

# ORDER

MSP ATCT  
M98 TRACON  
7110.26F

## **MINNEAPOLIS ATCT and TRACON STANDARD OPERATING PROCEDURES**



January 19, 2024

**VATUSA MINNEAPOLIS ARTCC**  
**VIRTUAL AIR TRAFFIC SIMULATION NETWORK**



**VIRTUAL AIR TRAFFIC SIMULATION NETWORK**  
UNITED STATES DIVISION  
Minneapolis ATCT/TRACON  
Northeast Region

**MSP/M98**  
**7110.26F**

Effective date:  
January 19, 2024

**SUBJ:** Minneapolis ATCT and TRACON Standard Operating Procedures

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This order prescribes standard operating procedures for use by Air Traffic Control Specialists at Minneapolis ATCT and Minneapolis TRACON on the VATSIM network. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations not covered by it.

It is emphasized that information contained herein is designed and specifically for use in a virtual controlling environment. It is not applicable, nor should be referenced for live operations in the National Airspace System (NAS). The procedures contained within this order document how the positions are to be operated and, in conjunction with FAA Orders 7110.10, 7110.65, and 7210.3, will be the basis for performance evaluations, training, and certification.

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**Order Record of Changes**

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<i>Paragraph</i>	<i>Page</i>
Chapter 1. General Information .....	1-1
1-1. Purpose of this Order.....	1-1
1-2. Audience.....	1-1
1-3. Where Can I Find This Order? .....	1-1
1-4. What This Order Cancels. ....	1-1
1-5. Software Utilization. ....	1-1
1-6. Global Ratings.....	1-1
1-7. Emergencies. ....	1-1
1-8. Minneapolis Tower Airspace. ....	1-2
1-9. Transfer-of-control point for MSP arrivals: .....	1-2
1-10. Delegated Airspace. ....	1-2
1-11. Prohibited Operations: Runway 12/35 Configuration.....	1-2
1-12. Visual Separation between Minneapolis Tower and Minneapolis TRACON. ....	1-3
1-13. Distance Between Parallel Runways.....	1-3
Chapter 2. MSP Tower General Operating Procedures .....	2-1
2-1. General .....	2-1
2-2. Communications.....	2-1
2-3. Tower Cab Operating Positions and Responsibilities .....	2-2
2-4. Clearance Delivery .....	2-4
2-5. Ground Metering.....	2-6
2-6. Ground Control .....	2-7
2-7. Local Control.....	2-10
Chapter 3. M98 TRACON General Operating Procedures .....	3-1
3-1. General .....	3-1
3-2. Communications.....	3-1
3-3. TRACON Operating Positions and Responsibilities .....	3-2
3-4. Top-Down Airspace Staffing .....	3-4
3-5. Parallel Runway Procedures.....	3-4
3-6. Prearranged Coordination Procedures (P-ACPs). ....	3-4
3-7. Automated Information Transfer (AIT) Procedures. ....	3-5
3-8. Automated Point Outs. ....	3-6
Chapter 4. Arrival Procedures.....	4-1
4-1. General .....	4-1
4-2. Approach Control Descent Area. ....	4-1
4-3. Feeder Airspace.....	4-2
4-4. Feeder/Arrival Control .....	4-4
4-5. Arrival Crossover Traffic .....	4-6
4-6. Communications Transfer of Arrival Traffic .....	4-8
4-7. Missed Approach and Go-Around Procedures.....	4-8
4-8. Scratch Pad Entries.....	4-9
4-9. Runway 35 Reduced Separation on Final. ....	4-11
4-10. Runways 30L/R and 35 Converging Runway Operations. ....	4-11
4-11. Use of the Arrival Departure Window(ADW).....	4-11

4-12. Management of Balked Landings during Simultaneous Operations on Converging Runways 35, 30L, and 30R.....	4-12
4-13. Runway 30L RNAV (RNP) Y Approach Restrictions.....	4-12
Chapter 5. Departure Procedures .....	5-1
5-1. General .....	5-1
5-2. Tower Delegated Airspace/Departure Dispersal Areas .....	5-1
5-3. Departure Delegated Airspace. ....	5-1
5-4. Departure Configurations.....	5-1
5-5. Departure Headings.....	5-1
5-6. Common Departure Heading for Runway 12 when Departing Runways 12 and 17. ....	5-2
5-7. LEINY and SMERF SID Procedures.....	5-2
5-8. Enroute Transfer Procedures.....	5-3
Chapter 6. Satellite Operations .....	6-1
6-1. General.....	6-1
6-2. Airspace.....	6-2
6-3. IFR Releases.....	6-2
6-4. STP Runway 14 Departures.....	6-2
6-5. STP Shelf.....	6-2
6-6. Over the Top Procedures.....	6-2
6-7. Prearranged Coordination .....	6-2
6-8. Handoff Altitudes to Arrival.....	6-3
6-9. Minneapolis Departures and Flying Cloud Runway 28 Arrivals.....	6-3
Chapter 7. Equipment, TMU, & SWAP .....	7-1
7-1. ASDE-X and Safety Logic System.....	7-1
7-2. FUSION .....	7-1
7-3. Traffic Management Unit.....	7-1
7-4. SWAP Responsibilities.....	7-1
Chapter 8. IDS .....	8-1
8-1. General.....	8-1
8-2. Responsibilities .....	8-1
8-3. Procedures .....	8-1
8-4. Low Level Wind Shear/Braking Action Advisories .....	8-2
8-5. Radar Beacon Code Assignment.....	8-2
8-6. IDS System Malfunction.....	8-2
Chapter 9. Pre-Departure Clearance (PDC).....	9-1
9-1. General.....	9-1
9-2. Procedures.....	9-1
Chapter 10. Runway 17-22 Configuration.....	10-2
10-1. Weather Criteria for Land Runway 17 and 22 Operations.....	10-2
10-2. Delegated Airspace.....	10-2
10-3. LAHSO Procedures Runway 17-22.....	10-2
10-4. Converging Runway Display Aid (CRDA) Procedures Runway 17-22.....	10-2
10-5. Land 17 and 22—Depart 12L/R, 17, and 22 (General).....	10-3
10-6. Go Arounds.....	10-4
10-7. Additional Tower Responsibilities.....	10-4

## Chapter 1. General Information

**1-1. Purpose of this Order.** This Order establishes standard operating procedures for the VATSIM Minneapolis ATCT and Minneapolis TRACON, and supplements FAA JO 7110.65, Air Traffic Control.

**1-2. Audience.** All VATSIM Minneapolis ARTCC personnel.

**1-3. Where Can I Find This Order?** You can find this order in the Documents & Procedures area of the vZMP website.

**1-4. What This Order Cancels.** The following Notices are cancelled and their content has been added to this SOP:

- a. MSP/M98 Order 7110.26F CHG 1, eff. Nov 8, 2023.

**1-5. Software Utilization.** ZMP has standardized the Consolidated Radar Client (CRC) as its operating software of choice for all control positions. Any references to software in this and other Facility Orders are written with CRC in mind. Controllers utilizing alternative VATSIM radar clients must consult with the ZMP Engineering/AeroNav Unit regarding the applicability of software settings to their client of choice.

**1-6. Global Ratings.** All positions of operation outlined within this order must be staffed in compliance with VATSIM Global Ratings Policy eff. Sept 1, 2009.

a. Minneapolis-St. Paul International (KMSP) is designated by GRP as a **MAJOR** facility, and all controllers staffing MSP ATCT and M98 TRACON positions must either possess or be in training for the appropriate rating and/or facility endorsements.

b. M98 Satellite Tower positions are designated as **MINOR** facilities. Any controller holding a Tower Controller Rating (S2) must be allowed to staff Tower Cab positions at the following:

- (1) St. Paul Downtown-Holman Field (KSTP)
- (2) Minneapolis Flying Cloud (KFCM)
- (3) Anoka County-Blaine (KANE)
- (4) Minneapolis Crystal (KMIC)

**1-7. Emergencies.** Controllers must reference VATSIM CoC and CoR policies regarding emergencies at all times, and have the right to request the termination of an emergency should it interfere with operations. Non-compliant pilots should be referred to a VATSIM supervisor IAW the CoC.

**1-8. Minneapolis Tower Airspace.** Minneapolis Tower airspace is depicted in Appendix D and includes:

- a. The airspace from the surface up to and including 3,000 ft. within the 6-mile ring of the Minneapolis Class B Airspace, including, where applicable, the airspace within 1.5 NM either side of the localizer(s) from the 6-mile ring to final approach fix(es).
- b. When landing Runways 30L/R and Runway 35, the airspace within the 6-mile Class B ring between the eastern boundary of the satellite “corridor” over MSP west to the departure dispersal area, from the surface up to and including 4,000 ft.
- c. In the departure dispersal area, the airspace from the surface up to and including 7,000 ft., and over the FCM and MIC satellite cutouts from 3,500 ft. up to and including 7,000 ft.
- d. The airspace within dispersal area extensions from 4,000 ft. up to and including 7,000 ft.

**1-9. Transfer-of-control point for MSP arrivals:**

- (1) Instrument approach: the final approach fix.
- (2) Visual approach: the point at which an aircraft on final crosses the Tower airspace lateral boundary.

**1-10. Delegated Airspace.** Delegated airspace is defined throughout the order and depicted in Appendixes A and D.

- a. Altitudes are shown in hundreds of feet MSL.
- b. MSP Tower Airspace (as depicted in Appendix D) supersedes M98 TRACON Airspace (as depicted in Appendix A).
- c. Delegated airspace diagrams depict IFR altitudes, unless otherwise noted.
- d. For VFR operations, each TRACON position is delegated VFR altitudes to the base of the overlying airspace and down to 500 feet above Tower airspace.

**EXAMPLE-**

On a Runway 30/35 configuration, over MSP Airport, Satellite is delegated 5,000 ft. with VFR altitudes of 5,500 ft. and 4,500 ft.

- e. The underlying position must ensure appropriate separation from the overlying airspace within Class B boundaries.
- f. Each position is responsible to ensure separation from heavy jets and B757s when vectoring VFR aircraft less than 1,000 ft. below overlying airspace.

**1-11. Prohibited Operations: Runway 12/35 Configuration.** Due to increased concerns about go-around procedures, the Land Runway 12 and 35–Depart Runway 12 configuration is prohibited.

**1-12. Visual Separation between Minneapolis Tower and Minneapolis TRACON.** Minneapolis ATCT and Minneapolis TRACON are authorized to apply visual separation between aircraft under the control of either facility in order to maintain efficiency at MSP Airport. Both facilities must ensure that visual separation is applied only when weather conditions do not obscure visibility affecting the application of visual separation.

**1-13. Distance Between Parallel Runways.** The distance between the centerlines of Runways 12L/30R and 12R/30L is 3,380'.



## Chapter 2. MSP Tower General Operating Procedures

### 2-1. General

a. Minneapolis/St. Paul International Airport (MSP) is ZMP's primary Class B airport, and the only GRP-designated Major tower cab within the facility.

(1) Controllers staffing Clearance Delivery or Ground Control positions in the MSP Tower Cab must hold at least a Ground Controller (S1) rating, along with a MSP CD/GND endorsement.

(2) Controllers staffing Local Control positions in the MSP Tower Cab must hold at least a Tower Controller (S2) rating, along with a MSP TWR endorsement, or must be in training for such.

### 2-2. Communications

a. Controllers operating Minneapolis Tower Cab positions must utilize the following radar client frequencies. In order to streamline coordination with other ZMP controllers, positions must be configured exactly as follows:

<i>Position Name</i>	<i>Frequency</i>	<i>Callsign</i>
Minneapolis ATIS	135.350	KMSP_ATIS
Clearance Delivery	133.200	MSP_DEL
Ground Metering	133.575	MSP_H_GND
Ground Control North	121.800	MSP_N_GND
<b>Ground Control South*</b>	<b>121.900</b>	<b>MSP_S_GND</b>
Ground Control West	127.925	MSP_W_GND
Local Control North	123.950	MSP_N_TWR
<b>Local Control South*</b>	<b>126.700</b>	<b>MSP_S_TWR</b>
Local Control West	123.675	MSP_W_TWR

#### **NOTE-**

**Bold\*** in the above table indicates the primary combined frequency to be connected first.

b. Every controller must utilize a primary frequency in their ATC client program for communications with aircraft. Every controller is encouraged to use voice as the primary method of communication with aircraft per VATSIM regulations. However, aircraft utilizing non-voice communications (text- or receive-only) will never be denied ATC services. Controllers must use text if needed to clarify instructions, or when requested by an aircraft.

c. Every KMSP Tower Cab position must maintain a standard, and common Controller Information broadcast. CRC's Controller Info dialog automates many of the elements of a standard position ATIS. The Controller Information will include the following elements at minimum:

Position  
Current ATIS Letter ID  
Active Runways

**EXAMPLE-**

\$radioname()  
KMSP ATIS ALPHA – 2353Z WX – Altimeter 2992  
Departing 12L/12R and 17, Landing 12L/12R  
ASDE-X Surveillance System in Use at KMSP – Mode C on all taxiways  
Minneapolis ARTCC – feedback.minniecenter.org

**d. ATIS.** Local Control must be responsible for keeping an updated voice ATIS with all necessary information pertaining to operations at KMSP. During split operations, voice ATIS must be the responsibility of Local Control South unless otherwise coordinated. vATIS must be the preferred method of maintaining the KMSP automated voice ATIS. Both the departure ATIS and arrival ATIS must be connected, utilizing the frequencies 120.8 and 135.35, respectively.

**NOTE 1-**

When KMSP is in a Land 30s/35-Depart 30s or Land 17/22 configuration, place a message in the voice ATIS advising of converging operations to converging runways in use. Also, when LAHSO operations are in effect, place an appropriate message in the voice ATIS.

**NOTE 2-**

During any Land 12s, Land 17, Land 4, or Land 22 configuration, or any time during quiet hours (2230-0600 local), optionally place a note in the voice ATIS advising that final approach is over noise-sensitive areas.

**2-3. Tower Cab Operating Positions and Responsibilities****a. Clearance Delivery (CD)**

- (1) Marks IFR flight strips with proper frequency and appropriate restrictions.
- (2) Formulates and transmits Class B Airspace departure clearances.
- (3) Formulates and transmits departure clearances via the appropriate frequency to local IFR aircraft (those whose flight plans will keep them within the Minneapolis Tower's assigned airspace).
- (4) Issues IFR clearances to outbound IFR aircraft, either verbally or via the Pre-Departure Clearance (PDC) system.
- (5) Creates flight progress strips or radar client flight plans on VFR aircraft departing the Class B Airspace. Information on these strips should include aircraft ID and type, altitude requested and assigned, transponder code, direction of flight, and frequency assigned.

**b. Ground Metering (GH)**

- (1) Maintains an awareness of the airport operations/traffic flow.
- (2) When instructed by cab controllers, reissues ATC clearances as necessary.
- (3) When necessary, reassigns departure control frequencies and indicates such on flight progress strips.
- (4) Keeps aircraft advised of significant weather changes, SIGMETs, NOTAMs, ATIS changes, etc.
- (5) Ground metering must follow the procedures as outlined in paragraph 2-5c., Ground Metering.

**c. Ground Control (GC)**

- (1) Issues taxi instructions to all aircraft operating in the movement areas on the airport as they taxi to and from the active runways, to and from gates and hangars, etc.
- (2) Coordinates crossing of active runways with local control.
- (3) Ensures departing aircraft have the appropriate ATIS code and are apprised of the latest field conditions, weather, and RVR values when required.
- (4) Passes the flight progress strip to local control before the departing aircraft reaches the takeoff runway, making sure that the proper sequence of strips/aircraft is maintained in the case of multiple departures.
- (5) Follows the procedures outlined in paragraph 2-6, Split Ground Control Procedures.

**d. Local Control (LC)**

- (1) Issues air traffic control instructions, clearances, and traffic information, ensuring the separation of arriving and departing aircraft and all those operating within MSP delegated airspace.
- (2) Is cognizant of Class B Airspace procedures and assumes responsibility for the separation standards for traffic under the controller's jurisdiction. Utilizes the CTRD to his/her advantage. Issues radar advisories and provides other services as workload permits.
- (3) Transmits weather, field conditions, NOTAMs, PIREPs, RVR values, and other required data to arriving and departing aircraft as necessary.
- (4) Is cognizant of and applies noise abatement procedures with regard to runway use and departure headings.
- (5) Uses proper control techniques to avoid delays.
- (6) If required, Forwards flight progress strips to the TRACON in time for the radar controller to have the strip before the frequency change is made, and prior to 1 mile from the departure end of the runway.

(7) Local control must ensure that departure control is advised of any departure that has not auto acquired within two miles from the airport.

(8) Follows the procedures in paragraph 2-7, Split Local Control Procedures.

## **2-4. Clearance Delivery**

### **a. IFR Operations**

(1) Every aircraft departing the KMSP terminal area under an IFR flight plan must be issued a Standard Instrument Departure (SID).

(a) Clearance Delivery must ensure that flight plans are amended to include an assigned SID if the filed flight plan does not originally include one. Should a pilot not have SID procedures available to them, the MINNEAPOLIS vector departure procedure must be assigned.

#### **NOTE-**

*Clearance delivery is **not authorized** to grant “direct-to” clearances. Should a pilot request a direct-to clearance, the clearance may include verbiage to “expect” clearance direct-to a clearance limit:*

#### **EXAMPLE-**

*“Airspr 2030, Minneapolis Delivery, cleared to the Brookings airport via the Minneapolis Six departure, expect vectors direct to Brookings...”*

### **(2) Preferred Routings / Departure Directions**

(a) Vector Departures on the MINNEAPOLIS and MEDOW SIDs: These SIDs allow controllers to vector to virtually every primary airway navaid in the regional vicinity of MSP to initiate an IFR routing. The use of a vector SID does not require that the pilot file a flight plan that includes one of the navaids depicted on the SID chart.

(b) Pilot Nav SIDs are preferred at MSP. Clearance Delivery must ensure that flight plans containing pilot nav SIDs have appropriate transitions and/or clearance limits included. This includes ensuring proper routing per LOAs with adjacent ARTCCs. MSP Pilot Nav SIDs are as follows:

<i>Departure Name</i>	<i>Preferred</i>	<i>Direction</i>	<i>Initial Fix</i>	<i>Transition(s)</i>
COULT	17, 12L/30R	SE	TAXEE	DLL
DWN ( <i>Darwin</i> )	12L/30R	W	INUNE	ABR
KBREW ( <i>Kay-Brew</i> )	12L/30R	NW	HRBEK	FAR
ORSKY ( <i>Or-skee</i> )	17, 12R/30L	S	RUMLE	ONTIJ
RST ( <i>Rochester</i> )	17, 12R/30L	SE	FOBUG/DOKTR	ALO
SCHEP ( <i>Shepp</i> )	17, 12R/30L	SW	MCONL	RXANN
WLSTN ( <i>Wellstone</i> )	12L/30R	NE	SNINE	GRB
ZMBRO ( <i>Zumbro</i> )	17, 12R/30L	SE	JEDET	ODI
SMERF ( <i>Smurf</i> )	12L/30R	W	ZOGAP	None
LEINY ( <i>Line-ee</i> )	12L/30R	W	BOTNE	None

(3) Clearance delivery must ensure that appropriate altitudes for direction of flight are filed in the flight plan, as well as given in the clearance.

(a) Direction of flight must be based upon the on-course heading of the flight. Initial departure headings after takeoff must not be considered direction of flight for purposes of altitude clearance assignment.

(b) In addition, Clearance Delivery must ensure that appropriate altitude restrictions listed in LOAs with adjacent ARTCCs are complied with.

(4) Clearance delivery must issue initial altitudes to IFR departures as follows, unless otherwise coordinated:

(a) Turbojet departures requesting 9,000 ft. and higher must be assigned 7,000 ft. and assigned to Departure Control. If Departure is not staffed, IFR departure frequency fallback order is Approach, then Enroute.

(b) Turboprop departures requesting 9,000 ft. and higher must be assigned 5,000 ft. and assigned to Departure Control. If Departure is not staffed, IFR departure frequency fallback order is Approach, then Enroute.

(c) All departures requesting 8,000 ft. or below must be assigned 4,000 ft. and assigned to Satellite Control. If Satellite is not staffed, departure frequency fallback order is Departure, Approach, then Enroute.

(d) Single engine or piston twin-engine aircraft requesting 9,000 ft. or higher must be assigned 4,000 ft. and assigned to Satellite Control. If Satellite is not staffed, departure frequency fallback order is Departure, Approach, then Enroute.

**b. VFR Operations.** Clearance Delivery must:

(1) Authorize requests to operate within the MSP Class B Airspace and obtain aircraft identification, type, direction of flight/destination and requested altitude.

(2) Aircraft requesting VFR clearance to leave the Class B airspace, without additional flight following, must be issued an altitude at or below 2,500 ft. and pointed out to the appropriate M98 controller. Aircraft should be assigned a transponder code from the 0341-0346 Tower code block.

(3) VFR aircraft requesting flight following within M98 airspace must be assigned 3,500 ft. or lower and assigned to the appropriate M98 position.

(4) Local Control must assign the initial headings prior to takeoff, the same as IFR aircraft.

(5) Utilize appropriate outbound phraseology:

**EXAMPLE-**

*“N211F, cleared out of Minneapolis Bravo airspace, maintain (altitude) while in Bravo airspace, departure frequency (frequency), squawk (code)”.*

c. **Beacon Codes.** Transponder beacon codes for all departures, VFR and IFR, must be assigned via in accordance with the VATUSA National Beacon Code Allocation Program:

<i>Departure Type</i>	<i>Primary Range</i>	<i>Secondary Range(s)</i>
Internal (Remaining within ZMP)	4201-77	4501-77, 4601-77
Outbound (Leaving ZMP)	2401-77	3601-77
Overflights (Transiting ZMP)	6301-77	7040-77
VFR	0101-77	1201-0177

**NOTE-**

*Certain local (remaining within M98 control) VFR aircraft, military flights, and prescribed Lifeguard aircraft may occasionally deviate from these beacon code assignments and must be assigned via IDS-5. For further information, refer to Chapter 8, IDS. In the event of a vNAS outage, assign beacon codes via the vZMP IDS.*

## 2-5. Ground Metering

a. The objective of ground metering procedures is to provide for the efficient metering of outbound aircraft during busy situations such as events. Ground Metering must only be opened when Ground Control North and Ground Control South are already online, and only at the request of a controller acting in CIC capacity.

b. A message must be broadcast on the ATIS advising aircraft that ground metering procedures are in effect at the main terminal.

c. Ground Metering must:

(1) Ensure that aircraft have the current ATIS.

(2) Instruct aircraft to monitor the appropriate Ground Control frequency.

**EXAMPLE-**

*DAL1234: "Minneapolis Metering, DAL1234, gate C12, Information GOLF."*

*MSP\_R\_GND: "DAL1234, Metering, good afternoon. Monitor ground one two one point eight. Expect runway 17"*

(3) Not issue pushback clearance or issue taxi instructions.

(4) If utilizing radar client flight progress strips, after instructing an aircraft to monitor Ground Control, push the strip to the appropriate Ground Control position.

(5) Unless special circumstances warrant, such as Ground Delay Programs, SWAP, etc., release aircraft to Ground Control on a first come, first serve basis.

**2-6. Ground Control****a. Positions.**

(1) Ground Control North (MSP\_N\_GND – 121.800).

(2) Ground Control South (MSP\_S\_GND – 121.900).

(3) Ground Control West (MSP\_W\_GND – 127.925).

**b. Responsibilities During Split Operations:**

(1) Ground Control North must be responsible for:

(a) Taxiways C, D, G, M, P, Q, R, 12L de-ice pad, and 30R de-ice pad.

(b) Gates A, B, C, D, even numbered Concourse E gates 2-12, and associated ramp areas, and other gates as coordinated or determined by CIC.

(2) Ground Control South must be responsible for:

(a) Taxiways A, B, C, C6, D, H, M, 12R de-ice pad, 30L de-ice pad and associated ramp areas.

(b) Gates G, F, odd numbered Concourse E gates, E-14, E-16, and other gates as coordinated or assigned by CIC.

(3) Ground Control West must be responsible for:

(a) Taxiways and movement areas south of Runway 12R/30L including Taxiways W, C, D, L, K, S, N, M, T, Z, Y, and 17 de-ice pad.

(b) All Terminal 2 (Humphrey) Gates unless otherwise coordinated.

**NOTE 1-**

Ground Control West must only be utilized when Local Control West (MSP\_W\_TWR) is also staffed, When Ground Control West is offline, its areas of control are the responsibility of Ground Control South.

**NOTE 2-**

Taxiways C, D, H, M, and Runway 4/22 between Runway 12L and Runway 12R, must be used directionally as coordinated between Ground Control North and Ground Control South.

**NOTE 3-**

Control of the E and F Gates in the alley may be assigned to Ground Control North or Ground Control South as coordinated by CIC.

**c. ASDE-X Surveillance System**

(1) Minneapolis Airport is equipped with ASDE-X Surveillance Equipment to aid in the monitoring of ground movements.

(2) In accordance with ASDE-X operations, MSP Tower Cab controllers must:

(a) Place a message in the KMSP Voice ATIS advising all aircraft to taxi with transponder and altitude encoding on.

(b) When issuing outbound taxi instructions to aircraft squawking standby, request the pilot to turn Mode C altitude encoding on.

**EXAMPLE-**

*MES3328: "Minneapolis Ground, MES3328 ready to taxi 30R."*

*MSP\_GND: "MES3328, Minneapolis Ground, good afternoon. Runway 30R, taxi via P. When able, squawk normal."*

**NOTE-**

*Pilot participation in the simulation of ASDE-X Surveillance equipment is encouraged in order to enhance realism, but not required. In accordance with VATSIM CoR, controllers must not deny services to aircraft unable or unwilling to operate with Mode C altitude encoding on during ground movement operations.*

**d. Ground Movement Procedures**

(1) During periods of heavy traffic, controllers must issue taxi instructions for departing traffic to the departing runway using the "outer" taxiways whenever possible (i.e. 30L via A, 30R via P).

(2) Traffic inbound to a gate or ramp area must be given taxi instructions using the "inner" taxiways whenever possible (i.e. Q or B).

(3) Caution should be used in a runway 30 configuration when taxiing aircraft from the B or C concourses that lie along and parallel to 30R/12L. Outbound aircraft from gates on those concourses assigned 12R/30L or 17 for departure should use taxiway Q to get around traffic taxiing to 12L/30R.

(4) Maintain awareness of aircraft exiting the active runway in the event an aircraft should need to transition onto the adjacent taxiway.

**e. Split Operations**



(1) Ground Control North and South must coordinate standard direction of taxi on Taxiways C, D, H, M, and Runway 22 between Taxiways B and Q.

(2) Ground Control North must:

(a) Operate independently on assigned taxiways, runways, and ramp areas.

(b) Accomplish frequency changes between aircraft transferring one Ground Control to another prior to the aircraft entering the other ground controller's taxiways and soon enough to allow the receiving Ground Controller time to sequence or issue appropriate taxi instructions.

(c) Coordinate runway crossings on Runway 12L/30R with the appropriate Local Control.

(3) Ground Control South must:

(a) Operate independently on assigned taxiways, runways, and ramp areas.

(b) Accomplish frequency changes between aircraft transferring one Ground Control to another prior to the aircraft entering the other ground controller's taxiways and soon enough to allow the receiving Ground Controller time to sequence or issue appropriate taxi instructions.

(c) Coordinate runway crossings on Runway 12R/30L with the appropriate Local Control.

(4) Ground Control West must:

(a) Operate independently on assigned taxiways, runways, and ramp areas.

(b) Accomplish frequency changes between aircraft transferring one Ground Control to another prior to the aircraft entering the other ground controller's taxiways and soon enough to allow the receiving Ground Controller time to sequence or issue appropriate taxi instructions.

(c) Coordinate runway crossings on Runways 12R/30L and 17/35 with the appropriate Local Control.

(5) **Ground Control Departure Taxi Procedures.** Ground control must taxi aircraft to the appropriate departure runway based upon the initial departure fix/SID, direction of flight, and noise abatement procedures.

(a) **30L/R(35) Configuration**

1. 30R: LEINY, DWN, SMERF, KBREW, DLH, BRNRD, WLSTN, COULT

2. 30L: ZMBRO, RST, ORKSY, SCHEP

(b) **12/17 Configuration**

1. 12R: OPERATIONALLY NEEDED

2. 12L: LEINY, DWN SMERF, KBREW, DLH, BRNRD, WLSTN

3. 17: COULT, ZMBRO, RST, ORKSY, SCHEP

**(c) Straight 12s**

- 1.** 12R: ZMBRO, RST, ORSKY, SCHEP
- 2.** 12L: LEINY, DWN, SMERF, KBREW, DLH, BRNRD, WLSTN, COULT

**(d) 30/17 Configuration (Non Quiet Hours)**

- 1.** 30R: LEINY, DWN, SMERF, KBREW, DLH, BRNRD, WLSTN, COULT
- 2.** 30L: OPERATIONALLY NEEDED
- 3.** 17: ZMBRO, RST, ORSKY, SCHEP

**(e) 30/17 Configuration (Quiet Hours).** All aircraft depart Runway 17 unless an operational requirement exists.

**2-7. Local Control**

**a.** Minneapolis Tower (local) positions are responsible for ALL aircraft movements on active runways and any aircraft within the delegated airspace. Tower controllers must ensure all aircraft in-flight are positively and properly separated. Coordination is necessary with nearly all controllers for safe and efficient flows of traffic in out of KMSP. This means working with other controllers in the MSP Tower Cab and M98 TRACON as necessary.

**b. Positions:**

- (1)** Local Control North (MSP\_N\_TWR – 123.950).
- (2)** Local Control South (MSP\_S\_TWR – 126.700).
- (3)** Local Control West (MSP\_W\_TWR – 123.675).

**c. Runway Selection**

**(1)** Local controllers must be responsible for selecting active runways at KMSP. When the local positions are split **MSP\_S\_TWR**, as the primary local position controller must make the decision on behalf of the entire tower cab. Once runway(s) are selected, local must notify adjacent controllers and facilities of your new runway configuration or “flow”.

**(2)** Parallel runway selection must be based on, but not limited to, wind, weather, and traffic conditions. Departures are considered noisier than arrivals and must be considered first when selecting a runway configuration. Departure runway/runways should be considered in descending preference from the chart below based on wind, weather, and airport demand.

(3) Once a departure runway configuration has been selected, a corresponding arrival runway configuration must be selected in descending preference from the chart below based on wind, weather, and airport demand.

- *Departure Preference*

Runways 12L/12R

Runway 17

Either Runway 22 or 04

Runways 30L/30R

- *Arrival Preference*

Runways 30L/30R

Runway 35

Either Runway 22 or 04

Runways 30L/30R

(4) Runway 17 will not be used for arrivals and runway 35 will not be used for departures by any type of aircraft except for the following:

(a) Safety or emergencies,

(b) Weather conditions that require its use, or

(c) Temporary runway closures due to snow removal, construction, or other activities.

(5) During quiet hours (2230 until 0600 local) maximize the use of the Mendota Heights/Eagan corridor as much as feasible by departing Runways 12L and 12R, and landing Runway 30L and 30R. The preferences for midnight operations are as follows:

(a) Land 30s–Depart 12s

(b) Land 30s–Depart 17

(c) Straight 12s

(d) Straight 30s

**d. Midnight Opposite Direction Operations**

(1) During quiet hours, opposite direction operations will be utilized to depart runways 12L/R and arrive runways 30L/R when wind and weather permit as per FAA Order 8400.9 and local runway use and noise abatement procedures.

(2) The Tower must ensure that noise sensitive aircraft will not start departure roll when like arrival aircraft are 15 flying-miles or closer to the airport.

(3) Tower must ensure that all noise sensitive departures will remain within the noise corridor.

(4) When visual separation is to be applied, Tower must advise TRACON when frequency change is necessary on arriving traffic.

(5) If Tower anticipates more than a 15-minute total delay or 5-minute delay at the runway for departure aircraft, coordinate with TRACON as necessary for possible change to the preferred cross-runway operation.

**(6) Good Tower Operating Procedures**

(a) Monitor frequency 124.7 if M98 is staffed.

(b) Operate tower CTRD on 40-mile range.

(c) Coordinate as necessary with M98 to avoid undue delays to departing aircraft.

**e. Mendota Heights/Eagan Noise Abatement Procedures (Runways 12R and 12L).**

Whenever possible, under non-simultaneous departure conditions:

(1) Aircraft departing Runway 12R will be assigned a heading to maintain an approximate ground track of 105° magnetic, and;

(2) Aircraft departing Runway 12L will be assigned a heading to maintain a ground track along the extended centerline, approximately 119° magnetic.

(3) When diverging separation is used, it must be based upon the following criteria:

(a) Runway 12R: a heading to maintain a track on or north of the 30L localizer.

(b) Runway 12L: between a 090° track and 15° north of the Runway 12R heading.

(4) Local Control must instruct all turbojet aircraft departing Runway 12L that will make a left turn on course to maintain runway heading. Local Control must issue assigned heading after the departure is beyond the departure end of 12L and prior to transfer of communications.

(5) Aircraft must proceed on the tower-assigned heading until at least 3 miles from the departure end of the runway, then assigned on-course headings as soon as practical after the 3-mile point.

**f. Runway 30L and 30R Noise Abatement Procedures.**

(1) Local Control must instruct all turbojet aircraft departing Runway 30L that will make a left turn on course to maintain runway heading. Local Control must issue assigned heading after the departure is beyond the departure end of 30L and prior to transfer of communications.

(2) Runway 30L/R Straight-Out Procedure: Local Control must avoid assigning runway heading off Runways 30L and 30R to noise sensitive aircraft. Controllers may assign any other heading within the tower primary departure dispersal areas.

**g. Runway 4 and 22 Departures.**

(1) Aircraft departing Runway 22 and making a right turn must:

(a) Be instructed to remain on runway heading until leaving 1,500 ft.MSL.

(b) Not be issued a heading greater than 350° until past the 12L localizer course.

**h. Runway 17 Departures.****(1) Westbound Turns.**

(a) The maximum Runway 17 westbound turn for noise aircraft is 285°.

(b) All turbojet aircraft departing Runway 17 with directions of flight to the west of runway heading must initially be instructed to fly runway heading. The Local Controller must issue the appropriate westbound heading after the aircraft is at least 3.0 NM from the field and prior to transfer of communications.

(c) When traffic situations permit, assign aircraft departing Runway 17 a heading of 230°.

**NOTE-**

*The intent of the 230° heading is to allow aircraft to follow the river. It is intended for use during low demand periods and not intended to unduly delay aircraft by taking them off course. There are no noise restrictions preventing departure control from assigning a different heading when traffic conditions permit.*

**i. Responsibility During Split Operations:**

(1) Local Control North must be responsible for arrivals and departures on Runways 30R/12L.

(2) Local Control South must be responsible for arrivals and departures on Runways 30L/12R and 04/22 if active.

(3) Local Control West must be responsible for arrivals and departures on Runways 17/35.

**j. Split Operations Procedures:****(1) Local Control North must:**

(a) Assign headings to ensure compliance with local noise abatement procedures.

(b) Assign headings off of Runway 30R from 295° clockwise through 360° when landing Runways 30L/R or as otherwise coordinated with Local Control South and/or Local Control West as appropriate.

(c) Turn departures 15° north of the assigned heading being used by Local Control South when using Runways 12L/R. Issue other headings as coordinated with Local Control South and/or Local Control West as appropriate.

(d) Coordinate with the appropriate Ground Control when aircraft will be required to enter a taxiway/runway/ramp area, other than the one used to exit the landing runway, in order to taxi clear of the landing runway.

(e) Instruct aircraft exiting the runways to contact the appropriate Ground controller.

(f) Handoff aircraft to the appropriate departure controller, if online, prior to 1 mile from the departure end of the runway.

**(2) Local Control South must:**

(a) Assign headings off of Runway 30L from 280° counterclockwise through 250° when using Runways 30L/R. Issue other headings as coordinated with Local Control West and/or Local Control North as appropriate.

(b) When using Runways 12L/R, determine the appropriate noise abatement heading in use. When the appropriate noise abatement heading has been determined, Local Control South must coordinate with Local Control North and/or Local Control West to ensure the appropriate heading provides the required divergence and/or separation.

(c) Be responsible for cross-runway arrivals and departures on Runways 4 and 22.

(d) When using Runways 12L/R and Runway 17, Local Control South must issue headings no further south than a 150° track unless coordinated with Local Control West.

(e) Instruct aircraft exiting the runways to contact the appropriate Ground controller.

(f) Coordinate with the appropriate Ground Control when aircraft will be required to enter a taxiway/runway/ramp area, other than the one used to exit the landing runway, in order to taxi clear of the landing runway.

(g) Handoff aircraft to the appropriate departure controller, if online, prior to 1 mile from the departure end of the runway.

**(3) Local Control West must:**

(a) Assign headings that ensure compliance with local noise abatement procedures.

(b) When arriving/departing 30s and departing 17, issue headings from 170° clockwise through 280°. All northbound departures must be coordinated with Local Control North and Local Control South and turned to a heading that will keep the departure in the dispersal area unless coordinated otherwise with M98.

(c) When arriving/departing 12s and departing 17, issue headings from a 170° track clockwise through a 215° track. Issue other headings as coordinated with Local Control South and/or Local Control North.

(d) Take appropriate action to separate Runway 35 go-arounds from any other arrival/departure traffic as necessary and coordinate with Local Control South and Local Control North as soon as feasible.

(e) Coordinate with the appropriate Ground Control when aircraft will be required to enter a taxiway/runway/ramp area, other than the one used to exit the landing runway, in order to taxi clear of the landing runway.

(f) Instruct aircraft exiting the runways to contact the appropriate Ground controller.

(g) Handoff aircraft to the appropriate departure controller, if online, prior to 2 miles from the departure end of the runway.

(h) When an aircraft is cleared to land on Runway 35, issue Runway 30L departing traffic information.

**EXAMPLE-**

*MSP\_W\_TWR: "DAL1844, Runway 35, cleared to land. Traffic (Type Aircraft) departing Runway 30L."*

(i) Coordinate with the appropriate Ground Control when aircraft will be required to enter a taxiway/runway/ramp area, other than the one used to exit the landing runway, in order to taxi clear of the landing runway.

(j) Instruct all turbojet aircraft departing Runway 17 that will be assigned a heading west of runway heading to initially fly runway heading. When the aircraft is observed reaching the 3.03 DME CTRD marking, issue the appropriate westbound heading.

(4) When Local Control South, West, or North delegates or modifies airspace or designated headings, such changes must be coordinated with the other Local Controllers.

**EXAMPLE-**

Strong winds from the north. South Local needs to use 270° through 290° headings. North Local approves the use of the 290° heading and changes their delegated airspace from a 295° heading to a 305° heading.

**k. Local Control Crossover Procedures.**

When the local control positions are split and operations require an aircraft departing off of 30L/R & 12L/R, to enter the airspace assigned to another local controller, these operations are considered crossover operations.

The exception to this is DWN, SMERF, and LEINY departures off of 30L which are not considered crossovers under any situation. Also, when operationally beneficial, LC/CIC may authorize KBREW departures off of Runway 30L to maintain proper runway balance. These fixes remain northbound fixes, however, so South Local must coordinate these departures with North Local prior to clearing the aircraft onto the runway. South Local must assign a heading on, or west of, the coordinated, straight-out heading (normally 300°).

When instituting a crossover operation, the following procedures must apply:

**(1) Crossover Coordination Procedures.**

(a) Controllers must maintain a heightened awareness and oversight of an approved crossover operation. Special emphasis must be placed on active observation of the coordinated crossover operation as the aircraft departs.

(b) Coordination between local control positions must be made when the aircraft is number one for departure.

- (c) Coordination must state departure fix and type of aircraft.

**EXAMPLE-**

(LCN) *“ORSKY CRJ”*

(LCS) *“260 approved.”*

(2) Local Control Delegation of Airspace. When a local controller delegates the use of their airspace to another local control position the following procedures must apply:

- (a) The local control position delegating the use of their airspace must ensure all traffic pertaining to the operation is exchanged.

**EXAMPLE-**

(LCN) *“ORSKY CRJ”*

(LCS) *“280 approved, I’ll be 260 with the A320 rolling.”*

(3) The controller accepting the restrictions must be responsible to ensure that approved separation is maintained between the aircraft.

(4) Diverging course or lateral/vertical separation must be ensured prior to turning aircraft off of runway heading.

(5) Departure Divergence and Communication Transfer. Minneapolis Tower must retain communication with departure aircraft until divergence or other applicable separation is established. When the conditions are IFR, local control must issue a diverging departure heading with the takeoff clearance.

(6) Local control must state the runway number when coordinating departures off Runways 04, 17 and 22.

**I. Line Up and Wait Procedures (LUAW)**

(1) LUAW may be issued to any aircraft using the Minneapolis International Airport (MSP), in accordance with the provisions of this paragraph and FAA Orders 7110.65 and 7210.3.

(2) LUAW may be issued on any runway at Minneapolis (MSP) if the departure point is visible from the Tower (when utilizing a virtual tower display) or if the position of the aircraft can be verified by the Local Controller via ground movement display.

(3) A LUAW clearance may be issued to more than one aircraft departing on the same runway at different intersections from sunrise to sunset only.

(4) Do not authorize aircraft to line up and wait simultaneously on intersecting runways during the periods of sunset to sunrise.

(5) When issuing LUAW to an aircraft for traffic landing or departing on an intersecting runway, issue traffic to the LUAW aircraft as well as the aircraft cleared to land or take off on the intersecting runway.



(6) LUAW is authorized on Runway 4 at the intersection of Taxiways S, T, and M2/C2 at any time. LUAW is prohibited at any other Runway 4 intersection from sunset to sunrise.

(7) State the full call sign, runway, and intersection, if applicable, when issuing a LUAW clearance. Ensure a pilot read back for accuracy when issuing LUAW.

(8) Inform aircraft that are issued a LUAW clearance of the closest traffic on final approach to the same runway or landing/ departing intersecting runways.

**EXAMPLE 1-**

*MSP\_TWR: "FLG5634, Runway 12L, line up and wait, traffic B737 three mile final."*

**EXAMPLE 2-**

*MSP\_TWR: "FLG3025, Runway 22 at Charlie 6, line up and wait, traffic will depart Runway 12R."*

(9) When simultaneously holding aircraft on intersecting runways, issue an advisory to each aircraft.

**EXAMPLE-**

*MSP\_TWR: "DAL1844, Runway 12R, line up and wait, traffic holding on Runway 22."*

(10) Withhold landing clearance for aircraft inbound to a runway where an aircraft has been issued a LUAW clearance, until the LUAW aircraft begins takeoff roll if conditions are less than reported ceiling 800 feet AGL or visibility less than 2 miles.

(11) Inform the closest aircraft on final approach of aircraft holding in position on the same or intersecting runway.

**EXAMPLE-**

*MSP\_TWR: "FLG3027, Runway 12L, cleared to land, traffic holding in position."*

**m. Land and Hold Short Operations (LAHSO).** Land and Hold Short Operations are authorized at the Minneapolis-St. Paul International Airport on Runway 30L to hold short of Taxiways A9 and W9, and on Runway 22 to hold short of Taxiway K.

(1) The available landing distance (ALD) from the threshold on Runway 30L to the LAHSO lights, located northwest of Taxiways A8 and W8 is 8,150 ft.

(2) The available landing distance (ALD) from the displaced threshold on Runway 22 to the LAHSO lights, located near the southwest edge of Taxiway S is 8,550.

**(3) LAHSO Operation Requirements**

(a) Runway 30L: Ceiling 1000 ft. or greater and visibility 3 miles or greater.

(b) Runway 22: Ceiling 1400 ft. or greater and visibility 4 miles or greater.

(c) LAHSO runway dry and not contaminated.

(d) The tailwind on the hold short runway must be calm (less than 3 knots).

(e) No reported wind shear.

(4) Traffic information must be exchanged and a read back must be obtained from a landing aircraft with a LAHSO clearance. An acknowledgement must be received from the crossing aircraft.

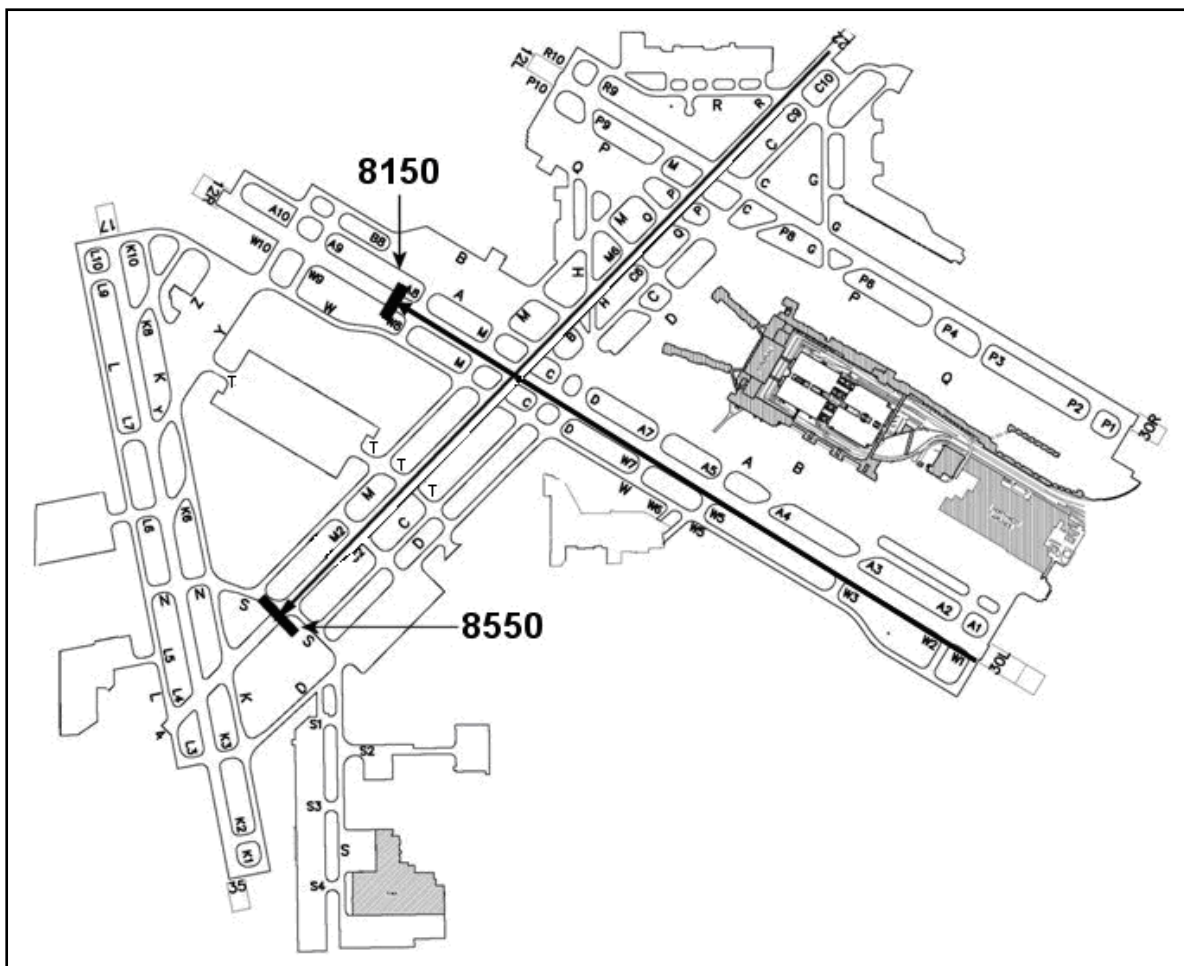
(5) LAHSO must be terminated for any situation or weather condition which would adversely affect land and hold short operations.

(6) When converging/LAHSO operations on Runways 17 and 22 are expected to be utilized, make an announcement on the ATIS.

(7) Aircraft landing Runway 22 issued LAHSO instructions to hold short of Taxiway K must be advised of traffic landing or departing Runway 17; Aircraft landing or departing Runway 17 must be advised of traffic landing Runway 22 to hold short of Taxiway K.

The land and hold short distance remaining diagram for Runway 30L to hold short of Taxiways A9 and W9 and Runway 22 to hold short of Taxiway K is shown below.

**Fig. 2-1**  
**LAHSO Available Landing Distance Diagram**



## Chapter 3. M98 TRACON General Operating Procedures

### 3-1. General

a. The Minneapolis (M98) TRACON serves arrival and departure operations in and out of MSP and its satellite fields, and the only GRP-designated major TRACON within the facility.

(1) Controllers staffing Approach or Departure positions in the M98 TRACON must hold at least a Approach Controller (S3) rating, along with a ZMP M98 endorsement.

(2) M98 TRACON owns all the airspace within the boundary defined on the video map/sector file up to and including 17,000 ft. This does not include the airspace around any active Towers. For all delegated airspace descriptions, refer to paras. 4-2 and 4-3 of this Order, and Appendix A. Delegated Airspace.

(3) If no M98 TRACON position is staffed, ZMP Enroute controllers, if online, must assume responsibility for airspace within the M98 TRACON. If two or more ZMP enroute controllers are online, coordination between them must determine responsibility for M98 TRACON airspace.

### 3-2. Communications

a. Controllers operating M98 TRACON positions must utilize the following radar client frequencies. The default voice server must be: In order to streamline coordination with other ZMP controllers, positions must be configured exactly as follows:

<i>Position Name</i>	<i>Frequency</i>	<i>STARS ID</i>	<i>Callsign</i>
North Departure	125.750	1D/D	MSP_D_DEP
<b>South Departure*</b>	<b>124.700</b>	<b>1R/R</b>	<b>MSP_R_DEP</b>
East Departure	132.975	1L/L	MSP_L_DEP
North Feeder	126.350	1I/I	MSP_I_APP
<b>South Feeder*</b>	<b>135.475</b>	<b>1H/H</b>	<b>MSP_H_APP</b>
<b>North Final/Arrival*</b>	<b>119.300</b>	<b>1N/N</b>	<b>MSP_N_APP</b>
South Final/Arrival	126.950	1S/S	MSP_S_APP
17/35 West Final/Arrival	118.725	1J/J	MSP_J_APP
<b>Flying Cloud Satellite*</b>	<b>134.700</b>	<b>1E/E</b>	<b>MSP_E_APP</b>
St. Paul Satellite	121.200	1G/G	MSP_G_APP
Crystal Satellite	126.500	1K/K	MSP_K_APP

#### NOTE 1-

**Bold\*** in the above table indicates the primary combined frequency to be connected first.

**NOTE 2-**

In the case of a position split, M98 controllers must staff TRACON positions in the following order:

1. South Feeder
2. South Departure
3. North Final/Arrival
4. South Final/Arrival
5. Further connections at CIC discretion

**b.** Every M98 TRACON position will maintain a standard, and common Controller Information broadcast. CRC's Controller Info dialog automates many of the elements of a standard position ATIS. The position ATIS will include the following elements at minimum:

Position

Current ATIS Letter ID

**EXAMPLE-**

\$radioname() - \$freq()

KMSP ATIS ALPHA – 2315Z WX – Altimeter 2992

ASDE-X Surveillance System in Use at KMSP – Mode C on all taxiways

Minneapolis ARTCC – [feedback.minnicenter.org](mailto:feedback.minnicenter.org)

**3-3. TRACON Operating Positions and Responsibilities****a. Departure Control (DR).**

(1) Is responsible for controlling and separating IFR/VFR air traffic within that airspace depicted in facility directives.

(2) Provides appropriate altitude restrictions and ensures in-trail spacing as described in the MSP/M98/ZMP Letter of Agreement or as coordinated.

(3) Issues radar advisories to IFR/VFR aircraft as time and workload permit.

(4) Performs inter/intrafacility coordination as required.

(5) Initiates and accepts inter/intrafacility handoffs.

(6) If flight strips are used, updates flight progress strips clearly and promptly.

**b. Satellite Control (DR).**

(1) Is responsible for controlling and separating IFR/VFR air traffic within that airspace depicted in facility directives.

(2) Issues IFR/VFR clearances and restrictions as appropriate.

(3) Issues radar advisories to IFR/VFR aircraft as time and workload permit.

(4) Performs inter/intrafacility coordination as required.

- (5) Initiates and accepts inter/intrafacility handoffs.
- (6) If flight strips are used, updates flight progress strips clearly and promptly.

**c. Arrival Control (AR).**

(1) Is responsible for controlling and separating IFR/VFR air traffic within that airspace depicted in facility directives.

- (2) Provides vectors and sequencing to IFR/VFR aircraft landing at MSP
- (3) Issues radar advisories to IFR/VFR aircraft as time and workload permit.
- (4) Utilizes proper approach aids for runways in use.
- (5) Issues approach clearances to aircraft landing MSP.
- (6) Performs inter/intrafacility coordination as required.
- (7) Initiates and accepts inter/intrafacility handoffs.
- (8) If flight strips are used, updates flight progress strips clearly and promptly.
- (9) Issues weather information and RVR values as required.

**d. Feeder Control (FR).**

(1) Is responsible for controlling and separating IFR/VFR air traffic within that airspace depicted in facility directives.

(2) Before opening the position, receives a briefing on any operational requirements and pertinent traffic from Arrival Control.

(3) Assigns runways to arrival aircraft and establishes sequences for handoff to the appropriate Arrival Controller.

(4) Ensures arrival runways in use are demand balanced so as to not unnecessarily delay arrival or departure traffic.

- (5) Initiates crossover traffic as outlined in this order.
- (6) Issues radar advisories to IFR/VFR aircraft as time and workload permit.
- (7) Performs inter/intrafacility coordination as required.
- (8) Initiates and accepts inter/intrafacility handoffs.
- (9) If flight strips are used, updates flight progress strips clearly and promptly.
- (10) Issues weather and airport information as required.

### 3-4. Top-Down Airspace Staffing

a. With an approach position staffed at M98, the approach controller must be the acting tower controller when no tower position is staffed. If no MSP Tower Cab position is online, M98 controllers must, workload permitting, take responsibility for the KMSP voice ATIS.

### 3-5. Parallel Runway Procedures

a. Runways 12L/30R and 12R/30L centerlines are spaced more than 2,500ft but less than 3,600ft from each other, designating them “dependent parallel” runways. ILS Approaches to the parallels must not be conducted “simultaneously” (i.e. wingtip-to-wingtip) unless a Precision Runway Monitor (PRM) radar system is employed and certain PRM Approach procedures and crew qualifications are adhered to. Approaches to the parallel runways must be *staggered*. Staggered separation minima for Dependent Parallel approaches during turn-on and during approach are outlined in JO 7110.65 Para 5-9-6.

b. During parallel ILS operations, the Arrival Controller must designate “LOW” and “HIGH” turn-on altitudes for approach aircraft.

(1) Aircraft assigned to “LOW” turn-on altitudes must be level at the designated altitude prior to 3 NM from the associated localizer.

(2) Altitude separation must be maintained until aircraft are established on parallel final approach courses and required lateral separation is attained.

(3) As of this SOP revision, PRM Approaches are NOTAM’d as Not Authorized. Should the PRM system become re-commissioned at KMSP, a separate SOP must be instituted for the conduct of PRM approaches.

c. During parallel visual approach operations, The Arrival Controller must designate “LOW” and “HIGH” turn-on altitudes and “sides” for approach aircraft.

(1) “Low-Side” aircraft must be level at the designated “low-side” altitude prior to 3 NM from the associated localizer.

(2) If Final Arrival is split, the “high-side” controller is responsible for separation from “low” turn-on altitude aircraft.

**3-6. Prearranged Coordination Procedures (P-ACPs).** Prearranged coordination procedures (“look and go”) are authorized under the following conditions:

a. P-ACPs are authorized only within M98 airspace.

b. In the event P-ACPs are not practicable, standard point-out procedures must be applied.

c. P-ACPs are authorized for use by departure positions D, R, and L, and satellite positions E, G, and K.

d. Departure may climb tracked aircraft through Feeder airspace, North/South Arrival airspace (6,000-7,000 ft.) over-the-top of MSP, and through Runway 35 Arrival airspace.

e. P-ACPs are authorized for use by the Arrival Controller to descend through Departure airspace to 6,000 ft. in Area F on a 30/17 configuration only. Departure and Satellite Controllers must notify the Arrival Controller of any non-STARS tracked targets within Area F.

(1) Departure must ensure standard separation from all IFR and Class B tracked, non-tracked, and primary targets within Arrival/Feeder Control airspace.

(2) Departure controllers that penetrate Arrival/Feeder Control airspace using P-ACP must determine whether the lead aircraft is a heavy or B757 when separating aircraft operating directly behind or directly behind and less than 1,000 ft.

(3) Departure controllers who penetrate Arrival/Feeder Control airspace using prearranged coordination procedures must display data block information of that controller's aircraft, which must contain, at a minimum, the position symbol and altitude information.

f. Feeder/Arrival Control must:

(1) Point out non-tracked and primary IFR and VFR targets to the appropriate Departure position.

(2) Point out aircraft with invalid or inoperative Mode C altitude readout to the appropriate Departure position.

g. Satellite may transit tracked MSP departures at/assigned 4,000 ft. through Departure airspace that is adjacent to the dispersal area and between 10 and 15 miles of MSP. Satellite controllers must display data block information of Departure's aircraft, which must contain, at a minimum, the position symbol and altitude information.

### 3-7. Automated Information Transfer (AIT) Procedures.

a. AIT procedures are authorized between Satellite and Departure Control when departures being worked by Satellite, requesting 7,000 ft. or above, are pointed out via the ARTS automated point out function, and the following conditions are met:

(1) The primary scratchpad indicates the first letter of the departure fix (as indicated below), followed by the two-digit requested altitude in thousands of feet. When using AIT procedures for non-turbojet aircraft requesting 12,000 ft. or higher, Satellite Control must enter the first letter of the departure fix followed by 12.

#### **EXAMPLE-**

"B12" indicates Brainerd/DLH as the departure fix and the aircraft is assigned 12,000 ft.

E-EAU

D-DLL

N-ODI

B-BRD/DLH

R-RST/UKN

F-FAR

A-ABR

O-ONL/FOD



(2) Satellite is responsible to ensure the departure fix displayed is correct.

(3) Upon acceptance of the point out, Satellite is authorized to climb in Departure's airspace when 20 NM or greater from the MSP ASR-9.

**b.** AIT procedures are authorized between Satellite positions. When Runways 12 or 30 are active, Satellite Control may use the radar client automated point out function to point out traffic that will over fly MSP Airport and climb with Departure Control, when the following conditions are met:

(1) The satellite aircraft must be at 5,000 ft MSL.

(2) The transferring Satellite controller must complete an AIT automated point out with the affected satellite control position.

(3) After the automated point out is approved, the transferring Satellite controller must complete a handoff to appropriate Departure Control position.

**3-8. Automated Point Outs.** The radar client automated point-out function may be used to transfer aircraft position information during a point out. When using this function, aircraft intentions and receiving controller approval must still be verbally coordinated.



## Chapter 4. Arrival Procedures

### 4-1. General

**a.** During day-to-day operations on the VATSIM network, the controller working MSP\_APP must have control over all sectors and may, at discretion, deviate from the lateral and vertical constraints of the various sector boundaries. Each M98 certified controller must, however, be familiar with the M98 splits in the case of events or other high-traffic situations that necessitate a position split.

**b.** As part of Navigation Data Cycle 1002, the Flying Cloud (FCM) VOR/DME was re-located to a position East of its original position. By default, Microsoft Flight Simulator 2004/X navigation databases do not contain this change.

(1) RNAV-equipped aircraft and non-RNAV aircraft utilizing add-on navigation databases will be able to fly the arrivals as published.

(2) If operational necessity requires, non-RNAV aircraft on MSP STAR routes utilizing radials off FCM must be advised that the VOR radials in their simulator are not coincident with those on the arrival procedure and controllers may at discretion offer extended vectors to final.

**c.** From Navigation Data Cycle 1503 and later, RNAV Optimized Profile Descent STARs are the preferred arrivals to MSP. The RNAV OPD procedures overlay the existing arrival gates, and must be treated as same-fix as their Conventional non-RNAV equivalents. Aircraft descending via the appropriate runway transition must be considered compliant with the procedures outlined in this chapter.

**d.** Without prior coordination, Arrival Control has control for descent of aircraft in Feeder Control airspace.

**4-2. Approach Control Descent Area.** The Approach Control Descent Area (ACDA) is the airspace delegated to the final Arrival Sectors (N and S) for descending arrival aircraft into MSP, excluding Tower delegated airspace. Airspace and altitude designations are depicted in Appendix A.

**a. Runways 30 and 12.** The ACDA must be divided into north and south sectors. North Arrival will control the area north of the localizers. South Arrival will control the area south of the localizers.

**b. Runway 35.** Delegated airspace for Runway 35 Arrival controller in concert with the parallel runways is depicted in Appendix A.

**c. Runways 4, 22, 17, and 35.** The ACDA must be divided into north and south sectors. North Arrival will control the area west of the localizer. South Arrival will control the area east of the localizer.

**d. Land Runway 35-Depart 12s.** The ACDA must be divided into north and south sectors.

(1) North Arrival will control the area west of the localizer, including TRGET and DELZY traffic.

(2) South Arrival will control the area east of the localizer.

**NOTE-**

*Unless operationally necessary, The Land 35/Depart 12s runway configuration must not be used.*

**e. ACDA Shelves.** ACDA Shelves, as depicted in Appendix A, are delegated to Arrival Control at 6000 ft.

**f. Area R.** During heavy traffic periods or unusual situations, N/S have the authority to coordinate possession of Area R as depicted in Appendix A.

**g. Area F.** On a 30/17 configuration only, the Arrival Controller may descend to 6,000' in Area F as depicted in Appendix A.

**4-3. Feeder Airspace.** Feeder Airspace is comprised of ingress routes as described below and airspace as depicted in Appendix A.

**a. Near-Gate Routes.** Near-gate route altitudes are depicted in Appendix A.

**b. Far-Gate Routes.** Far-gate routes include the airspace 3NM either side of the route unless otherwise noted.

(1) The airspace between the MUSCL/EAU STAR and KKILR STAR is delegated to Feeder at appropriate altitudes stated below.

(2) The airspace between the BLUEM/KASPR STAR and NITZR/TWOLF STAR is delegated to Feeder at appropriate altitudes stated below.

**(3) Straight Runway 12s and Runway 12s-Depart 17**

(a) On the MUSCL/EAU STAR from BAYKS/TWINZ to the 15-mile range mark 90-170 and from the 15-mile range mark to the 10-mile range mark, 80- 170.

(b) On the KKILR STAR from HUGGI to the 15-mile range ring mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-170.

(c) On the BLUEM/KASPR STAR from HHAMR/DELZY to the 15-mile range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80- 170.

(d) On the NITZR/TWOLF STAR from WRSBW/TRGET to the 15-mile range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80- 170.

**(4) Runway 30s, Runway 30s/Land 35, and Runway 30s/Depart 17**

(a) On the TORGY/SKETR STAR from HMBRG/SHONN to the 15-mile range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-170.

(b) On the BAINY/GOPHER STAR from LUCCY/OLLEE to the 15-mile range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-170.

**(5) Runway 4**

(a) On the BAINY/GOPHER STAR from LUCCY/OLLEE to the 15-mile range mark, 90-110 and from the 15-mile range mark to the 10-mile range mark 80-110.

(b) On the MUSCL/EAU STAR from BAYKS/TWINS to the 15-mile range mark, 90-120 and from the 15-mile range mark to the 10-mile range mark, 80-120.

(c) On the KKILR STAR from HUGGI to the 15-mile range mark, 90-120 and from the 15-mile range mark to the 10-mile range mark, 80-120.

**(6) Runway 22**

(a) On the TORGY/SKETR STAR from HMBRG/SHONN to the 15-mile range mark, 90-110 and from the 15-mile range mark to the 10-mile range mark, 80-110.

(b) On the BLUEM/KASPR STAR from HHAMR/DELZY to the 15-mile range mark, 90-110 and from the 15-mile range mark to the 10-mile range mark, 80-110.

(c) On the NITZR/TWOLF STAR from WRS AW/TRGET to the 15-mile range mark, 90-110 and from the 15-mile range mark to the 10-mile range mark, 80-110.

**(7) Runway 17**

(a) On the TORGY/SKETR STAR from HMBRG/SHONN to the 15-mile range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-110.

(b) On the BLUEM/KASPR STAR from HHAMR/DELZY to the 15-mile range mark, 90-110 and from the 15-mile range mark to the 10-mile range mark, 80-110.

(c) On the NITZR/TWOLF STAR from WRS AW/TRGET to the 15-mile range mark, 90-110 and from the 15-mile range mark to the 10-mile range mark, 80-110.

(d) On the MUSCL/EAU STAR from BAYKS/TWINS to the 15-mile range mark, 90-120 and from the 15-mile range mark to the 10-mile range mark, 80-120.

(e) On the KKILR STAR from HUGGI to the 15-mile range mark, 90-120 and from the 15-mile range mark to the 10-mile range mark, 80-120.

**(8) Runway 35**

(a) On the TORGY/SKETR STAR from HMBRG/SHONN to the 15-mile range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-170.

(b) On the BAINY/GOPHER STAR from LUCCY/OLLEE to the 15-mile range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-170.

(c) On the MUSCL/EAU STAR from BAYKS/TWINZ to the 15-mile range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-170.

(d) On the KKILR STAR from HUGGI to the 15 mile-range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-170.

**(9) Land Runway 35/Depart 12's**

(a) On the TORGY/SKETR STAR from HMBRG/SHONN to the 15-mile range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-170.

(b) On the BAINY/GOPHER STAR from LUCCY/OLLEE to the 15-mile range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-170.

(c) On the MUSCL/EAU STAR from BAYKS/TWINZ to the 15-mile range mark 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-170.

(d) On the KKILR STAR from HUGGI to the 15-mile range mark, 90-170 and from the 15-mile range mark to the 10-mile range mark, 80-170.

**4-4. Feeder/Arrival Control**

a. In the event that Feeder/Arrival Control are split, Feeder/Arrival Control must hand off to the appropriate Final/Arrival Controller as follows:

**(1) Runways 4/22.**

(a) Near gates at 8,000 ft.

(b) Far gates assigned 9,000 ft.

**(2) Runway 17 LUCCY/OLLEE will be worked straight in by 17 Arrival Controller.**

(a) HUGGI/BAYKS/TWINZ to 17 Arrival assigned 8,000 ft.

(b) Far Gates assigned 9,000 ft.

**(3) Runway 12s and Runway 12s-Depart 17**

(a) LUCCY/OLLEE to North Arrival assigned 7,000 ft.

(b) BAYKS/HUGGI/TWINZ to North Arrival assigned 8,000 ft.

(c) HMBRG/SHONN to South Arrival assigned 7,000 ft.

(d) HUGGI, HHAMR/DELZY, and WRSW/TRGET to South Arrival assigned 8,000 ft.

**(4) Runway 35 WRSW/TRGET and HHAMR/DELZY will be worked straight in by 35 Arrival Controller.**

(a) HMBRG/SHONN to 35 Arrival assigned 8,000 ft.

(b) LUCCY/OLLEE to 35 Arrival assigned 9,000 ft.

(c) HUGGI/BAYKS/TWINZ to 35 Arrival assigned 9,000 ft.

**(5) Runway 30s.**

(a) HUGGI/BAYKS/TWINZ to North Arrival assigned 7,000 ft.

(b) HUGGI to South Arrival assigned 9,000 ft.

- (c) HHAMR/DELZY and WRS AW/TRGET to South Arrival assigned 7,000 ft.
- (d) HMBRG/SHONN to South Arrival Assigned 8,000 ft.
- (e) LUCCY/OLLEE to North Arrival assigned 8,000 ft.

**(6) Runway 30s-Depart 17**

- (a) HUGGI/BAYKS/TWINZ to North Arrival assigned 7,000 ft.
- (b) HUGGI to South Arrival assigned 9,000 ft.
- (c) HHAMR/DELZY and WRS AW/TARGET to South Arrival assigned 9,000 ft.
- (d) LUCCY/OLLEE to North Arrival Assigned 8,000 ft.
- (e) HMBRG/SHONN to South Arrival assigned 8,000 ft.

**(7) Land Runway 30s and 35**

- (a) HUGGI/BAYKS/TWINZ to North Arrival assigned 7,000 ft.
- (b) HUGGI to South Arrival assigned 9,000 ft.
- (c) HUGGI to 35 Arrival assigned 9,000 ft.
- (d) LUCCY/OLLEE to North Arrival assigned 8,000 ft.
- (e) LUCCY/OLLEE to 35 Arrival assigned 8,000 ft.
- (f) HMBRG/SHONN to South Arrival assigned 8,000 ft.
- (g) HMBRG/SHONN to 35 Arrival assigned 8,000 ft.

(h) Runway 35 Arrival must handoff HHAMR/DELZY and WRS AW/TRGET to South Arrival assigned 7,000 ft.

**(8) Land Runway 35-Depart 12s**

- (a) HMBRG/SHONN to 35 Arrival assigned 8,000 ft.
- (b) LUCCY/OLLEE to 35 Arrival assigned 9,000 ft.
- (c) HUGGI/BAYKS/TWINZ to 35 Arrival assigned 8,000 ft.

**b.** During periods of high traffic and/or events, the Feeder position may be split into north and south sectors and normally assigned traffic as follows:

(1) Runway 12 and Runway 12s-Depart 17: North Feeder is assigned LUCCY/OLLEE, BAYKS/TWINZ, and HUGGI. South Feeder is assigned HHAMR/DELZY, WRS AW/TRGET and HMBRG/SHONN.

(2) Runways 30 and Runway 30s-Depart 17: North Feeder is assigned LUCCY/OLLEE, BAYKS/TWINZ, and HUGGI. South Feeder is assigned HHAMR/DELZY, WRS AW/TRGET and HMBRG/SHONN.

(3) Runways 4/22: North Feeder is assigned LUCCY/OLLEE and HMBRG/SHONN. South Feeder is assigned HUGGI/BAYKS/TWINZ, HHAMR/DELZY and WRS AW/TRGET.

(4) Runway 30s and Landing 35: North Feeder is assigned LUCCY/OLLEE and HUGGI/BAYKS/TWINZ. South Feeder is assigned HMBRG/SHONN.

(5) Runway 35 (Including Land 35-Depart 12s): North Feeder is assigned LUCCY/OLLEE and HMBRG/SHONN. South Feeder is assigned HUGGI/BAYKS/TWINZ.

(6) Runway 17: North Feeder is assigned HMBRG/SHONN. South Feeder is assigned HUGGI/BAYKS/TWINZ, HHAMR/DELZY, and WRS AW/TRGET.

(7) Runway 17 and 22-Depart 12s: North Feeder is assigned HUGGI/BAYKS/TWINZ. South Feeder is assigned HMBRG/SHONN, HHAMR/DELZY and WRS AW/TRGET.

#### **4-5. Arrival Crossover Traffic**

**a.** Any aircraft landing at Minneapolis assigned a runway that is not the closest runway to its arrival gate is considered an arrival crossover. During periods of low traffic, controllers must, at discretion, accommodate pilot requests for crossovers to reduce taxi times.

##### ***EXAMPLE-***

Runway 30s configuration. Southwest Airlines B737 inbound on EAU STAR. In order to reduce taxi time to Terminal 2, 30L may be assigned

**b.** Crossover traffic may be initiated by the Feeder Controllers or the Controller in Charge (Events).

**c. Far-Gate Crossovers:**

(1) Far-gate crossovers must be handed off to the appropriate Feeder Control position and communication transferred by 15 NM from MSP.

(2) The receiving controller has control for speed on contact, and control for turns within the 15-mile range ring and remain in the confines of ingress line airspace.

(3) Feeder must handoff far-gate crossovers not descending via the RNAV STAR using the following altitudes:

(a) BAYKS/TWINZ: turbojets at or descending to 11,000 and turbo-props at 9,000

(b) LUCCY/OLLEE: turbojets at or descending to 11,000 and turboprops at 9,000

(c) HMBRG/SHONN: turbojets at or descending to 11,000 and turbo-props at 9,000

(d) WRS AW/TRGET: turbojets at or descending to 10,000

(e) HHAMR/DELZY: turbojets at or descending to 10,000 and turbo-props at 9,000

(f) HUGGI: turbojets at or descending to 11,000

(4) Feeder must handoff far-gate crossovers using the following routes.

(a) Runway 12: Depart ZASKY heading 230°, depart FGT heading 360°.

(b) Runway 30 and 30-35: Depart MONKY heading 050°, depart VYKES heading 185°.

(c) If an aircraft needs to be taken off an RNAV STAR, issue a heading that will place the aircraft within 10 NM of MSP Airport.

**d. Near-Gate Crossovers:**

(1) Near-Gate crossovers must be coordinated with the appropriate Arrival controller(s).

(2) Near-Gate crossovers on an OPD STAR must be handed off to the arrival controller whose airspace the aircraft will enter first.

**EXAMPLE-**

*A BAINY Arrival aircraft on the OPD STAR must be handed off to the 'N' Controller.*

(3) Near-Gate Crossovers that are assigned a heading should be assigned 9,000 ft. and handed off to the appropriate controller for the runway assignment.

**NOTE-**

*The assigned heading should aim for the 25-mile range ring to avoid conflicts with the OPD traffic in the ACDA.*

**EXAMPLE-**

*A KKILR arrival aircraft going to Runway 30L must be handed off to the 'S' Controller at 9,000' and heading 220°.*

#### 4-6. Communications Transfer of Arrival Traffic

a. When conducting visual approaches, aircraft must be instructed to contact the Tower on the appropriate Local Control frequency between 6 and 8 miles on final and, when requested by the Tower, at a speed not to exceed 170 knots.

b. When conducting instrument approaches, aircraft must be instructed to contact the Tower on the appropriate Local Control frequency at the final approach fix.

#### 4-7. Missed Approach and Go-Around Procedures. In the event of a go-around, Tower must:

a. Issue headings as necessary to ensure separation from other arriving and departing aircraft within Tower delegated airspace.

b. Traffic permitting, climb to an initial altitude of 3000 ft. and scan the over-the-top corridor.

c. Determine if the aircraft will be vectored to the departure dispersal area or into satellite airspace.

(1) If the aircraft will enter the dispersal area, climb to 6,000 ft. and issue an “inside” heading in possible.

(2) If the aircraft will enter satellite airspace coordinate a heading and altitude with the satellite controller.

#### **NOTE-**

*Under normal circumstances, the go-around aircraft should be vectored to the dispersal area. Satellite airspace may be used if the dispersal area is not available due to traffic. If necessary, an aircraft may be vectored in the ACDA if it will not enter satellite or departure airspace, or back to the ACDA with a point out to satellite if special circumstances warrant. If the aircraft will be vectored within or back to the ACDA, a heading and altitude must be coordinated with AO.*

d. Make a handoff to the receiving controller using callsign or beacon code. Provide the reason for the missed approach/go-around if the aircraft requires assistance.

#### **EXAMPLE-**

*The go-around aircraft is issued a heading of 260°, an altitude of 6,000 ft., and handed off to Departure.*

(CC) “R, CC, Handoff.”

(R) “R”

(CC) “One mile west MSP, DAL123, go-around, heading 260 climbing to 6,000.”

(R) “DAL123, Radar Contact. MA”

(CC) “JB”



**EXAMPLE-**

*The go-around aircraft is issued a 040° heading, an altitude of 4,000 ft., and handed off to Satellite.*

*(CC) “G, CC, Handoff.”*

*(G) “G”*

*(CC) “One mile north MSP, DAL123, go-around, heading 040 climbing to 4,000.”*

*(G) “DAL123, Radar Contact. MA”*

*(CC) “JB”*

- e. Assign the go-around aircraft the receiving controller’s frequency.

**4-8. Scratch Pad Entries**

- a. For aircraft executing a visual approach, instrument approach, and for VFR arrival aircraft, use the following scratch pad entries:

<b>RUNWAY</b>	<b>RNAV(GPS)</b>	<b>RNAV(RNP)</b>	<b>ILS/LOC</b>	<b>VISUAL</b>
12L	ZL1	YL1	12L	VL1
12R	ZR1	YR1	12R	VR1
30L	ZL3	YL3	30L	VL3
30R	ZR3	YR3	30R	VR3
17			L17	V17
35	Z35	Y35	I35	V35
4	G04		L04	V04
22	G22		L22	V22

- b. When an aircraft has been cleared for a visual approach and the pilot has assumed responsibility for separation (including wake turbulence separation) from the preceding aircraft, the letters “VV” must precede the runway designator.

**EXAMPLES-**

Runways 12L and 30R – “VVN”

Runways 12R and 30L – “VVS”

Runway 4 – “VV4”

Runway 22 – “VV2”

Runway 35 – “VV5”

Runway 17 – “VV7”

- c. For aircraft inbound to the M98 towered satellite airports, the following scratch pad entries must be used:

**(1) Minneapolis Flying Cloud (KFCM)**

1. FCM/FCZ – Visual Approach, full stop.
2. FFF – Instrument approach (10R or 36), full stop.
3. FFP – Practice instrument approach (10R or 36), standard missed approach.
4. FRF – RNAV (GPS) 28R, full stop.

5. FLF – RNAV (GPS) 28L/10L, full stop.
6. FRP – RNAV (GPS) 28R, standard missed approach.
7. FLP – RNAV (GPS) 28L/10L, standard missed approach.

**(2) St. Paul Downtown Holman Field (KSTP)**

1. STP/STZ – Full stop inbound on a Visual Approach.
2. SSI – Full stop ILS Runway 32 or ILS Runway 14 Approach.
3. S32 – Practice ILS Runway 32 Approach.
4. S14 – Practice ILS Runway 14 Approach.
5. SGP – Full stop RNAV (GPS) Runway 32 or 14 Approach.
6. SG4 – Practice RNAV (GPS) Runway 14 Approach.
7. SG3 – Practice RNAV (GPS) Runway 32 Approach
8. SSN – Full stop NDB Runway 31 Approach.
9. S31 – Practice NDB Runway 31 Approach.

**(3) Anoka County-Blaine (KANE)**

1. ANE – Visual approach full stop.
2. ANZ – Visual approach (over MSP) full stop.
3. AAA – Instrument approach full stop.
4. AAP – Practice instrument approach with standard missed approach.

**(4) Minneapolis Crystal (KMIC)**

1. MIC/MIZ – Visual approach
2. MMM – VOR/GPS A full stop.
3. MMA – VOR/GPS A missed approach
4. MMG – GPS Runway 14L full stop.
5. MGA – GPS Runway 14L missed approach
6. GEP – Holding at Gopher VORTAC

**d.** Aircraft landing airports other than those listed above shall have the following entered into Scratch Pad 2:

<b>1<sup>st</sup> Character – TYPE of APPROACH</b>	<b>2<sup>nd</sup> Character – Full Stop or Missed Approach</b>
<b>I</b> = ILS	<b>F</b> = Full Stop
<b>G</b> = RNAV (GPS)	<b>M</b> = Missed Approach
<b>L</b> = Localizer	
<b>N</b> = NDB	<b>2<sup>nd</sup> and 3<sup>rd</sup> Character:</b> <b>PM</b> = Published Missed
<b>V</b> = VOR	

**Example** – N12345 requesting ILS 30 to a Published Missed at LVN: STARS entry will be <+IPM, slew, enter>.

#### 4-9. Runway 35 Reduced Separation on Final.

- a. When Runway 35 is the only advertised landing runway at MSP, separation between aircraft may be reduced to 2.5 NM in-trail separation on the final approach course within 10 NMs of the runway.
- b. The reduced in-trail separation may be used with the following runway configurations:
  - (1) Land Runway 35; Depart Runways 12L and 12R.
  - (2) Land Runway 35; Depart Runway 4.

**4-10. Runways 30L/R and 35 Converging Runway Operations.** Simultaneous operations to converging runways are authorized for Runways 30L/R and Runway 35. These procedures provide guidance in the selection process, coordination, and implementation of converging operations on Runways 30L/R and 35.

- a. **Criteria for Runways 30L/R and Runway 35 Converging Operations**

- (1) The ceiling must be 1,700' or higher.
  - (2) The visibility must be 4 statute miles or greater.

- b. **Implementation.** The controller hosting the ATIS must ensure the ATIS message includes the configuration option in use prior to implementing simultaneous operations to the converging runways.

**4-11. Use of the Arrival Departure Window(ADW).** The ADW is a tool used by the Local Controller to determine when a departure on Runway 30L or Runway 30R may be cleared for takeoff so as to reduce the likelihood of a conflict at the convergence of the extended centerlines of Runways 30L and 35 or Runways 30R and 35 in the event the Runway 35 arrival has a go-around or balked landing.

In the event of a go-around, Tower must:

- a. **Definitions.**

- (1) Runway 30L ADW: The area along the Runway 35 final approach course from .4 NM south of the threshold of Runway 35 to 1.8 NM from the Runway 35 threshold. The ADW provides a gap at the extended centerline of Runway 35 and Runway 30L between an arrival on Runway 35 that executes an unplanned balked landing (go around) and a departure from runway 30L.

- (2) Runway 30R ADW: The area along the Runway 35 final approach course from .2 NM south of the threshold of Runway 35 to 1.7 NM from the runway 35 threshold. The ADW provides a gap at the extended centerline of Runway 35 and Runway 30R between an arrival on Runway 35 that executes an unplanned balked landing (go around) and a departure from Runway 30R.

- b. **Responsibility.** The Local Controller with the departure aircraft is responsible for notifying other impacted local control positions of the possibility of non-compliance of Converging Runway Operations. The local controllers must collaborate to determine the appropriate method of recovery.

(1) If a departure from Runway 30L or Runway 30R begins its departure roll prior to the Runway 35 arrival entering the ADW, the departure should pass the point of convergence ahead of the Runway 35 arrival executing a go-around of bailed landing with no controller actions.

(2) If the Runway 30L or Runway 30R departure begins its departure roll as the Runway 35 arrival exits the ADW, the departure should pass the point of convergence behind the Runway 35 arrival executing a go-around or bailed landing with no controller actions.

**4-12. Management of Bailed Landings during Simultaneous Operations on Converging Runways 35, 30L, and 30R.** This paragraph contains procedures for handling Runway 35 go-arounds or bailed landings executed inside of the published missed approach point.

a. If the Runway 30L or Runway 30R departure is a wake turbulence risk, the type aircraft must also be issued to the Runway 35 arrival.

b. Runway 35 aircraft executing a go-around/bailed landing inside of the missed approach point, based on known and observed traffic, must be issued an initial climb to at or above 2,500' and issued a turn as follows:

(1) Take IMMEDIATE action to resolve traffic conflicts if there are departures on or departing Runway 30L/30R (traffic alerts, traffic advisories, and/or control instructions).

**NOTE-**

*When appropriate, issue a climbing right turn and assign a heading to take the aircraft over the center of the airport. When the aircraft is over the center of the airport, assign a northeasterly heading of approximately 040°, and coordinate with the appropriate TRACON operational positions for a heading to return to the airport.*

(2) If there are no departures on or immediately airborne from Runway 30L/30R, issue control instructions to direct the go-around/bailed landing aircraft into the dispersal airspace and coordinate with the appropriate TRACON operational positions for a heading to return to the airport.

**NOTE-**

*It is imperative the West Local Controller be prepared to comply with this paragraph by having a keen awareness of not only the Runway 35 arrivals, but the entirety of the operations, including where the departing aircraft off Runways 30L/30R are in relation to the Runway 35 arrival should that aircraft execute a go-around/bailed landing*

**4-13. Runway 30L RNAV (RNP) Y Approach Restrictions.** When MSP is on a 30/17 runway configuration the Runway 30L RNAV (RNP) Y approach must not be authorized due to descents into the Runway 17 departure corridor.

## Chapter 5. Departure Procedures

### 5-1. General

- a. The Local Control positions must ensure that the correct full data block is displayed on the tower radar display on all departures for which the tower has separation responsibility.
- b. Departure/Satellite Control must be responsible for ensuring that departure aircraft properly acquire on radar prior to issuing any control instructions.
- c. Departure and Satellite may alter the initial heading of any MSP departure provided separation from any preceding/succeeding departure is ensured.
- d. Departure Control may climb MSP departures (initially assigned 5,000 ft. or higher) within the tower dispersal area provided separation from any preceding/succeeding traffic is ensured.
- e. Departure Control must coordinate with the appropriate Arrival or Feeder Control position before vectoring all tracked targets through the ingress routes.

### 5-2. Tower Delegated Airspace/Departure Dispersal Areas

- a. Departure dispersal areas are Tower delegated airspace (as depicted in Appendix D), to be used exclusively for the dispersal of departures from MSP airport, 7,000 ft. and below.
- b. The departure dispersal areas do not include Departure Control airspace boundary delineations from the surface up to and including 7,000 ft. Departure Control boundary delineations continue above 7,000 ft.
- c. If, upon leaving the dispersal area, an MSP departing aircraft will enter adjacent or overlying airspace, the Departure or Satellite controller working that aircraft must issue a point out to the appropriate control position.

**5-3. Departure Delegated Airspace.** Departure delegated airspace is depicted in Appendix A.

**5-4. Departure Configurations.** Departure airspace split configurations are depicted in Appendix B.

**5-5. Departure Headings.** Local Control must issue initial headings that ensure departures remain in the appropriate departure airspace as depicted in Appendix B, and in accordance with the following procedures:

- a. **Land Runway 12, Depart Runway 12 and 17.**

(1) Local Control must assign Runway 12L or 12R departures (FOD or ONL) a 230° heading for a turn at three miles from the departure end of the runway. Local Control must ensure 3 Miles in-Trail (MIT) for same fix with departures off different runways.

(2) The TRACON has control for left turns of North Departure traffic (ABR, FAR, WLSTN, etc.) off Runway 17 regardless of assigned heading.

(3) When a Runway 12/17 configuration is in use, the maximum Runway 17 departure track must be 215°.

**b. Land Runway 30, Depart Runway 30 and 17.**

(1) When a Runway 17 departure will depart simultaneously with a same-fix Runway 30 departure, the aircraft must be 3 Miles in-Trail (MIT), no visual separation, and no divergence. Visual separation or divergence may be used under unusual circumstances.

(2) The TRACON has control for right turns of North Departure traffic (ABR, FAR, WLSTN, etc.) off Runway 17 regardless of assigned heading. In this situation, TRACON ensures separation from preceding Runway 30 departures in the dispersal area, and Tower ensures separation between subsequent Runway 30 departures and the Runway 17 departure turning north.

(3) Divergence or visual separation is acceptable for ONL traffic provided that the third aircraft in sequence is 3 miles in-Trail (MIT) of the second aircraft.

(4) On a Runway 30/17 Configuration, all Runway 17 departures must be issued headings no less than 170°.

**c. Runway 17 Same-Fix Departure Spacing.** When landing 12s or 30s and departing Runway 17, Local Control must provide 3 Miles in-Trail turbojet to turbojet and turboprop to turboprop spacing over the same fix, no divergence. Under unusual circumstances, Local Control may use divergence provided the subsequent (third) departure is 3 MIT of the second aircraft.

**d. Land Runway 30/35, Depart Runway 30.** Turboprop aircraft assigned ODI and RST filed for 11,000 and above must be issued a 260° track and treated as one fix, 3 Miles-in-Trail, and no visual separation.

**5-6. Common Departure Heading for Runway 12 when Departing Runways 12 and 17.**

**a.** When landing Runway 12 and departing Runway 12 and 17, the common (joint-use) track for Runway 12L/R departures must be 105°.

**5-7. LEINY and SMERF SID Procedures.** Lateral spacing between aircraft established on the LEINY/SMERF SID and aircraft on the DARWIN SID at the M98/ZMP airspace boundary is slightly more than 5 NM. By treating LEINY/DARWIN or SMERF/DARWIN as one fix initially, spacing can be managed more effectively at the M98/ZMP boundary.

**a.** MSP Tower must consider LEINY/DWN or SMERF/DWN as one fix and provide a minimum 3 MIT initial departure spacing.

**b.** Visual separation must not be applied.

**c.** There are no initial departure restrictions between LEINY and SMERF traffic.

**5-8. Enroute Transfer Procedures**

**a.** All jet aircraft must be under M98 control up to and including 17,000', which is the vertical boundary between M98 airspace and ZMP ARTCC airspace. The center must have control of jet aircraft leaving 11,000' or when 25 DME or greater from the MSP VOR.

**b.** All propeller aircraft must be under M98 control up to and including 12,000', which serves as the transfer altitude for propeller aircraft. Propeller aircraft can be cleared to climb to higher altitudes up to and including 17,000' if it can be determined that no traffic conflicts will occur within M98 airspace or in overlying ZMP ARTCC airspace.

## Chapter 6. Satellite Operations

### 6-1. General.

a. The M98 TRACON has control over IFR aircraft and VFR aircraft requesting services arriving and departing satellite airports around the Minneapolis/St. Paul Metropolitan Area:

<i>Airport ID</i>	<i>Location</i>	<i>Towered</i>	<i>IAP</i>
10D	Winsted, MN		
21D	Lake Elmo, MN		Yes
25D	Forest Lake, MN		
7Y7	ARS Sport Strip (Belle Plaine, MN)		
KANE	Anoka County/Blaine, MN	Yes	Yes
KCFE	Buffalo, MN		Yes
KFBL	Faribault, MN		Yes
KFCM	Flying Cloud (Eden Prairie, MN)	Yes	Yes
KLVN	Airlake (Lakeville, MN)		Yes
KMGG	Maple Lake, MN		Yes
KMIC	Crystal, MN	Yes	Yes
KOEO	Osceola, WI		Yes
KRGK	Red Wing, MN		Yes
KRNH	New Richmond, WI		Yes
KSGS	South St. Paul, MN		Yes
KSTP	St. Paul Downtown-Holman Field	Yes	Yes
KSYN	Stanton, MN		

b. If an M98 Satellite Position is not staffed on the network, responsibility for M98 satellite departures and arrivals must, operational workload permitting, be delegated to MSP Departure or Arrival controllers in the following fallback order:

(1) Departure

(2) Feeder

(3) Final/Arrival

c. When Local Control positions at satellite fields with operational control towers are not staffed, M98 controllers must, operational workload permitting, assume responsibility for tower services at those fields. Tower services must be provided during Class D airspace hours of operation. As such, M98 controllers must make themselves familiar with SOP Facility Orders pertaining to M98 Satellite ATCT positions.



- d. When MSP is making instrument approaches to Runway 22, STP Satellite Control must coordinate all STP IFR approaches or departures with the Arrival controller responsible for the Runway 22 ACDA.
- e. Satellite Control may transition VFR aircraft through the ACDA without coordination provided the aircraft remains beneath the Class B airspace and is tagged with the reported altitude (if Mode C is not available).

**6-2. Airspace.** Satellite airspace must be divided into three sectors as depicted in Appendix C (excluding Minneapolis Tower airspace as depicted in Appendix D).

**6-3. IFR Releases.**

a. IFR Releases issued to a Satellite Local control position will be valid for 3 minutes. Local controllers must Issue a heading that will:

- (1) Not cause disruption in traffic flow
- (2) Not create an unsafe condition
- (3) Be operationally efficient for all involved

**6-4. STP Runway 14 Departures.** STP Runway 14 departures must be restricted to 2,500 ft. and assigned headings no further south than 080°.

**6-5. STP Shelf.** During periods of time when both MIC Satellite and STP Satellite positions are open, and MSP is landing Runway 12L/R, Satellite airspace is modified as depicted in Appendix A.

**6-6. Over the Top Procedures.** There are no over-the-top procedures for the Runway 30-17 configuration.

**6-7. Prearranged Coordination**

a. When MSP is making instrument approaches to Runway 22, STP Satellite Control must coordinate all STP IFR approaches or departures with the Arrival Controller.

b. Satellite Control may transition VFR aircraft through the ACDA without coordination provided the aircraft remains beneath the Class B airspace and is Mode C altitude verified prior to transition.

**6-8. Handoff Altitudes to Arrival.** When ILS approaches are being conducted to the parallel runways, to the extent possible, Satellite should handoff to Arrival Control at the following altitudes:

- a. 5,000 ft. or above to the “high” side.
- b. 4,000 ft. to the “low” side.

**6-9. Minneapolis Departures and Flying Cloud Runway 28 Arrivals.**

- a. M98 must point out the FCM arrival aircraft to MSP Tower.
- b. M98 must verbally point out the aircraft to MSP Tower when it is within 10 flying miles of the final approach fix (HERBO).
- c. MSP tower must transfer communication of MSP departure aircraft after separation is ensured.

## Chapter 7. Equipment, TMU, & SWAP

**7-1. ASDE-X and Safety Logic System.** The ASDE-X with Safety Logic System must be operated at all times.

**a. System Operations**

(1) The safety logic system must be operated in a full-core alert runway configuration.

(2) When a runway becomes unavailable for aircraft arrivals or departures for 30 minutes or more, the runway must be entered as “Closed” in the Safety Logic System.

**7-2. FUSION**

**a.** FUSION mode receives input from the MSP Airport Surveillance Radar (ASR-9), the Apple Valley (QJE) Common Air Route Surveillance Radar (CARSR) and the Automatic Dependent Surveillance – Broadcast (ADS-B).

**b.** The FUSION display mode must be used as the primary display mode at all times.

**7-3. Traffic Management Unit.** ZMP TMU will be utilized during periods of heavy traffic, severe weather, or any other situations requiring the presence of a Traffic Management Specialist/Coordinator. Traffic Management duties must be limited to those personnel who have completed the VATUSA National Traffic Flow Management Course and are appropriately briefed and certified to act in a Traffic Management role.

**7-4. SWAP Responsibilities.** Severe Weather Avoidance Procedures (SWAP) are initiated between Minneapolis Tower and Minneapolis Center on an as-needed basis. Coded Departure Routes (CDR) are used for aircraft able to accept SWAP routings, otherwise full route clearances must be used. For further information, refer to the ZMP Traffic Management Coordinator/Traffic Management Specialists.

**a.** When Minneapolis Center (ZMP) has issued a SWAP, the Local Control position (LC) will become the primary person responsible for identifying aircraft that require a SWAP.

**b.** Flight Data/Clearance Delivery (FD/CD) must identify subsequent flight strips by indicating the appropriate SWAP route in the remarks section of the flight strip.

**c.** During a SWAP event there may be a TMU position open. This position is responsible for coordinating within ZMP, modifying flight plans, and issuing rerouted clearances to pilots as coordinated with the position responsible for Clearance Delivery.

**d.** When the aircraft begins taxiing, Ground Control (GC) will advise LC of the aircraft to be rerouted. LC will then advise the SWAP person to change the route of the affected aircraft.

e. Ground Control will instruct the aircraft to contact the appropriate frequency to receive the reroute. Reroutes must be handled by positions in the following order of preference:

- (1) Clearance Delivery
- (2) Ground Control
- (3) Local Control

## Chapter 8. IDS

**8-1. General.** ZMP utilizes an interactive IDS web application that simulates the Systems Atlanta ACE-IDS5. MSP and M98 controllers must maintain a familiarity with IDS operation to include input and retrieval of Status Information Areas (SIA), severe weather information, Traffic Management Initiatives, and pilot weather reports (PIREPs).

### 8-2. Responsibilities

- a. Controllers in Charge must ensure the procedures contained herein are complied with at all times and may be tasked with performing additional duties in maintaining information displayed in IDS.
- b. All personnel must ensure that timely and accurate information is displayed in the IDS.

### 8-3. Procedures

- a. Access IDS via the ZMP website or via <http://ids.minniecenter.org>.
- b. Items posted must include, but not be limited to, the information contained on specific IDS pages referenced in this order.

(1) All posting of PIREPs, and SIGMETs should be completed immediately to ensure all information is current.

**NOTE-**

*PIREPs are considered valid for one hour.*

(2) The Urgent PIREP information page must flash at all IDS positions in the facility and require acknowledgment. Additional PIREP information must require acknowledgement to ensure that the information is received.

(3) In order to ensure the accuracy of IDS information, all personnel must review SIGMETs, forecasts, PIREPs, and their respective NOTAM pages, at a minimum of once each hour.

(4) Enroute Data must be responsible for maintaining the ENROUTE SIA screen.

(5) TRACON Data must be responsible for maintaining the TRACON SIA screen.

(6) Tower Data must be responsible for maintaining the Tower SIA screen, which includes ATIS, APREQ-ESP-MIT, EDCT, Airport STOP information, SWAP and Arrival spacing pages.

(7) Prior to signing in as relief for an active controller, the relieving controller must reference IDS and be versed on all applicable SIAs. For further information, reference Appendix E. Position Briefing Checklists.

(8) The IDS System Administrator or their designee and the Support Staff office must ensure all other pages are updated as necessary.

- c. All times entered in the IDS must be in Universal Time Constant (UTC) i.e. 'zulu' time.

**8-4. Low Level Wind Shear/Braking Action Advisories**

- a. CIC will enter “LLWSA” (low level wind shear advisories) and or “BAA” (braking action advisories) into the IDS in the section designated for speed and space.
- b. TRACON TMU will delete the “LLWSA” and/or “BAA” from the IDS.

**8-5. Radar Beacon Code Assignment.** All personnel must utilize the radar beacon code assignment tab for transponder allocations to aircraft operating on approved flight plans within the ZMP ARTCC airspace. Radar beacon codes assigned via IDS are in alignment with the VATUSA National Beacon Code Allocation Program.

**8-6. IDS System Malfunction**

In the event the IDS system malfunctions or a loss of connection is present, all personnel must exercise best judgment and maintain manual transponder allocation assignments in accordance with the VATUSA National Beacon Code Allocation Program and Para. 2-3 c. of this Facility Order.

## Chapter 9. Pre-Departure Clearance (PDC)

### 9-1. General.

Controllers responsible for aircraft departing MSP, at discretion, may utilize text-based Pre-Departure Clearance (PDC) procedures for IFR aircraft.

Air carrier aircraft that would be assumed in real-world operations to be ACARS equipped must be eligible for receipt of PDCs. If at any point it is believed that an aircraft would be unable to comply with a PDC, or if workload does not permit the use of PDC procedures, discontinue the use of PDCs and issue clearances via frequency.

### 9-2. Procedures.

a. CD must review the filed flight plan and make amendments as necessary.

b. Once the flight plan has been verified, CD must transmit the PDC message to the aircraft via vTDLS.

(1) Review all automated clearances for accuracy and route integrity before transmission to the respective aircraft. If erroneous clearance information is transmitted, advise the appropriate position that the flight crew must contact CD and mark “CALL CD” on the aircraft’s strip. CD must then issue the corrected information via voice.

(2) Ensure that the appropriate departure procedure for direction of flight is issued to required flights.

(3) Enter the correct initial altitude based on aircraft type and requested final altitude.

(4) Enter the correct frequency and verify that the correct initial altitude is displayed.

(5) Issue a planned departure runway to all aircraft participating in automated clearances or verbally if clearance is read to the pilot.

(a) In the automated system, a mandatory entry follows the frequency assignment. This field states “XPCT RWY XX”.

(b) Expect runway assignments are based on the runway configurations and fixes defined in Para 2-6.e.(5) Ground Control Departure Taxi Procedures.

(c) Ground Control is responsible for assigning the departure runway.

(6) Make the system entry that transmits the clearance to the aircraft.

(7) Once a flight is processed, the call sign will move to either the PDC or CPDLC list.

(8) After receiving confirmation from the aircraft that the clearance was successfully transmitted place the gate number (if known) in box 2A and the departure frequency for direction of flight in box 10 to indicate the clearance has been issued.

## Chapter 10. Runway 17-22 Configuration

### 10-1. Weather Criteria for Land Runway 17 and 22 Operations.

- a. Weather 1400 and 4 or greater: Land 17 and 22—Depart 12L/R, 17, and 22.
- b. Weather less than 1400 and 4: Land 17 and 22 configuration is not authorized.

### 10-2. Delegated Airspace. Delegated airspace is depicted in Appendix A.

### 10-3. LAHSO Procedures Runway 17-22. LAHSO is authorized for Runway 22 landing traffic to hold short of Taxiway KILO for Runway 17 arrivals. Available distance is 8,550 ft.

- a. General LAHSO requirements from paragraph 2-6 of this order, include:
  - (1) Weather 1400 and 4 or greater
  - (2) Runway dry and not contaminated.
  - (3) Wind 130° to 310° (no tailwind component) with no reported wind shear
- b. Runway 17 arrival spacing should provide 4 miles spacing at touchdown. This spacing is not required when there is no traffic landing Runway 22.
- c. Runway 22 arrival spacing should provide 6 miles spacing at touchdown. This spacing is not required when there is no departure traffic.
- d. Aircraft unable to LAHSO:
  - (1) Feeder must advise Final Arrival of aircraft landing Runway 22 that will not LAHSO.
  - (2) Aircraft unable to LAHSO should be assigned Runway 17. If traffic conditions or simulator configuration do not permit these aircraft to use Runway 17, they should be assigned Runway 22 as follows:
    - (a) Feeder must coordinate a sequence (gap) with the Runway 17 Arrival Controller, and advise the Runway 22 Arrival Controller of the sequence (gap).
    - (b) The Runway 22 Arrival Controller should provide 2-mile spacing at the runway threshold with the preceding Runway 17 arrival.
    - (c) The Runway 17 Arrival Controller should provide 2-mile spacing at the runway threshold with the preceding Runway 22 arrival.

### 10-4. Converging Runway Display Aid (CRDA) Procedures Runway 17-22

The CRC Radar Client supports the use of Converging Runway Display Aid (CRDA), which allows controllers to efficiently sequence arrival traffic to converging runways. When operating in a 17-22 configuration, the use of CRC with CRDA is highly recommended with the following procedures:



- a. CRDA procedures must be applied when LAHSO is not used.
- b. Ghost targets must be displayed on the Runway 22 final approach course at all times, and may be displayed on the Runway 17 final approach course at the controller's discretion.
- c. Runway 17 arrival spacing should provide 6 miles spacing at touchdown. This spacing is not required when there is no traffic landing Runway 22.
- d. Runway 22 arrival spacing should provide 6 miles spacing at touchdown. Upon reaching the final approach fix (SNELL), Runway 22 traffic should be within ½ mile (ahead or behind) the middle of the gap between the corresponding Runway 17 ghost targets.

**10-5. Land 17 and 22—Depart 12L/R, 17, and 22 (General).**

**a. Arrivals (Land 17 and 22).**

- (1) Runway 22 is normally a left-traffic flow.
- (2) Runway 17 is normally a right-traffic flow.
- (3) Runway 22 arrivals should be assigned North Local frequency 123.95, if split.
- (4) Runway 17 arrivals should be assigned West Local frequency 123.675, if split

**b. Feeder (Land 17 and 22).**

(1) The Feeder Control airspace boundary extends northeast from the ASR-9 along the 17-22 ACDA-split line, and extends southwest from the ASR-9 to the 10-mile ring at the eastern ingress route line as depicted in Appendix A.

**NOTE-**

*South Feeder is delegated the HHAMR/DELZY and WRS AW/TRGET ingress route airspace to the 10-mile range ring.*

**(2) Normal Feeder/Arrival Gate Assignments:**

- (a) HUGGI/BAYKS/TWINZ – North Feeder
- (b) HHAMR/DELZY and WRS AW/TRGET – South Feeder
- (c) LUCCY/OLLEE – South Arrival
- (d) HMBRG/SHONN – South Feeder

**c. Feeder Handoff Procedures (Land 17 and 22).**

- (1) South Feeder should handoff to Runway 17 Arrival HMBRG/SHONN traffic at 8,000 ft. and HHAMR/DELZY/WRS AW/TRGET traffic at 9,000 ft.
- (2) North Feeder should handoff HUGGI/BAYKS/TWINZ traffic to RWY 22 Arrival at 9,000 ft.
- (3) North Feeder should handoff HMBRG/SHONN, WRS AW/TRGET, and HHAMR/DELZY traffic to RWY 22 Arrival at 9,000 ft.

(4) HMBRG/SHONN, HHAMR/DELZY, and WRS AW/TRGET aircraft assigned Runway 22 are far-gate crossovers. Normally South Feeder should hand off these aircraft to North Feeder as follows:

(a) TRGET: Depart FGT heading 010°. Jets at 11,000 ft.

(b) DELZY: Depart FGT heading 010°. Jets at 10,000 ft., Turboprops at 9,000 ft.

(c) SHONN: Depart MONKY heading 090°. Jets at 11,000 ft., Turboprops at 9,000 ft.

(d) If an aircraft needs to be taken off an RNAV STAR, issue a heading that will place the aircraft within 10 NM of MSP Airport.

1. WRS AW: Jets at 11,000 ft.

2. HHAMR: Jets at 10,000 ft.

3. HMBRG: Jets at 11,000 ft.

(5) Communication transfer, control for turns/speed, and strip movement must be accomplished in accordance with the SOP.

**10-6. Go Aroun ds.** All Runway 17 or Runway 22 go around traffic should make a right turn and return to Runway 17 regardless of the initially assigned landing runway.

### **10-7. Additional Tower Responsibilities**

#### **a. Taxi Procedures.**

(1) Normal Runway 22 crossing points:

(a) Aircraft from the main terminal, Taxiways P, Q, C6/M6, A, and B.

(b) Aircraft from the Humphrey terminal, Taxiway S.

#### **b. Runway 17-22 Operations, Local Control Split Position Responsibility.**

(1) Local Control North is responsible for arrivals on Runway 22 on frequency 123.95.

(2) Local Control South is responsible for departures on Runway 12R/L on frequency 126.7.

(3) Local Control West is responsible for arrivals and departures on Runway 17 on frequency 123.675.

#### **c. Departures (Land 17 and 22).**

(1) The Runway 17/22/12R dispersal area includes headings 090° to 300°.

(2) Traffic departing Runway 12R should be rolling by the time Runway 22 traffic is 1.5 miles from the runway end.

(3) When landing Runway 17 and 22, the maximum tower-assigned heading for *turbojet* aircraft departing Runway 12R/L must be 240°.

(4) Departure Control has control for turns of Runway 12R/L turbojet departures assigned heading 240° when leaving 6,000 ft. or crossing the Runway 35 localizer.

(5) LEINY, DWN, and SMERF traffic must be treated as one fix and provided 3 MIT initial departure spacing (jet-jet/prop-prop).

(6) FAR and BRD traffic must be treated as one fix and provided 3 MIT initial departure spacing (jet-jet/prop-prop).

(7) FAR, AXN, STC traffic must be treated as one (“same”) fix and provided 3 MIT initial departure spacing.

(8) Visual separation and diverging headings must not be applied between “same” fixes.

(9) Tower must turn DLH/WLSTN traffic east and provide a minimum 5 MIT initial departure spacing (jet-jet/prop-prop).

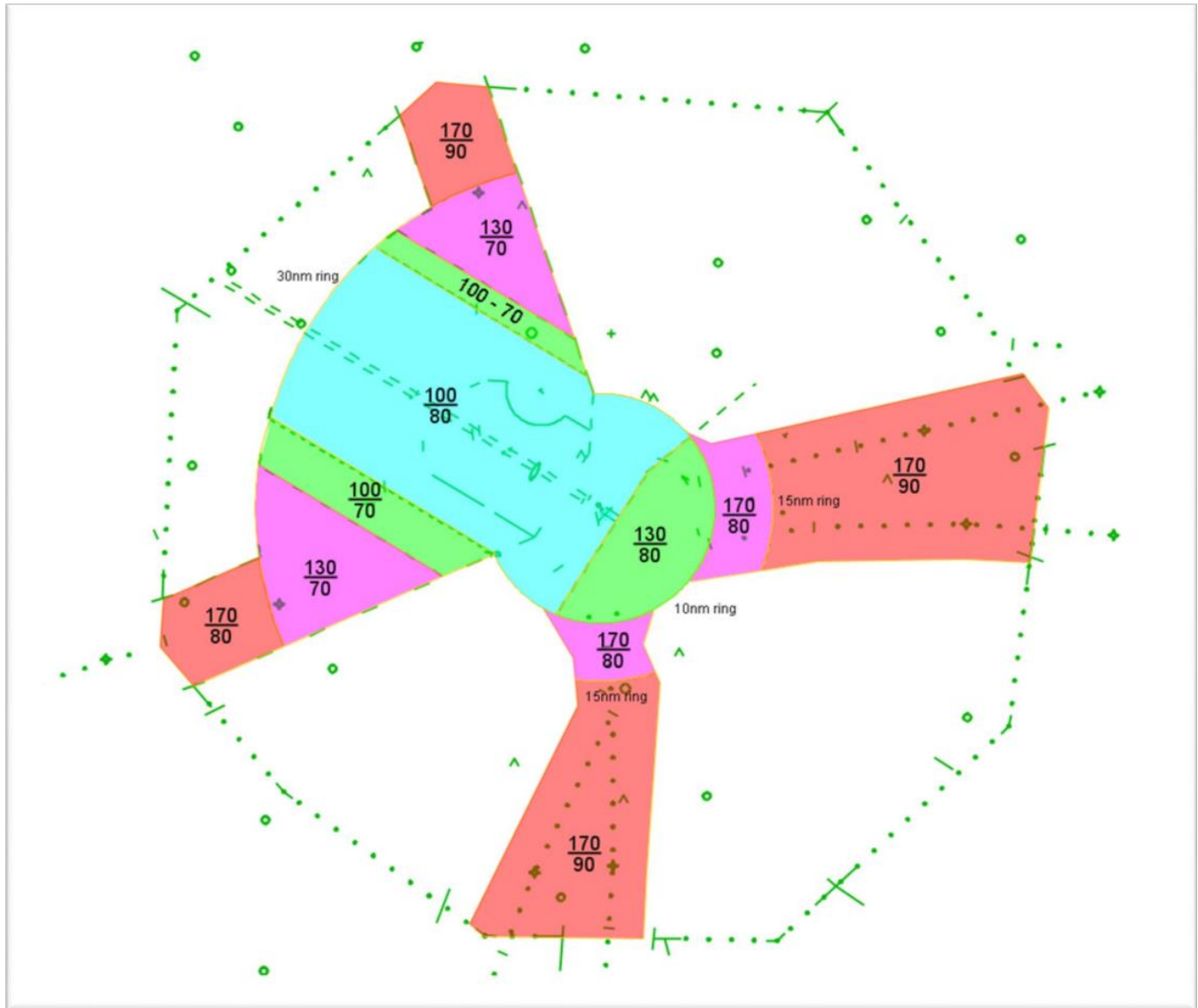
**d. Satellite (Land 17 and 22).**

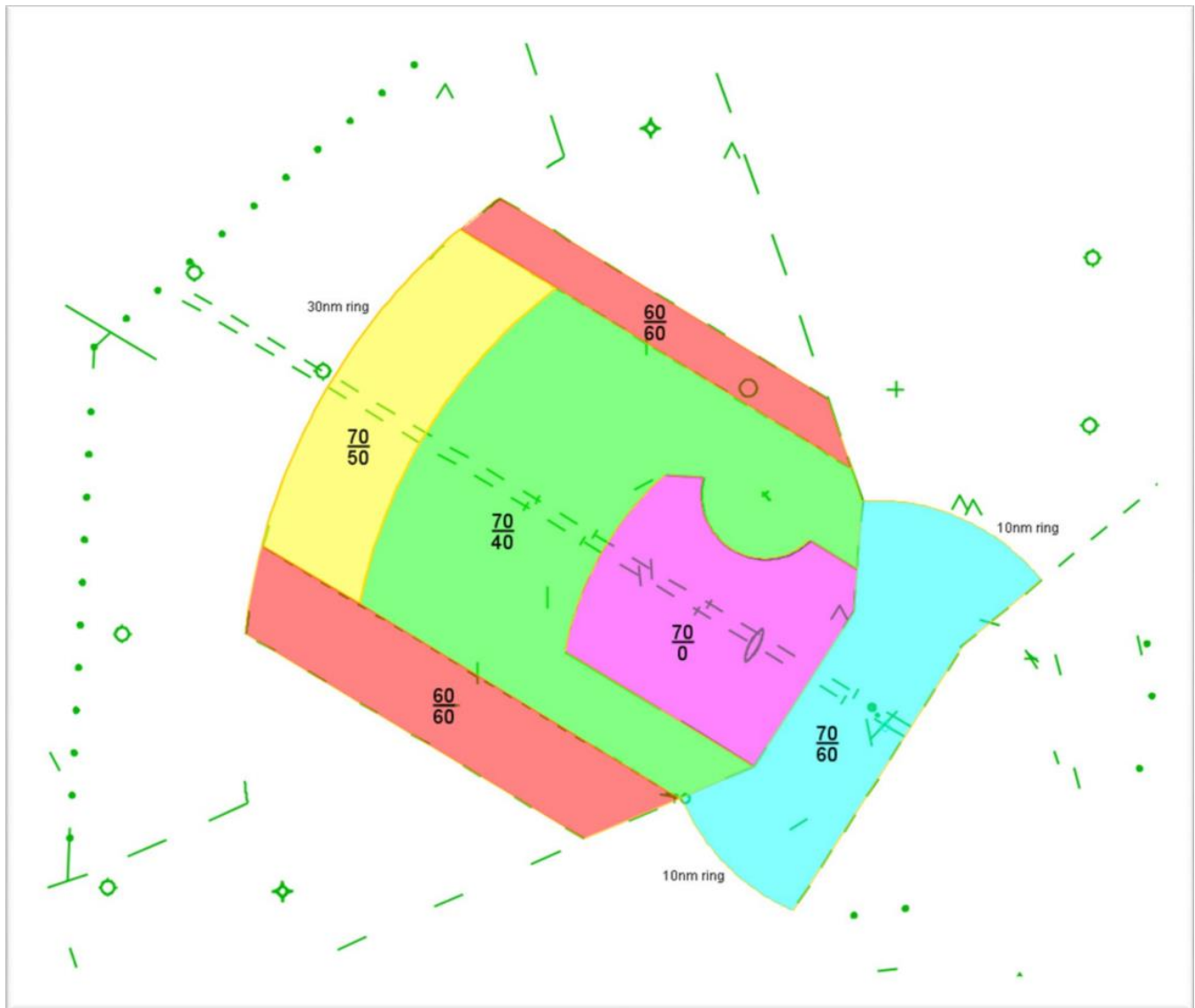
(1) STP satellite must coordinate with M98 to organize the flow of traffic to/from STP that will affect the MSP Runway 22 final.

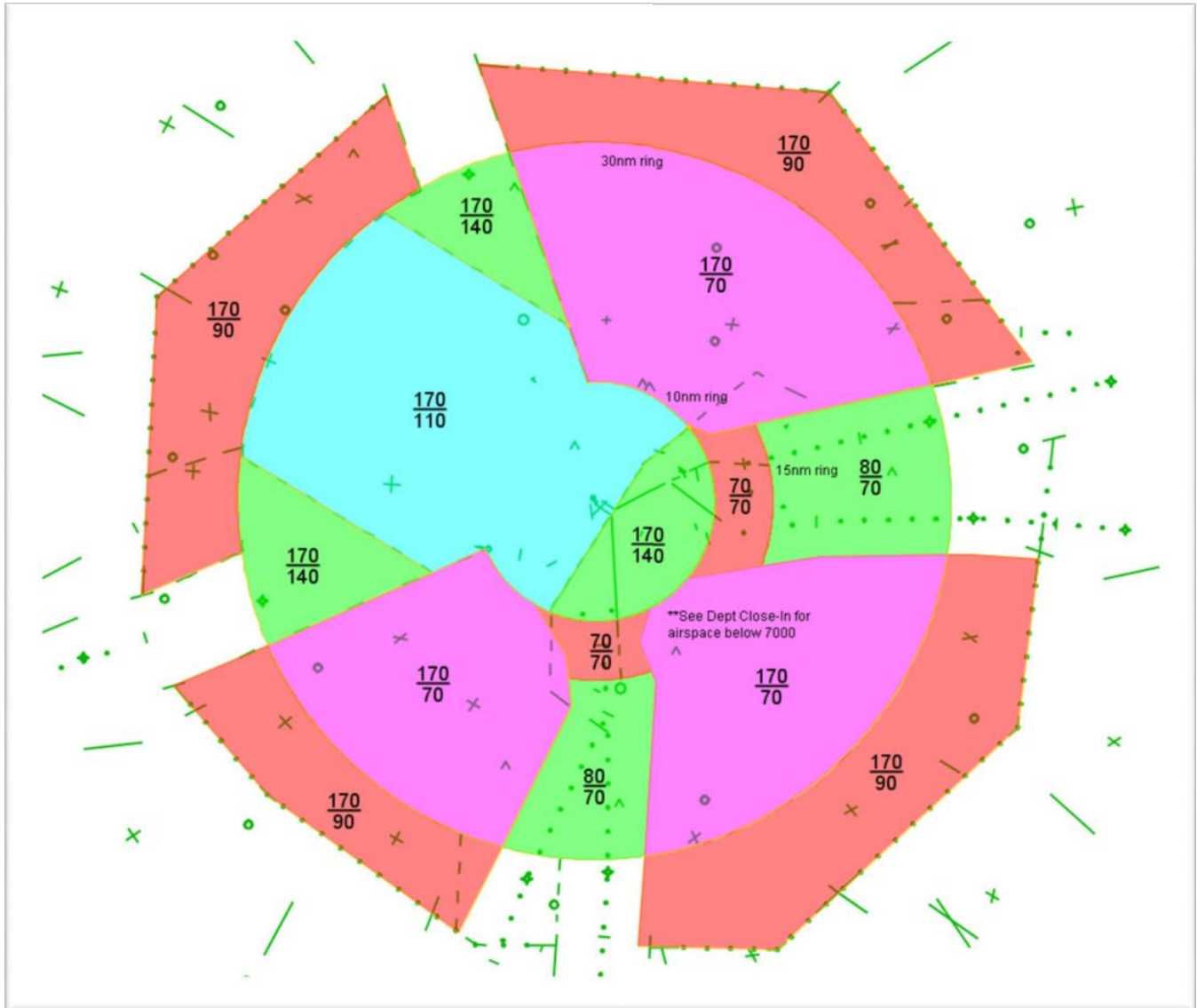
(2) STP traffic must be handled in accordance with the STP-M98 LOA. Traffic Management Initiatives must be dynamic and creative allowing for an equitable delay to both MSP Runway 22 and STP Runway 14 traffic.

All MIC IFR arrivals that will operate east of MIC Airport, and Runway 06 and 14 departures must be coordinated with Approach Control.

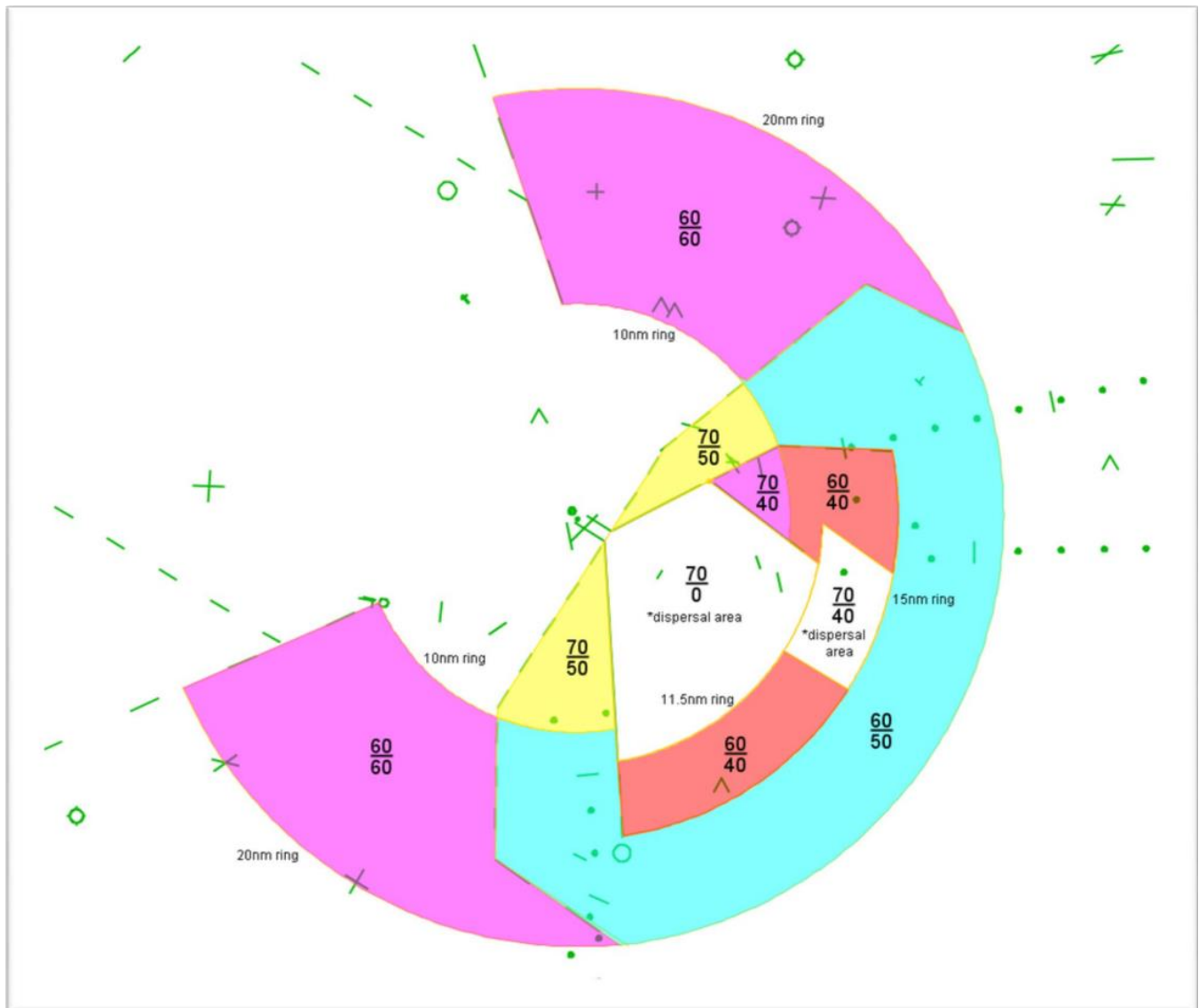
## Appendix A. Delegated Airspace Diagrams

RUNWAY 12  
FEEDER

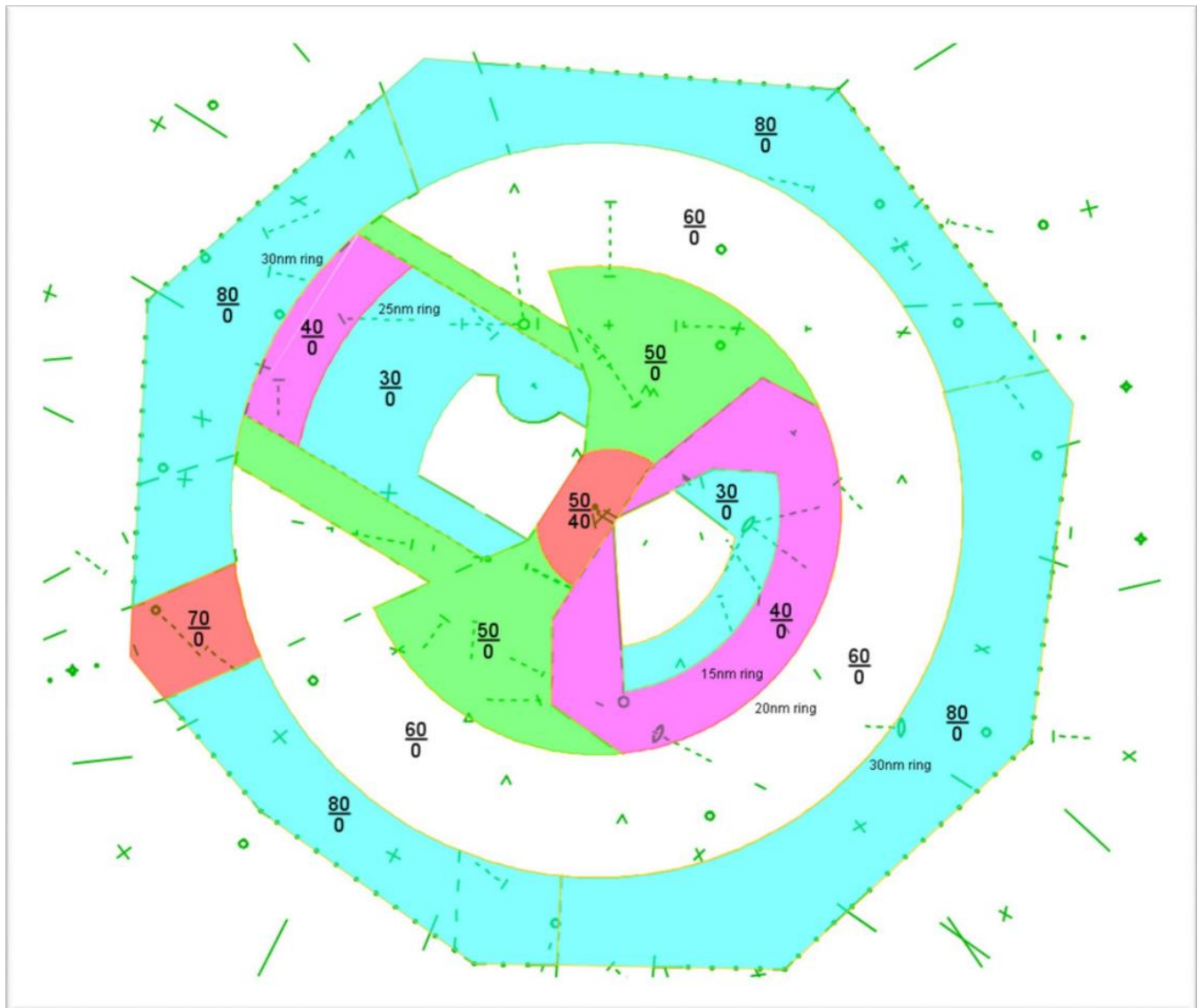
**RUNWAY 12  
ACDA**

**RUNWAY 12  
DEPARTURE**

**RUNWAY 12  
DEPARTURE CLOSE IN**



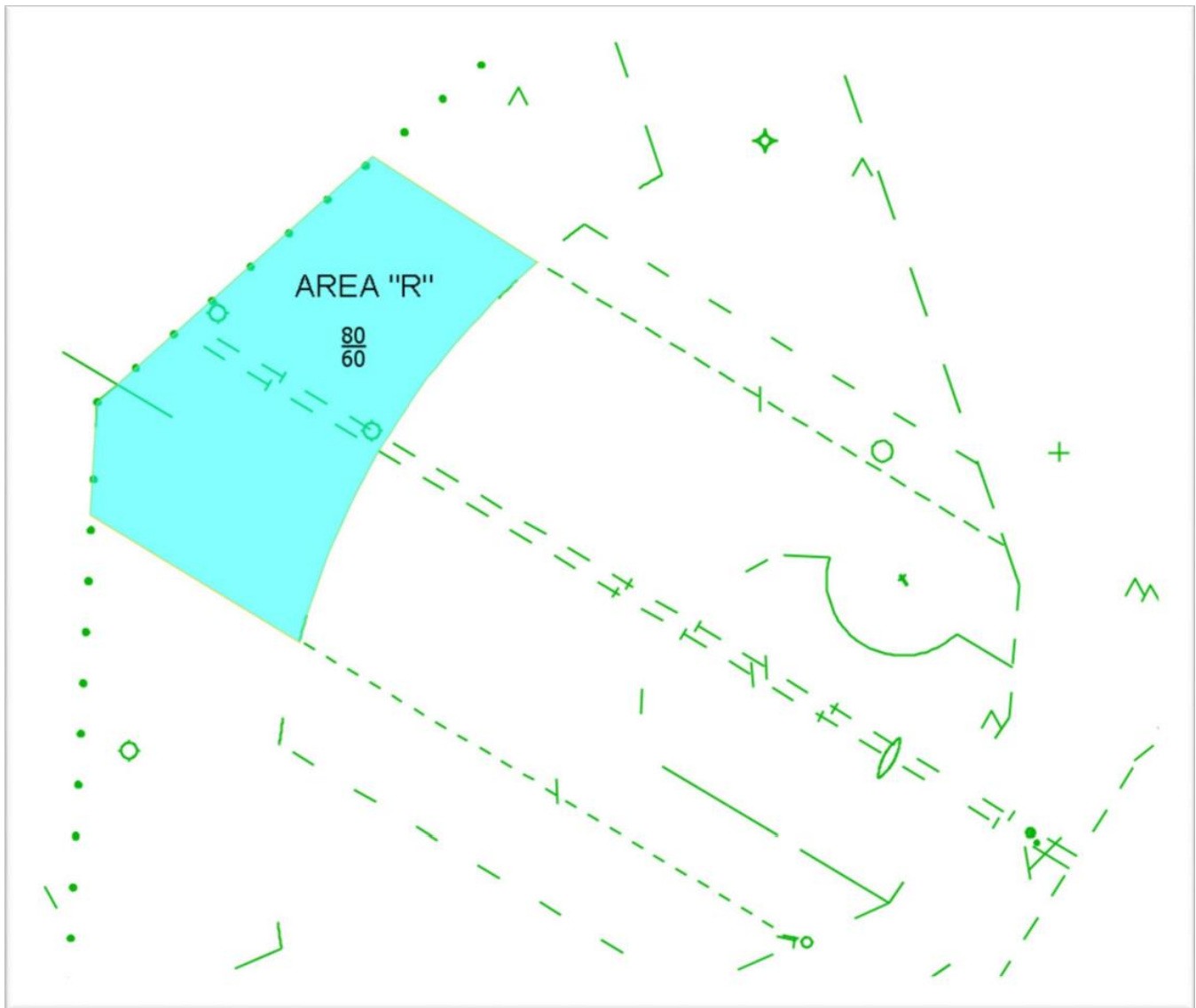


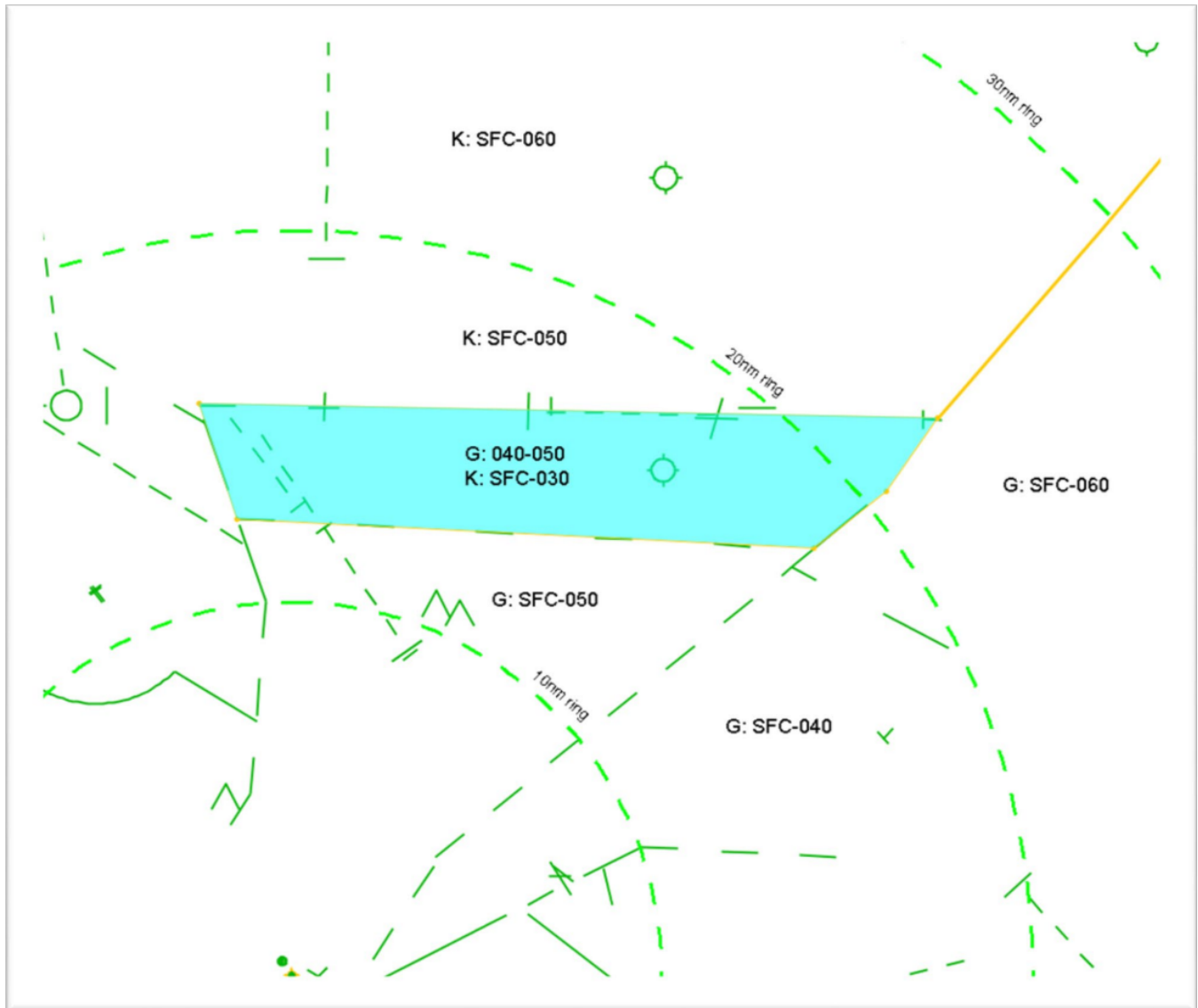
**RUNWAY 12  
SATELLITE**



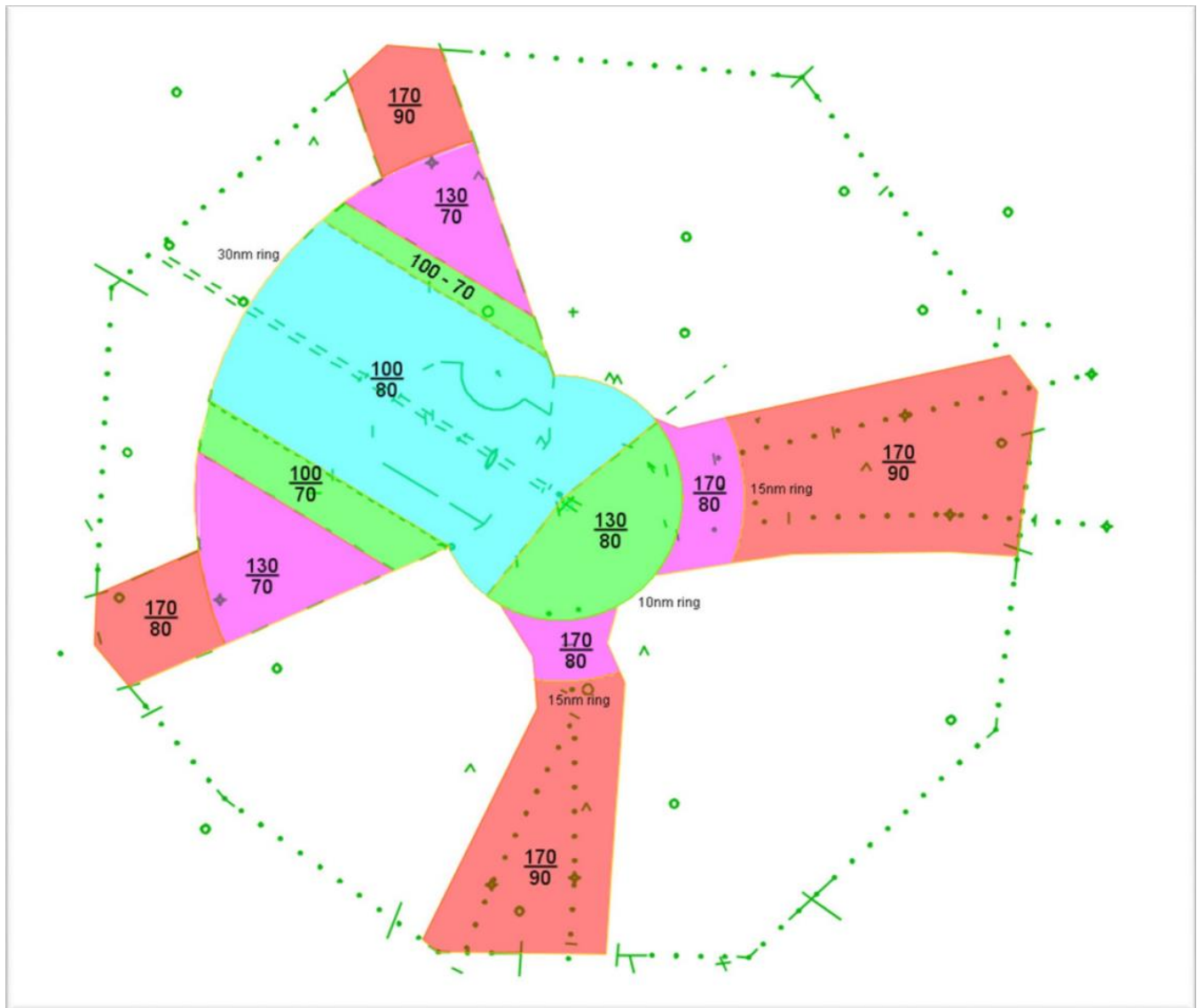
## RUNWAY 12 AND 12-17

## AREA 'R'

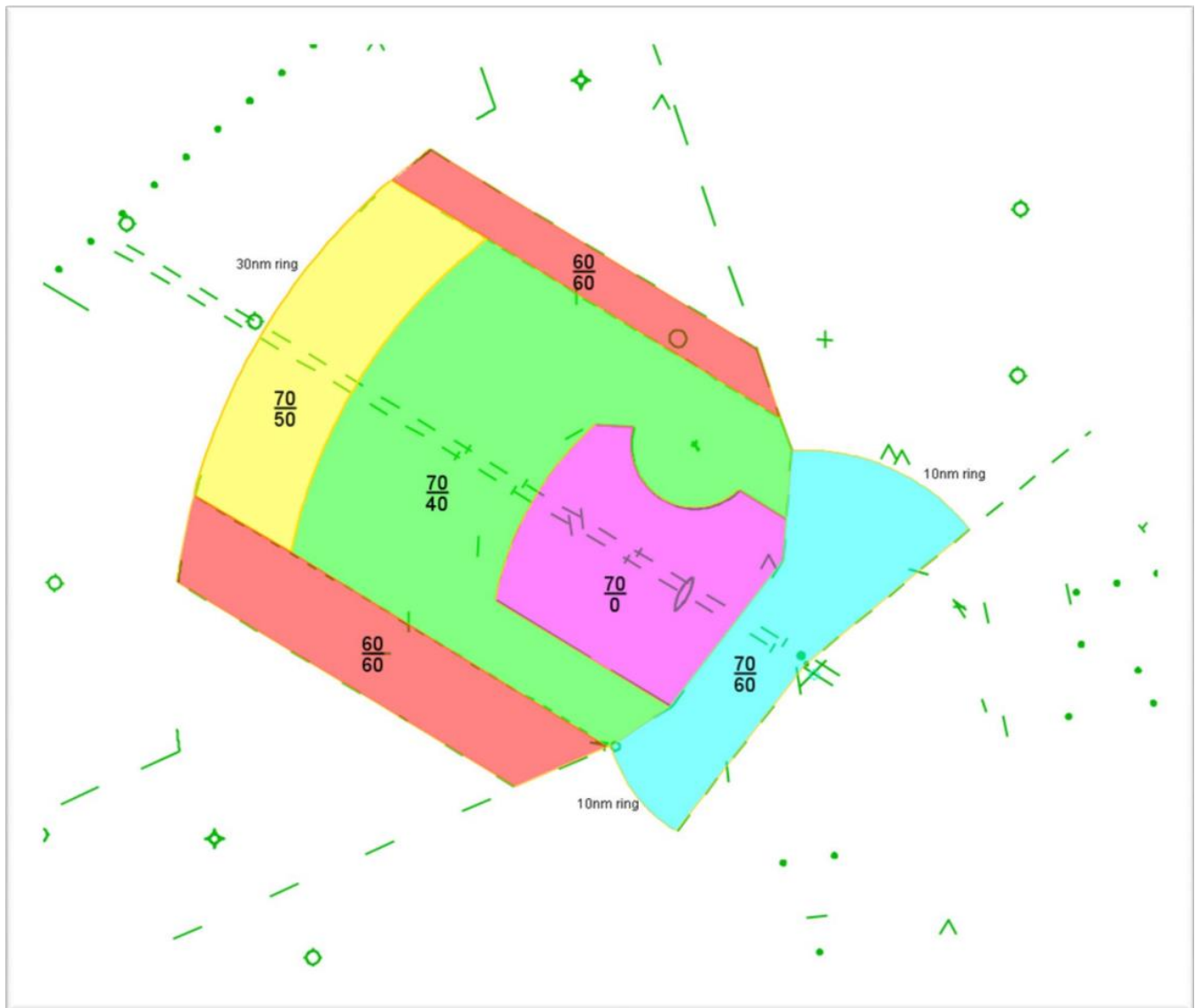


**RUNWAY 12 and 12/17  
STP SHELF**

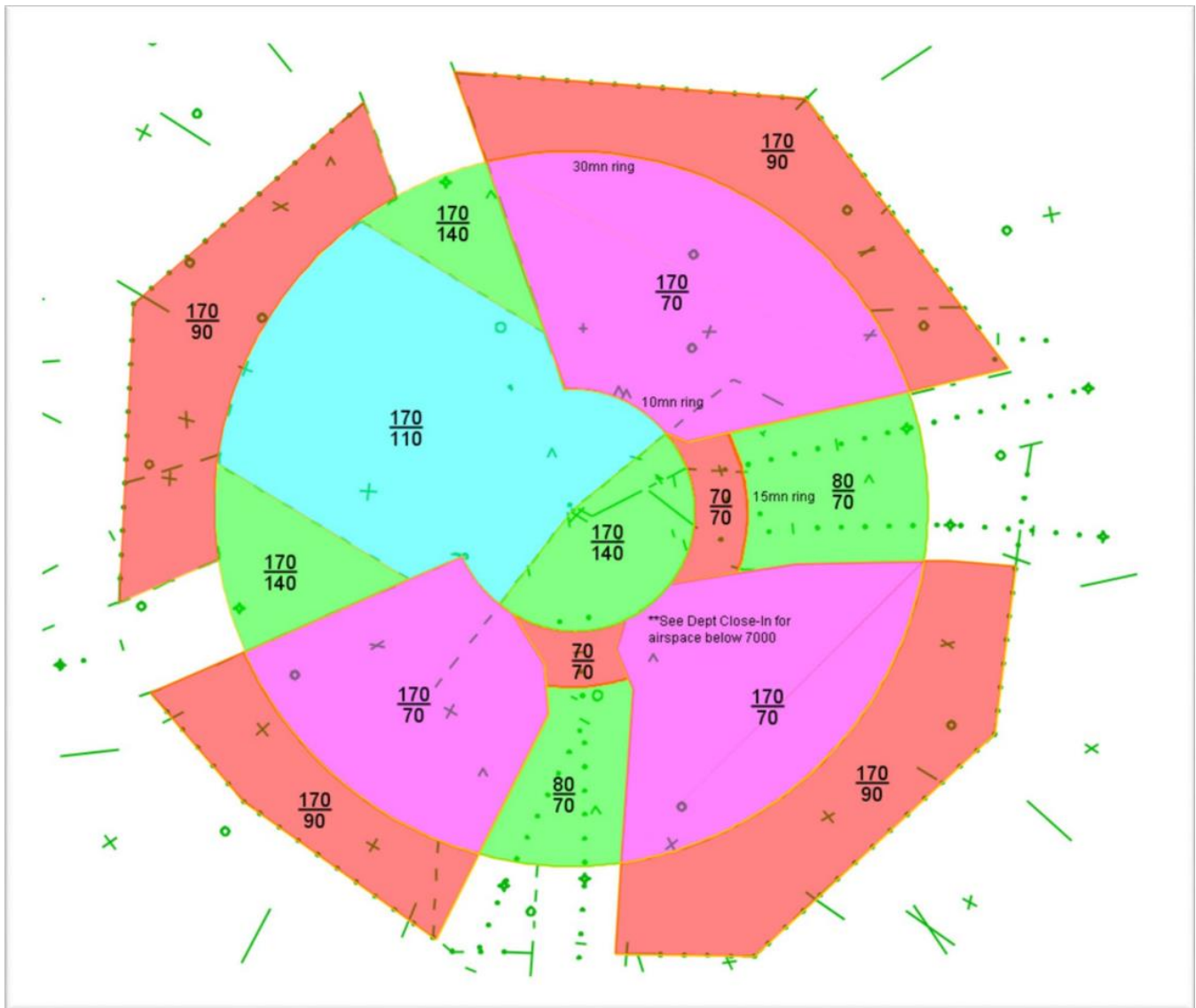
**LAND 12s – DEPART 12s and 17  
FEEDER**



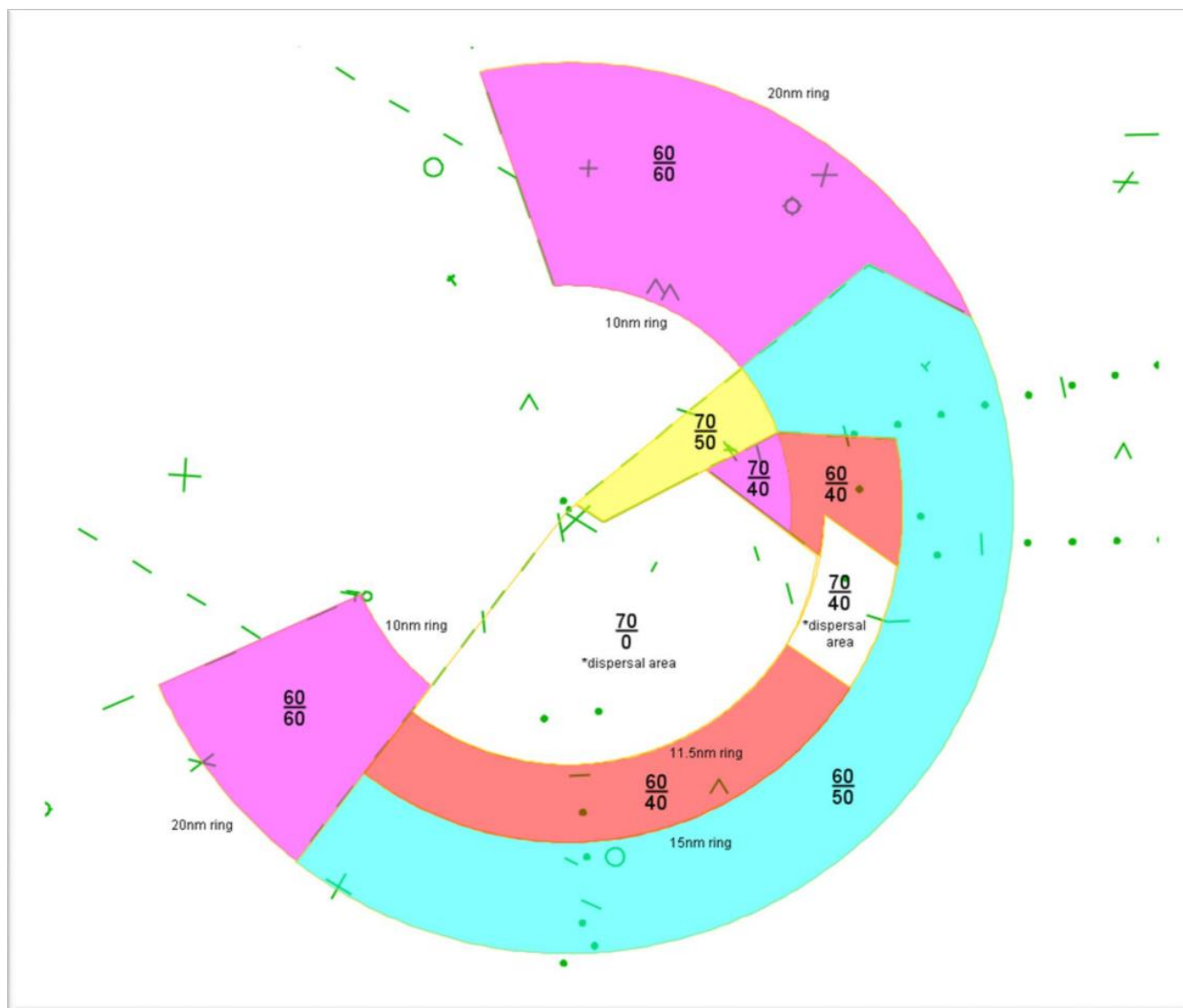
**LAND 12s – DEPART 12s and 17  
ACDA**



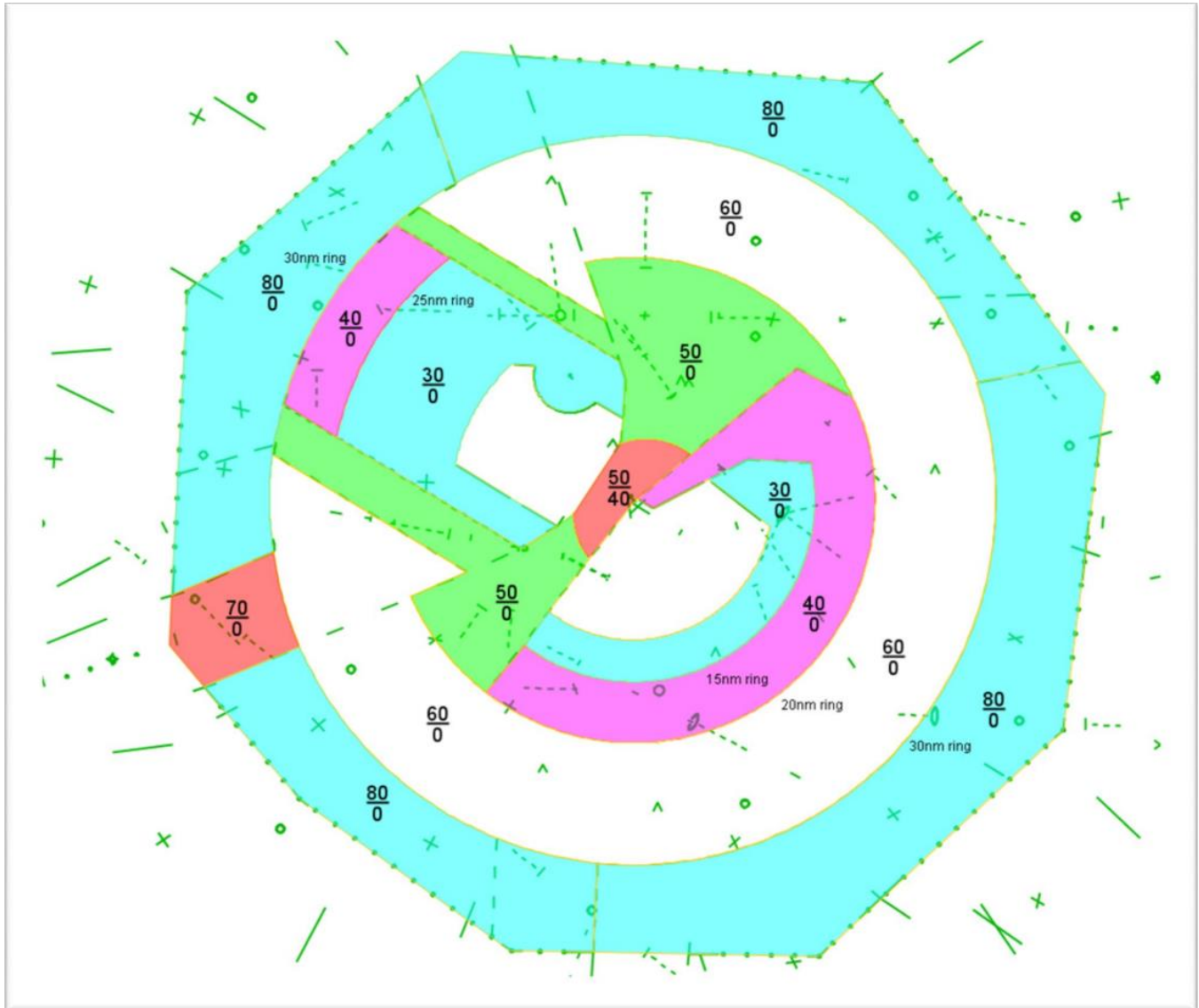
**LAND 12s – DEPART 12s and 17  
DEPARTURE**



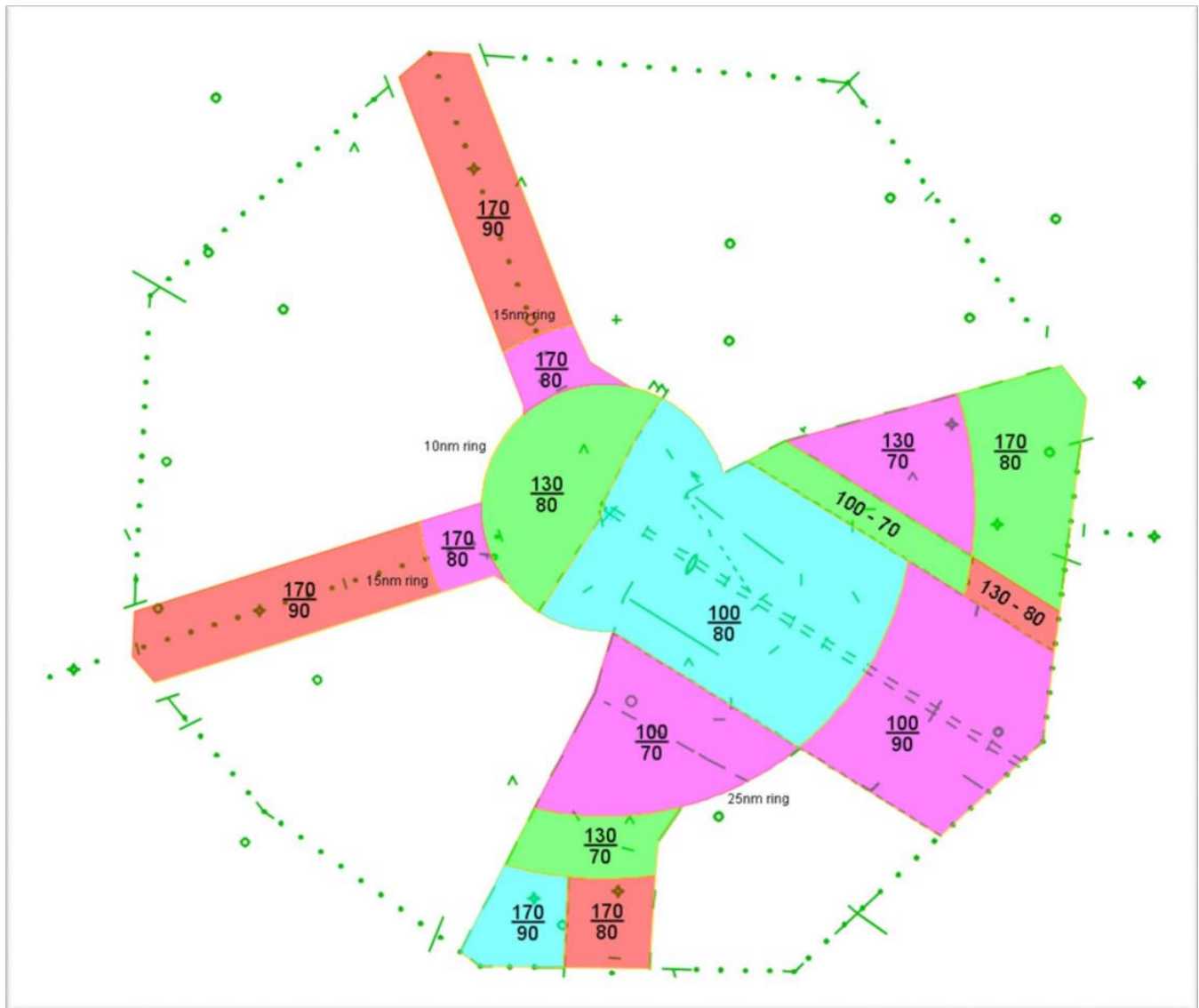
**LAND 12s – DEPART 12s and 17  
DEPARTURE CLOSE IN**



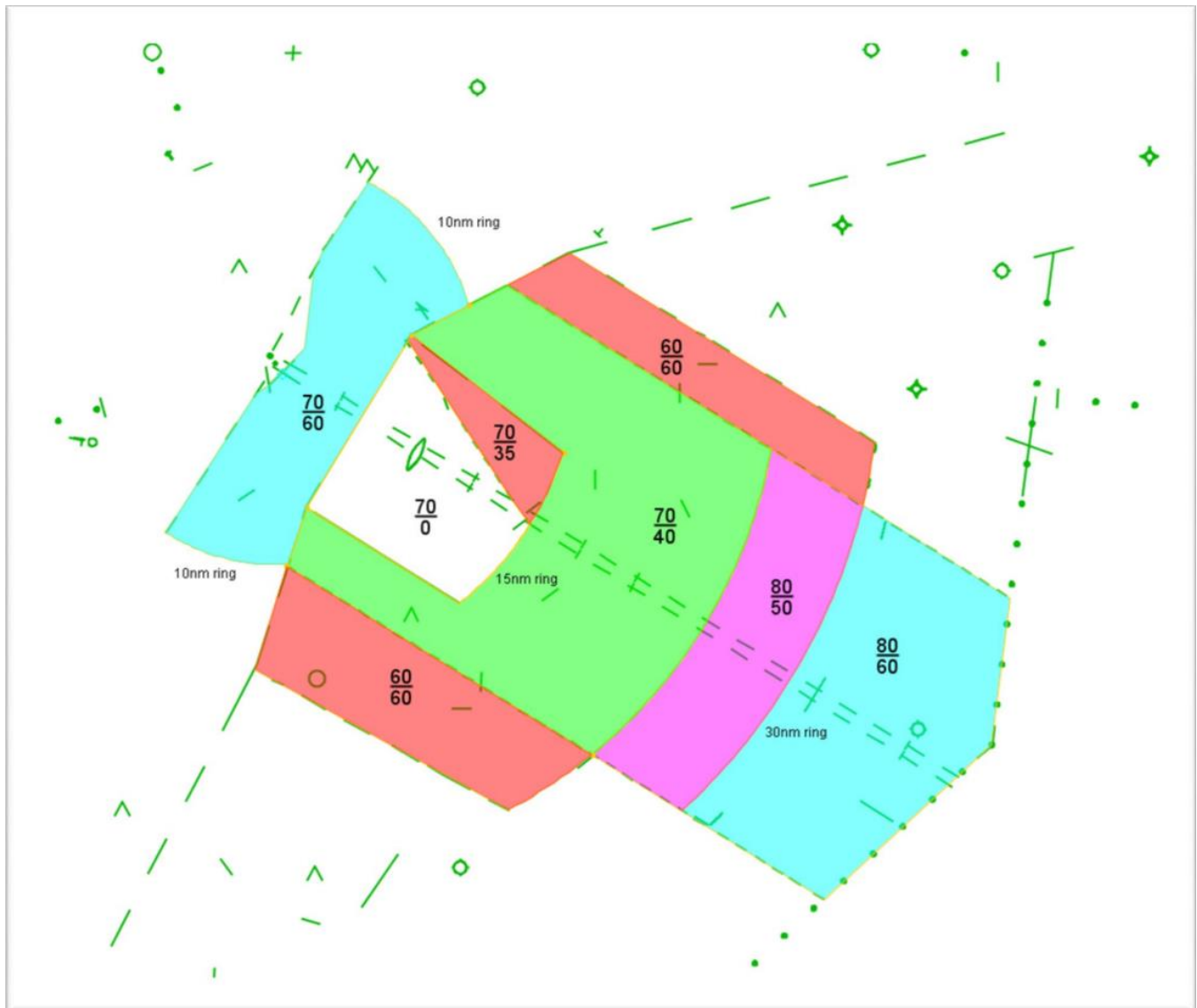
**LAND 12s – DEPART 12s and 17  
SATELLITE**

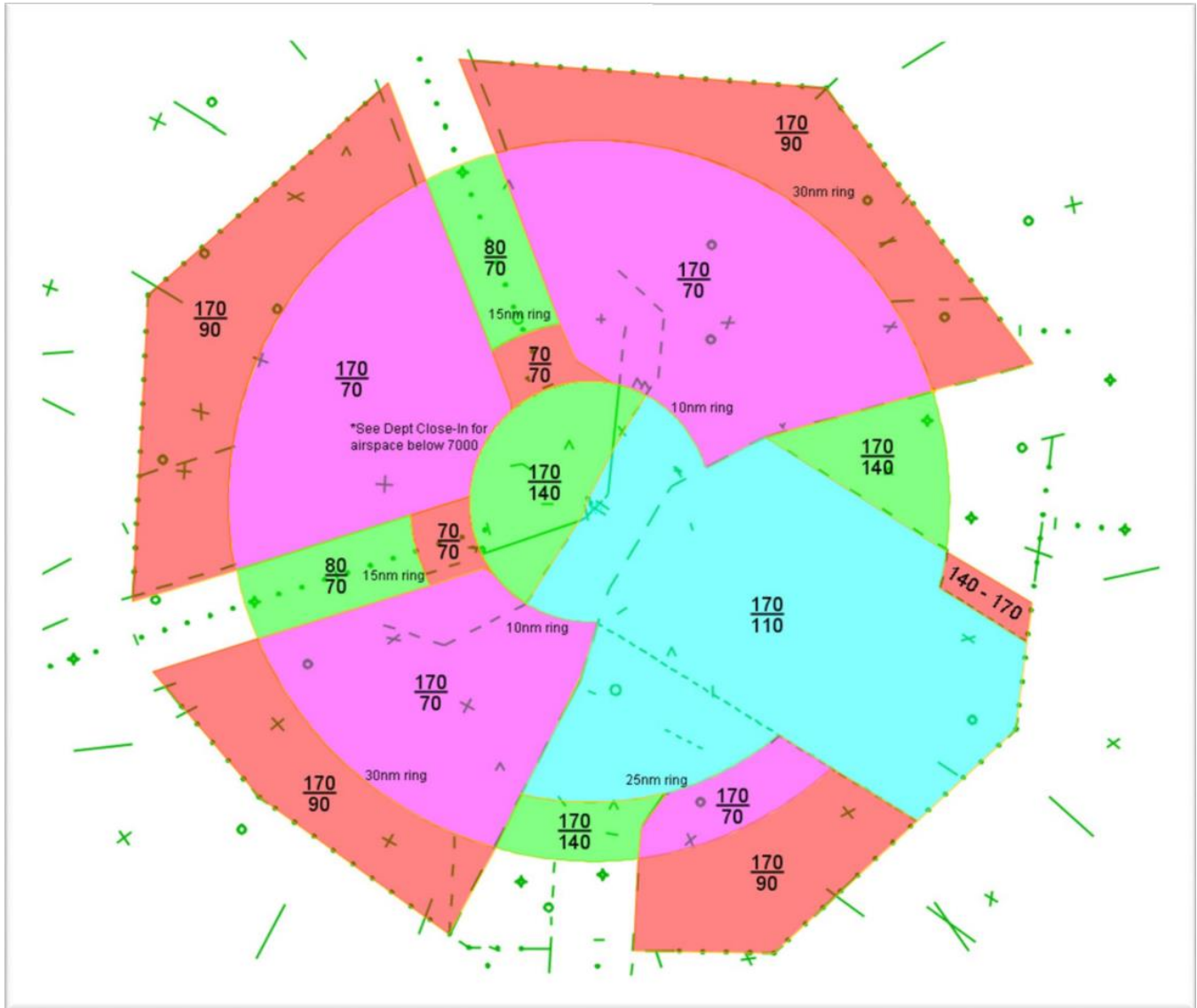




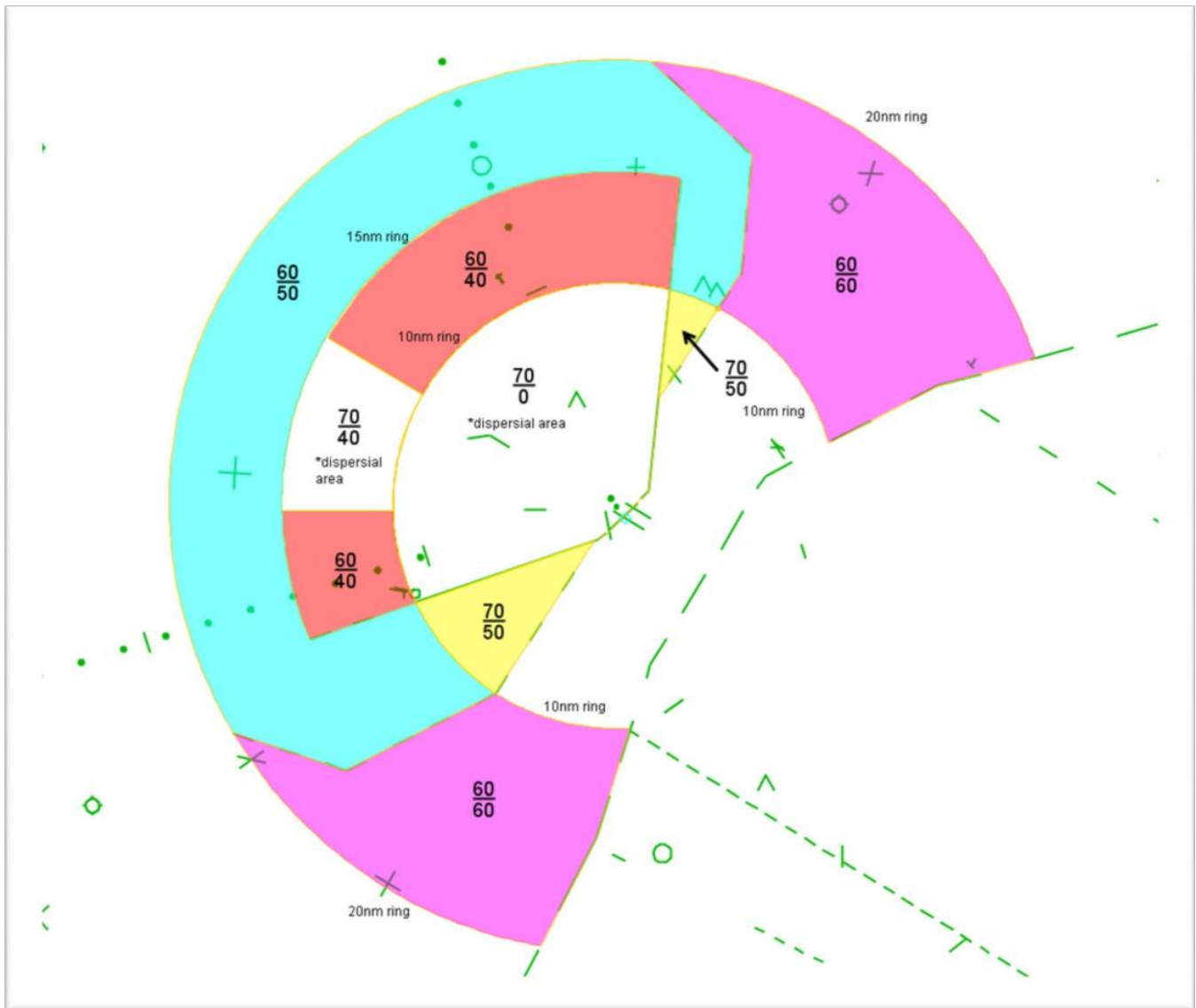
**RUNWAY 30  
FEEDER**

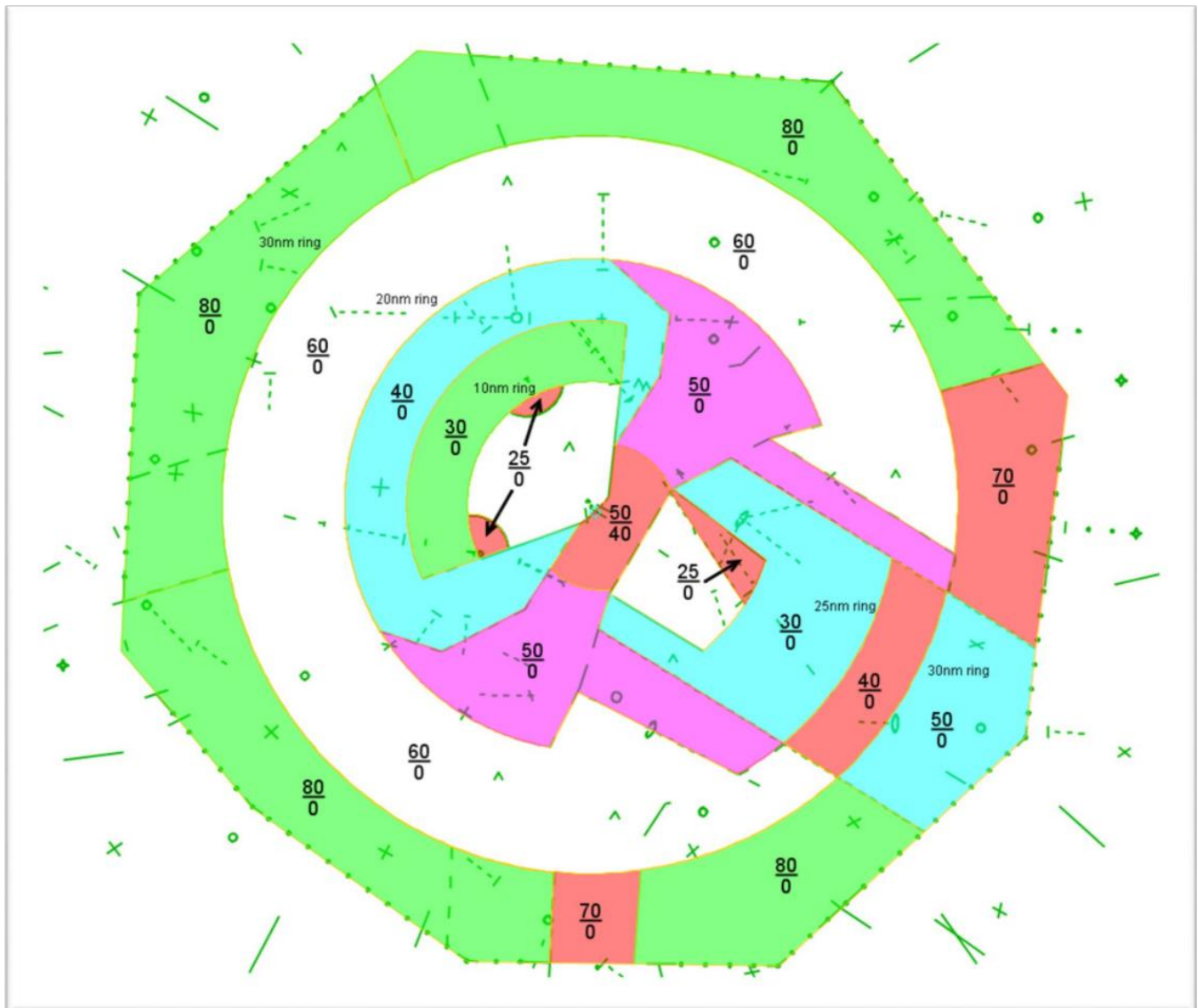


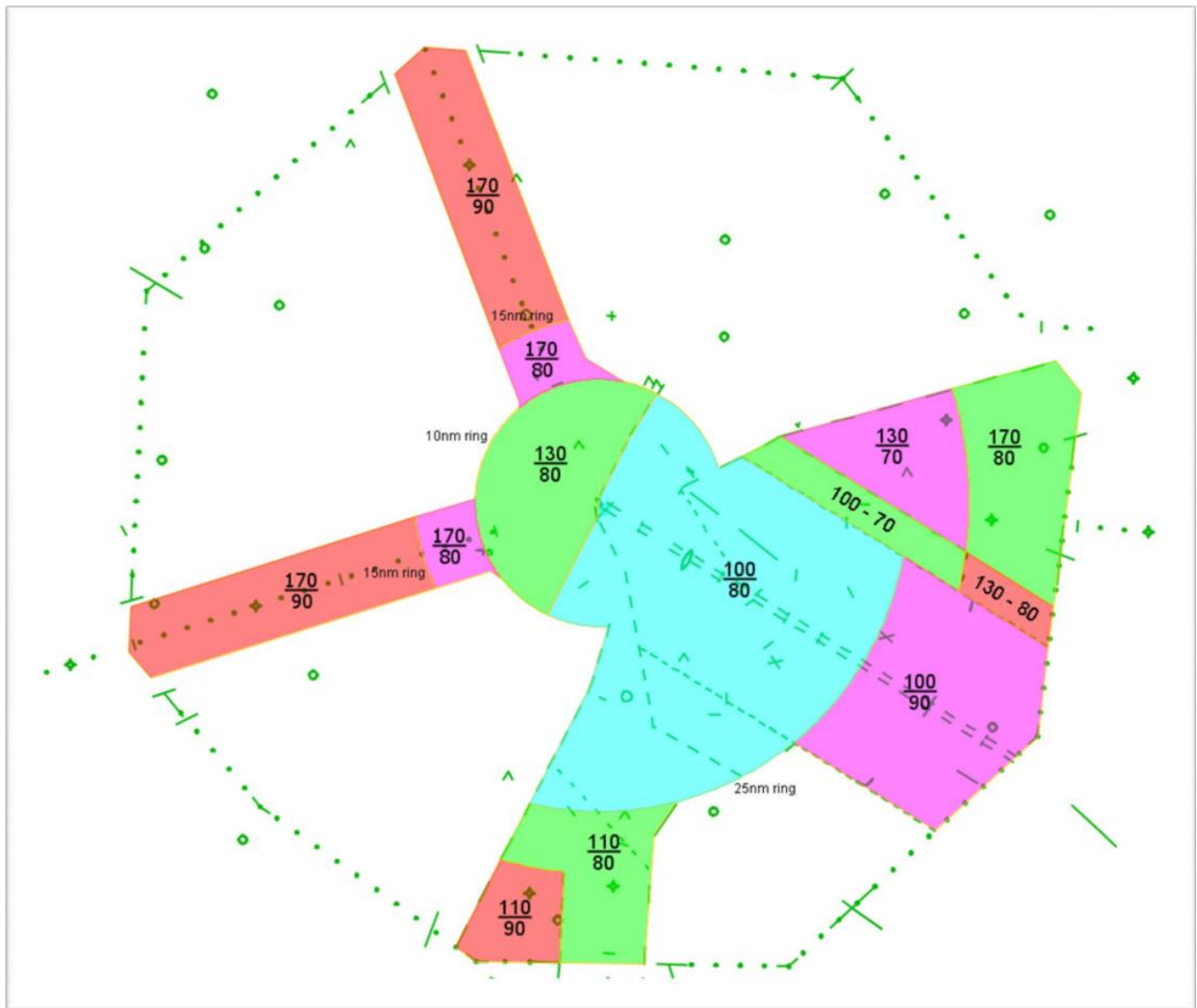
**RUNWAY 30  
ACDA**

**RUNWAY 30  
DEPARTURE**

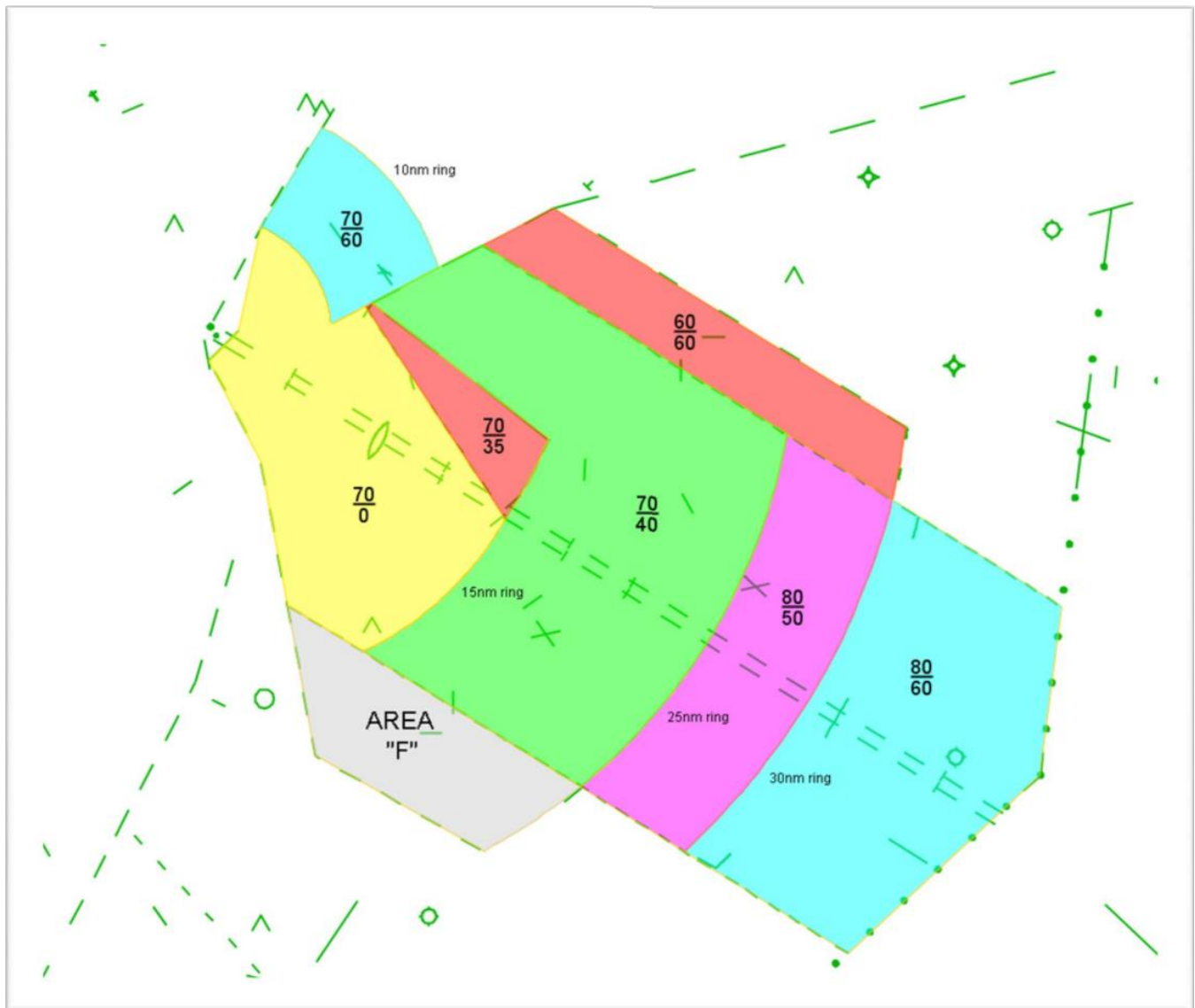
**RUNWAY 30  
DEPARTURE CLOSE IN**



**RUNWAY 30  
SATELLITE**

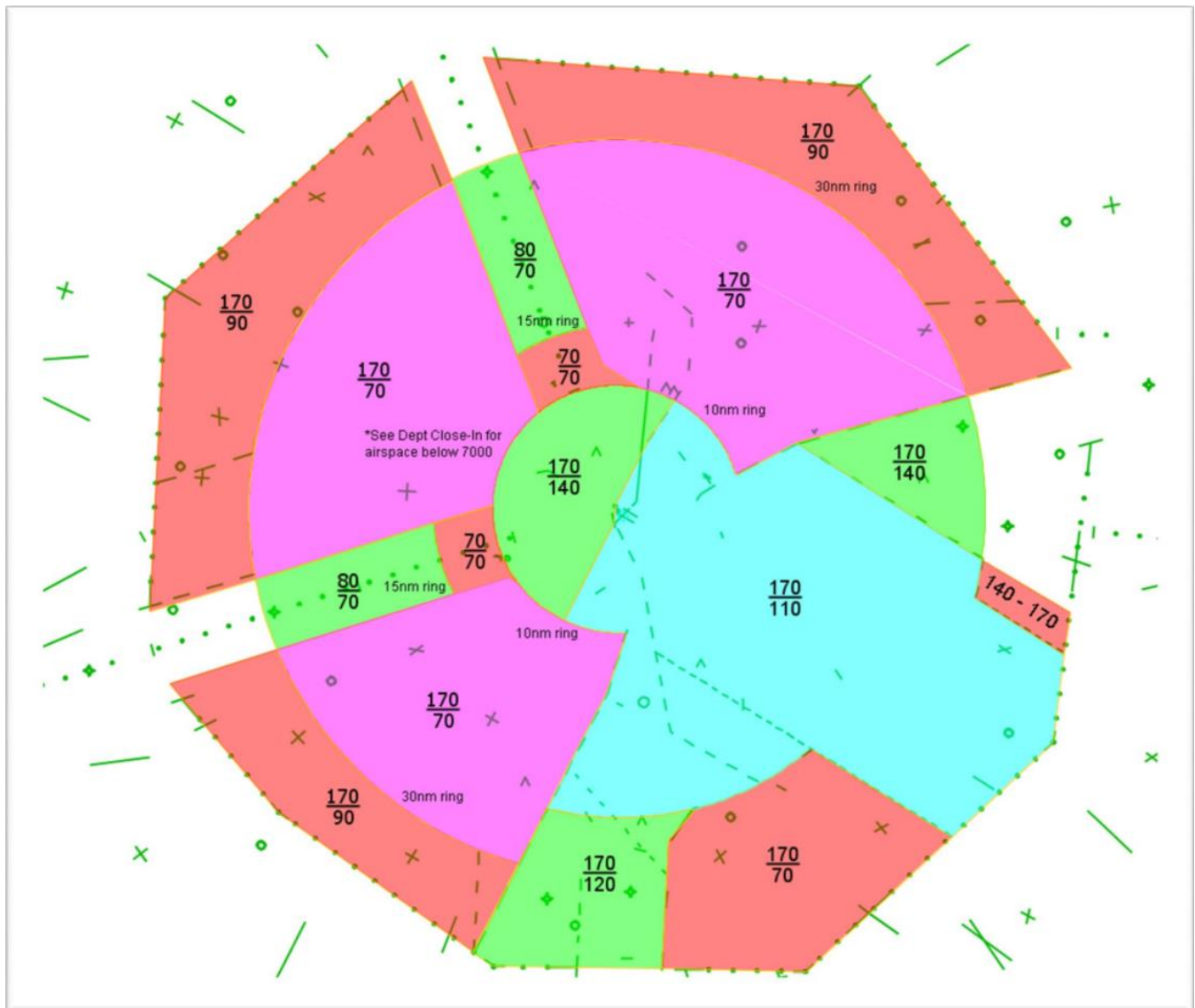
**LAND 30s – DEPART 30s and 17  
FEEDER**

**LAND 30s – DEPART 30s and 17  
ACDA**

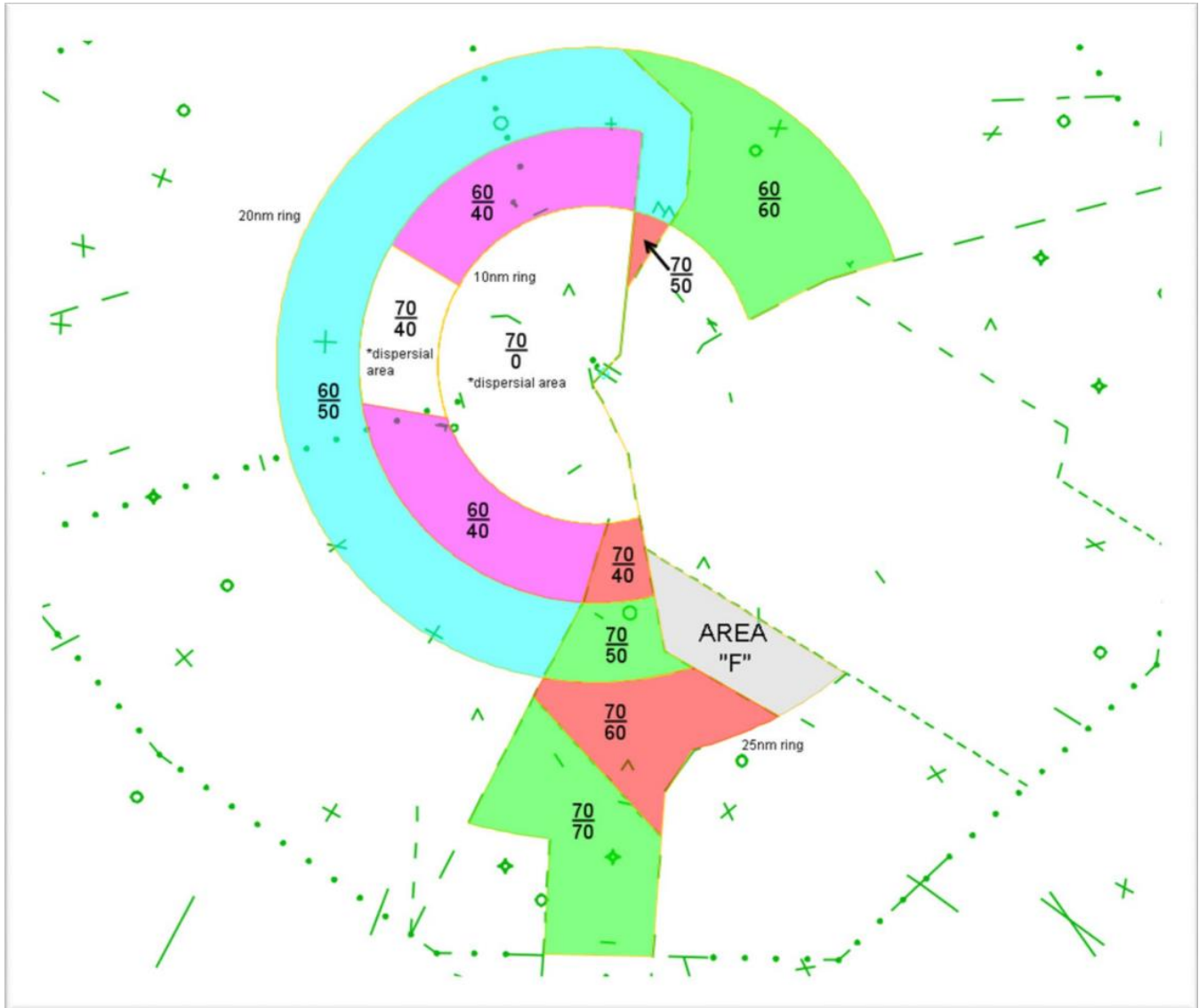




**LAND 30s – DEPART 30s and 17  
DEPARTURE**

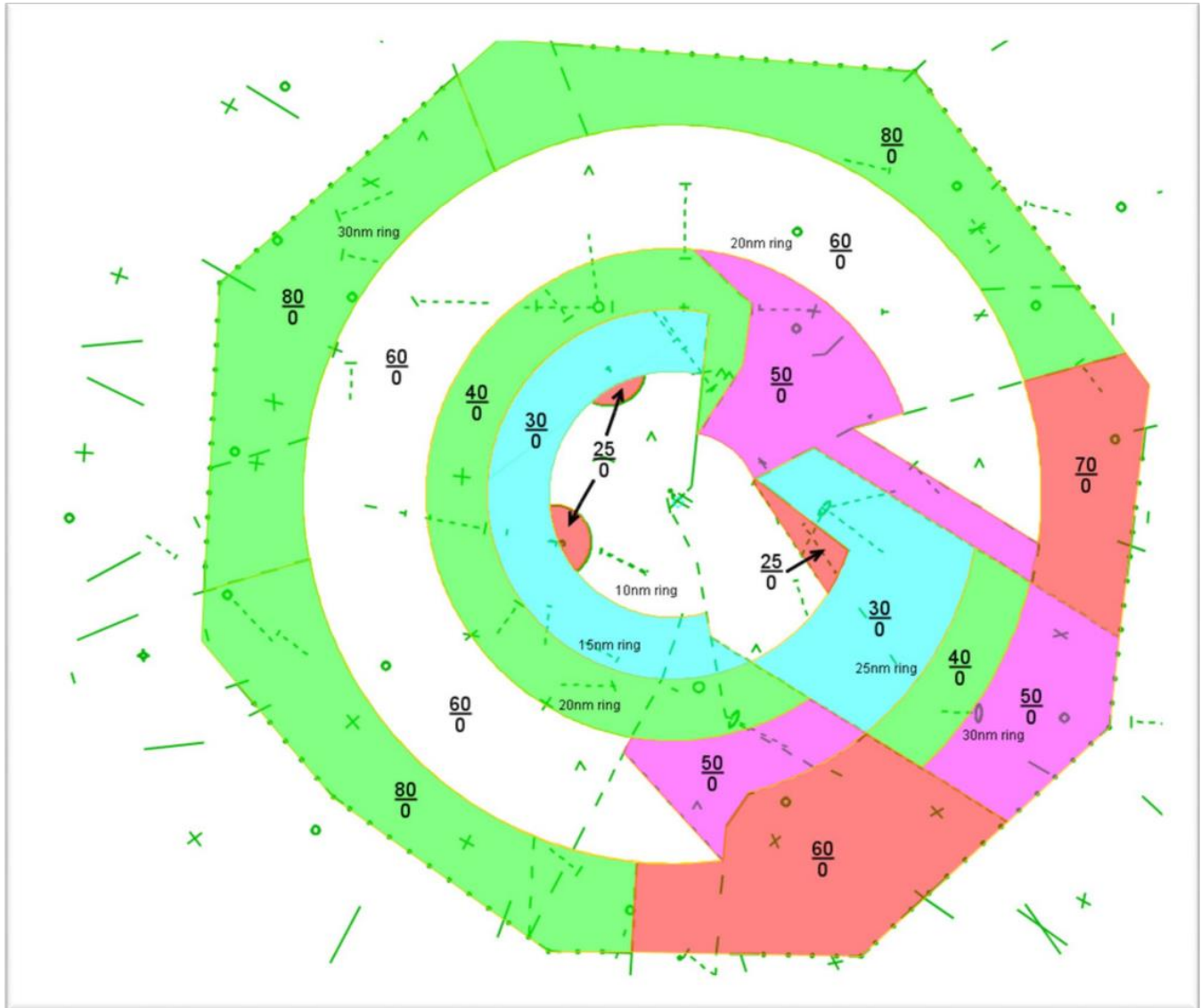


**LAND 30s – DEPART 30s and 17  
DEPARTURE CLOSE IN**





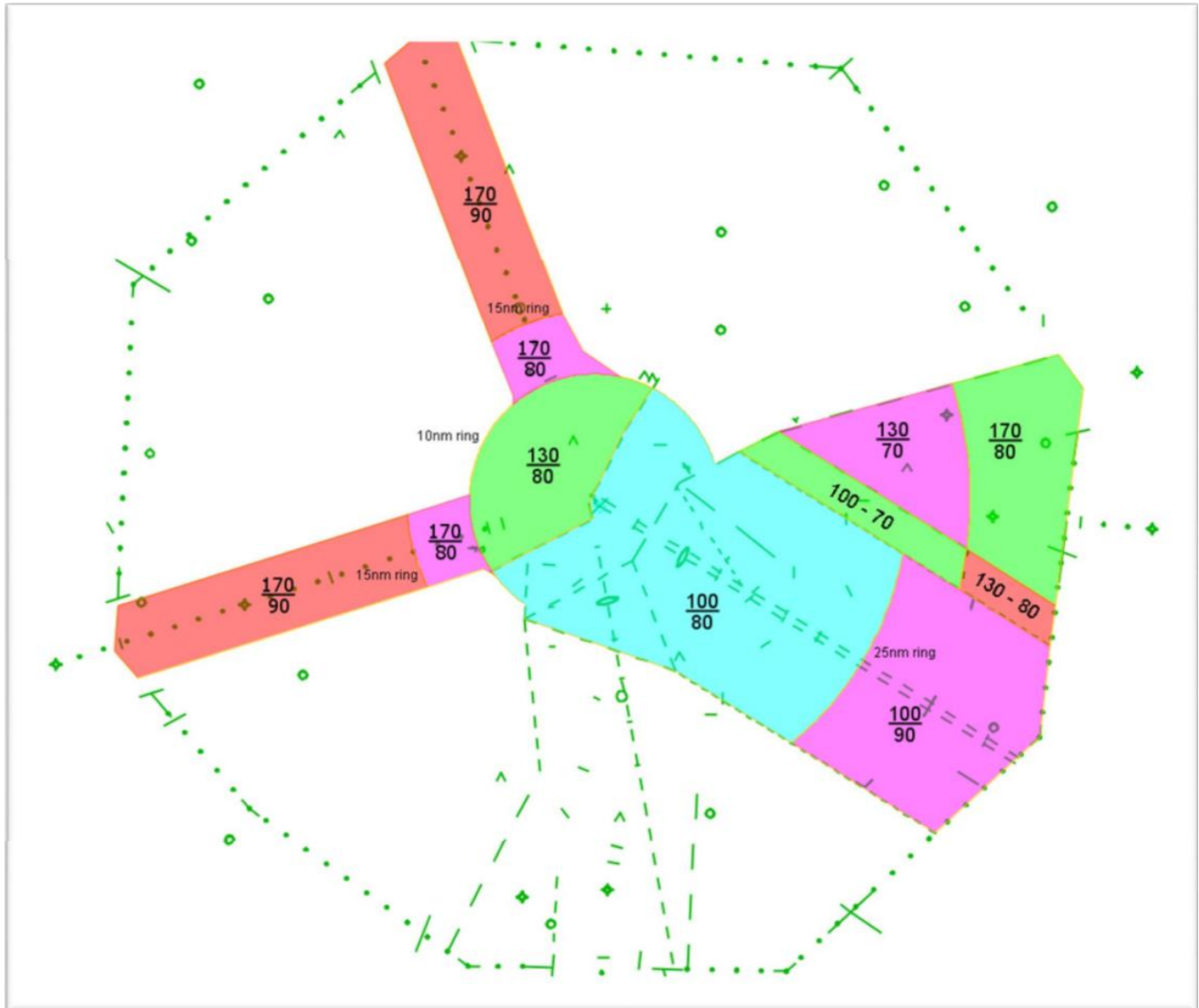
**LAND 30s – DEPART 30s and 17  
SATELLITE**



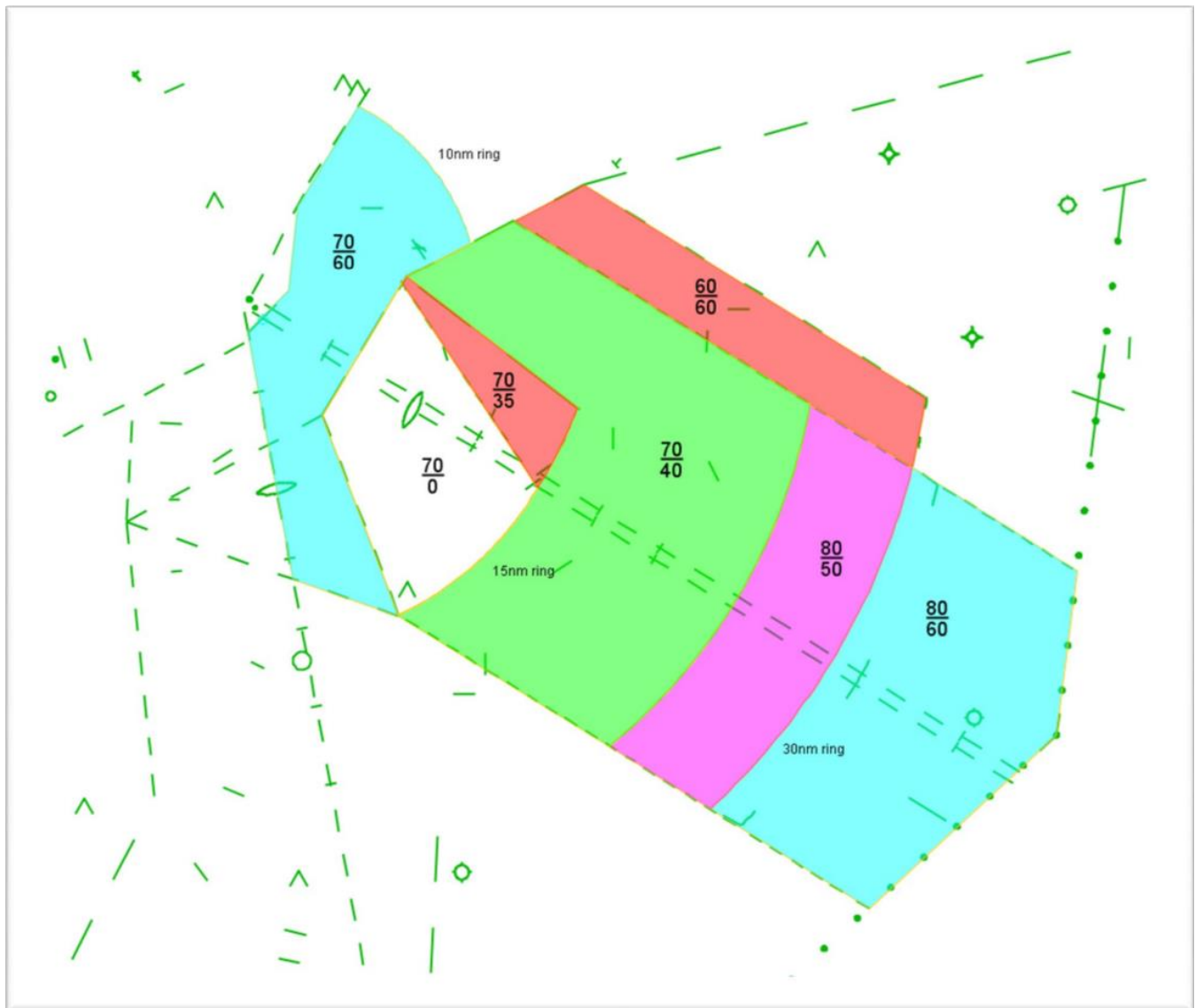
**LAND 30s – DEPART 30s and 17  
AREA F**



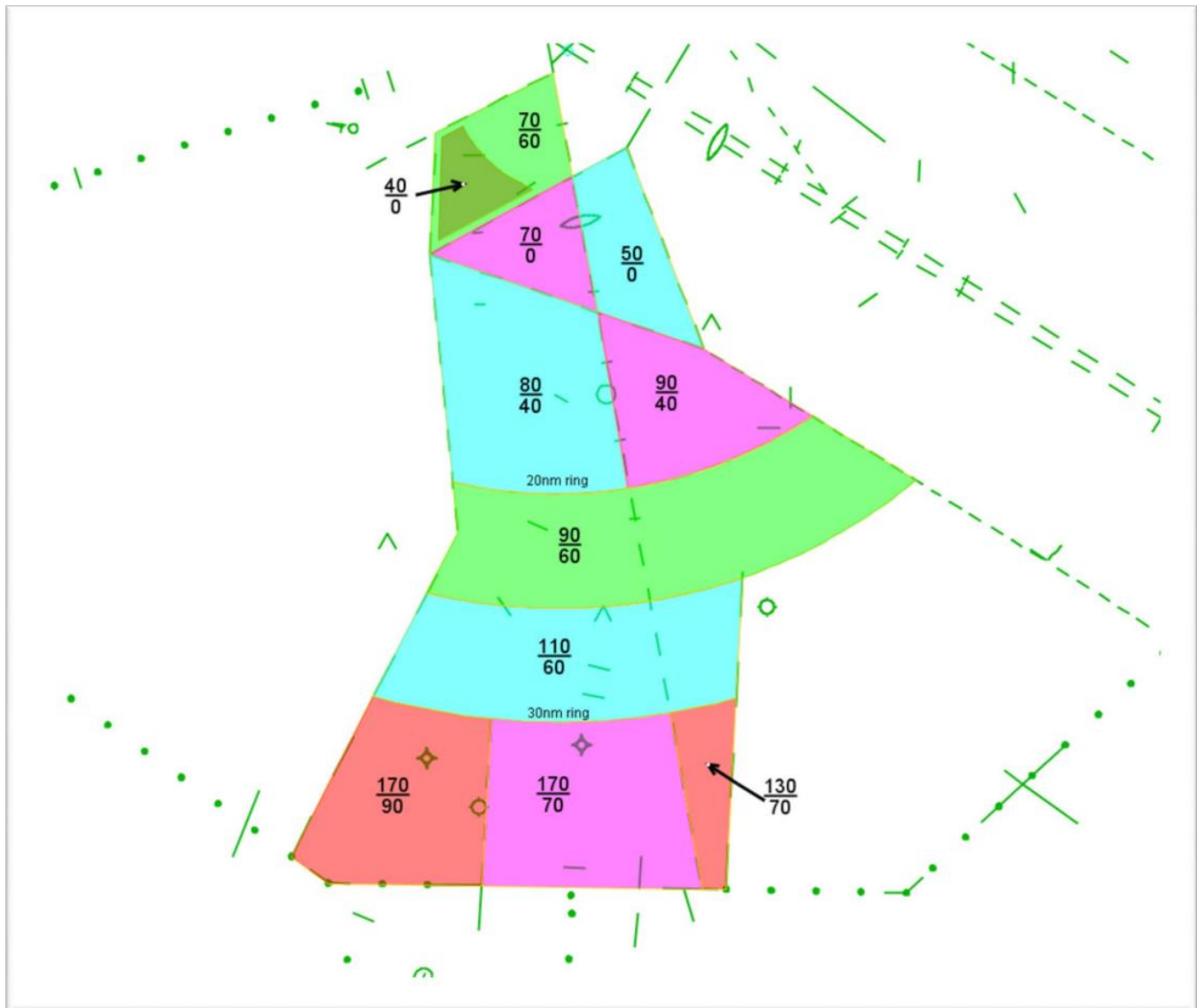
**LAND 30s and 35 – DEPART 30s  
FEEDER**



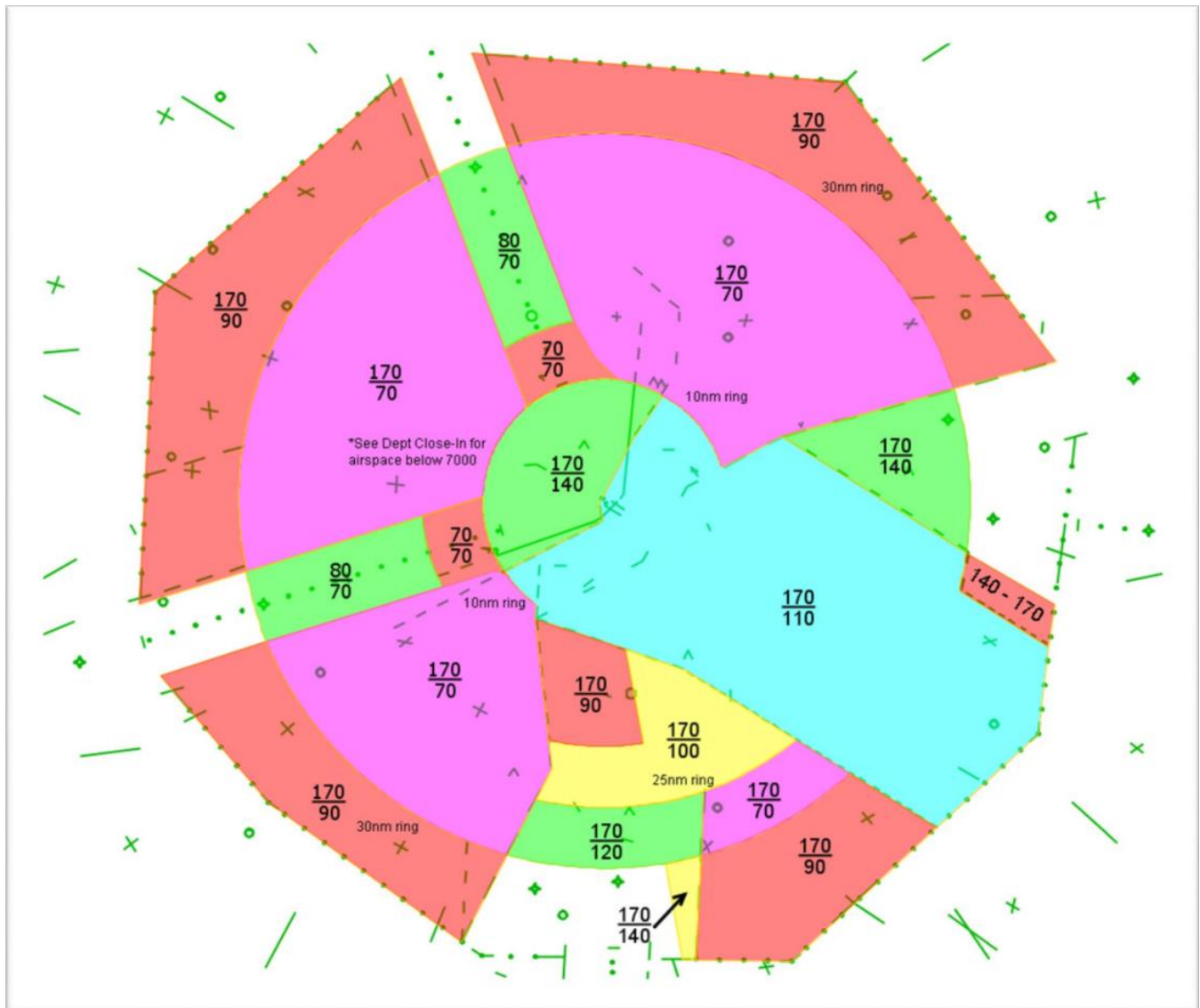
**LAND 30s and 35 – DEPART 30s  
30s ACDA**



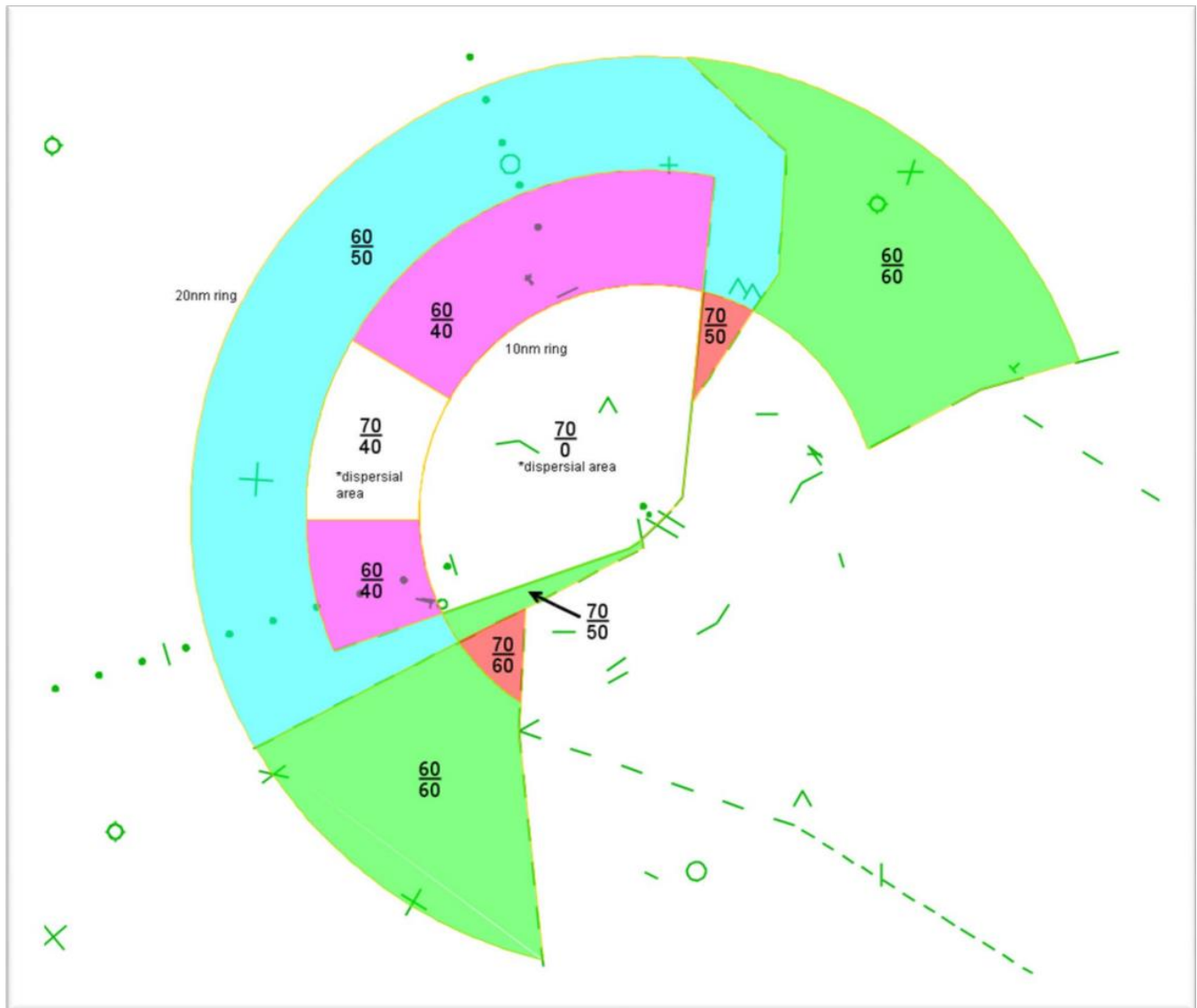
**LAND 30s and 35 – DEPART 30s  
35 ACDA**



**LAND 30s and 35 – DEPART 30s  
DEPARTURE**

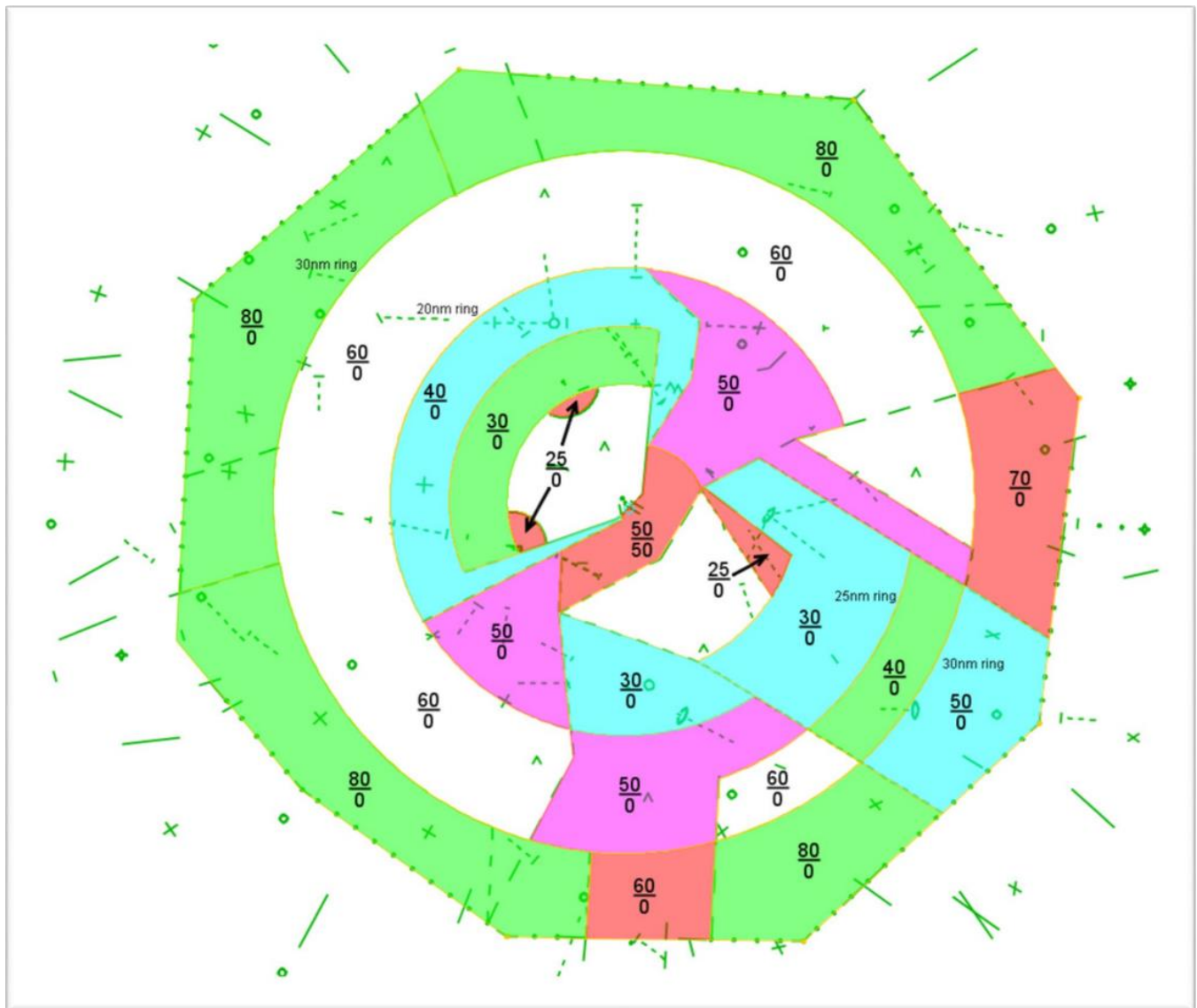


**LAND 30s and 35 – DEPART 30s  
DEPARTURE CLOSE IN**

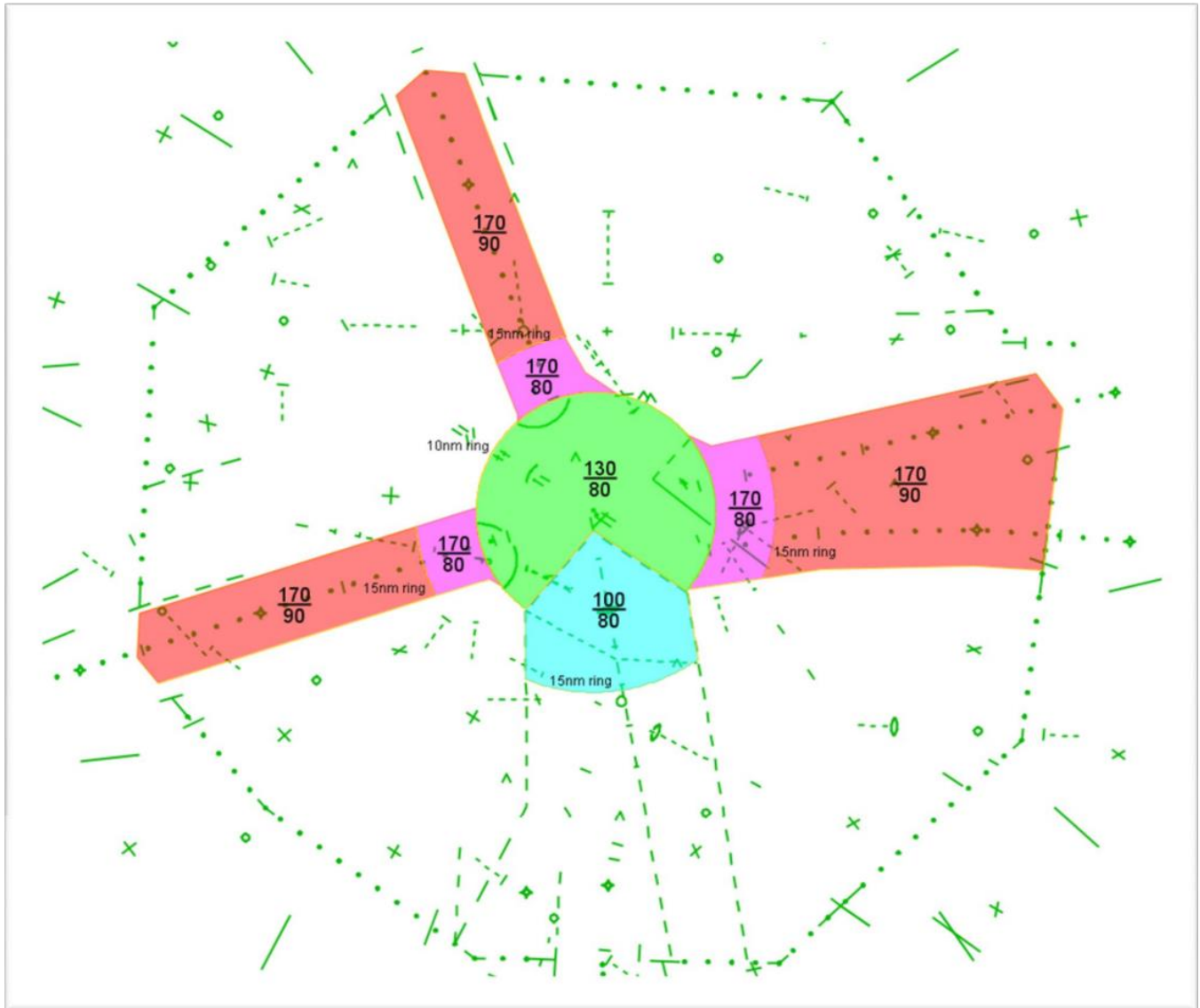




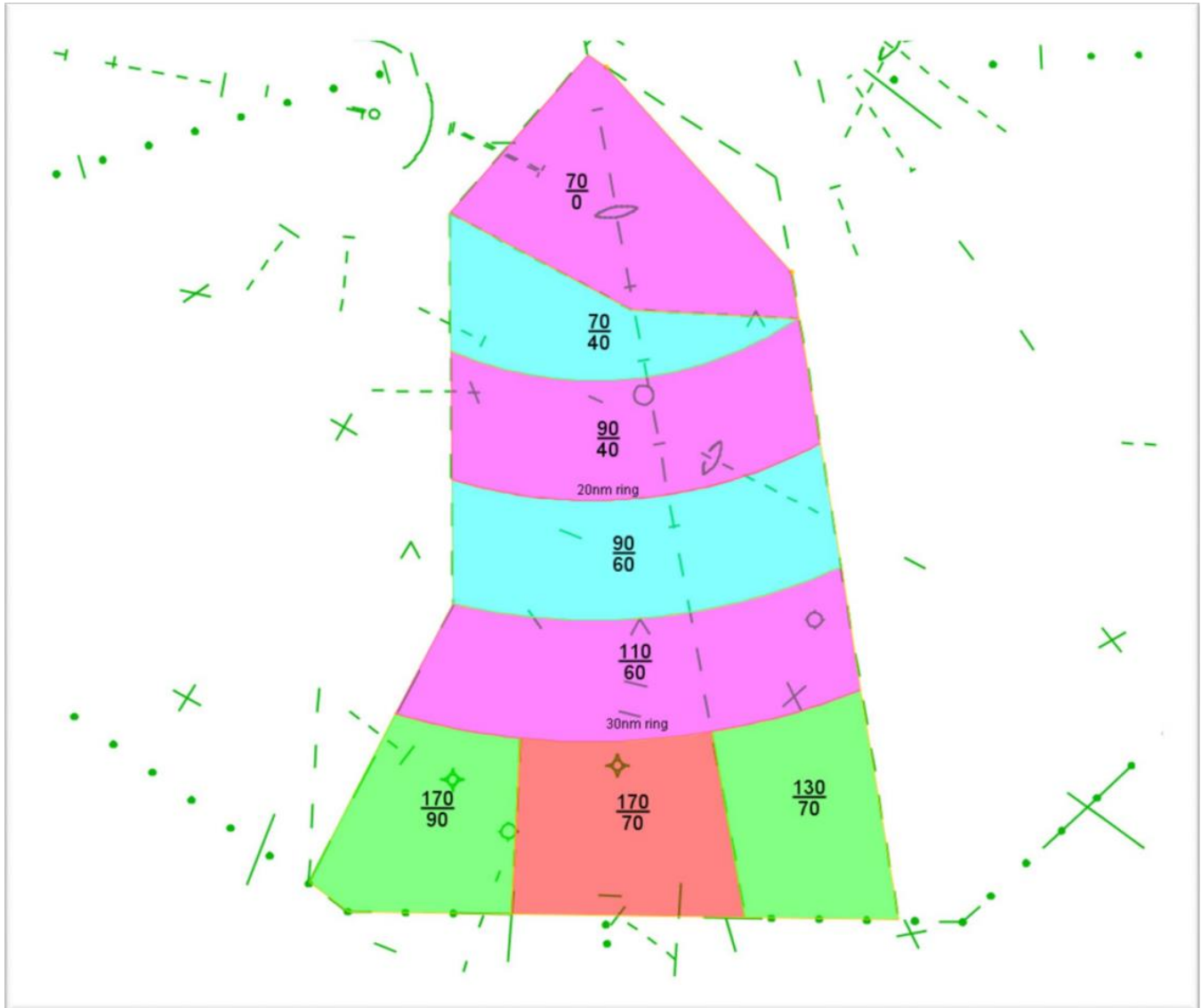
LAND 30s and 35 – DEPART 30s  
SATELLITE



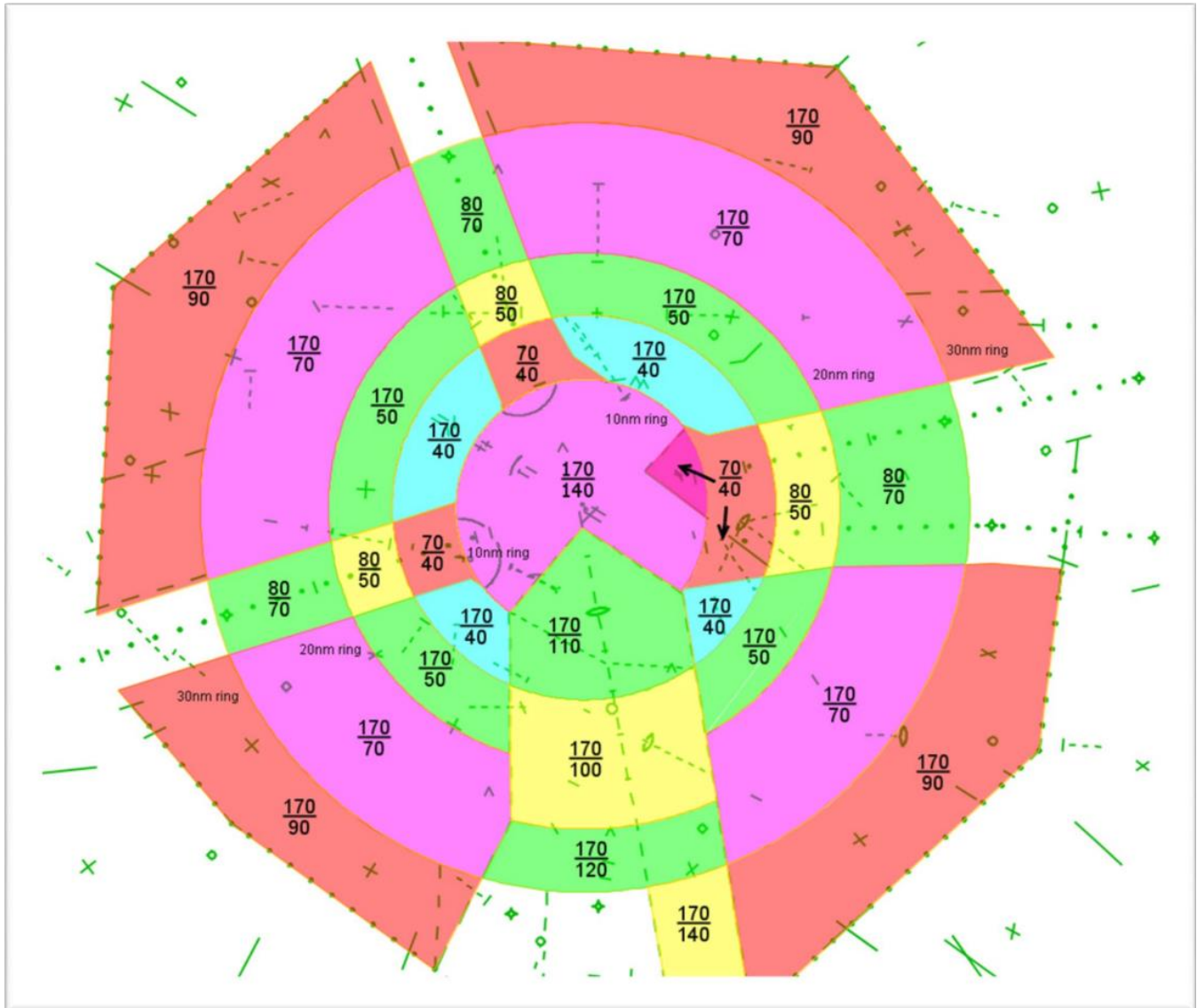


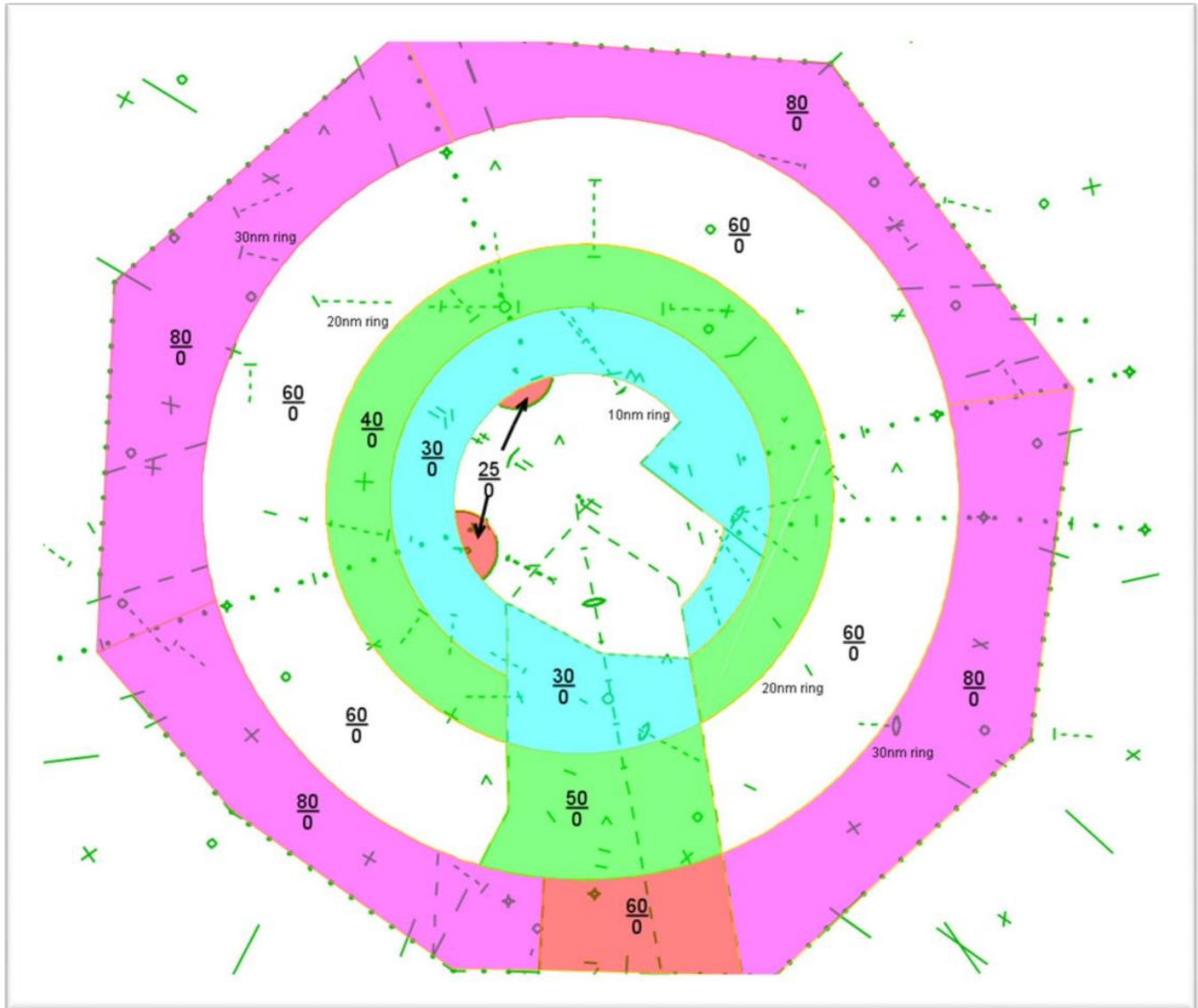
**LAND 35 – DEPART 35, 30, or 4  
FEEDER**

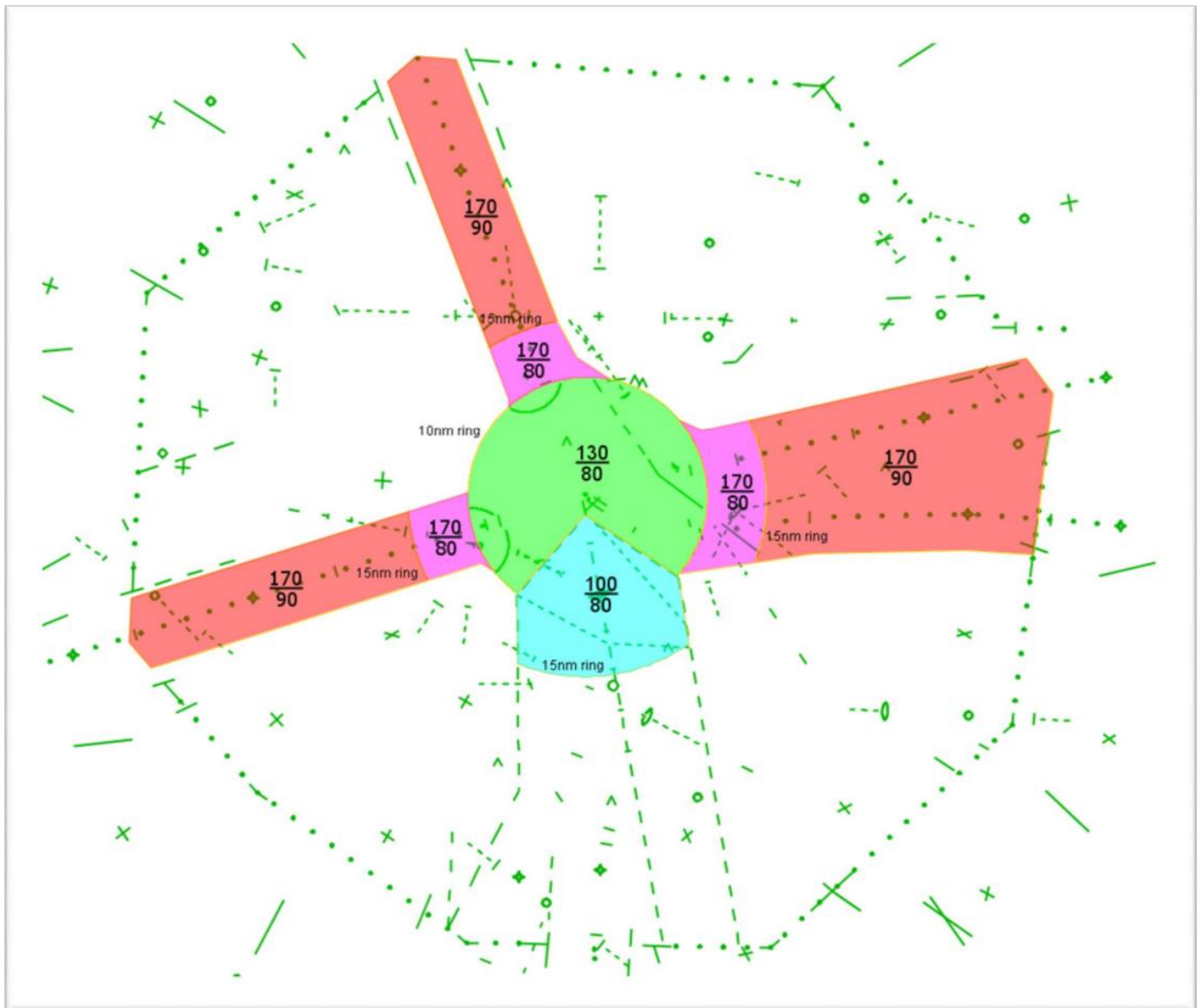
**LAND 35 – DEPART 35, 30, or 4  
ACDA**



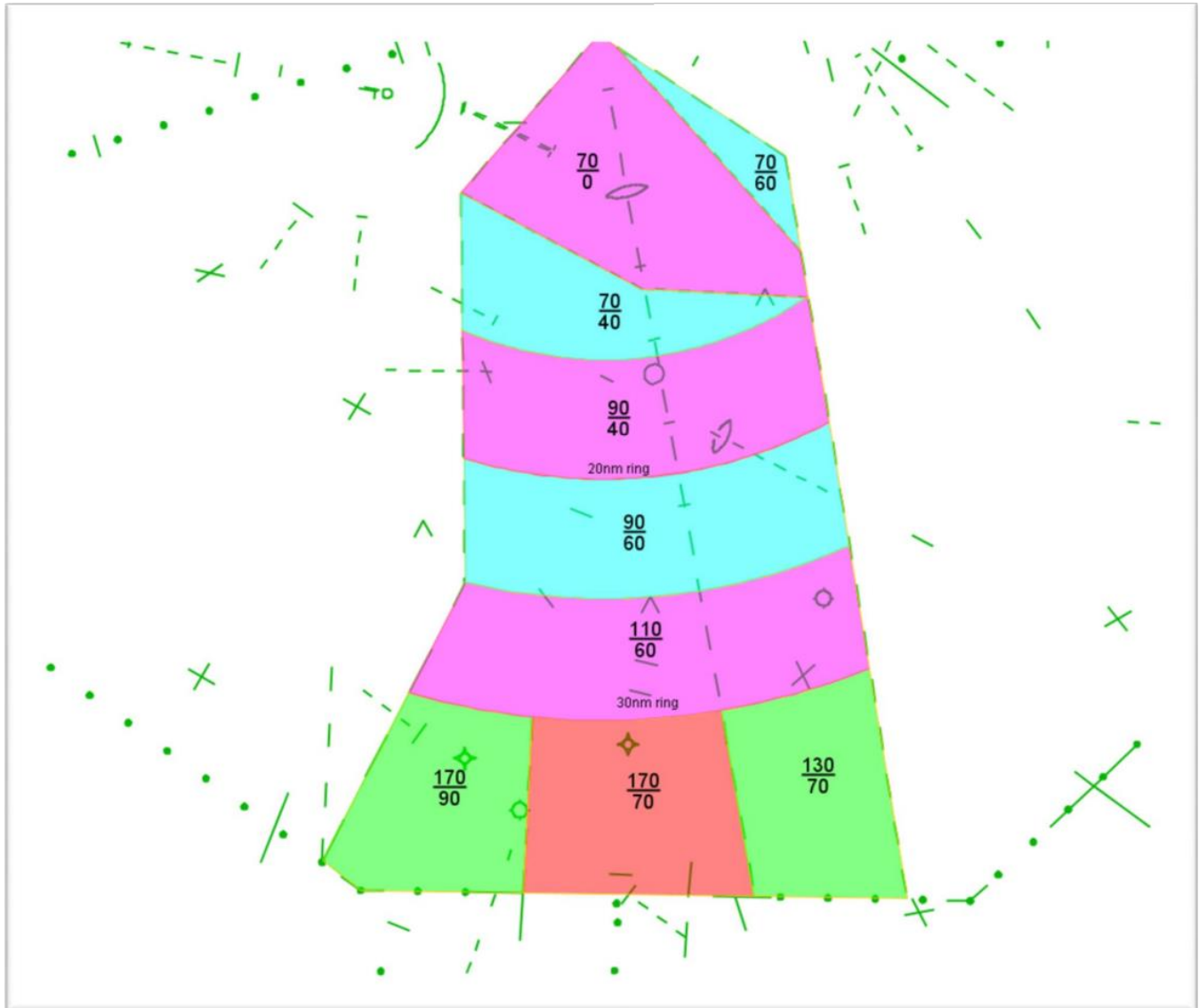
**LAND 35 – DEPART 35, 30, or 4  
DEPARTURE**



**LAND 35 – DEPART 35, 30, or 4  
SATELLITE**

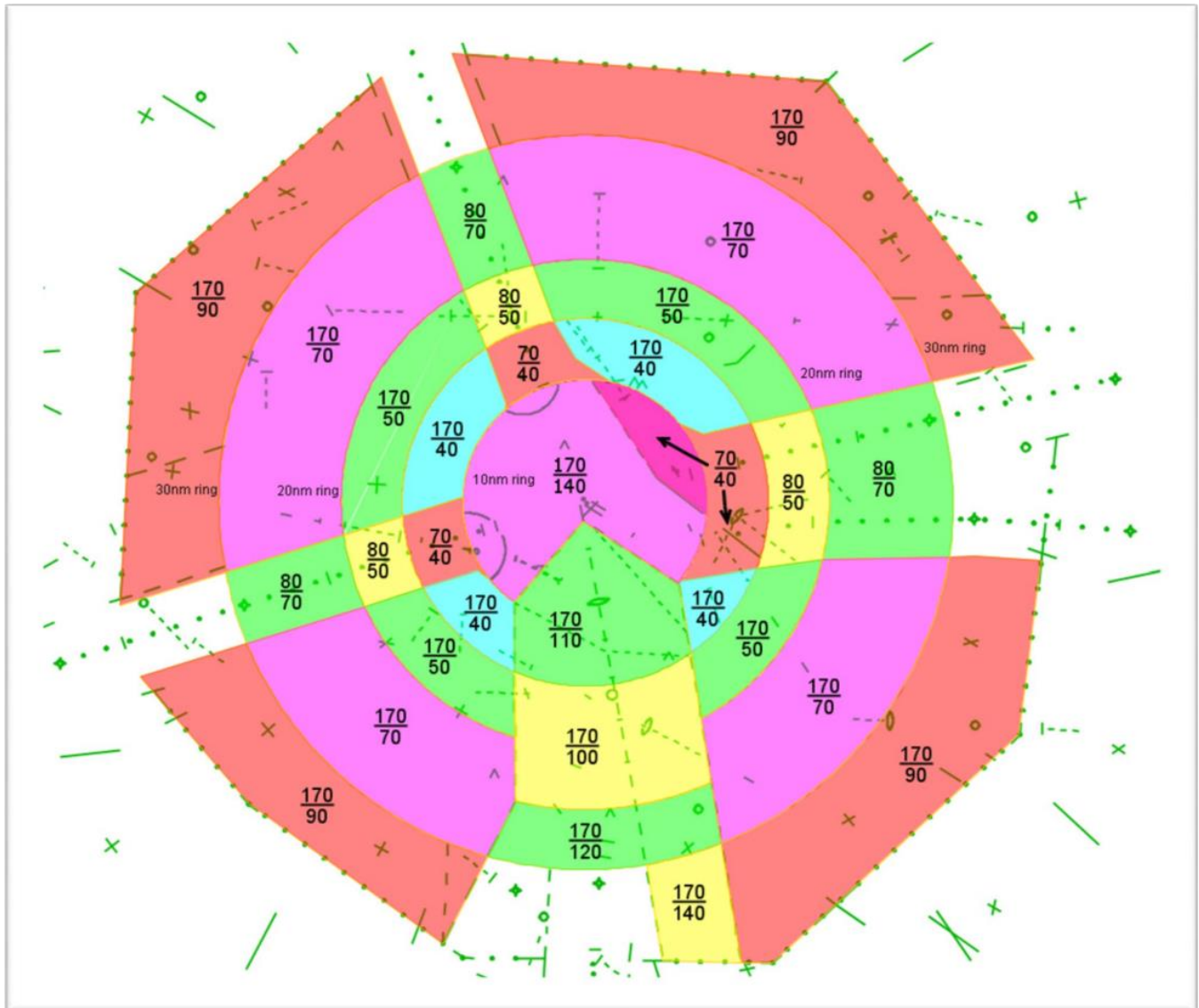
**LAND 35 – DEPART 12  
FEEDER**

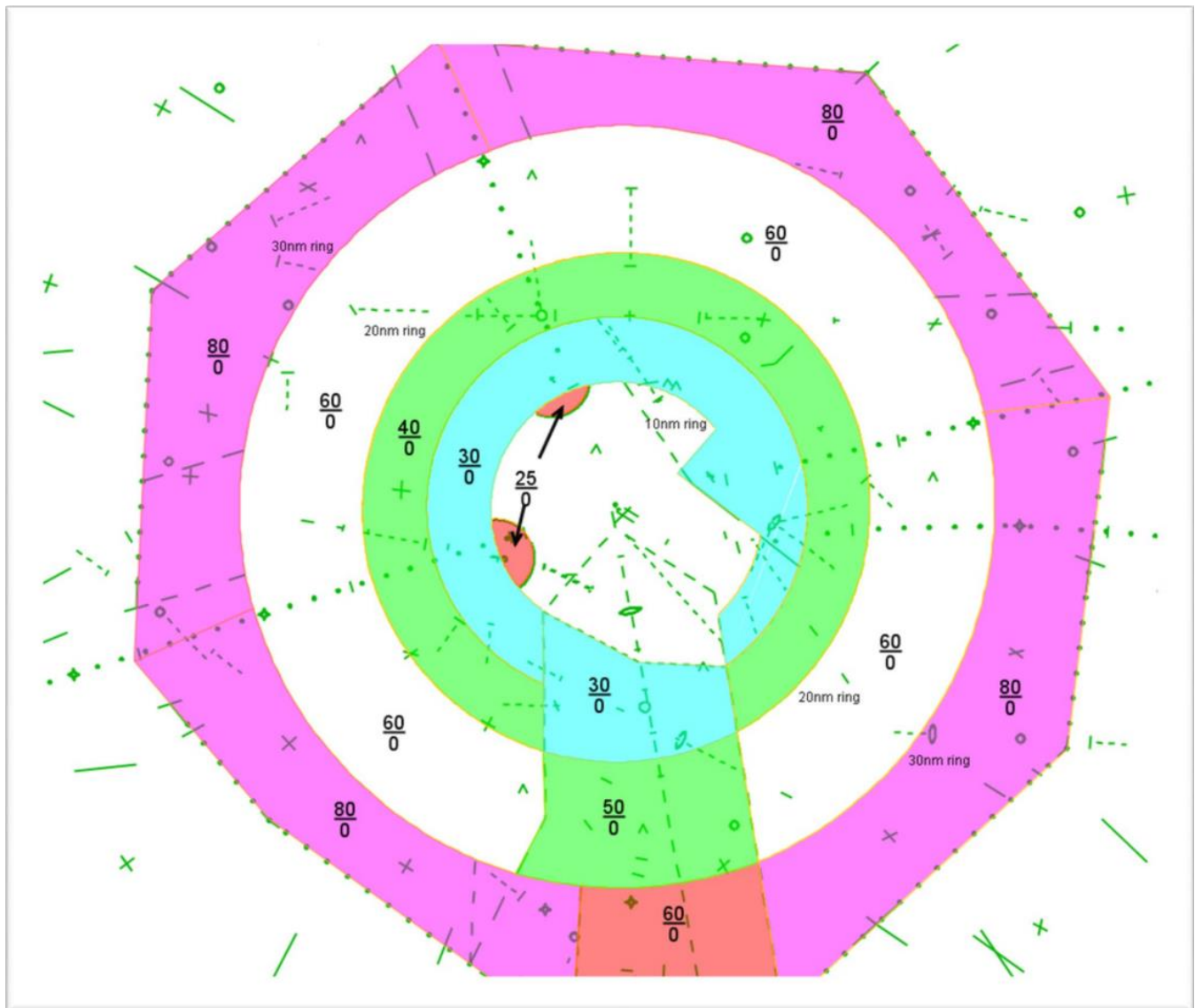
**LAND 35 – DEPART 12  
ACDA**



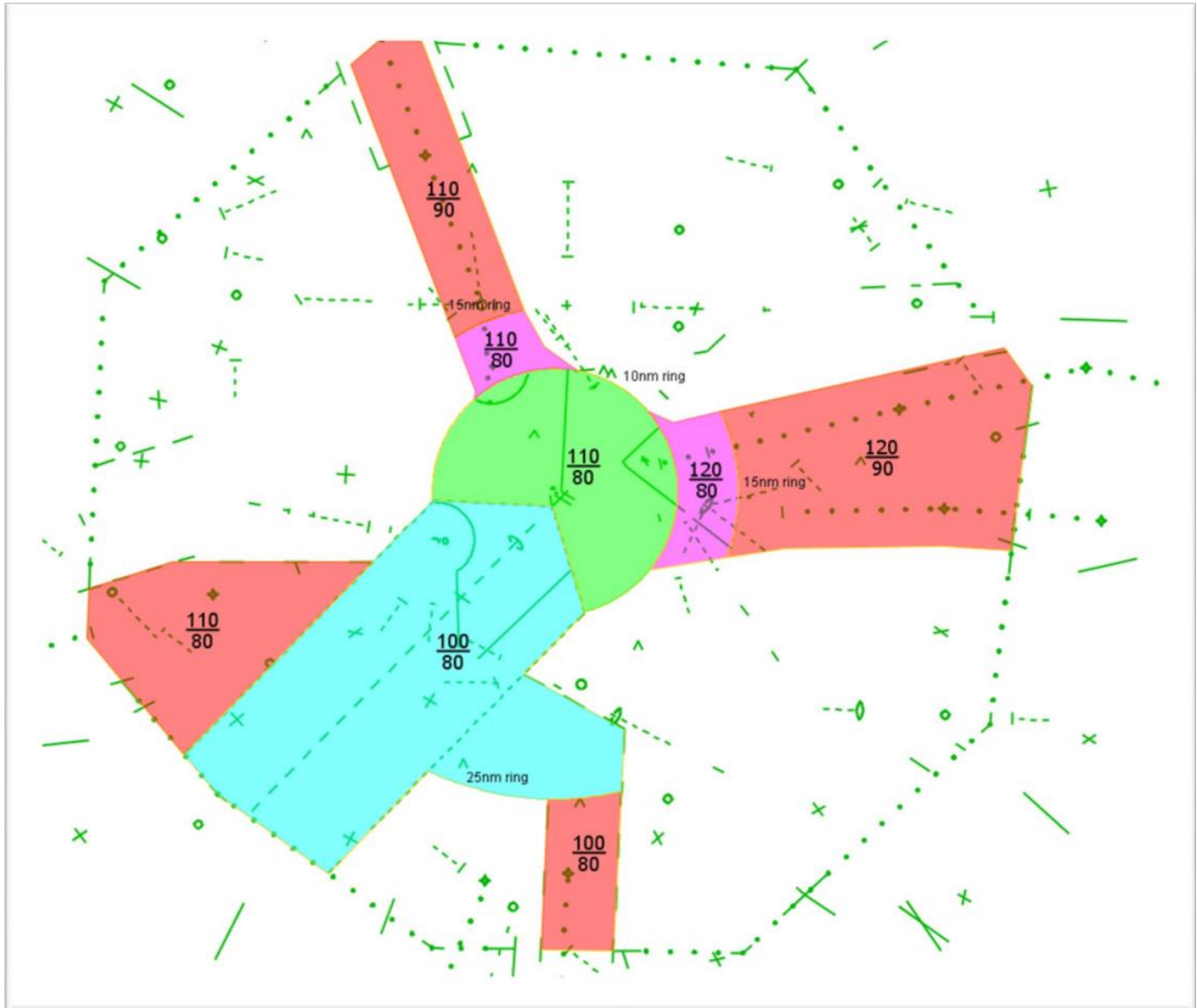


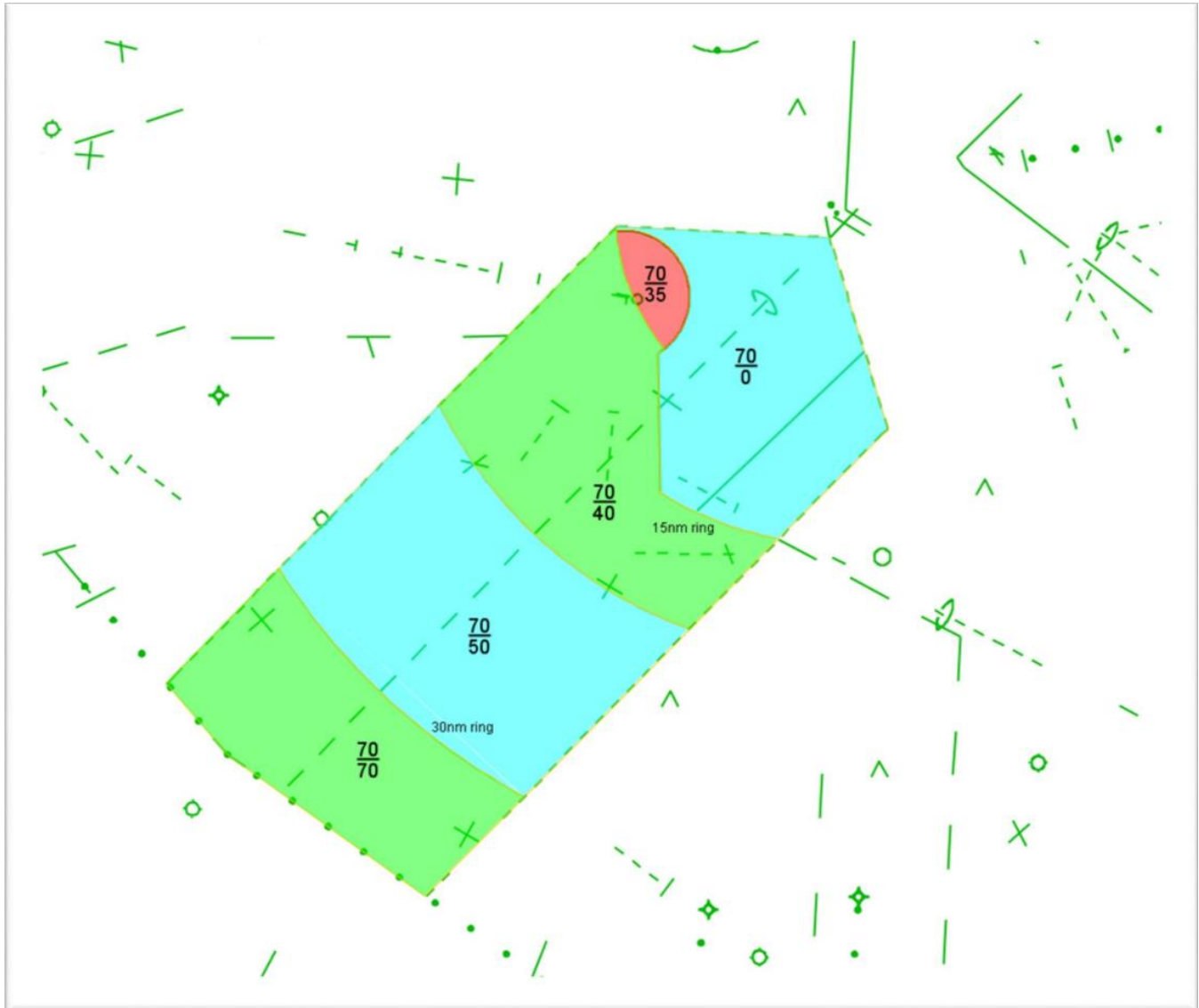
LAND 35 – DEPART 12  
DEPARTURE



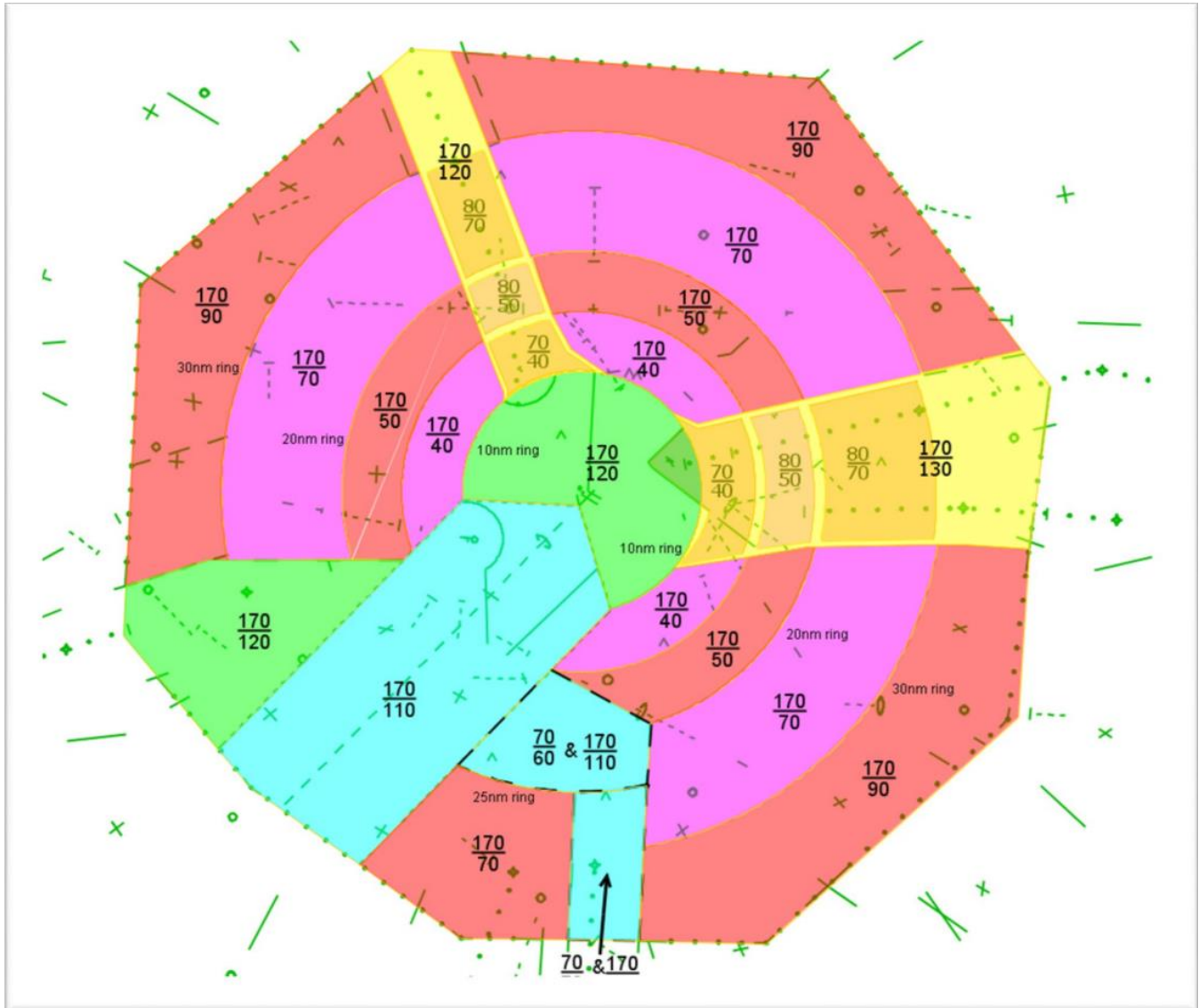
**LAND 35 – DEPART 12  
SATELLITE**



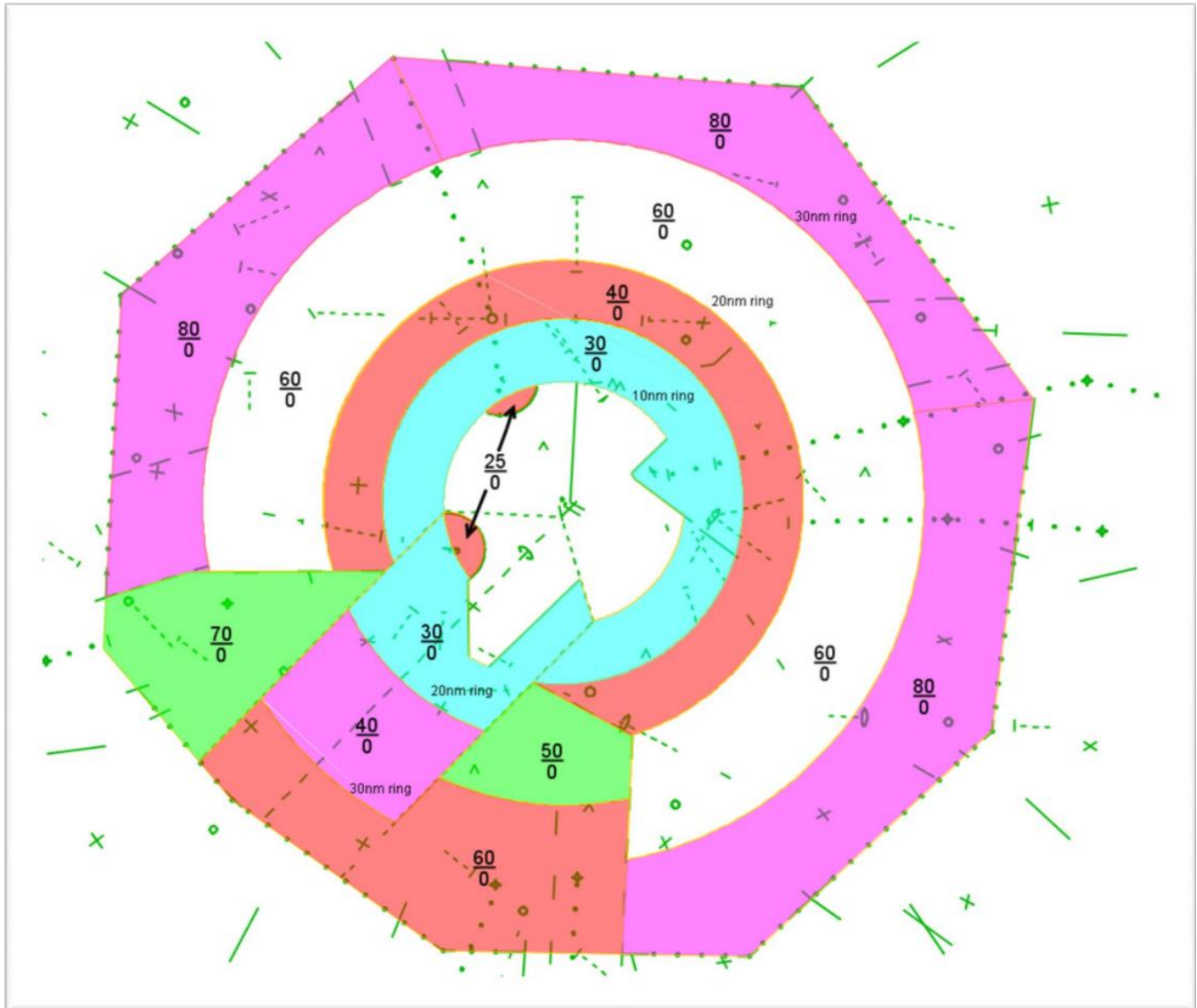
**RUNWAY 4  
FEEDER**

**RUNWAY 4  
ACDA**

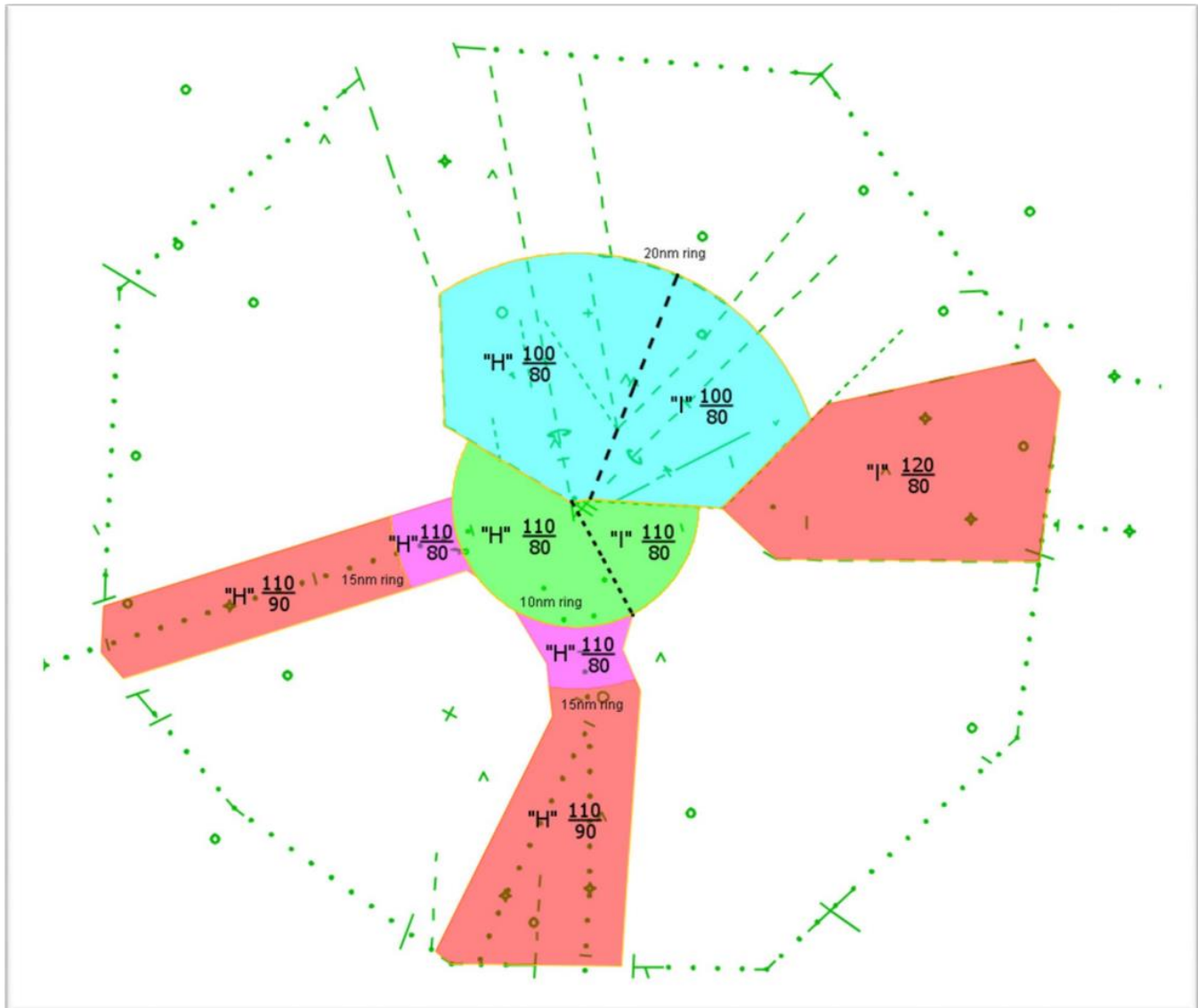
**LAND 4 – DEPART 4, 12, 30, or 35  
DEPARTURE**



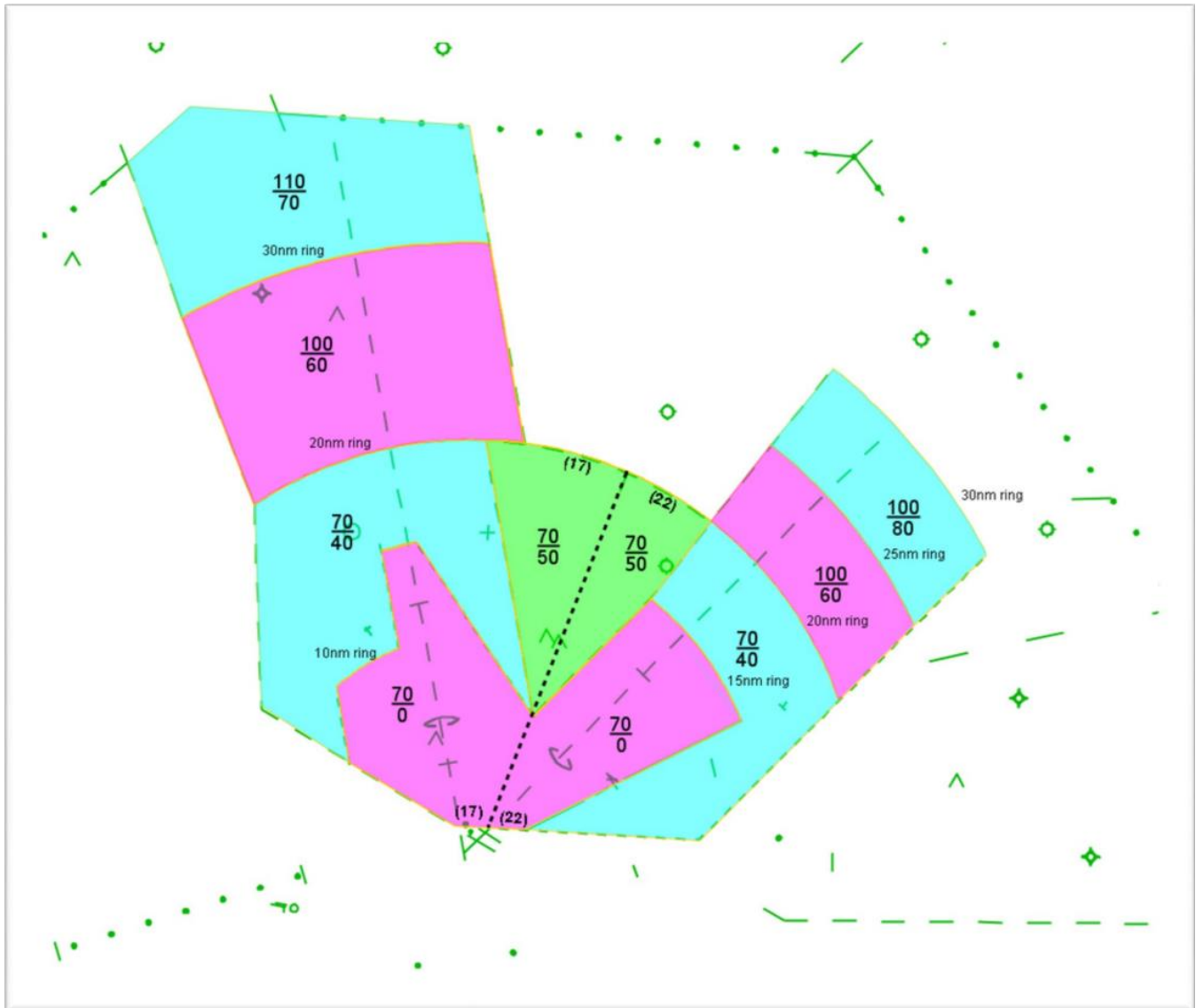
**LAND 4 – DEPART 4, 12, 30, or 35  
SATELLITE**



LAND 17 and 22  
DEPART 17, 22, 12L/R  
FEEDER

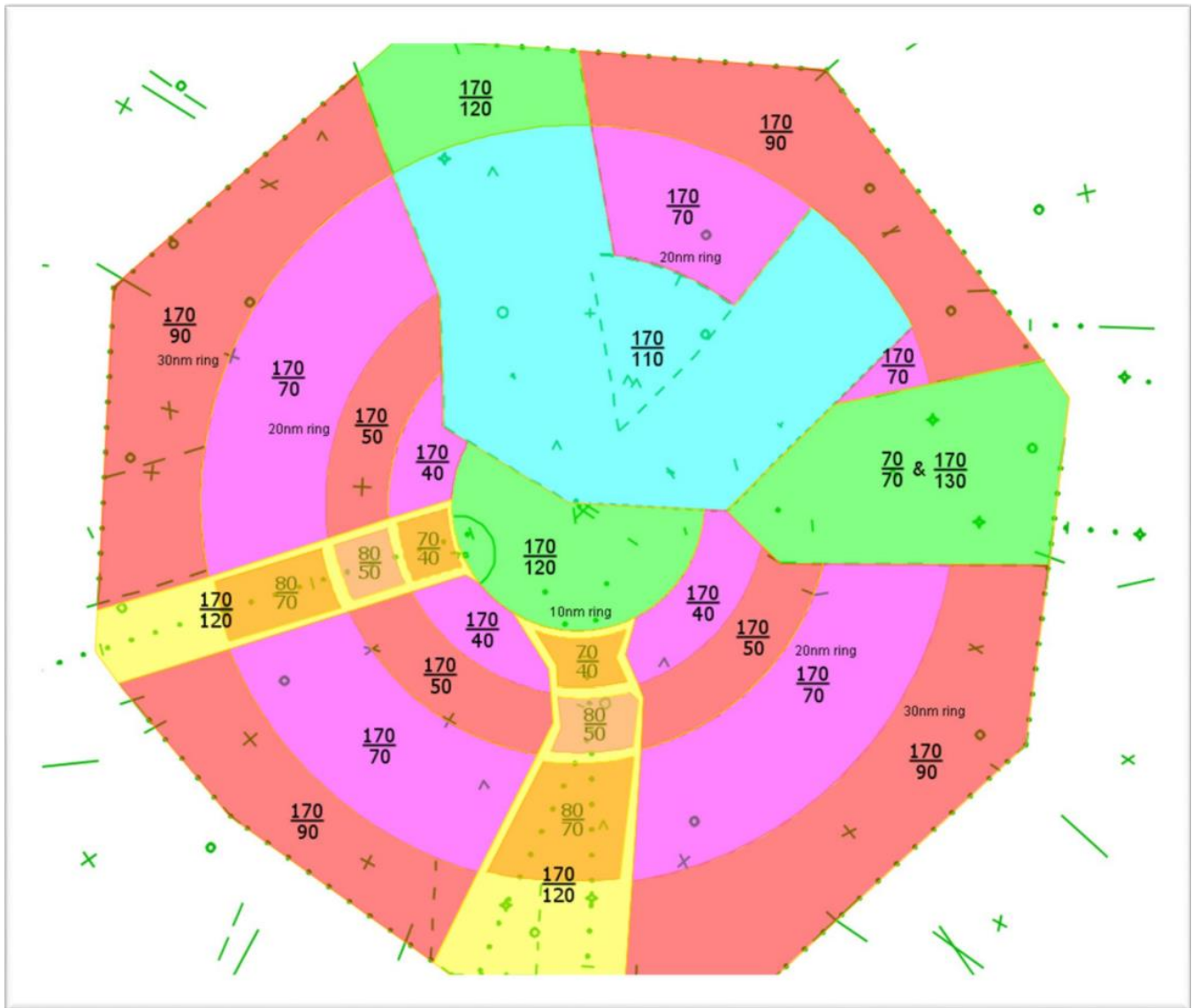


**LAND 17 and 22  
DEPART 17, 22, 12L/R  
ACDA**

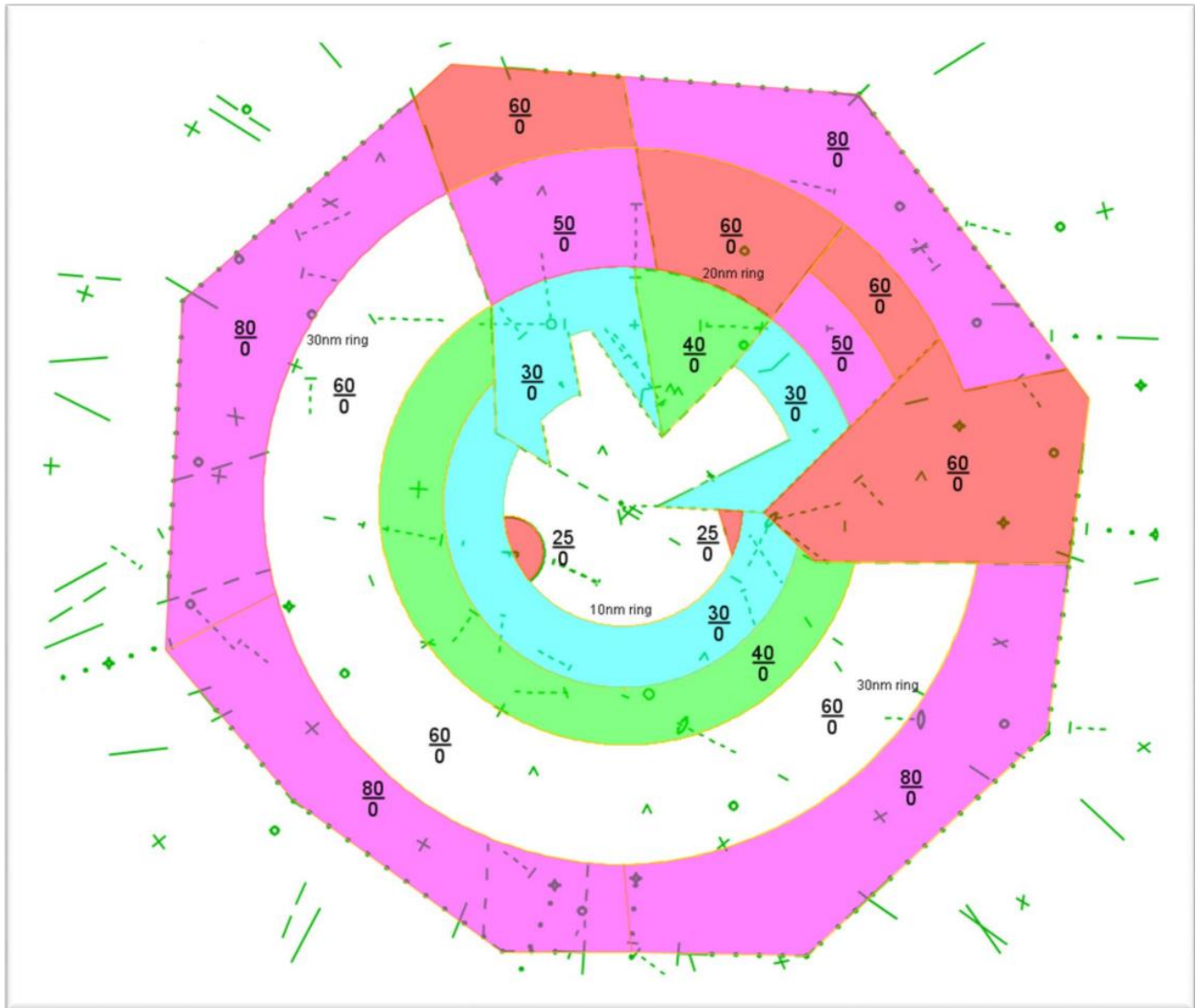




**LAND 17 and 22**  
**DEPART 17, 22, 12L/R**  
**DEPARTURE**

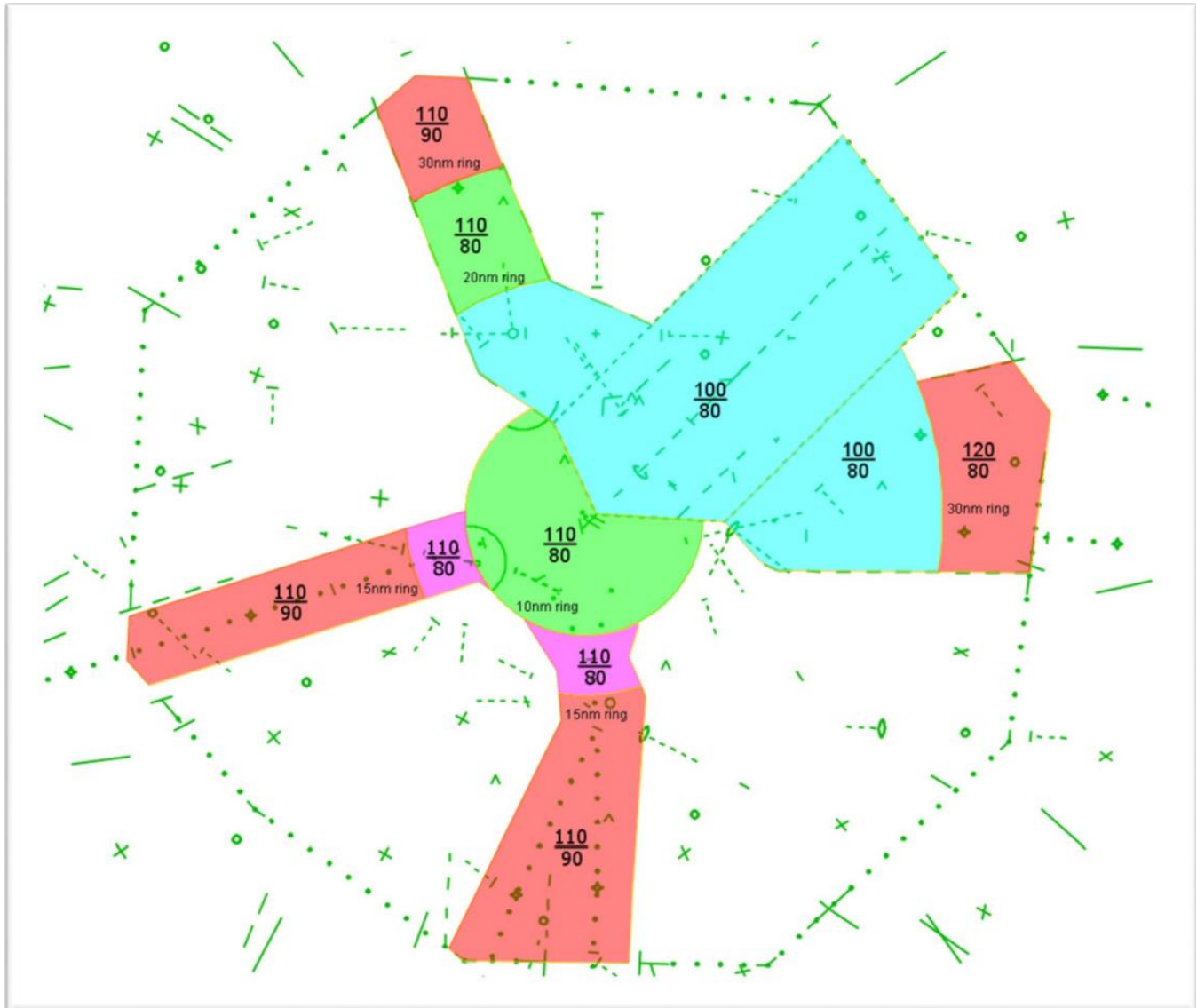


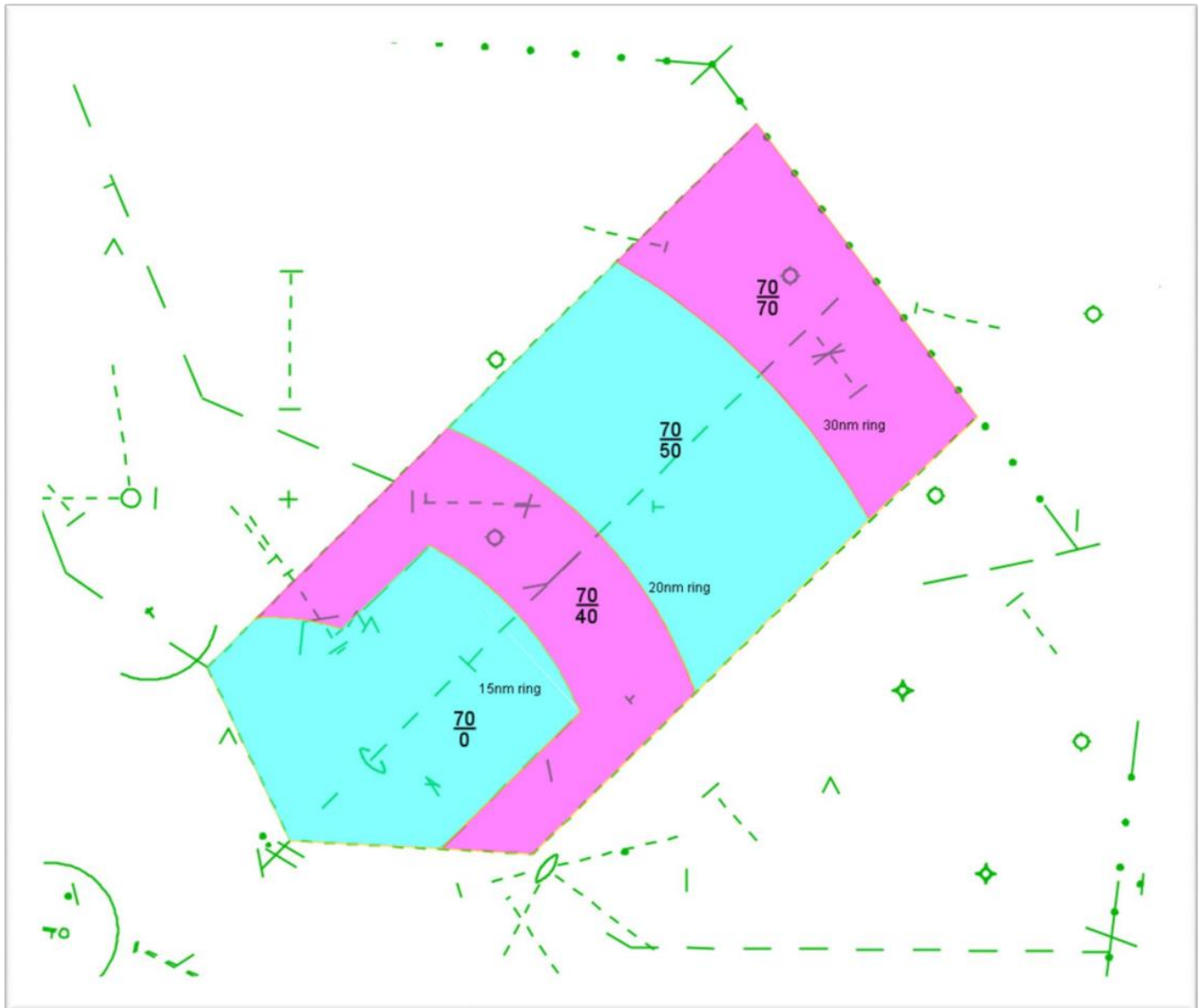
**LAND 17 and 22  
DEPART 17, 22, 12L/R  
SATELLITE**



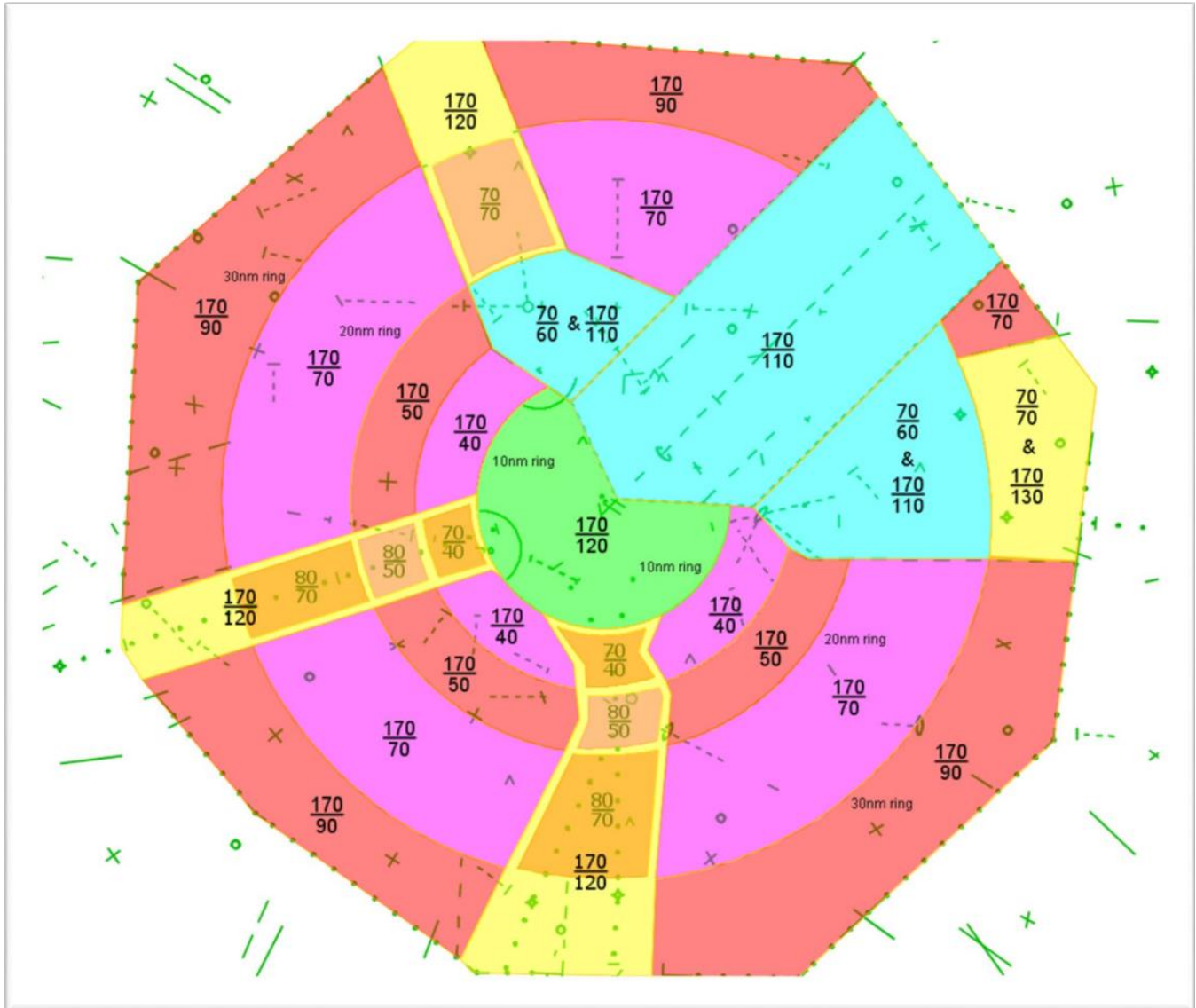


## RUNWAY 22 FEEDER

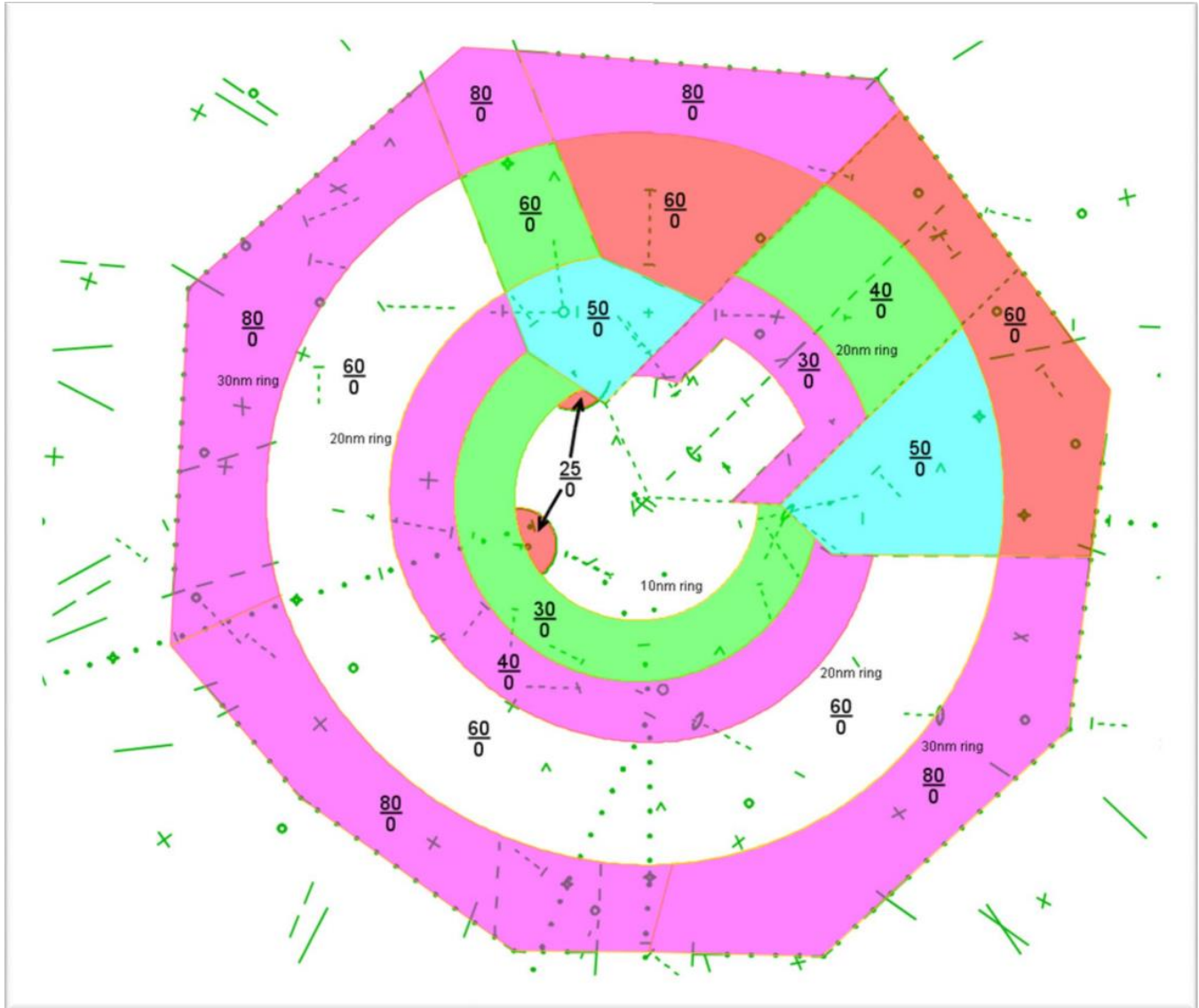


**RUNWAY 22  
ACDA**

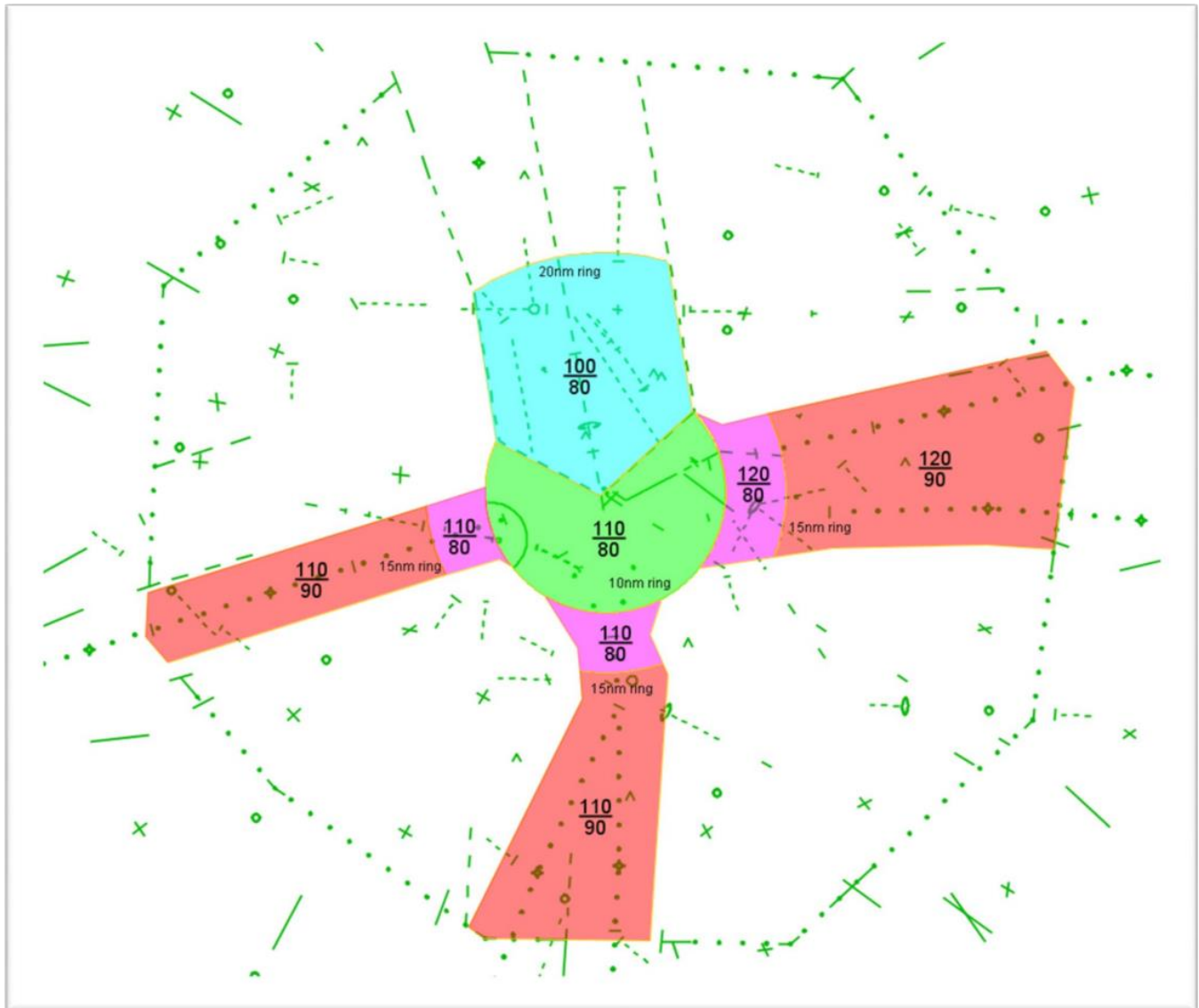
**LAND 22**  
**DEPART 22, 12, 17, Or 30**  
**DEPARTURE**



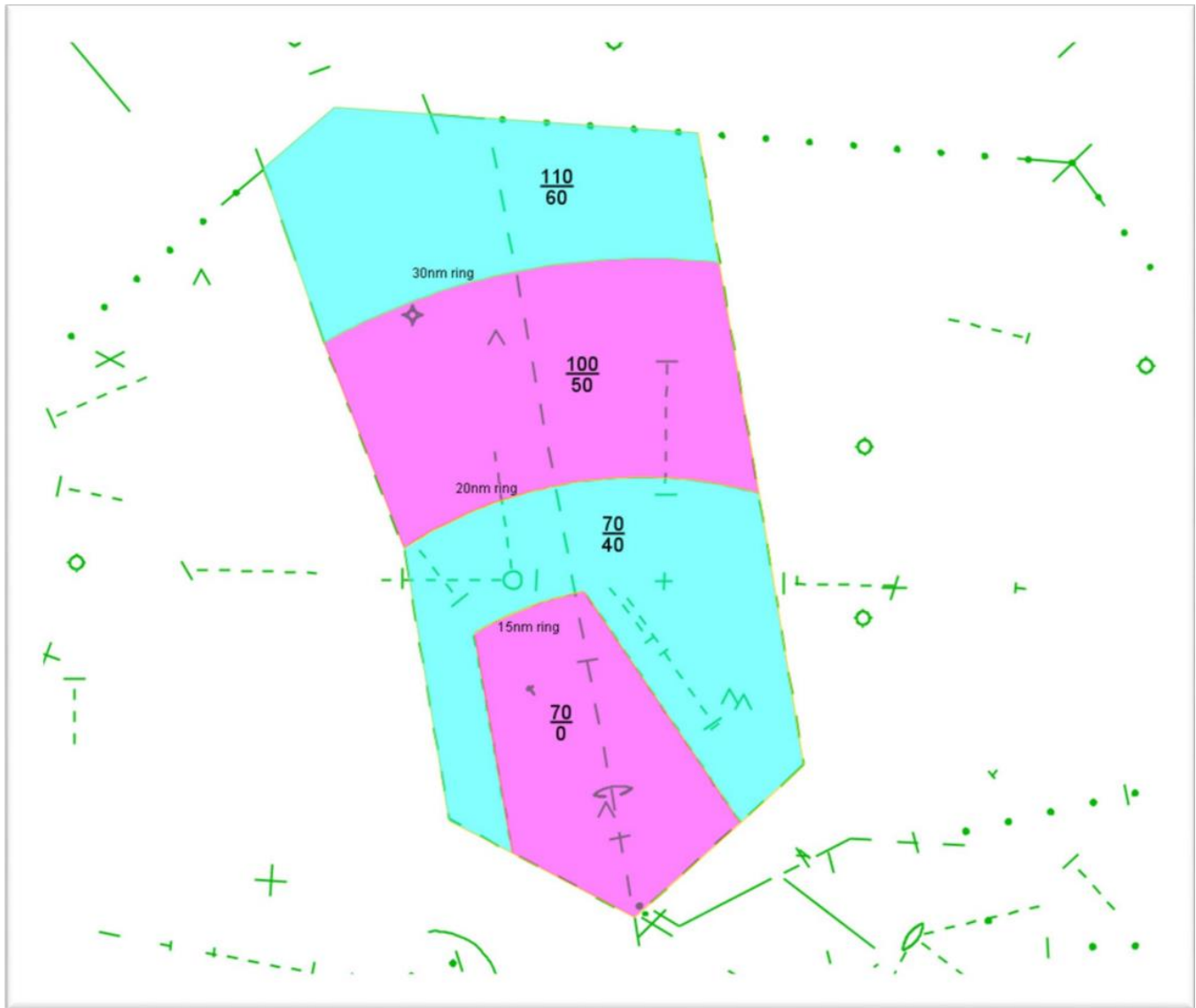
**LAND 22**  
**DEPART 22, 12, 17, Or 30**  
**SATELLITE**



**LAND 17 – DEPART 12s, 22, or 17  
FEEDER**

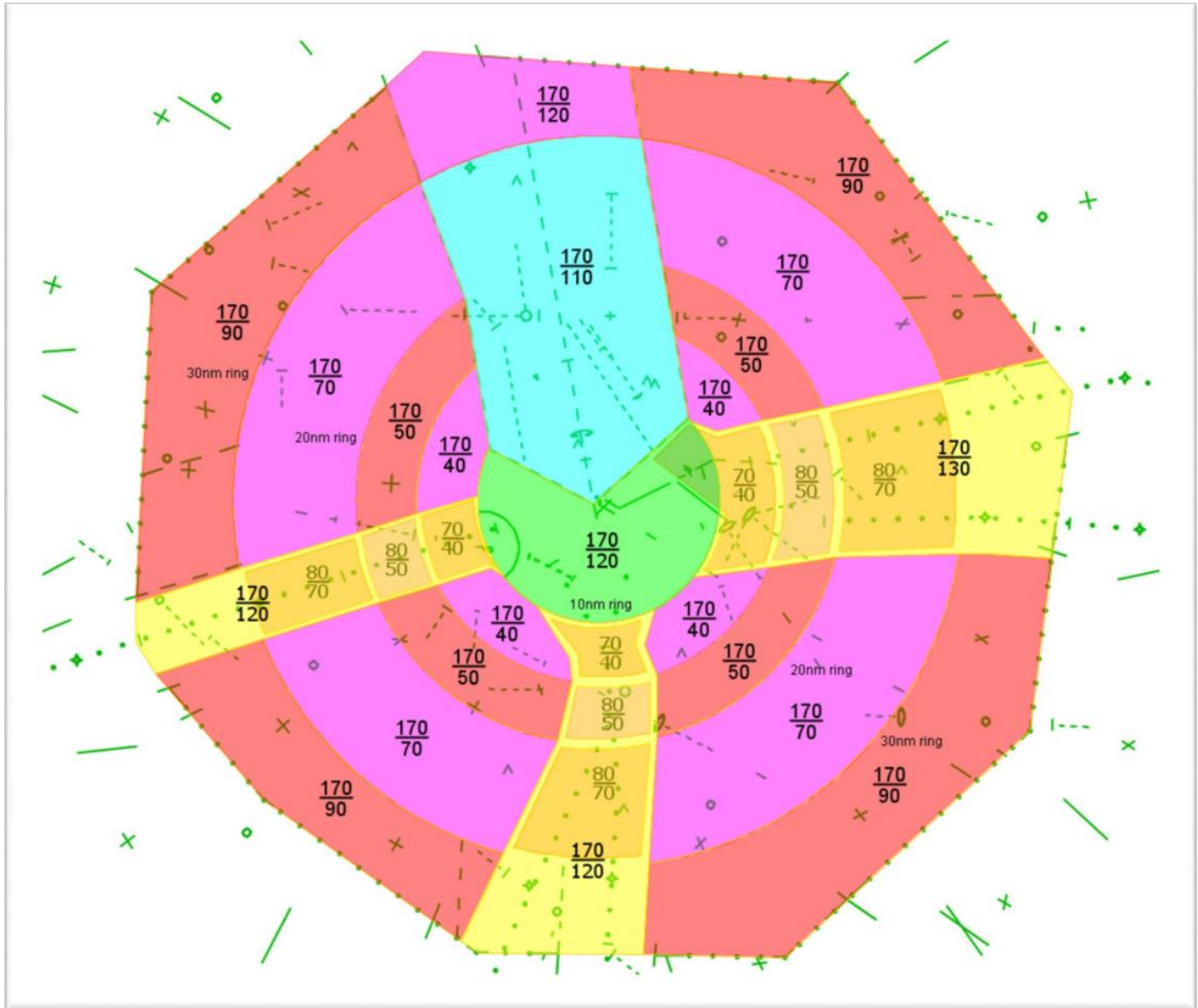


**LAND 17 – DEPART 12s, 22, or 17  
ACDA**



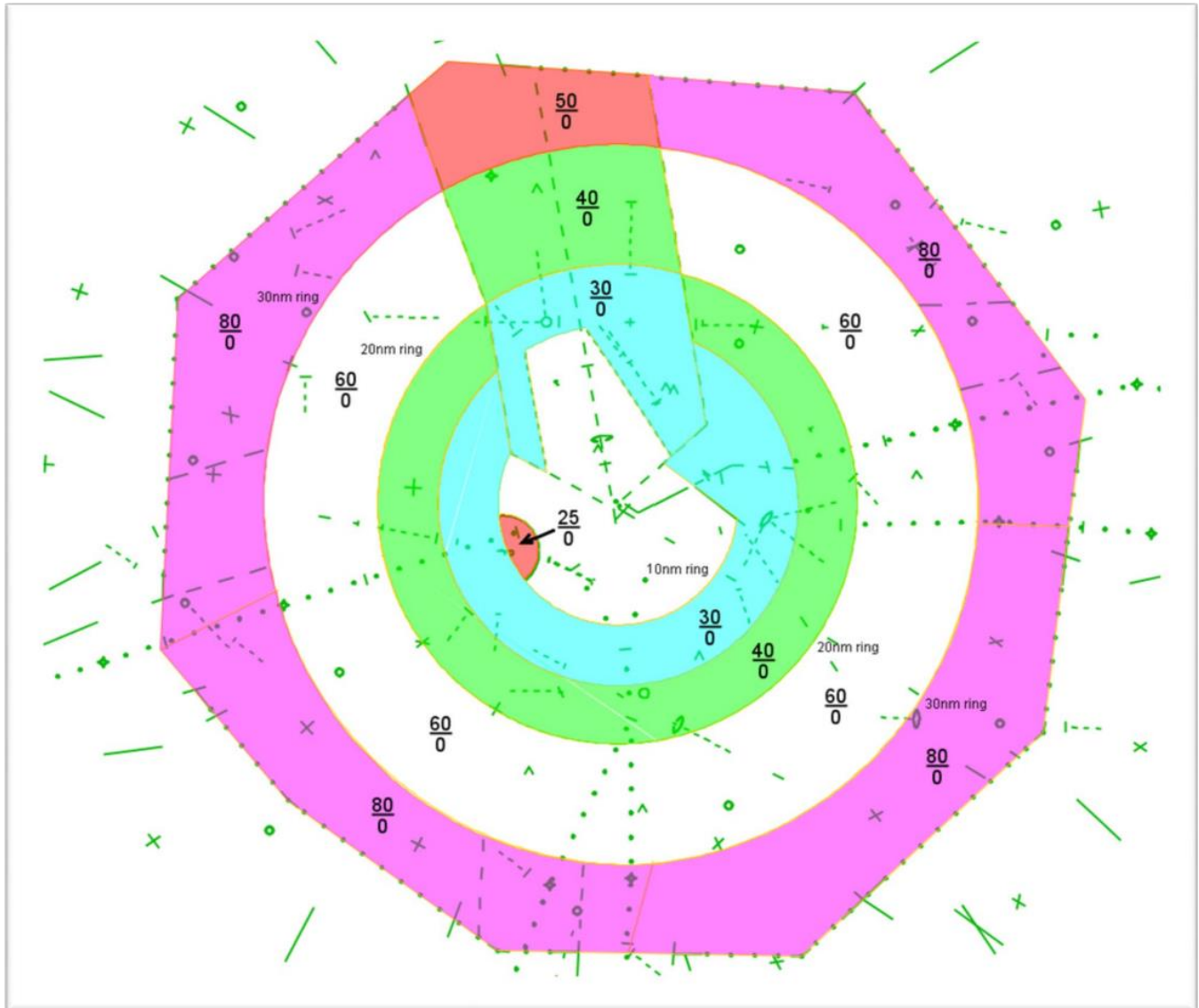


**LAND 17 – DEPART 12s, 22, or 17  
DEPARTURE**



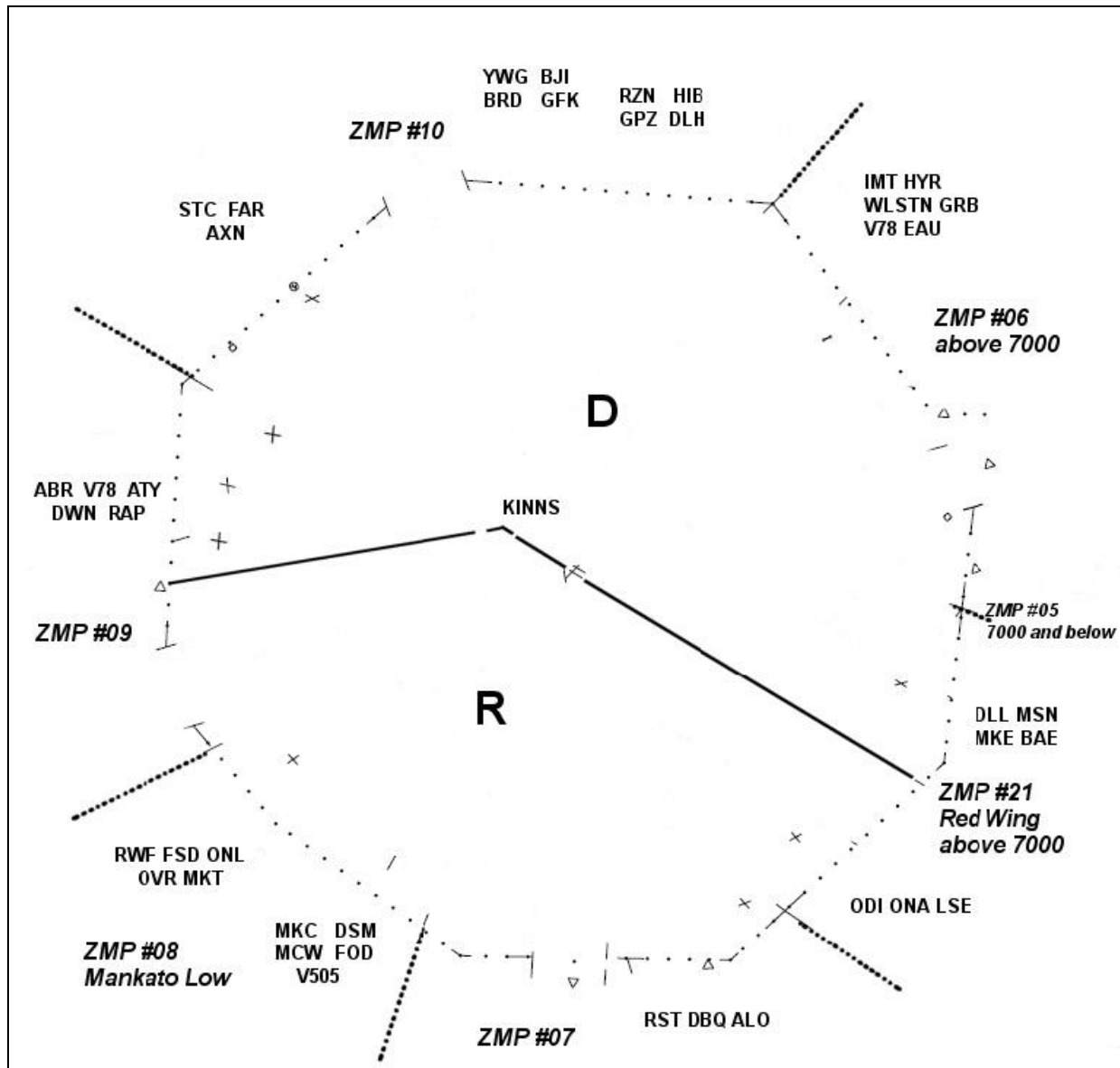


**LAND 17 – DEPART 12s, 22, or 17  
SATELLITE**

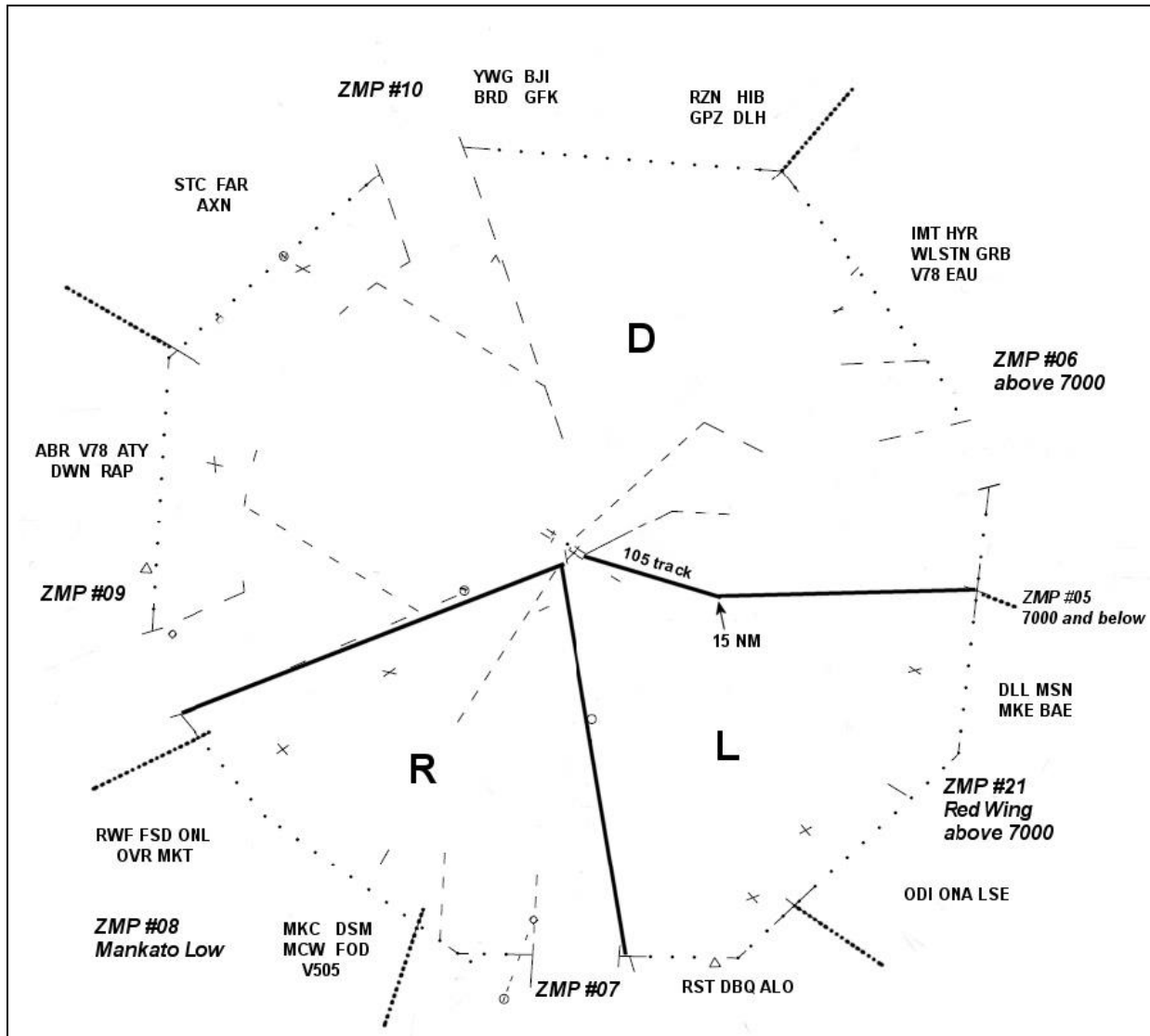


## Appendix B. Departure Configurations

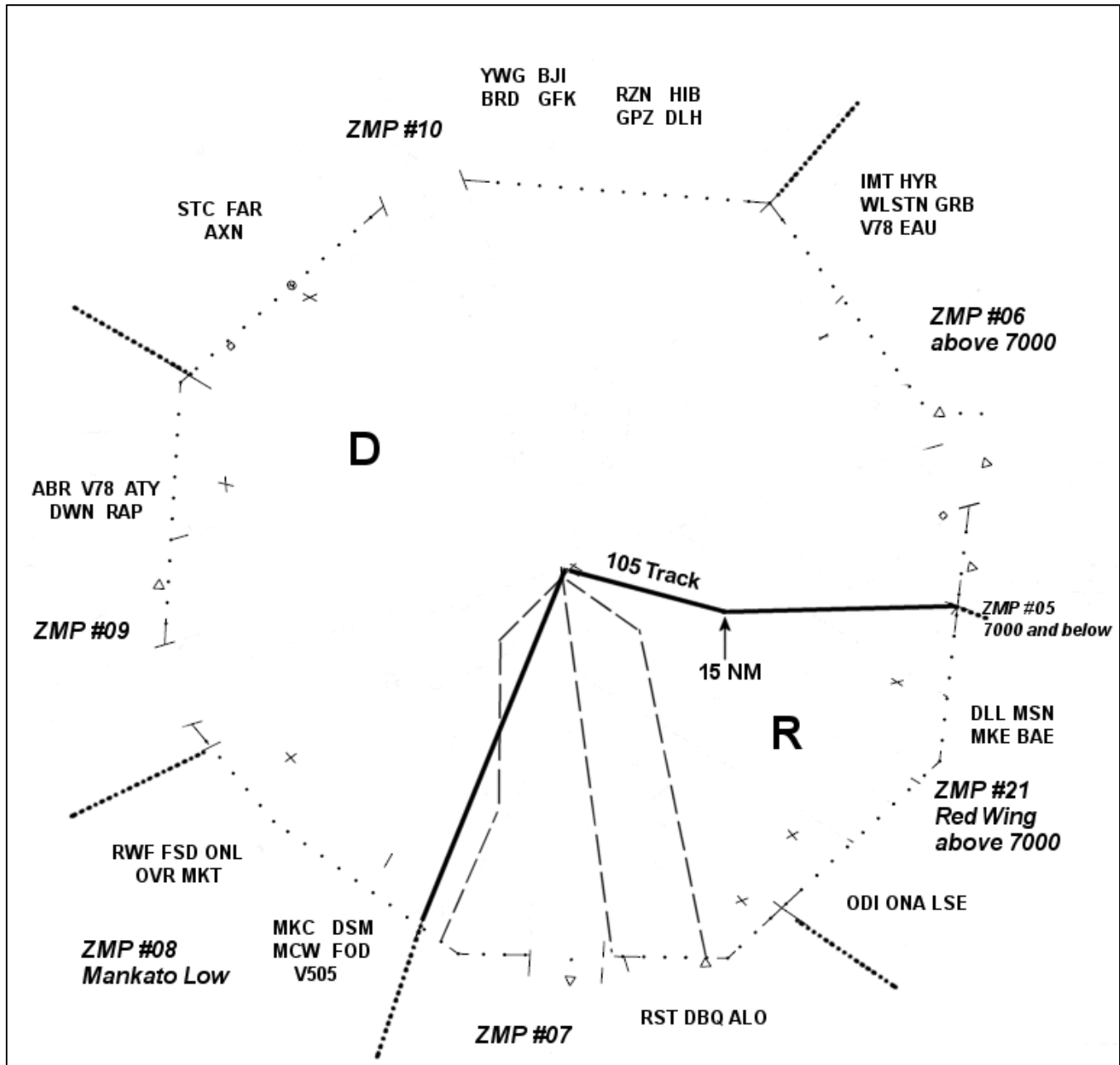
Land and Depart 12s  
 Land and Depart 30s  
 Land 30s and 35 – Depart 30s  
 Land 30s – Depart 30s and 17



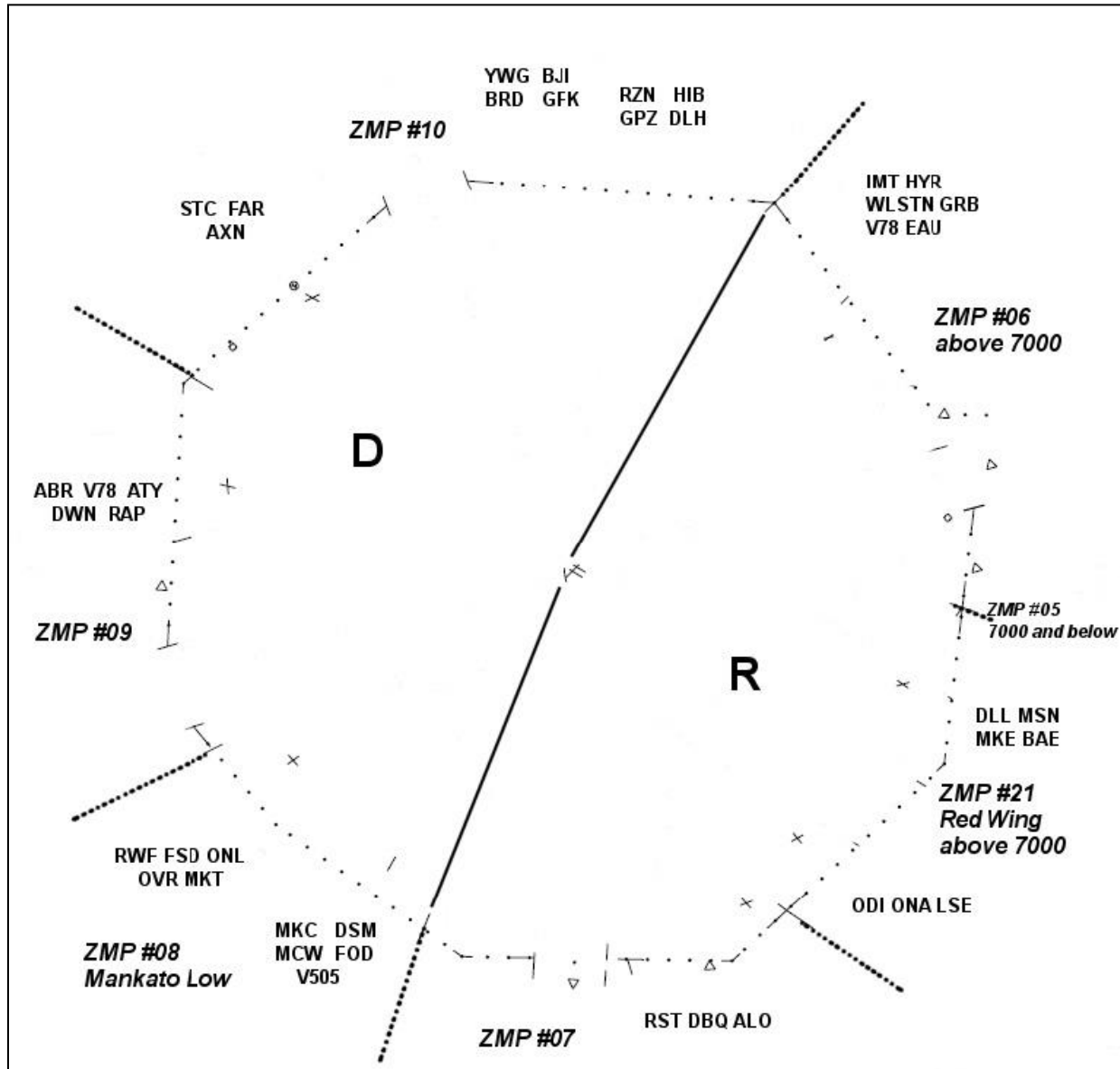
Land 12s – Depart 12s and 17  
Three Departure Split



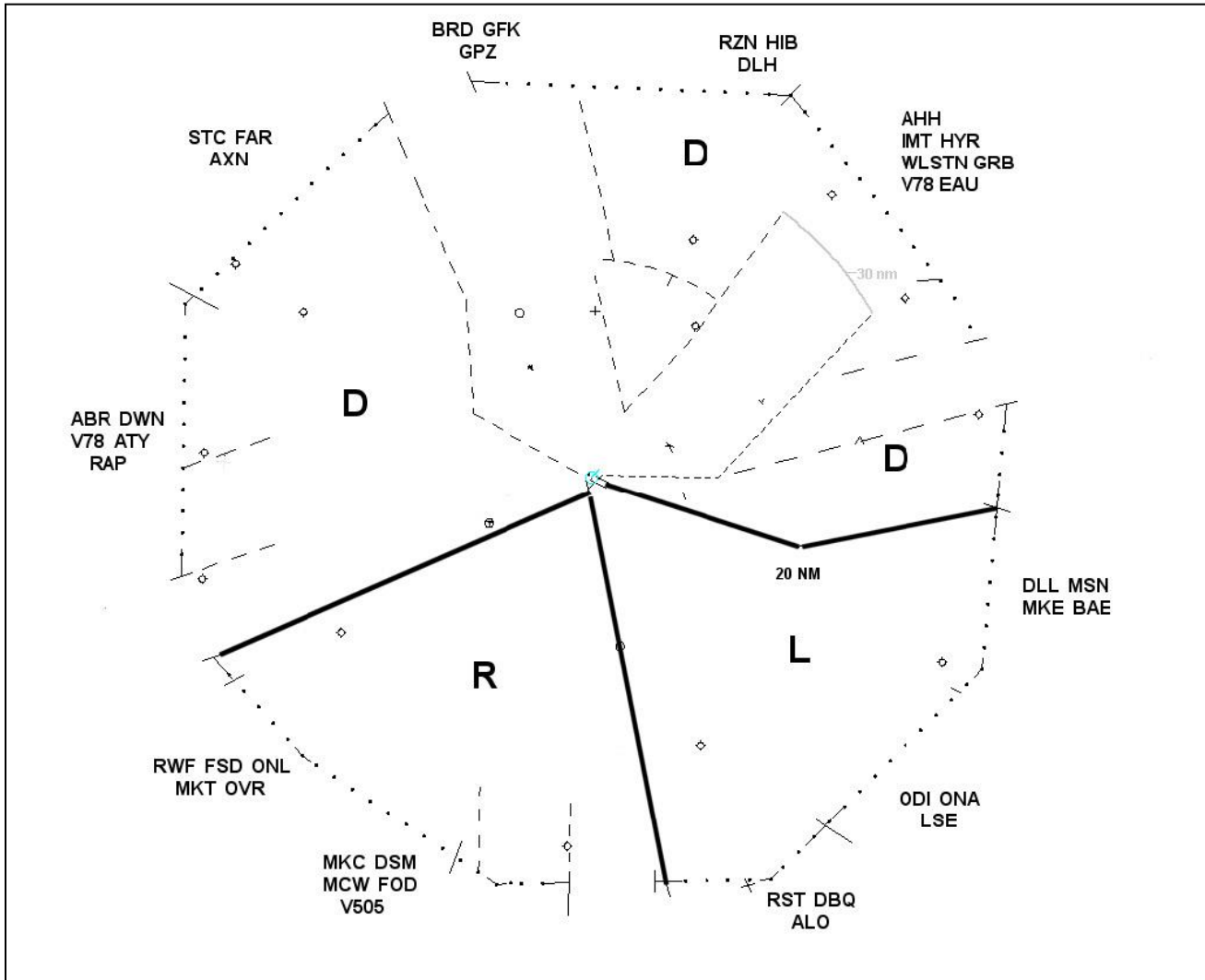
## Land 35 – Depart 12



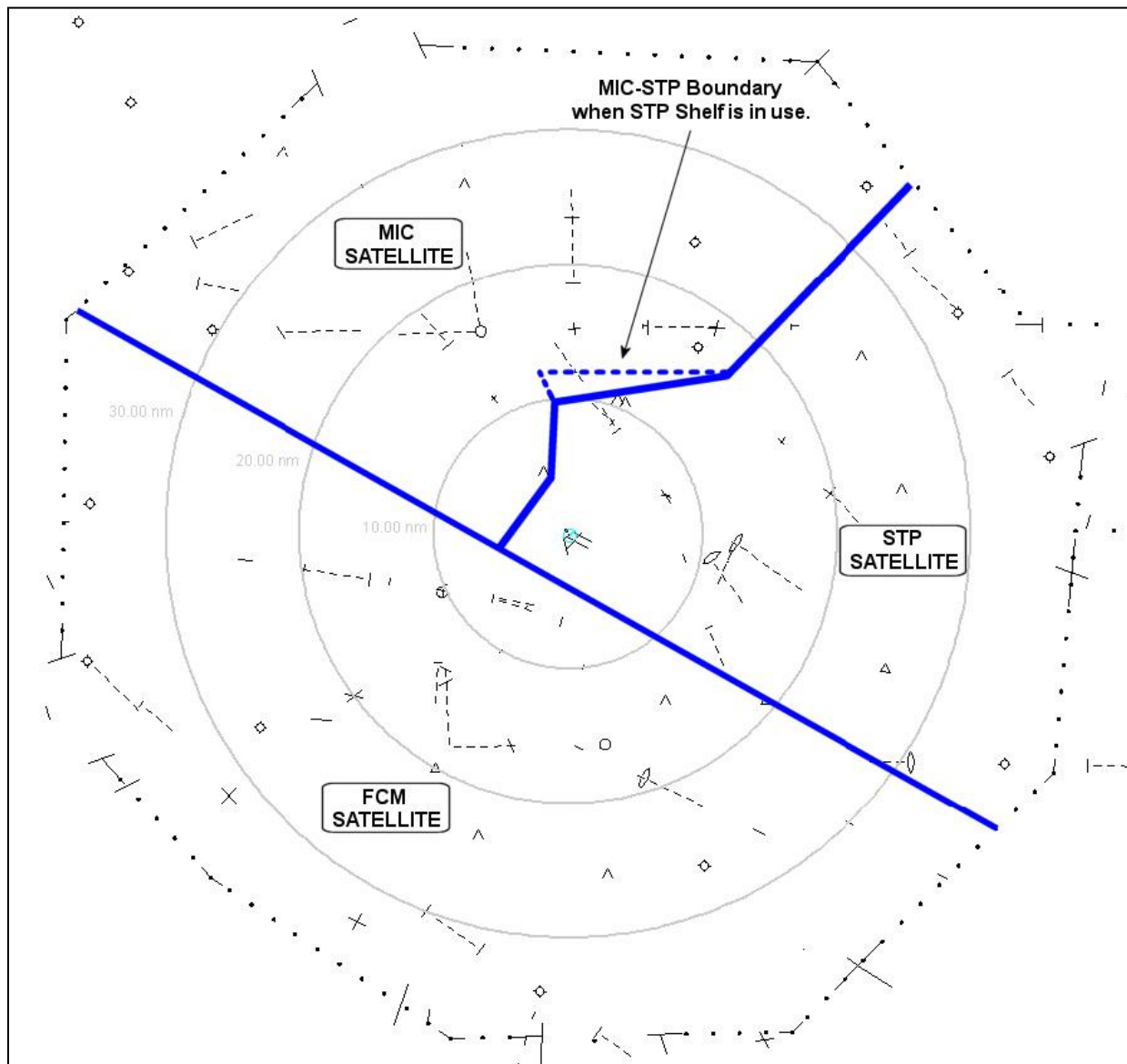
Land 35 – Depart 35, 30, 4  
 Land 17 – Depart Any  
 Land 22 – Depart Any  
 Land 4 – Depart Any



**Land 17 and 22**  
**Depart 17, 22, 12L/R**

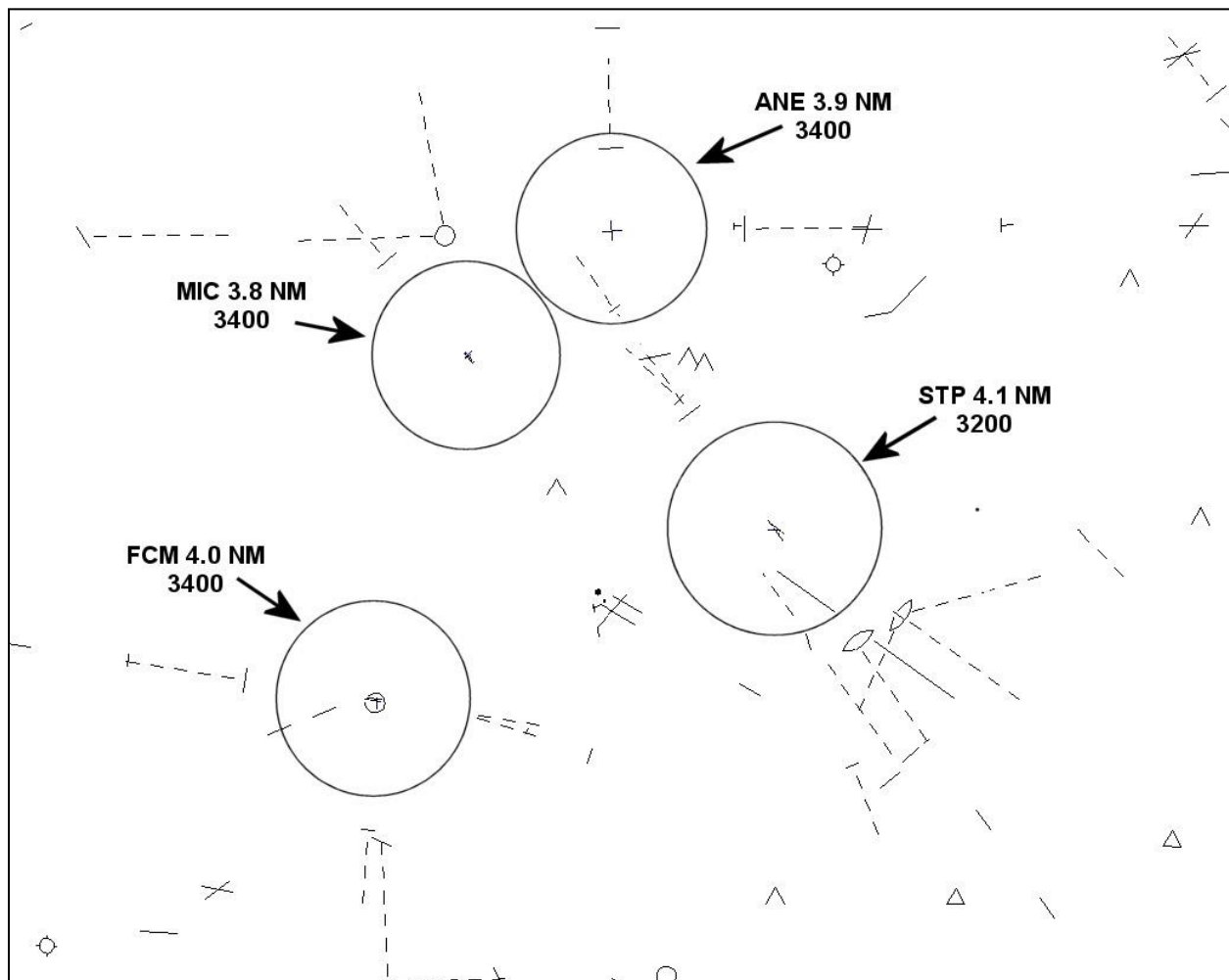


## Appendix C. Satellite Airspace Split

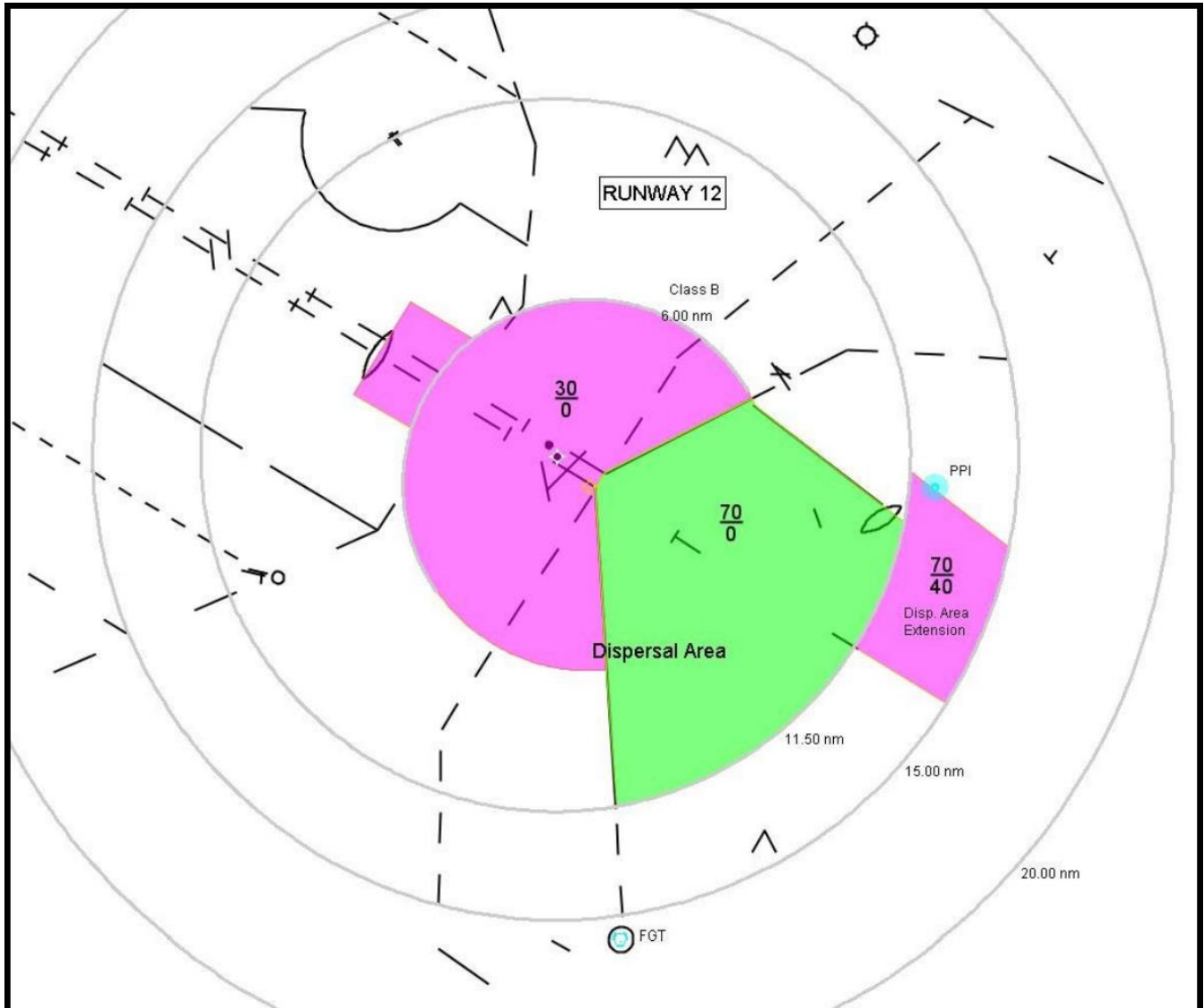


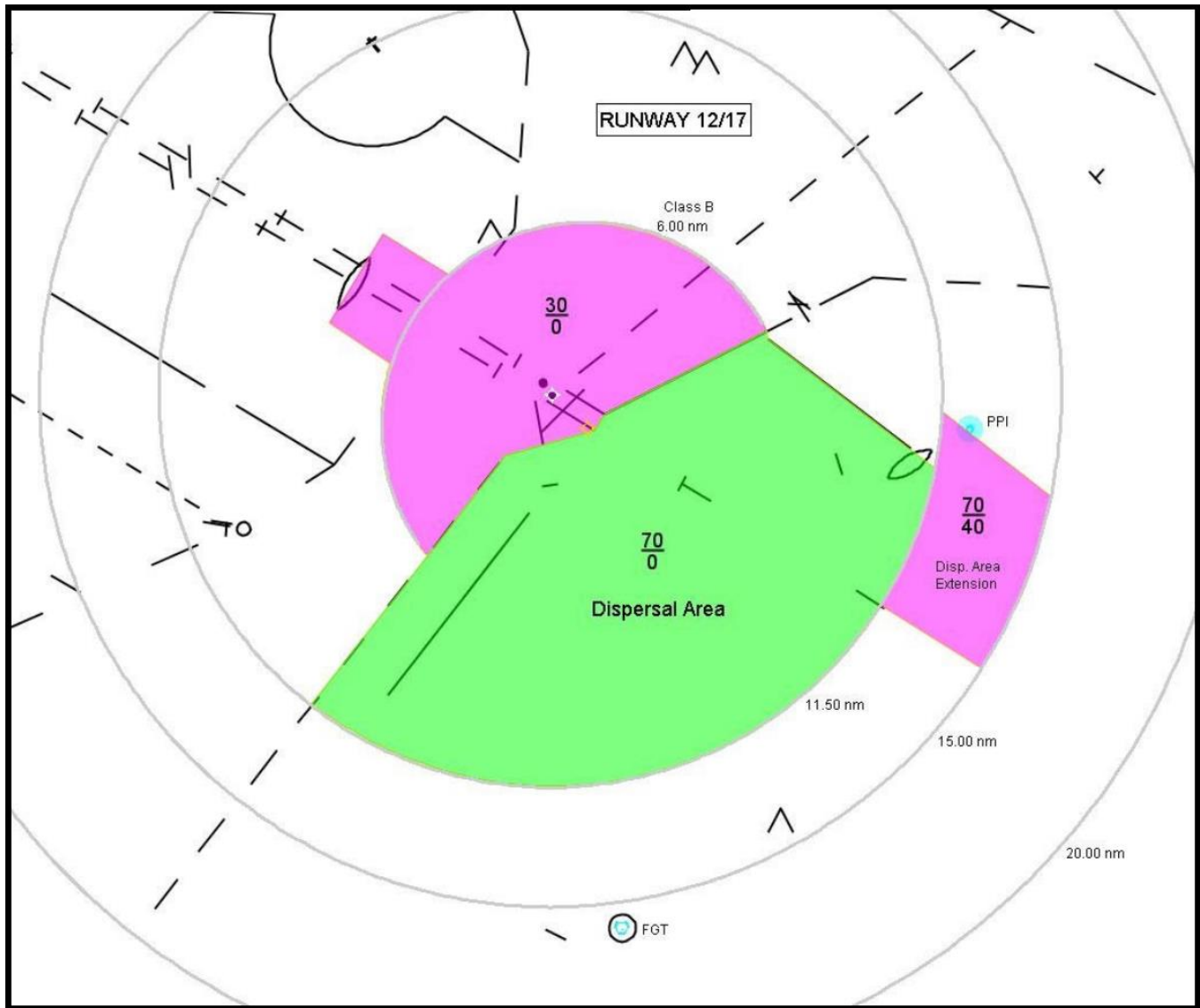


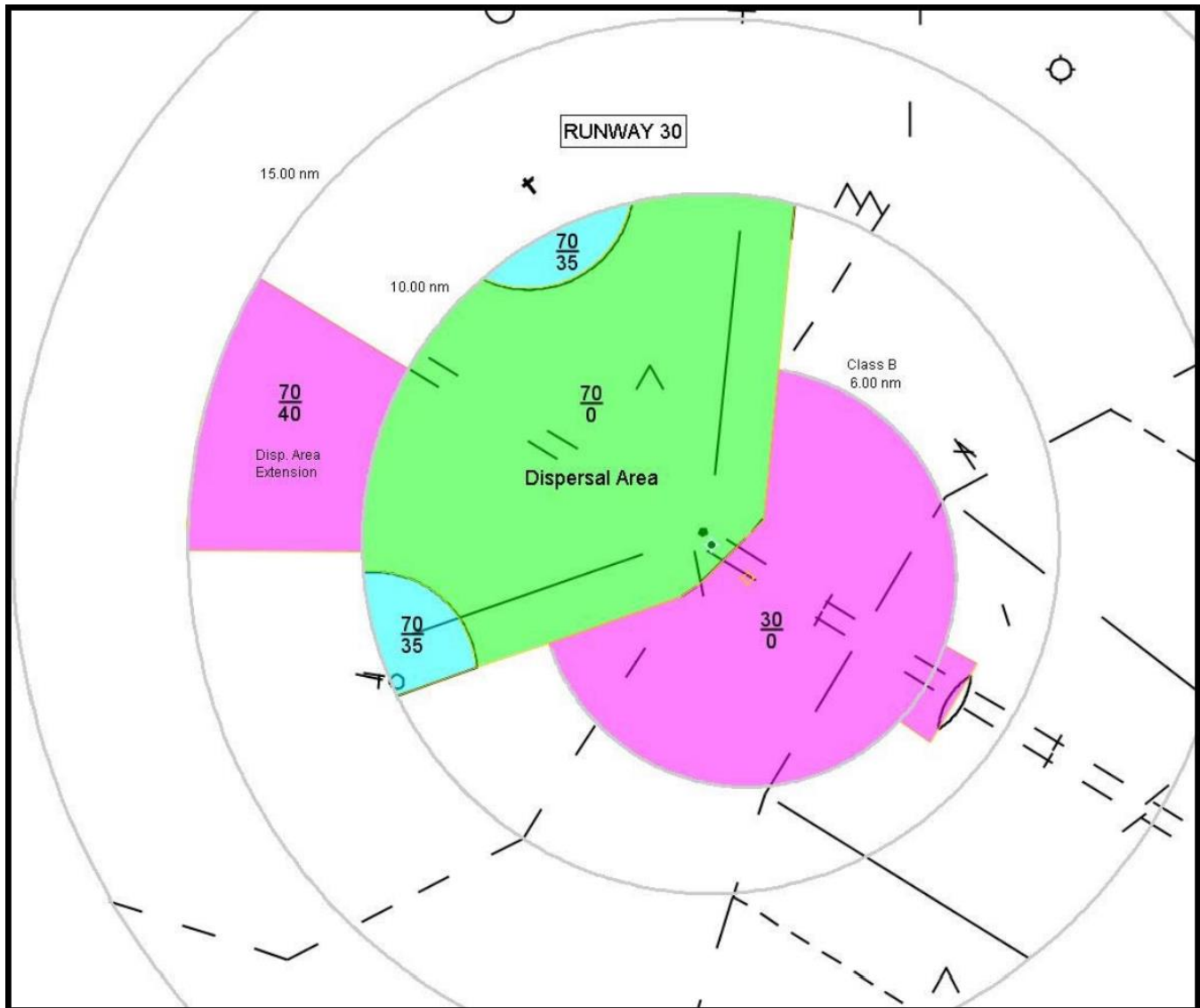
**Class D Airspace Dimensions**  
(Ceilings in feet MSL)

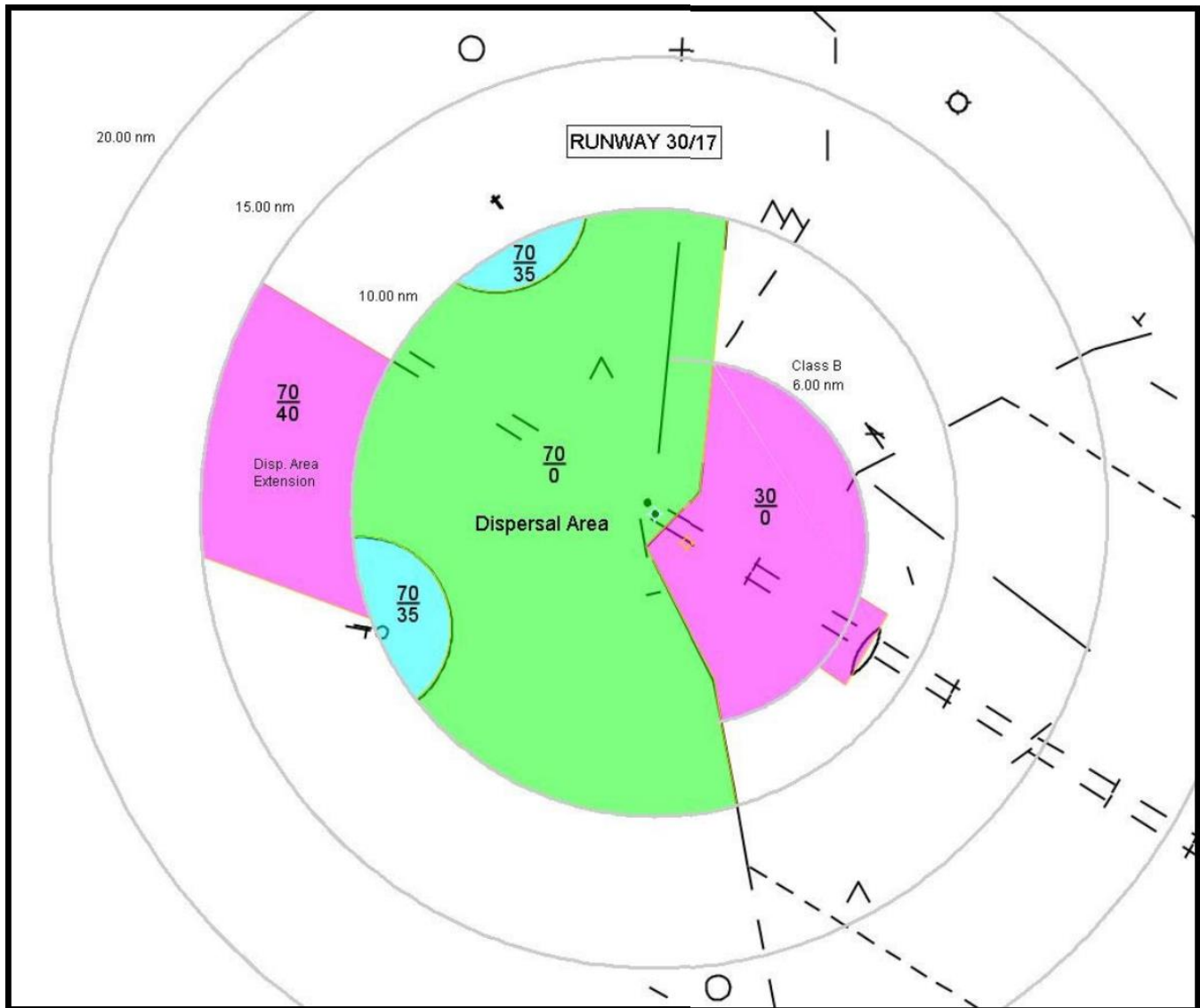


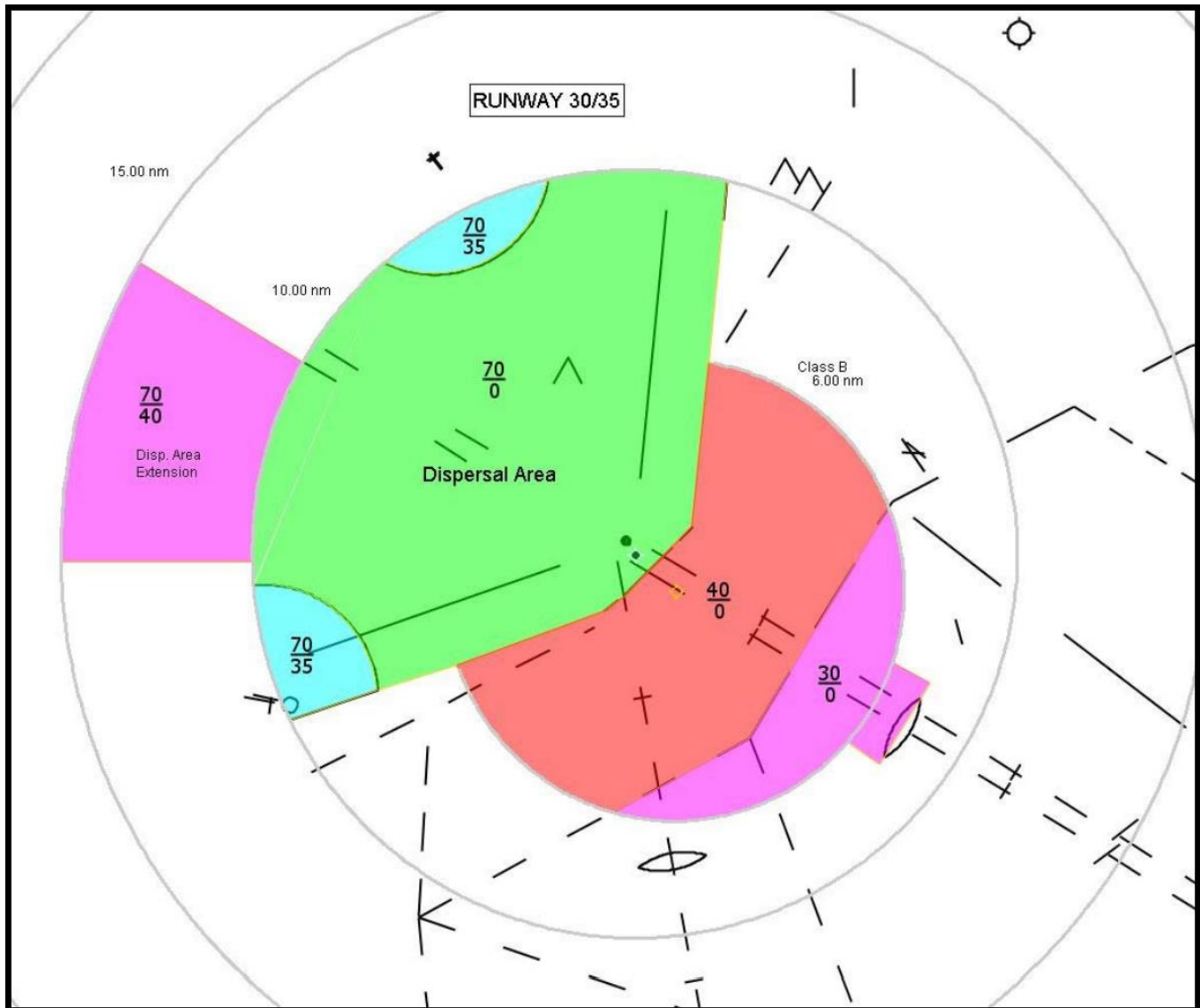
## Appendix D. Minneapolis Tower Airspace

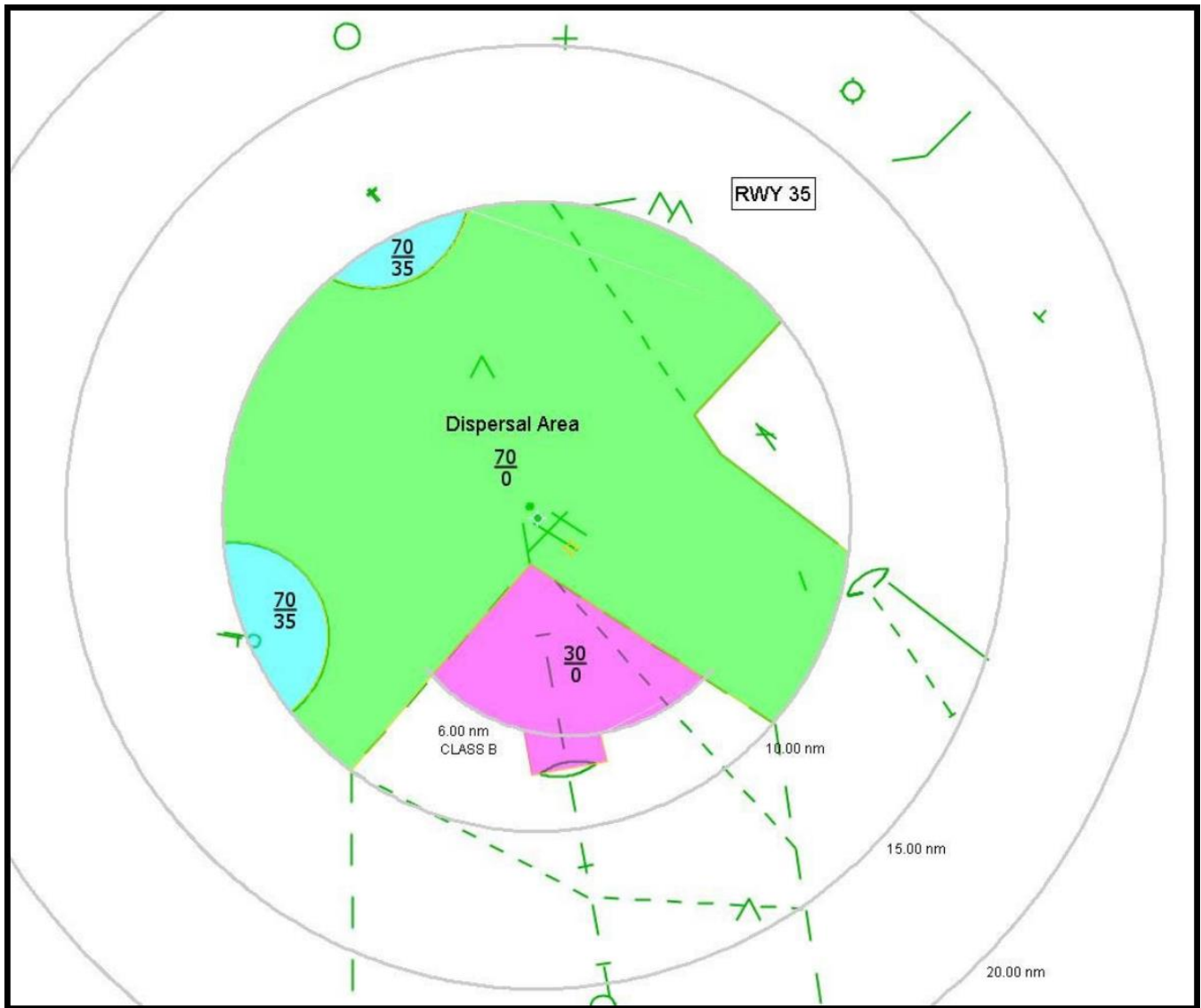




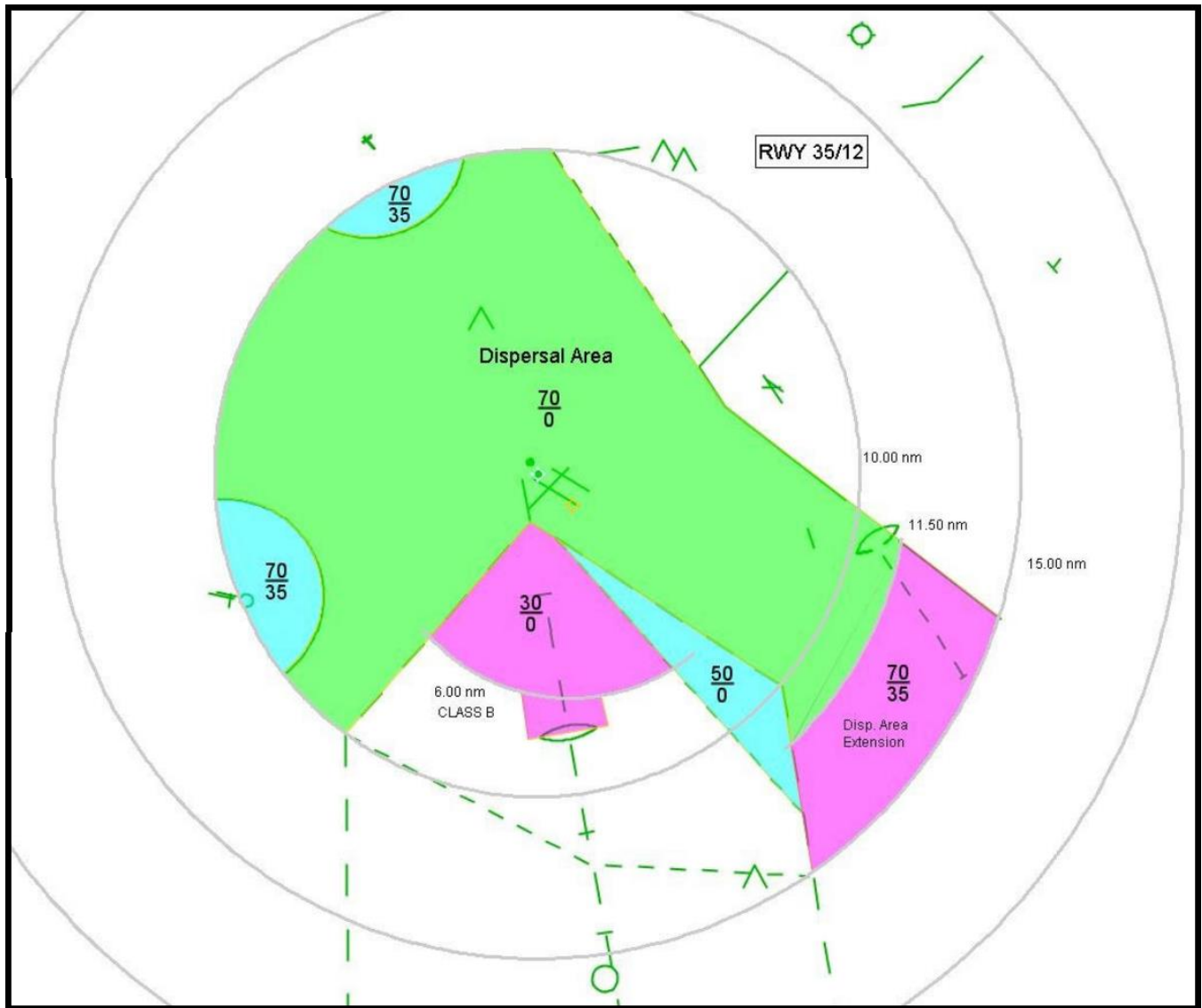


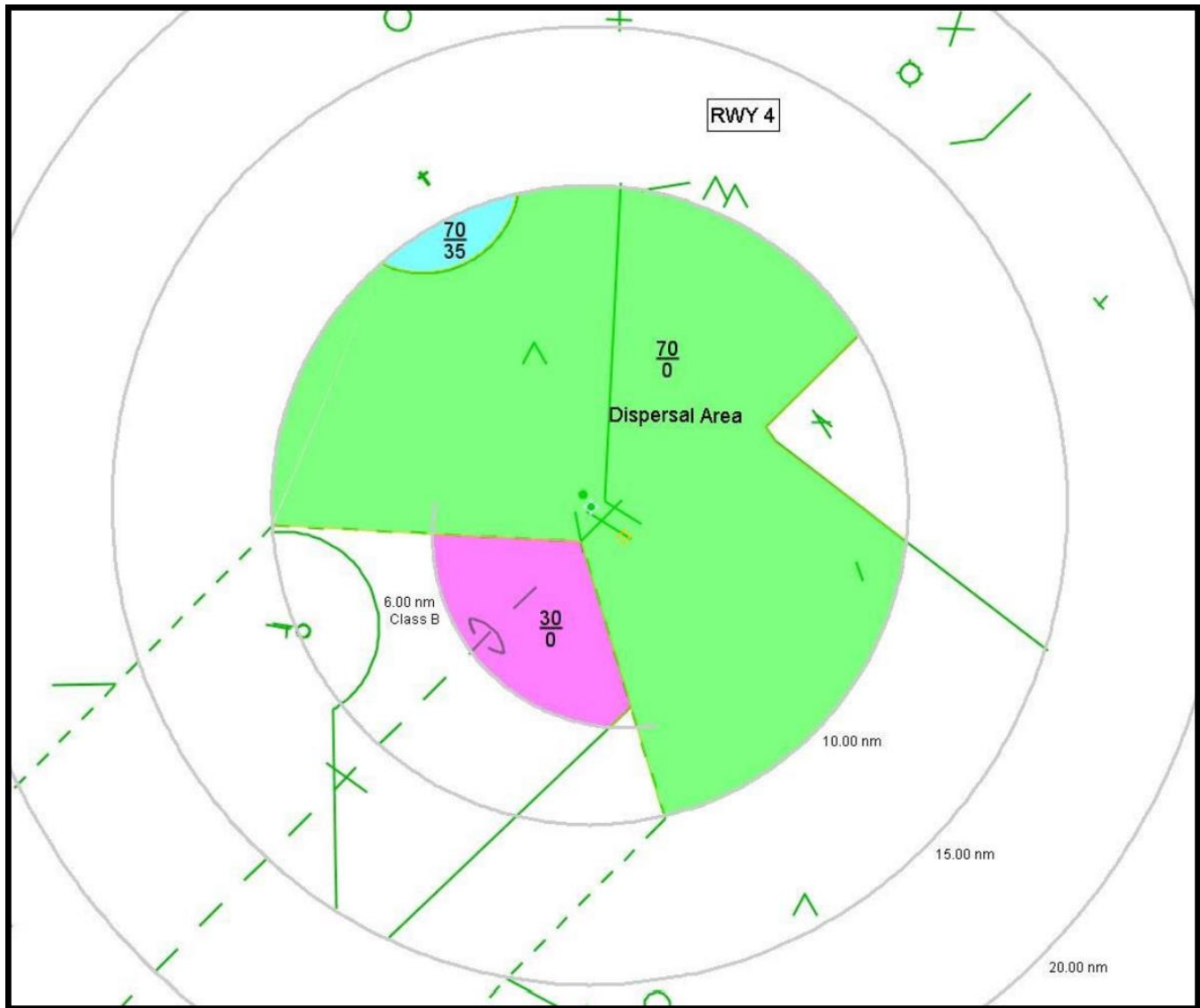


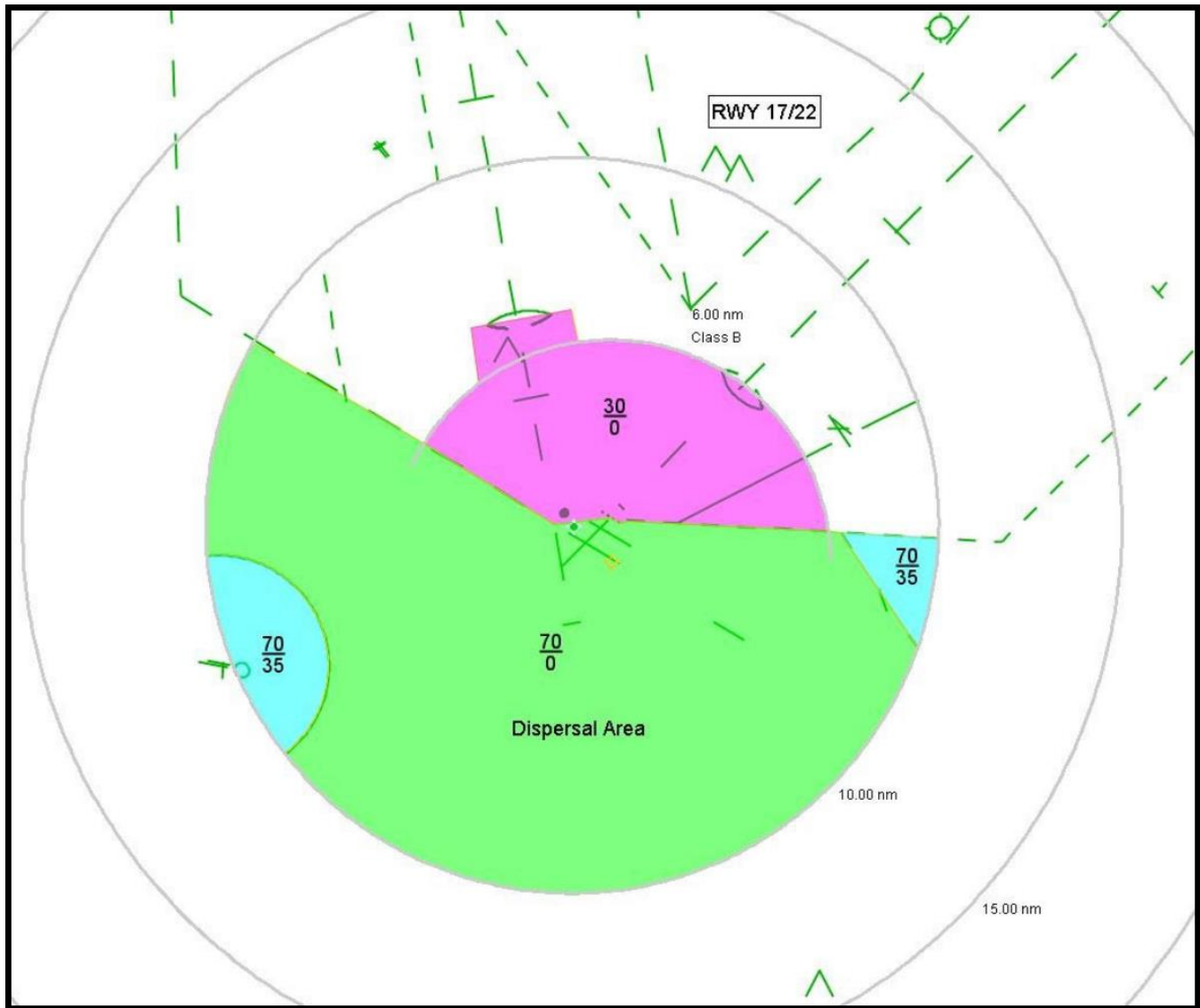


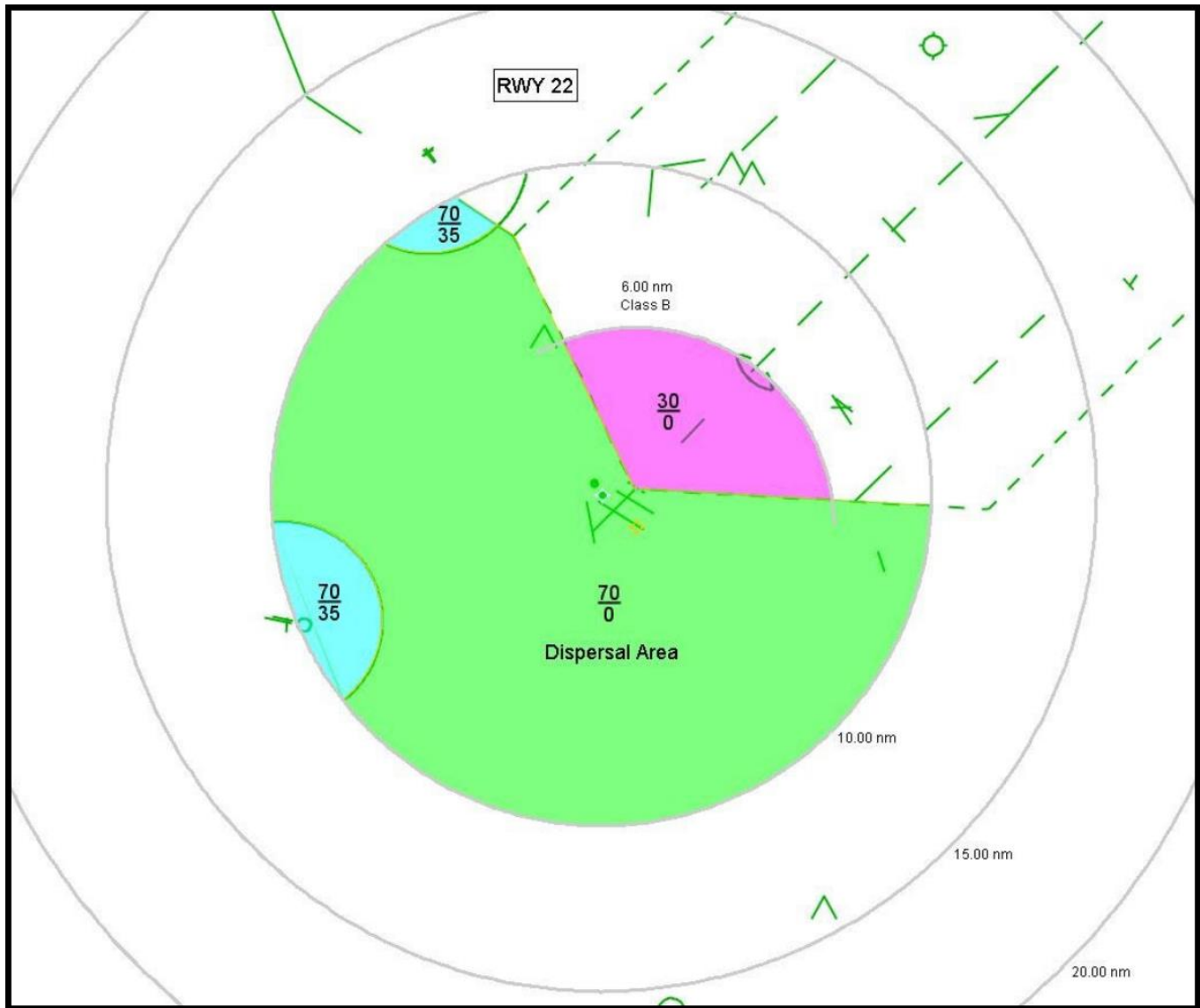


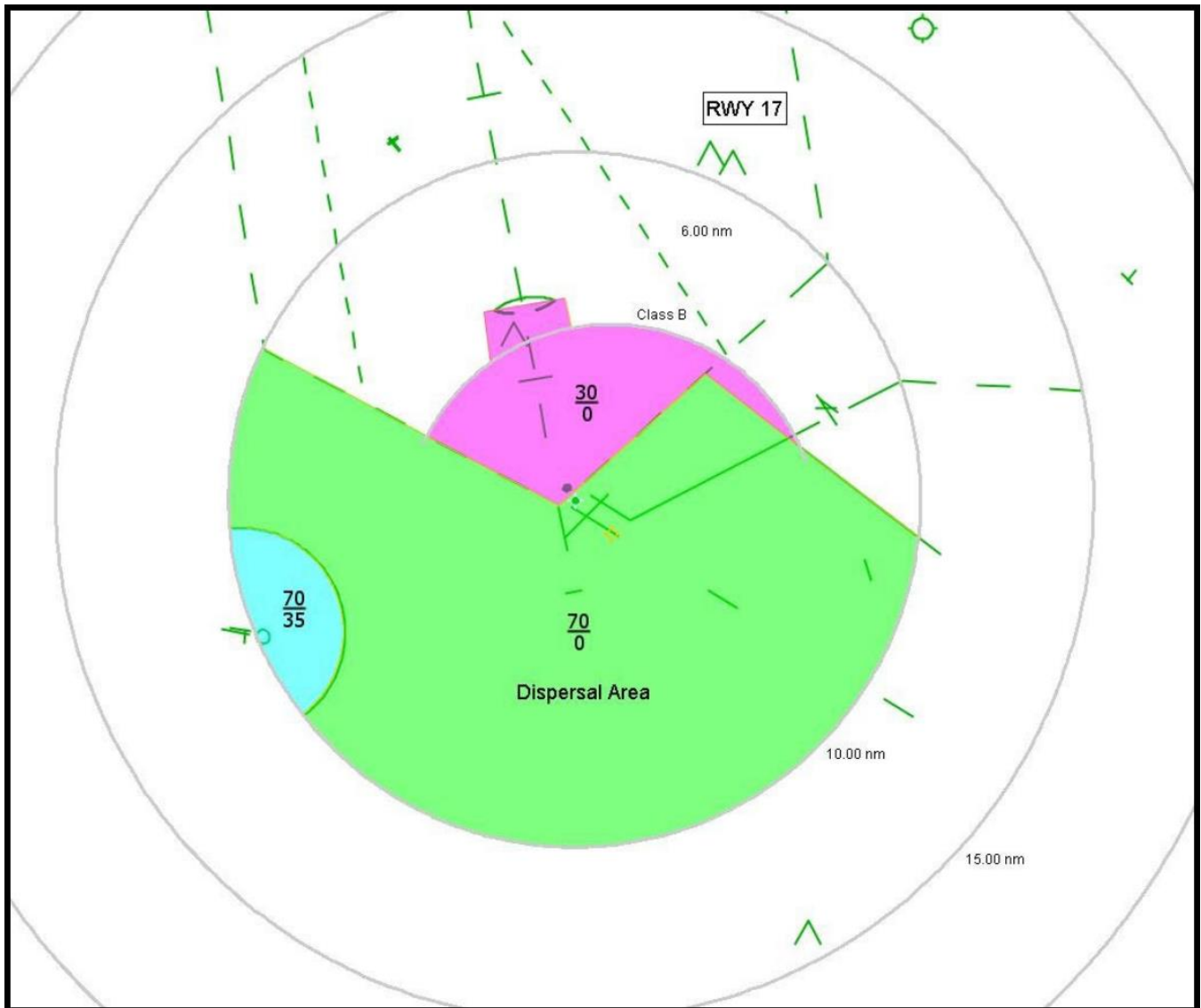






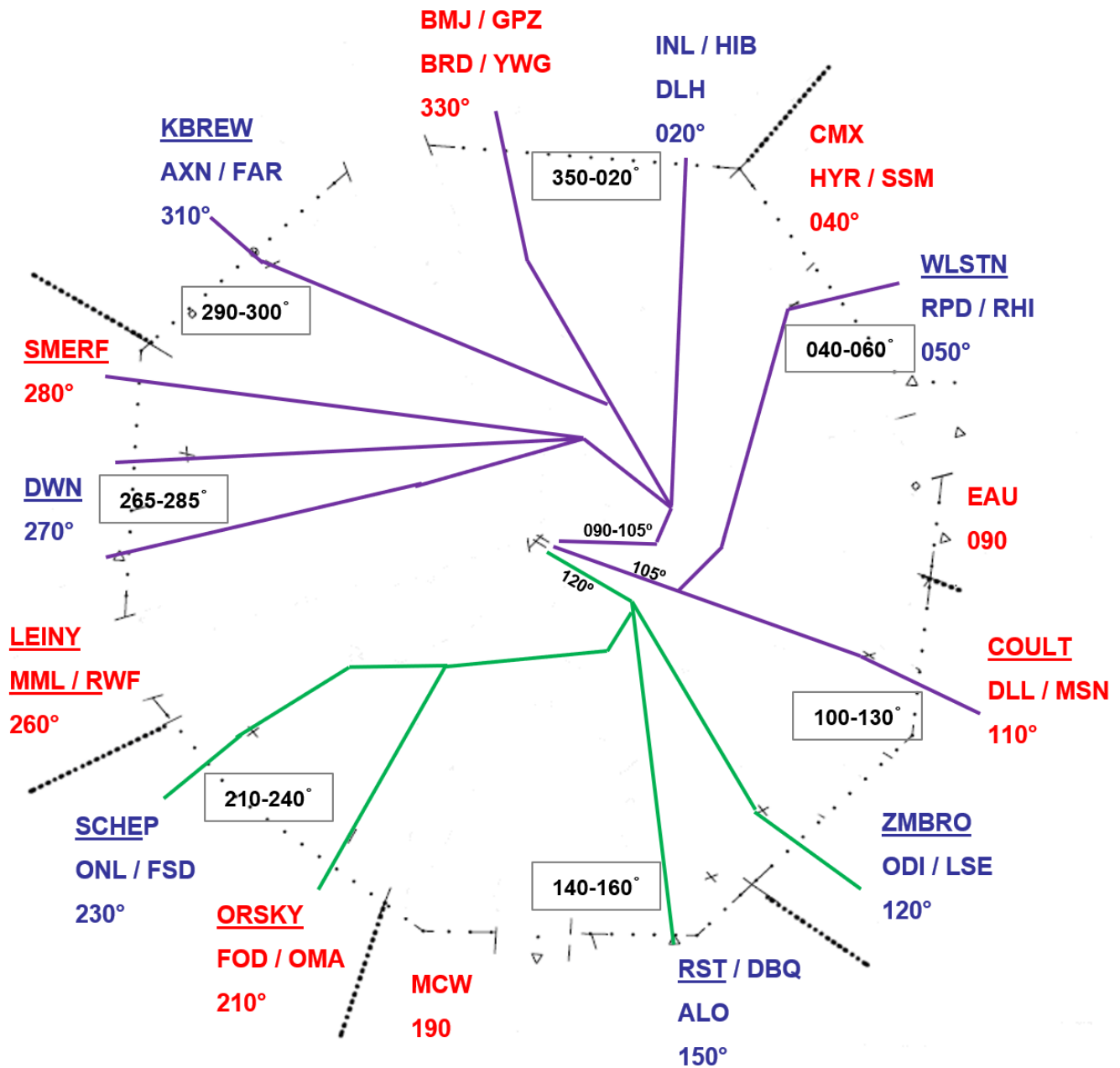




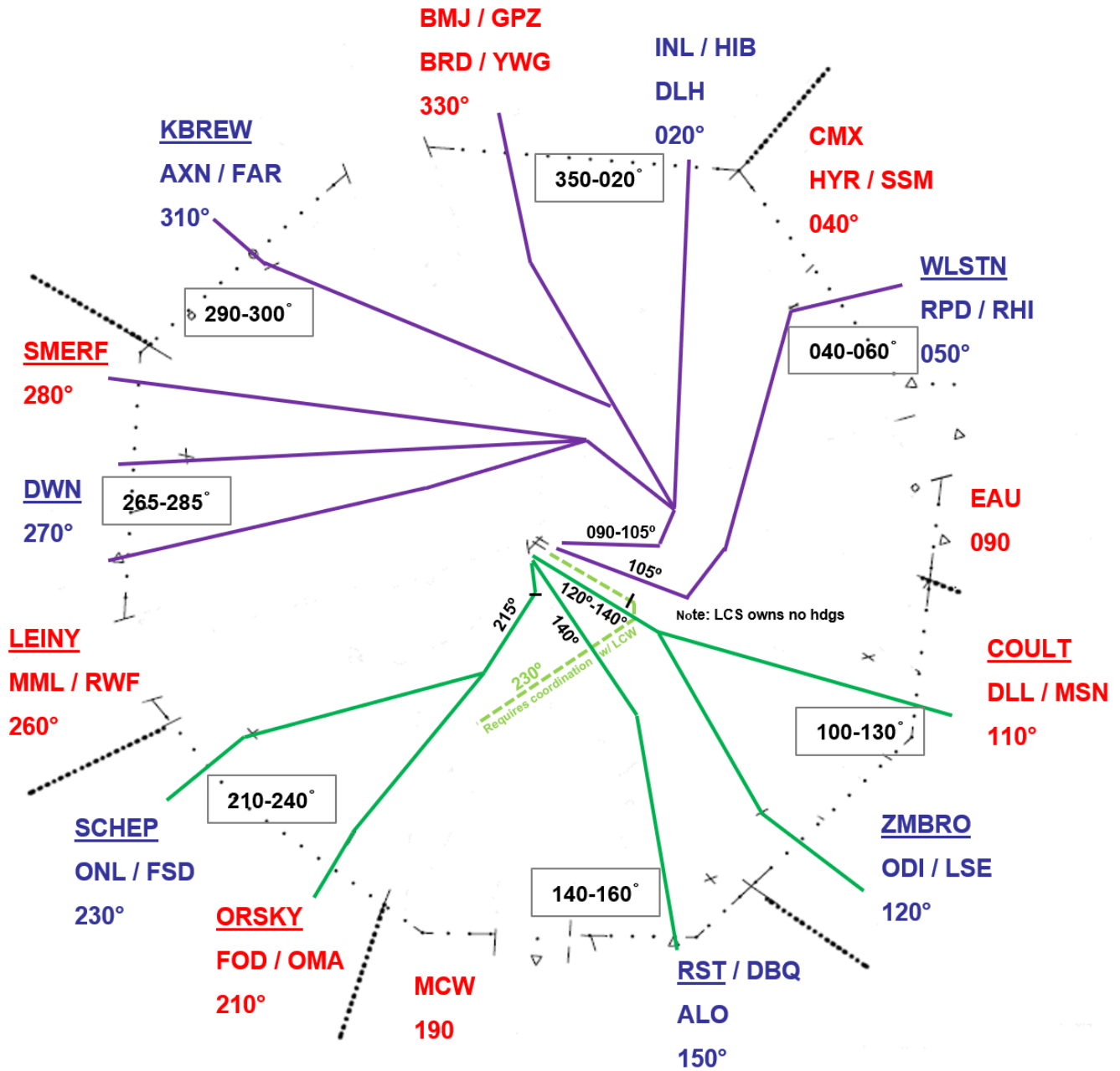


## Preferential Tower Assigned Headings

## Runway 12

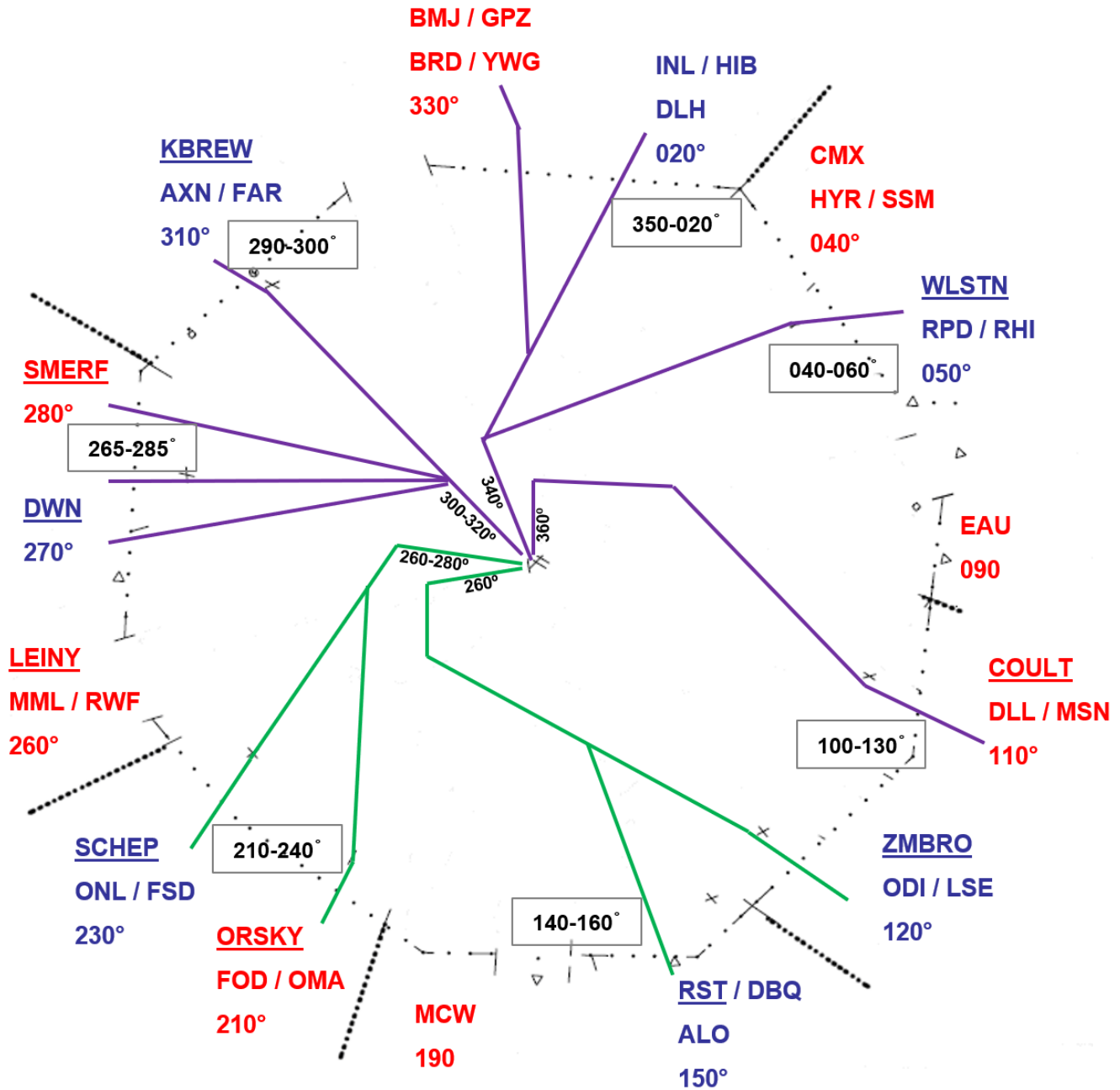


## Runway 12-17

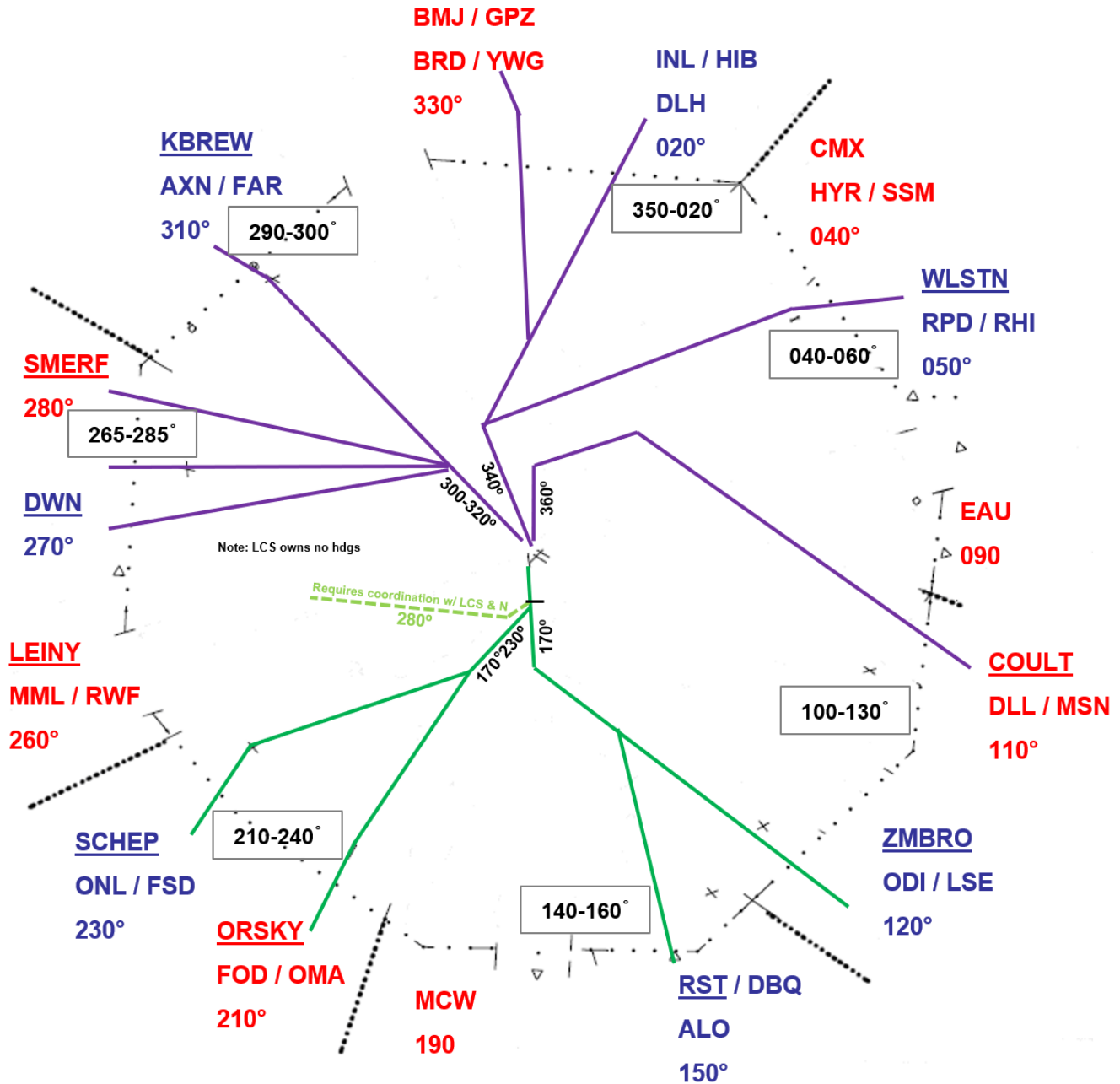




## Runway 30 and 30/35



## Runway 30-17



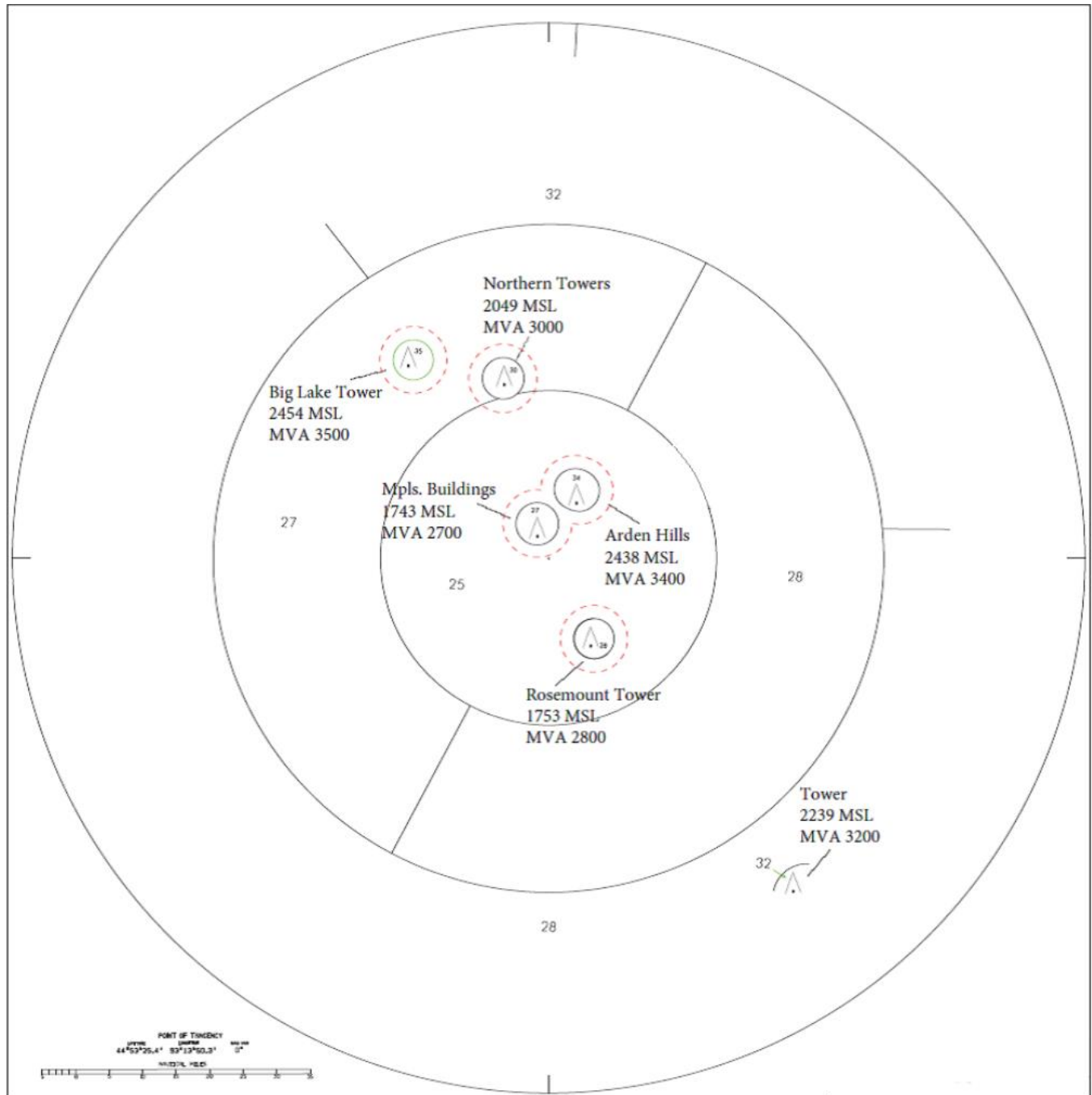
## Appendix E. Position Briefing Relief Checklists

<b>MSP TOWER CAB CHECKLIST</b>	<b>M98 CHECKLIST</b>
<b><u>SELF-BRIEF ITEMS (#1-3a via IDS)</u></b> 1. STATUS INFORMATION AREAS 2. ESTABLISH COMMS 3. RUNWAY INFORMATION A. Configuration B. Verbally State Runway Status: unavailable, closed, occupied 4. FLOW CONTROL 5. AIRPORT ACTIVITIES 6. TRAFFIC A. Aircraft Cleared For Takeoff/To Land B. Diverging Headings in Use C. Primary Target Only D. Point Outs E. VFR Advisories (Class B) Aircraft F. Special Activity Aircraft Landing or Departing, Off Duty Runways, Practice Approaches G. Aircraft Standing By or Holding H. Coordination Agreements With Other Positions I. Special Problems, Requests or Instructions	<b><u>SELF-BRIEF ITEMS (#1-8 via IDS)</u></b> 1. TRACON SIAs 2. PIREPs 3. Urgent PIREPs 4. NOTAMs 5. Forecast 6. SIGMETs 7. Special Ops 8. Tower SIA  <b><u>VERBAL BRIEFING</u></b> 1. Pertinent items not in IDS 2. Position/Airspace configuration 3. Coordination agreements 4. Traffic 5. Special activity aircraft 6. Point-outs 7. Remaining traffic

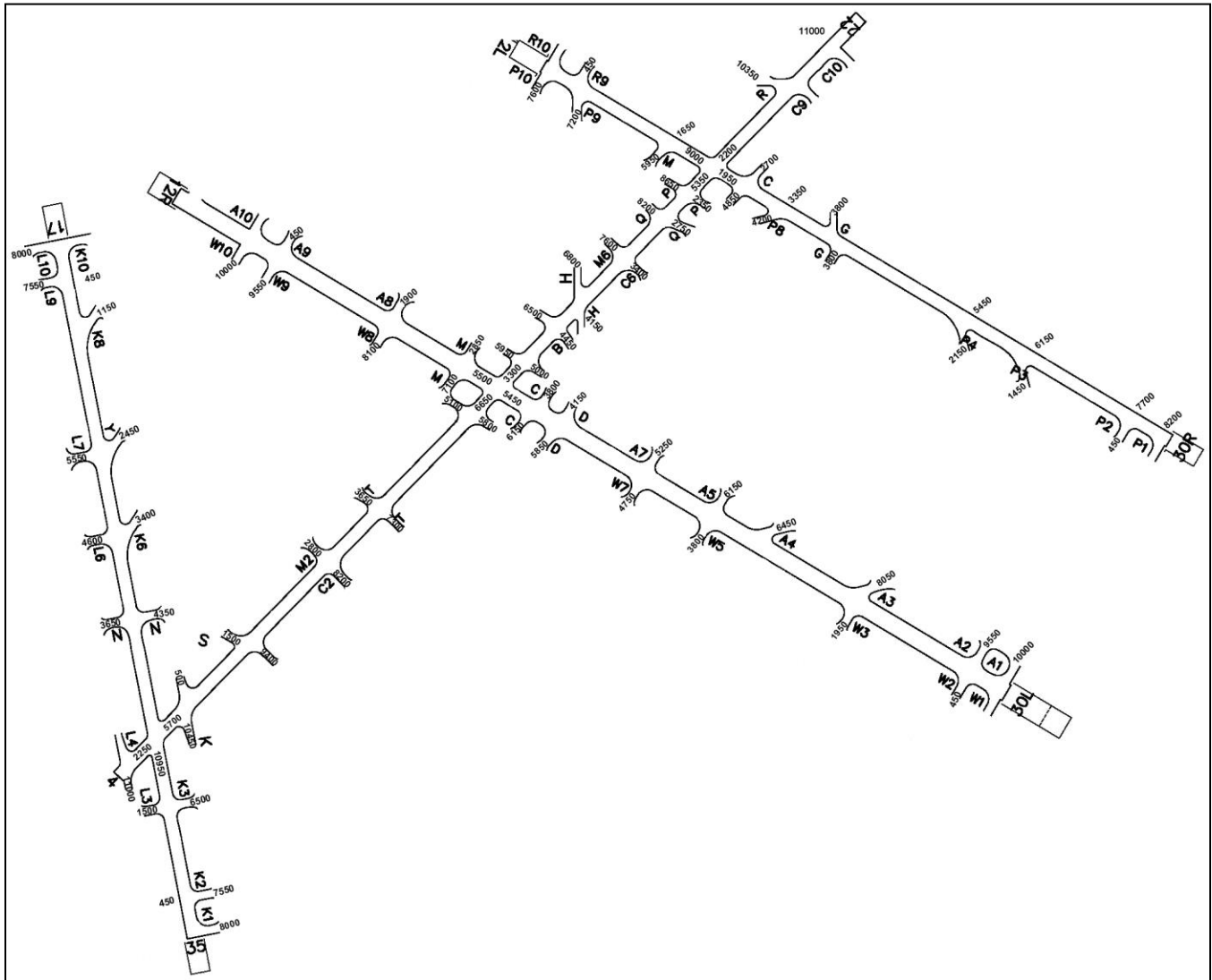
### RUNWAY CHANGE CHECKLIST

1. As instructed by the TRACON CIC, coordinate with Tower and all TRACON positions the last arrival and departure on the current runway and the first arrival on new runway. Coordinate with Departure and Satellite positions to establish resolution of conflicting traffic situations in new ACDA airspace during transition.
2. Advise Arrival Controllers when the new ACDA is available.
3. Coordinate with Tower and all TRACON positions to begin departing on new runway.
4. When changing from a parallel runway configuration to a parallel and 17/35 runway configuration, coordinate with Departure and Satellite positions to obtain/release airspace.
5. When changing to 30/17, remind Feeder and Arrival, if staffed, of 8,000 ft. airspace base.

## Appendix F. MVA Chart



## Appendix G. Runway Intersection Distance Remaining Chart



**Appendix H. M98 RVM List**

1. MSP314S	172. 5MIRNG	330. RNP 30	451. MSP
104. 4FINAL	201. 4 B	331. RNAV 30	452. VFR
105. BRAVO	202. 22 B	332. 30CVNTL	453. MIC MAP
106. AIRSPAC	203. 30 B	333. 35CVNTL	454. CLASSB
108. REFRSHR	204. 12 B	335. RNP 35	455. ROADS
109. ZMP	206. STPSHLF	350. 12FDR L	456. TARGET
110. FIXES	215. 30 S	351. 30FDR L	457. USBANK
111. QJE 40	216. 30 A	401. 04	458. TCF
112. AIRWAYS	217. 30 D	402. 22	459. ODO
113. R0ADS	218. 12 S	405. 17	460. MIC FNL
114. STADIUM	219. 12 A	410. 17-22	461. STP MAP
115. COUNTY	220. 12 D	411. HOSPITL	462. MSP MAP
117. 17FINAL	221. 35 B	414. 35	463. ROADS
122. 22FINAL	222. 17 B	416. 30-17	464. BRAVO
132. HELOFIX	223. 35-12 B	418. 30-35	465. STP2
135. 35FINAL	224. 12-17 A	419. 12-17	466. TGT FLD
140. 30 4000	225. 12-17 S	422. 12	467. CLASS D
141. 30 6000	226. 12-17 D	423. 30	468. TFR
142. 30 7000	227. 12-17 B	424. 30R ADW	469. 1-7 ADW
145. 12 4000	228. 17-22 B	425. 30L ADW	470. 1-8 ADW
146. 12 6000	229. 30-17 B	426. BOTHADW	471. 1-8 1-8
147. 12 7000	231. 30-35 B	427. CRO IP	472. 30R INT
151. 30INTER	236. 12 SHLF	431. FINALS	473. 30L INT
152. 12INTER	237. 1217SHF	432. CLASS B	474. 30S INT
153. MVA	240. 30-35 S	433. ROADS	475. QJESITE
154. MVA 5NM	246. 30-17 D	434. TWINS	476. 30RTHSH
157. SID	247. 30-17 A	435. VIKINGS	477. 30LTHSH
160. RNAVSID	248. 30-17 S	436. GOPHERS	478. 30STHSH
161. SAT EXT	249. 30-35 D	441. FCM	481. SAT FNL
162. SB GK12	250. 30-35 A	442. MAP 2	911. EMRGNCY
163. SB GK30	254. 17-22 A	443. CLASS-B	998. ZMPEVNT
164. SB SHLF	255. 17-22 D	444. -ROADS-	
165. VIKGCAP	256. 17-22 S	445. TARGET	
166. WALLEYE	312. RNP 12	446. VIKING	
167. SB GK27	313. RNAV 12	447. TCF	
170. SB GK	314. 12CVNTL	448. FMA1	
171. 10MIRNG	315. ADW 1NM	449. FMA2	