VOR/DME

RNP
0.30-1.00

DISTANCE

PAT

MAP

HAT

HMAS
138

<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
							ASC				2100
CONTROL_TOWER (06-021928)	374310.07N/1221319.06W	257	20	3	1A	1000					1300
TERRAIN	374000.00N/1220600.00W	98 (100)								AS1500	1600

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

QUALITY
31
CHECKED

AIRPORT ID
HWD

PROCEDURE NAME
RNAV (GPS) RWY 28L

AMDT NO.
1E

CITY
HAYWARD

STATE
CA

AIRPORT ELEVATION
52

FACILITY
RNAV

MISSED APPROACH: LNAV/VNAV

FROM
DA **TO**
OAK VOR/DME

RNP 0.30-1.00 **DISTANCE** **PAT** **MAP** **HAT** **HMAS**
242

<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
TANK (06-001854)	373946.35N/1220537.72W	222	50	20	2C		ASC				2100
CONTROL_TOWER (06-021928)	374310.07N/1221319.06W	257	20	3	1A	1000					1300
TERRAIN	374000.00N/1220600.00W	98 (100)								AS1500	1600

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

MISSED APPROACH: LNAV

FROM
RW28L **TO**
OAK VOR/DME

RNP 0.30-1.00 **DISTANCE** **PAT** **MAP** **HAT** **HMAS**
360

<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
							ASC				2100
CONTROL_TOWER (06-021928)	374310.07N/1221319.06W	257	20	3	1A	1000					1300
TERRAIN	374000.00N/1220600.00W	98 (100)								AS1500	1600

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



AIRPORT ID
HWD

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FACILITY
RNAV

CIRCLING ALL CATS CAT A CAT B CAT C CAT D CAT E NOT AUTHORIZED

<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>RADIUS</u>	<u>HAA</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
CATEGORY A											
TWR (06-002024)	373903.79N/1220903.34W	1.30	488	229	20	3	1A	300			540
CATEGORY B											
POLE (06-306363)	373757.75N/1220751.06W	1.81	488	238	20	10	1B	300			540
CATEGORY C											
POLE (06-306363)	373757.75N/1220751.06W	2.84	488	238	20	10	1B	300			540
CATEGORY D											
AAO	373809.94N/1220229.11W	3.70	868	620	50	20	2C	300			920

CIRCLING REMARKS:

MSA

CENTER RADIUS
RW28L 25

<u>SECTOR</u>	<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>BEARING</u>	<u>DISTANCE</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
360-360	AAO	372845.00N/1213321.00W	096	28.7	4295	100	3	3A	1000			5300

MSA REMARKS:

NOTES/EXPLANATIONS FROM PROCEDURE SEGMENTS:



AIRPORT ID
HWD

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AIRPORT ELEVATION
52

FACILITY
RNAV

PART B: SUPPLEMENTAL DATA

COMMUNICATIONS WITH

HWD TOWER, NORCAL APP CON

WX SERVICE
ASOS

LOCATION
HWD

HRS OPERATION
24

ALTIMETER SOURCE
HWD

DISTANCE
0.03

WMSCR
Y

ADJUSTMENTS
0

BACK-UP WX SERVICE
ASOS

LOCATION
OAK

HRS OPERATION
24

ALTIMETER SOURCE
OAK

DISTANCE
6.02

WMSCR
Y

ADJUSTMENTS
22

WX REMARKS:

RASS PRESSURE PATTERNS THE SAME.
HWD 52, OAK 5
RA=21.3

PRIMARY NAVAID

MONITOR POINT

HRS OPERATION

CAT

APPROACH AND RUNWAY LIGHTING SYSTEM	RUNWAY MARKINGS	RUNWAY VISUAL RANGE
RW10L - MIRL (PCL), PAPI-4L	NPI-G	
RW28R - MIRL (PCL), PAPI-4L	NPI-G	
RW10R - MIRL (PCL), REIL, VASI-4R	PIR-G	
RW28L - MIRL (PCL), REIL, VASI-4L	PIR-G	

GLIDESLOPE ANGLE
3.10

ELEV RWY THRESHOLD
50.0

TCH
35.0

ELEV GS ANTENNA

DISTANCE FROM RWY

VGSI ANGLE
4.00

TCH
35.0

FINAL APPROACH COURSE AIMING

RUNWAY THRESHOLD
ON CENTERLINE

FT FROM THRESHOLD
FT FROM CENTERLINE

DISPLACED THRESHOLD DISTANCE 676

CRITICAL TEMPERATURES

CRITICAL LOW

CRITICAL HIGH

ACT

APT ISA

CRITICAL TEMPERATURE REMARKS:

"VISUAL PORTION OF FINAL" PENETRATIONS

FINAL TYPE	CIRCLING RWY 10L:
20:1	
81 TREE (06-306195) 373949.69N/1220742.42W (36)	67 TREE (06-305670) 373949.34N/1220742.61W (22.22)
84 TREE (06-305763) 373951.98N/1220748.57W (11.79)	66 TREE (06-305980) 373950.75N/1220745.58W (7.32)
105 TREE (06-306348) 373953.41N/1220755.48W (5.1)	95 TREE (06-305781) 373952.13N/1220753.83W (4.08)

QUALITY
31
CHECKED

AIRPORT ID
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AIRPORT ELEVATION
52

FACILITY
RNAV

42 FENCE (06-306315) 373948.76N/1220741.23W (3.5)	78 TREE (06-306116) 373952.60N/1220748.84W (3.29)
113 TREE (06-040856) 373953.18N/1220758.53W (3.04)	97 TREE (06-305983) 373951.78N/1220754.99W (2.91)
94 TREE (06-305704) 373951.68N/1220754.75W (1)	99 TREE (06-305989) 373953.41N/1220755.01W (0.74)
93 TREE (06-306040) 373952.00N/1220754.50W (0.07)	
FINAL TYPE	CIRCLING RWY 28R:
20:1	
115 TREE (06-306309) 373923.83N/1220648.91W (18.5)	103 TREE (06-306326) 373923.18N/1220648.50W (3.44)
98 TREE (06-306238) 373924.18N/1220648.79W (1.97)	66 BUILDING (06-305899) 373926.77N/1220655.88W (1.21)
59 BUILDING (06-025142) 373927.53N/1220657.17W (0.62)	
PENETRATIONS REMARKS:	

HELICOPTER 'VISUAL PORTION OF FINAL' PENETRATIONS

and/or

5280-FT "PROCEED VFR" SEGMENT LEVEL SURFACE AREA PENETRATIONS

PENETRATIONS REMARKS:

PART C: GENERAL REMARKS:

PRECIPITOUS TERRAIN EVALUATION COMPLETED.

TAA NOT DEVELOPED PER AIR TRAFFIC.

CIRCLING NA N OF RWY 10L-28R NOTE RETAINED PER PREVIOUS PROCEDURE; FPT CONCURRENCE.

AVERAGE VEGETATION HEIGHT 60 FEET PER FPT.

BANK ANGLE 25 DEGREES, 265 KIAS USED FOR MISSED APPROACH.

BARO-VNAV NA; FINAL SEGMENT OVERLIES PRECIPITOUS TERRAIN.

ORDER 8260.3 CHAPTER 2 APPLIED TO 919 AAO 373753.33N/1220152.21W.

ORDER 8260.3 CHAPTER 2 APPLIED TO 519 TREE 373833.82N/1220259.42W.

ORDER 8260.3, CHAPTER 2, NEW CIRCLING CRITERIA APPLIED.



AIRPORT ID
HWD

PROCEDURE NAME
RNAV (GPS) RWY 28L

AMDT NO.
1E

CITY
HAYWARD

STATE
CA

AIRPORT ELEVATION
52

FACILITY
RNAV

PART D: AIRSPACE

DOCKET #

ALL DISTANCES TO 1/100NM; ELEVATION TO NEAREST 100 FEET; COORDINATES TO 1/100 SECOND; DEG TO 1/100 DEGREE

DISTANCE FROM	THLD	TO 1000FT POINT	8.45
WIDTH OF	FINAL	SEGMENT AT 1000FT POINT	1.20
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1000FT POINT	299.97
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1000FT POINT	1400
DISTANCE FROM	THLD	TO 1500FT POINT	8.87
WIDTH OF	FINAL	SEGMENT AT 1500FT POINT	1.57
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1500FT POINT	299.97
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1500FT POINT	1400

THRESHOLD COORDINATES (IF STR-IN)	373918.67N/1220653.14W
ARP COORDINATES	373932.15N/1220718.26W
RUNWAY APCH END AND DIST FURTHEST FROM ARP	RUNWAY 28L DISTANCE 0.51 NM
FAF COORDINATES	373435.12N/1215633.57W
FIX NAME COORDINATES	

REMARKS

NO ADDITIONAL AIRSPACE REQUIRED.
THLD DISPLACED 676FT, ACTUAL COORDINATES: 373915.35N/1220645.85W

PART E: PREPARED BY

<u>NAME</u>	<u>OFFICE</u>	<u>DATE</u>	<u>TITLE</u>
JOSEPH L. ZEDER (CHRISTOPHER D. WILKINSON)	AJV-A432	08/14/2024	AERONAUTICAL INFORMATION SPECIALIST

