

Wel Come

**INDIGENOUS
AERONAUTICAL CHARTS**

Wg Cdr PK Mishra

JPAC Technologies Pvt. Ltd.



JPAC Technologies Pvt. Ltd | Introduction

Web Based Pipeline Construction
Management System

Web Based Infrastructure
Monitoring & Management
System

Web GIS

Web Solutions

Application Software
Development

- ❖ Global IT / Software Solutions company
- ❖ Focusing on Oil and Gas, Infrastructure, Power, Telecom & Government Organizations
- ❖ Leadership in Oil & Gas Pipeline Information Monitoring and Control Solution
- ❖ Project footprints across the globe
- ❖ Successfully Completed more than 65 PIMS Projects of 25060 KM in length
- ❖ Team with vast industry experience with strong domain knowledge
- ❖ Total Manpower Strength – Over 150+ employees
- ❖ State of art Operations and R & D facility at NOIDA
- ❖ Total office space across INDIA 22000+ sq. ft.
- ❖ ISO 9001:2008 certified
- ❖ All pipeline solutions PODS (Pipeline Open Data Standard) complaint
- ❖ Member of IPLOCA (International Pipeline & Offshore Contractors Association)



JPAC Technologies Pvt. Ltd | Offerings

Industry Verticals



Horizontal Services

IT
Consulting

GIS &
Engineering

Project
Management
& Control



OBJECTIVE: Gather data from every aeronautical source to develop integrated Aviation Charts / Helicopter Maps and thus enhance flight safety

PROJECT INPUT & OUTPUT

INPUT

- Single GIS Grid for entire India
- Aiefield Layouts
- Airport Plans
- Airport Procedures
- General Facilities
- Data from AAI

Aviation Data + GIS



OUTPUT

- Aerodrome Charts
- Apron Charts
- Standard Arrival Charts (STAR)
- Standard Instrument Departure Charts (SID)
- Instrument Landing (ILS) Charts
- VOR Charts
- NDB Charts
- Enroute Charts
- VFR Charts

- Introduction
- Current databases
- Our work
 - GIS data creation
 - Application
 - Update procedure
- Future scope
- Summary and conclusion

JMaps | Project Overview | Introduction

- The Innovation relates to use of Geospatial technologies in Aviation Database Generation
- We have been able to use the COTS tools and softwares to generate the desired data
- The spatial aviation data requirements
 - Frequent updates
 - Higher Accuracy
 - Ease of interpretation
 - User Dependence



- Databases provided by e-AIP
- ARINC Databases
- Jeppesen Charts
- Shortcomings of Available Data
 - Interoperability
 - Updatability
 - Limitations of analysis

- Aviation data Requirements
 - Apron Charts
 - Airfield Charts
 - SIDs & STAR
 - Enroute Charts
 - Instrument Approach Charts (Precision & Non Precision)
 - Runway Arrival and Departure Charts
 - Radar Altitude Charts
 - Helicopter Charts

- Additional Data being Created
 - 1:1 Million Scale Charts for Transport Aircraft
 - 1:1/2 Million Scale Charts for Helicopters
 - Specialized helicopter route Charts
 - Terrain data Charts Showing Obstacles
 - Customized Aviation Charts as per User Requirements

JMaps | Solution | Architecture

Updates & Support



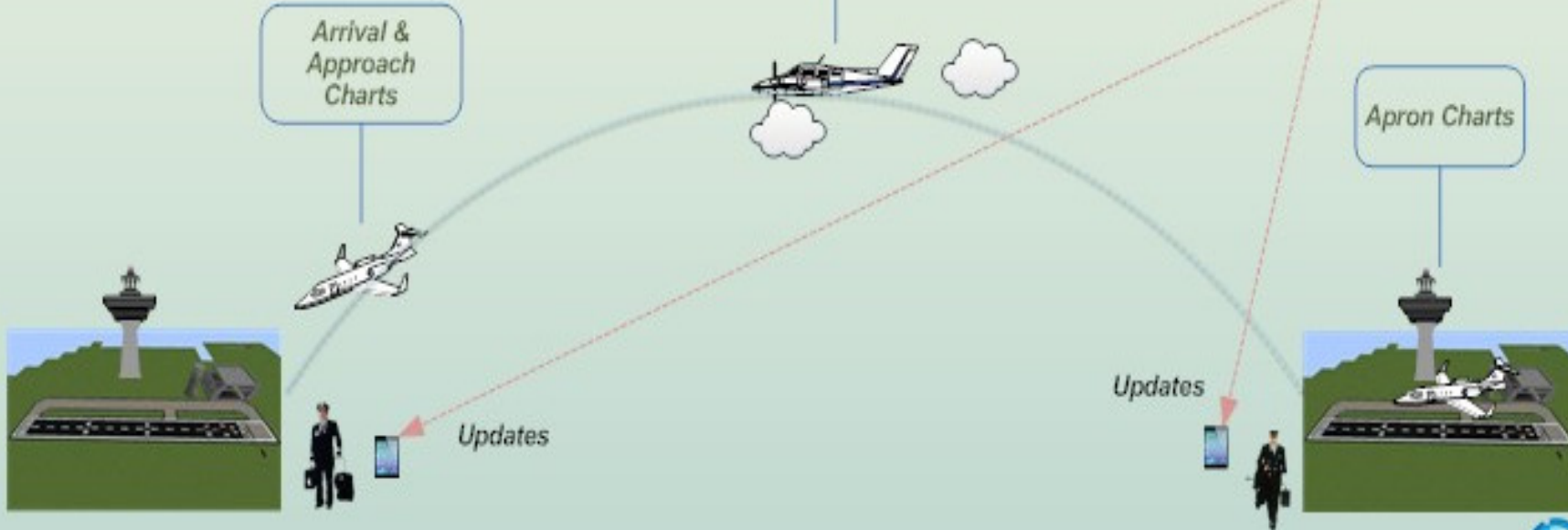
Updates



High / Medium
Altitude
Navigation Charts

Arrival &
Approach
Charts

Apron Charts



JMaps | Solution | Web Application



 Hello, jitendra!  Log off

Home

User

Airport


Chart Type

Chart

Device

 Airport

Add Airport

Edit	Airport	ICAO Code	IATA Code	City	State
	C S M International Airport	VABB	BOM	Mumbai	Maharashtra
	I G I Airport New Delhi	VIDP	DEL	Delhi	Delhi
	Pune International Airport	VAPO	PNQ	Pune	Maharashtra



JMaps | Solution | Web Application



Hello, jitendra! Log off

Home

User

Airport

Chart Type

Chart

Device

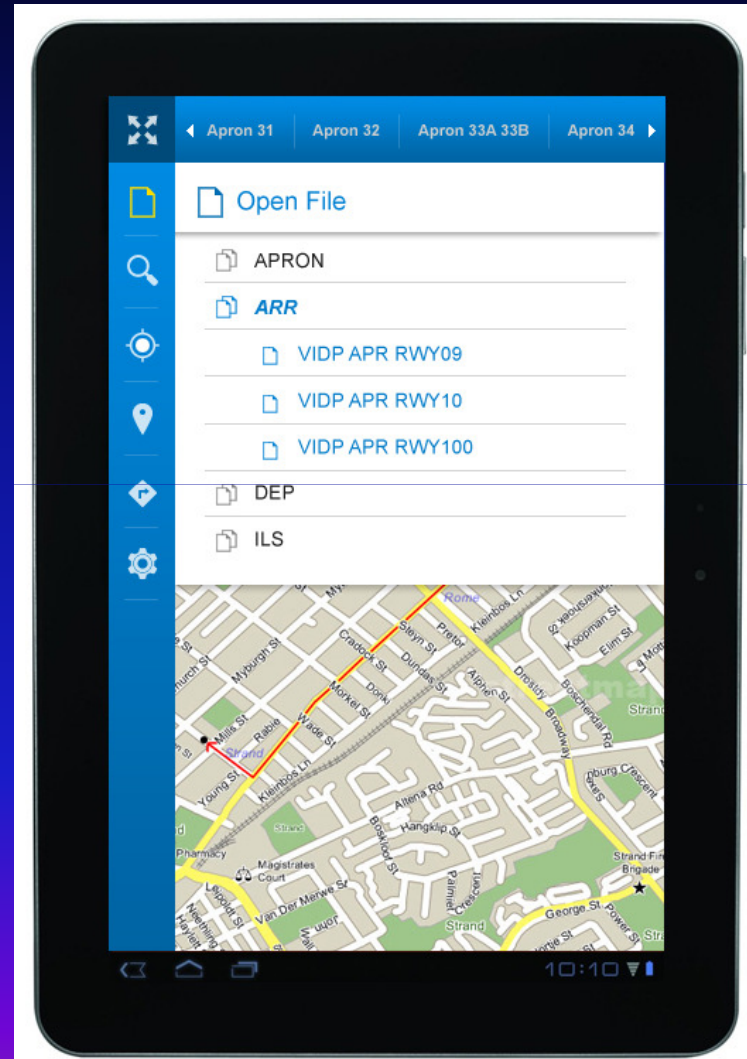
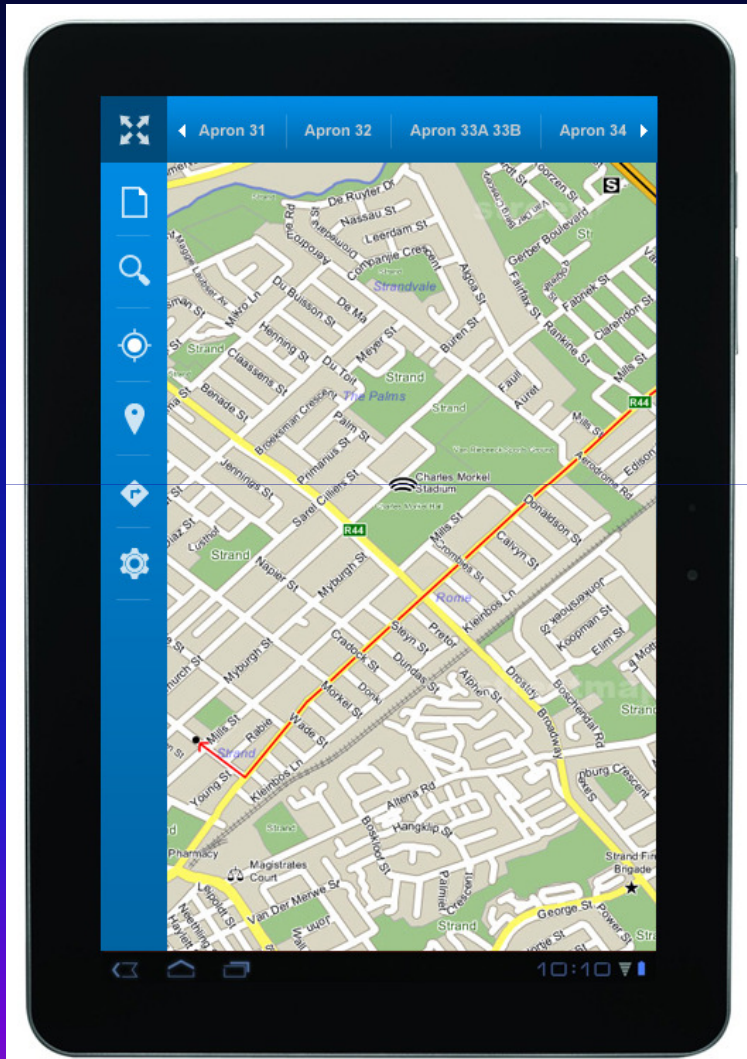
Chart

Add Chart

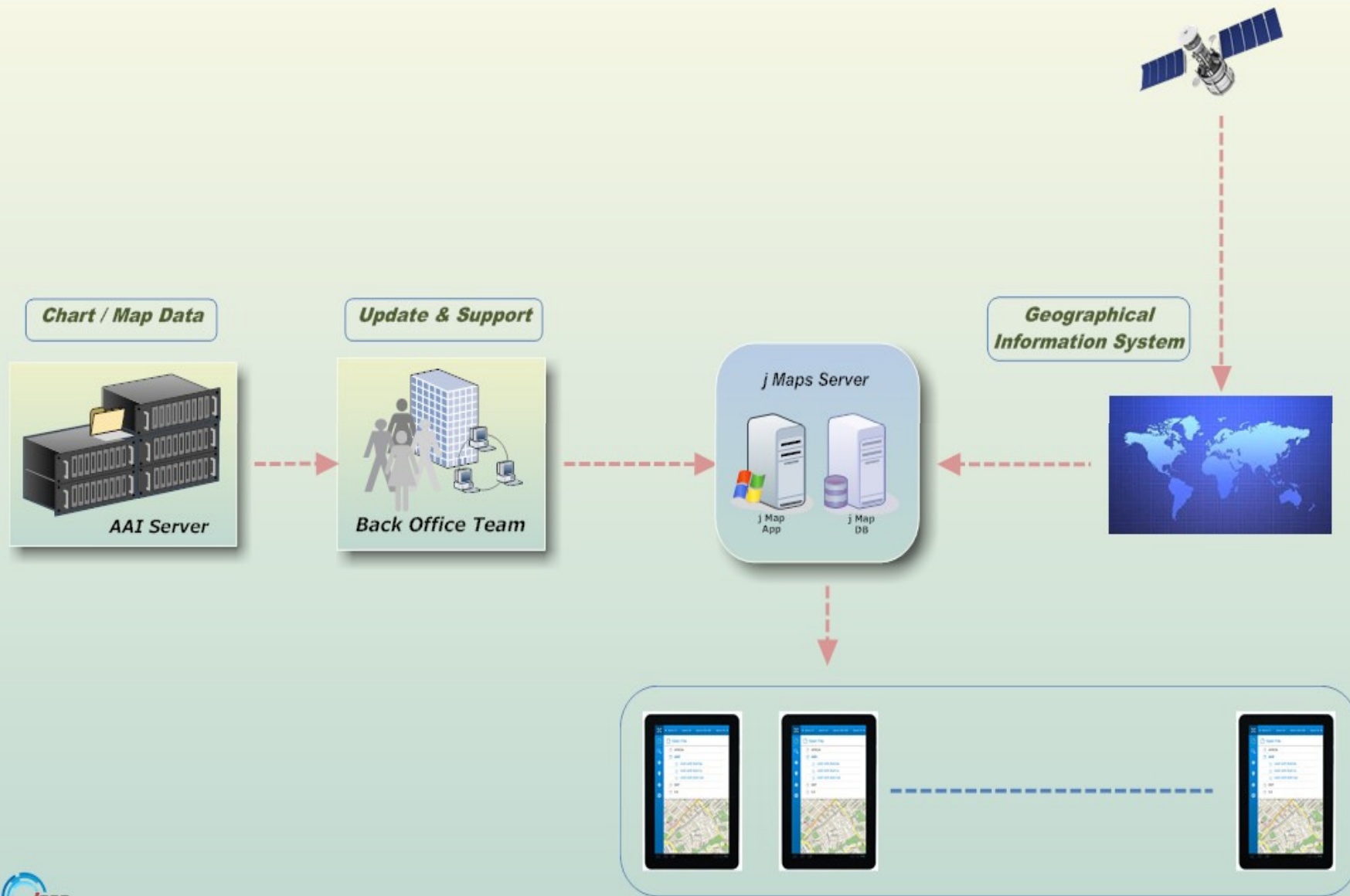
Edit	View	Chart	Aeroways	Airport	Chart Type	No of Chart Files
		Enroute	Enroute	Default	Default	2
		Bell 407 Helicopter Manual	Manuals	Default	Default	1
		Chopper_Kolkata	Maps	Default	Default	1
		APRON31	Airport	I G I Airport New Delhi	Apron	1
		APRON32	Airport	I G I Airport New Delhi	Apron	1
		APRON33A33B	Airport	I G I Airport New Delhi	Apron	1
		APRON34	Airport	I G I Airport New Delhi	Apron	1
		APRON35	Airport	I G I Airport New Delhi	Apron	1



JMaps | Solution | Tablet / Mobile App



JMaps | Solution | Update Procedure



JMaps | Summary & Conclusions

- There is a demand for Spatially referenced Aeronautical Database
- This is an indigenous GIS enabled Aviation Database
- The mobile clients will be auto updated based on standard aviation guidelines at the Desired Frequency
- All this can be achieved with readily available GIS softwares and open public information



- E-AIP of Airports Authority of India
- ICAO Doc 8168, Doc 200-A
- ARINC Database Format Supplement

Questions Please?

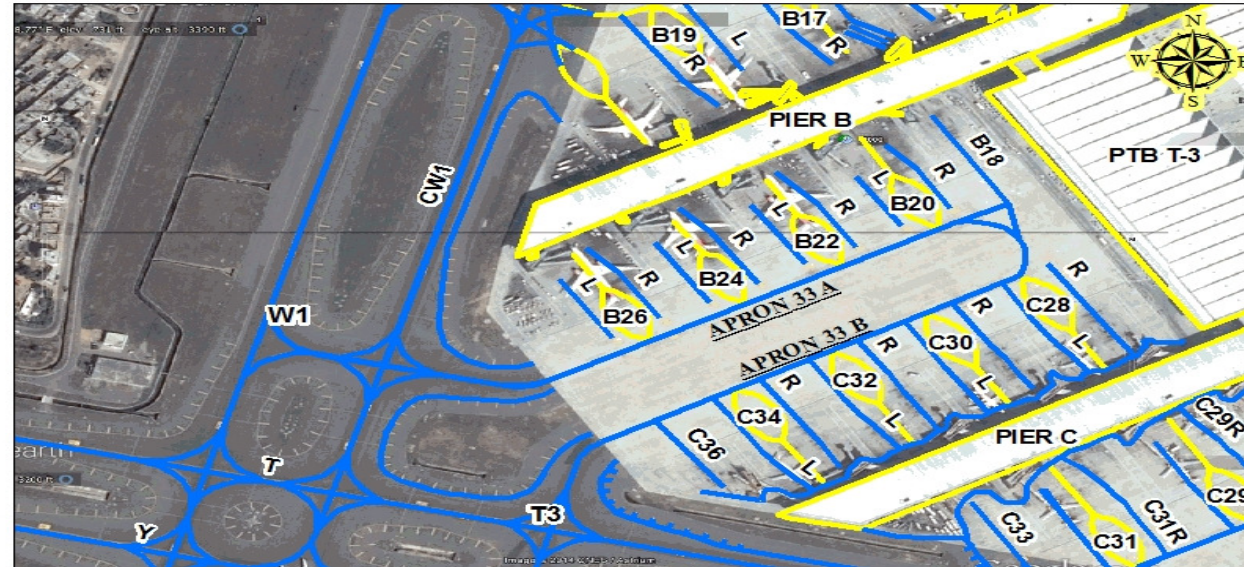


JMaps | Exhibits | T-3 IGI Delhi Parking

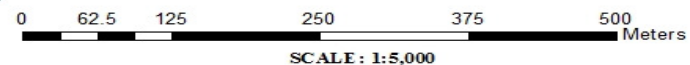
**AIRCRAFT PARKING/
DOCKING CHART- APRON 33**

**TWR 125.85
SMC 121.625**

**IGI AIRPORT
NEW DELHI. INDIA**



**ALL PARKING STANDS ARE POWER IN PUSH AND CONTACT STANDS
PCN FOR ALL PARKING STANDS-93 R/B/W/T
SURFACE CONCRETE**



AIRCRAFT STAND NO.	WGS COORDINATES		TYPE OF AIRCRAFT
B18	28°33'18.73" N	77°04'54.40" E	Code C
B20	28°33'17.74" N	77°04'52.51" E	Code E
B20L	28°33'16.74" N	77°04'52.23" E	Code C
B20R	28°33'17.99" N	77°04'52.82" E	Code C
B22	28°33'16.39" N	77°04'49.89" E	Code E
B22L	28°33'15.38" N	77°04'49.62" E	Code C
B22R	28°33'16.63" N	77°04'50.20" E	Code C
B24	28°33'15.04" N	77°04'47.28" E	Code E
B24L	28°33'14.03" N	77°04'47.00" E	Code C
B24R	28°33'15.28" N	77°04'47.58" E	Code C
B26	28°33'13.68" N	77°04'44.66" E	Code E (Restricted up to B77-300)
B26L	28°33'12.68" N	77°04'44.38" E	Code C
B26R	28°33'13.92" N	77°04'44.96" E	Code C
C28	28°33'09.49" N	77°04'59.17" E	Code E
C28L	28°33'10.50" N	77°04'59.45" E	Code C
C28R	28°33'09.25" N	77°04'58.87" E	Code C

Legend

TAXI PATH

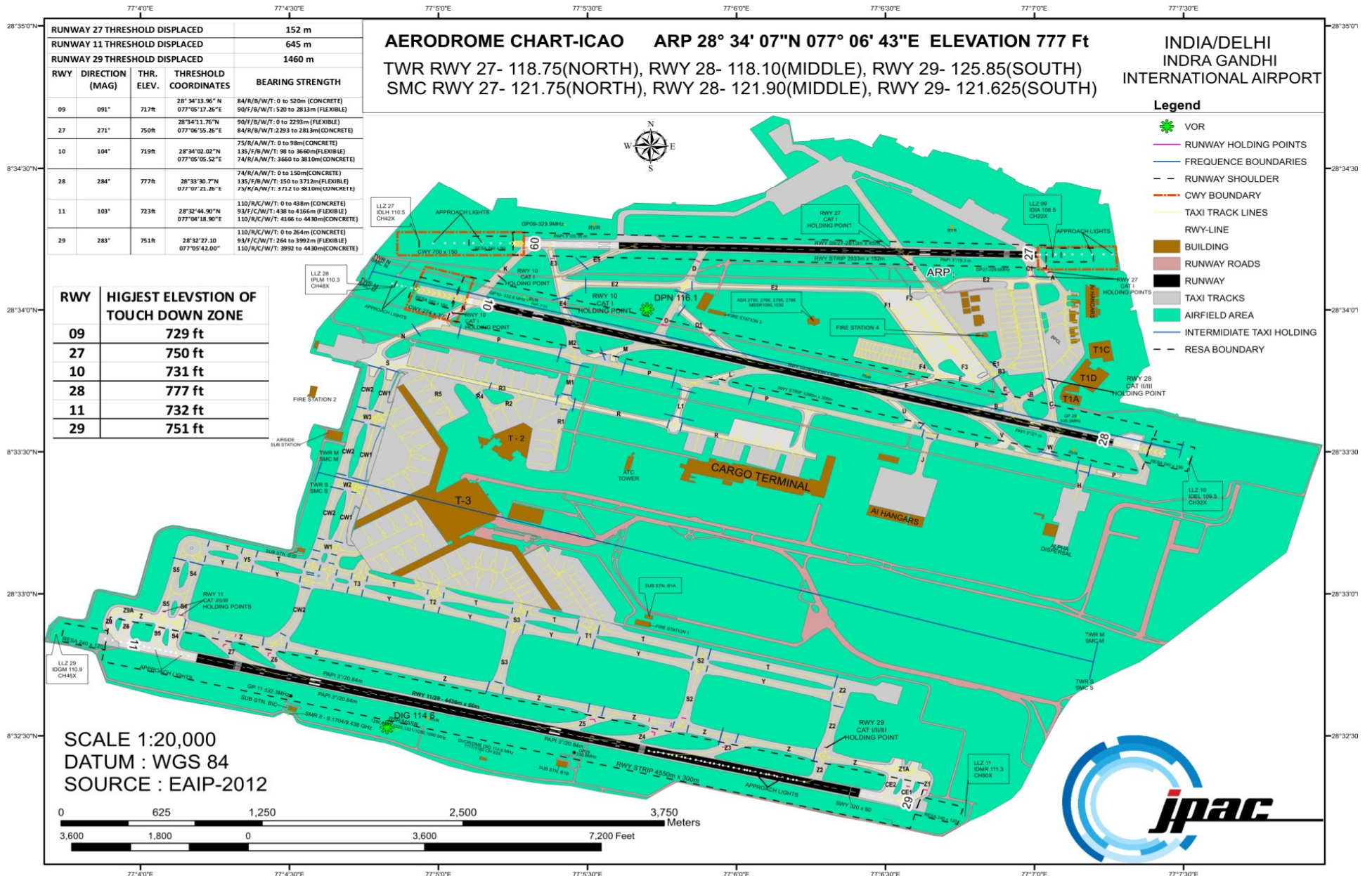
PARKING/ PUSHBACK PATH

AIRCRAFT STAND NO.	WGS COORDINATES		TYPE OF AIRCRAFT
C30	28°33'08.14" N	77°04'56.55" E	Code E
C30L	28°33'09.15" N	77°04'56.83" E	Code C
C30R	28°33'07.90" N	77°04'56.25" E	Code C
C32	28°33'06.79" N	77°04'53.93" E	Code E
C32L	28°33'07.79" N	77°04'54.21" E	Code C
C32R	28°33'06.55" N	77°04'53.63" E	Code C
C34	28°33'05.43" N	77°04'51.31" E	Code E
C34L	28°33'06.44" N	77°04'51.59" E	Code C
C34R	28°33'05.19" N	77°04'51.01" E	Code C
C36	28°33'05.18" N	77°04'48.76" E	Code C

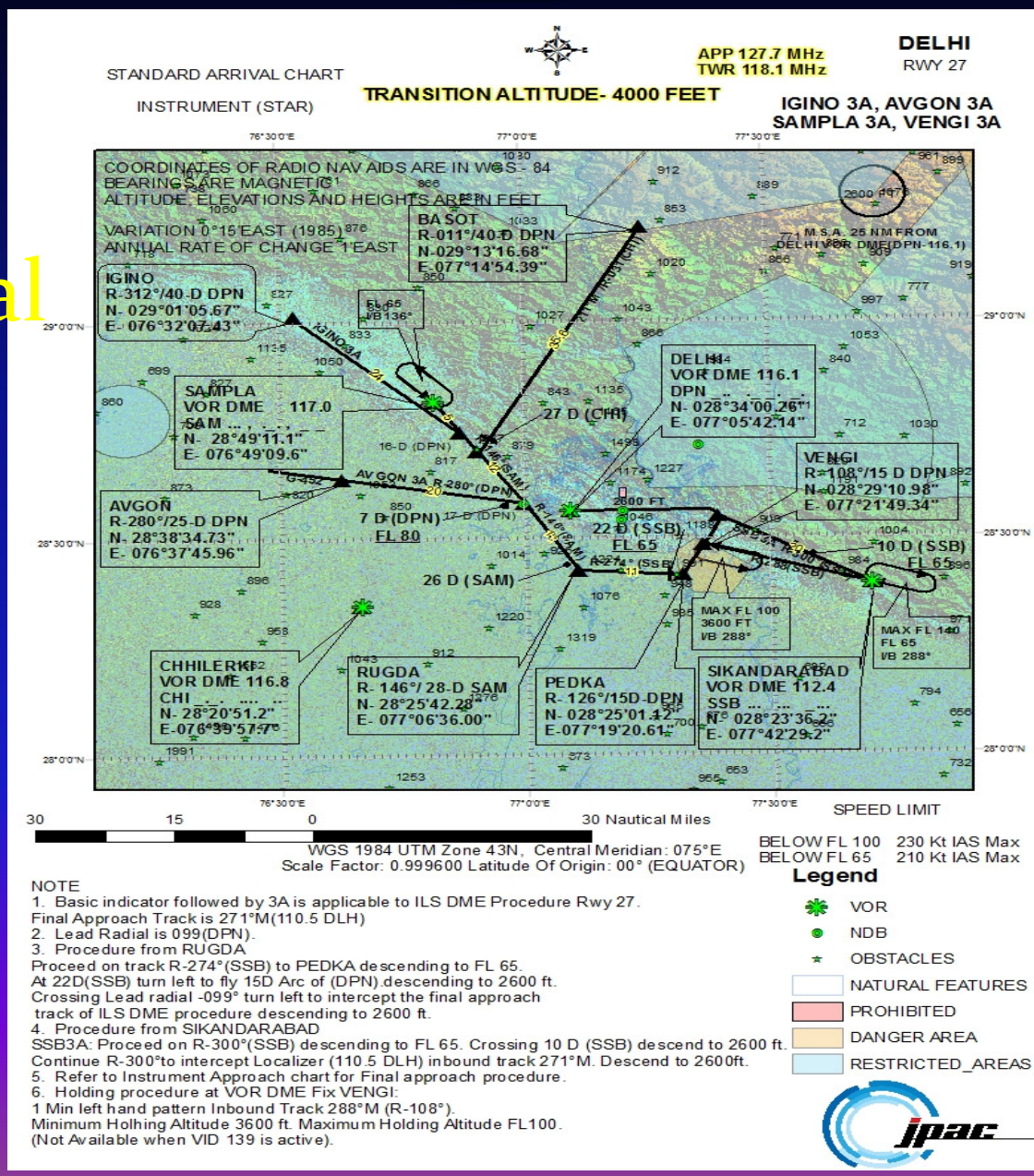
NOTE:

1. AERONAUTICAL GROUND LIGHTS ARE NOT SHOWN ON THIS CHART.
2. TUG DISCONNECT POINTS ARE MARKED ON THE APRON AND NOT SHOWN ON THIS CHART.

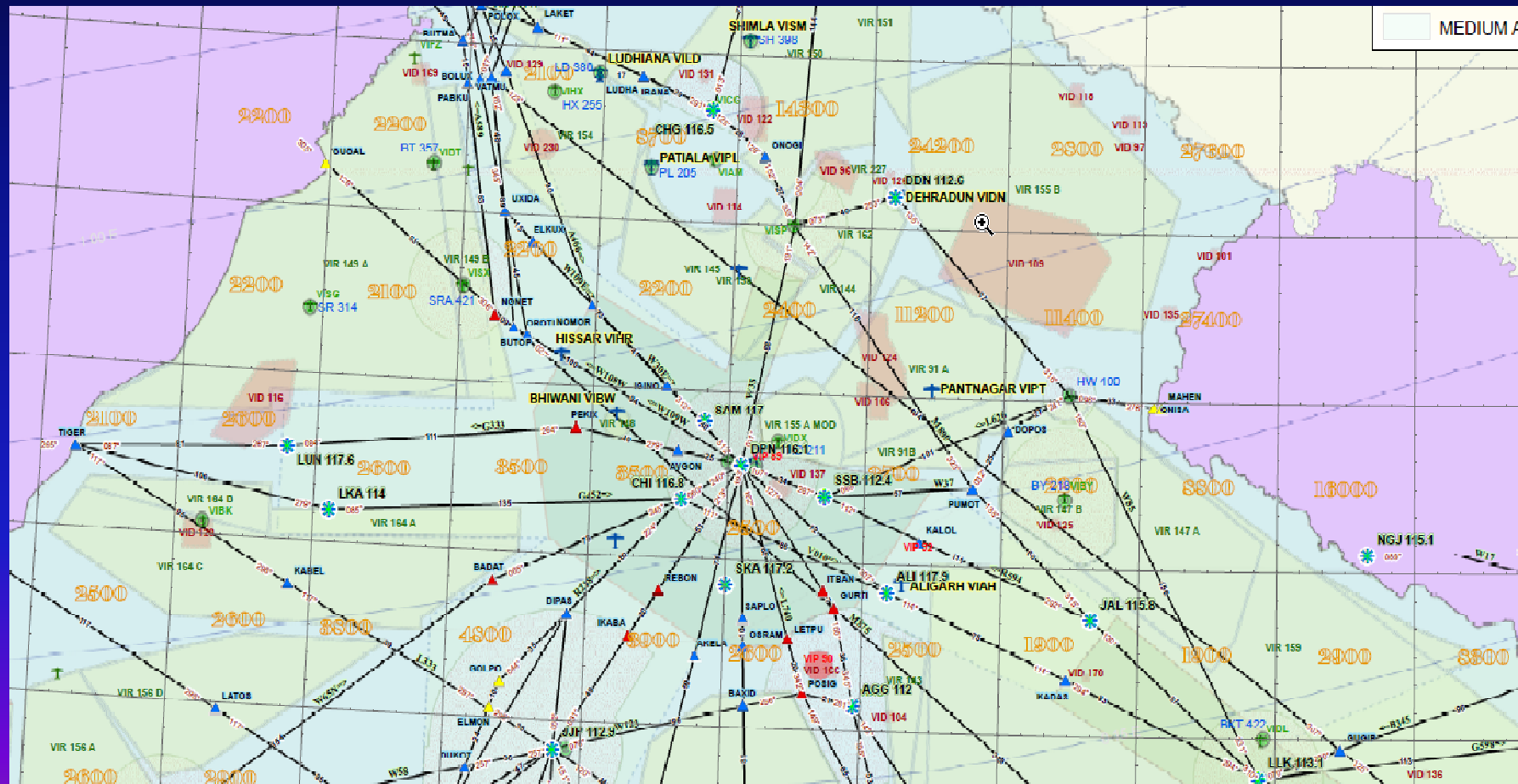


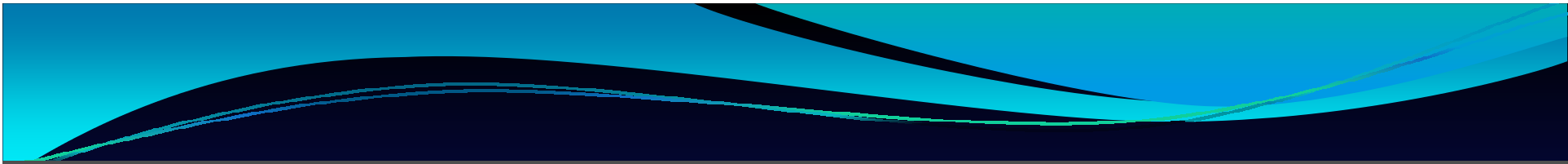


The Standard Instrument Arrival Chart (SID)



Enroute Chart North India





78°24'30"E

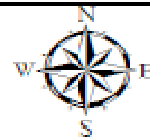
78°25'0"E

78°25'30"E

78°26'0"E

78°26'30"E

78°27'0"E

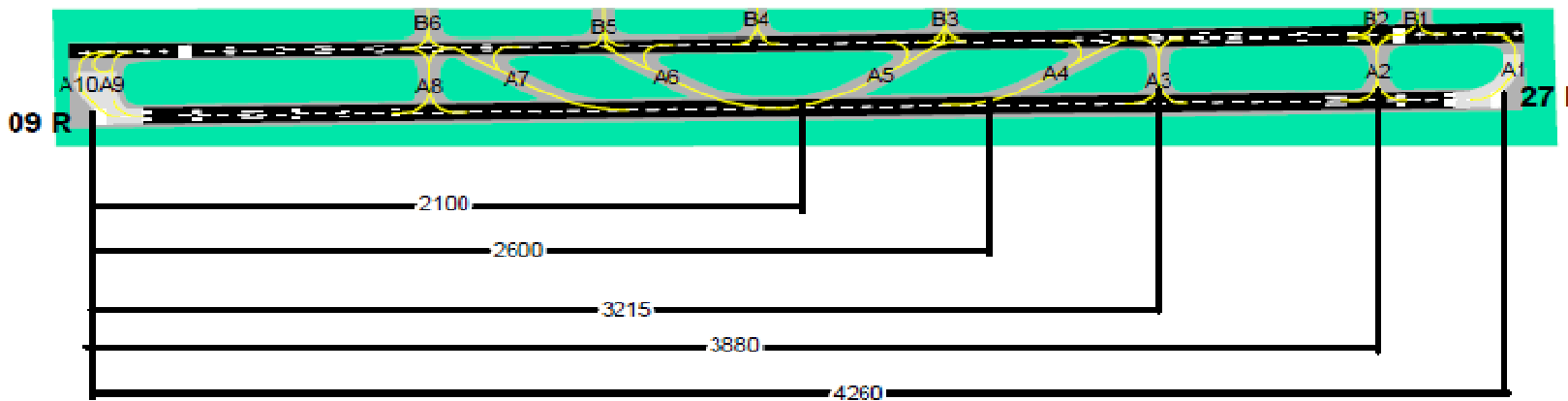


ARRIVAL RUNWAY 09R

LOCATION OF DIFFERENT EXIT TAXIWAYS FROM THRESHOLD

RUNWAY 27L				
EXIT TAXIWAY	A6(RET)	A7(RET)	A8	A9/A10
DISTANCE FROM THRESHOLD (M)	2260	2660	3240	4260
ANGLE OF ENTRY TWY WITH THE RWY IN USE	30°	31°	90°	90°
LENGTH OF TWY (M)	482	482	225	225/282

RET: RAPID EXIT TAXIWAY



Legend

- TAXI TRACK LINE
- RUNWAY
- TAXI TRACK
- AIRFIELD

SCALE : 1:20000
DATUM : WGS 84



78°24'30"E

78°25'0"E

78°25'30"E

78°26'0"E

78°26'30"E

78°27'0"E

17°14'30"N

17°14'30"

17°14'07"

17°14'07"

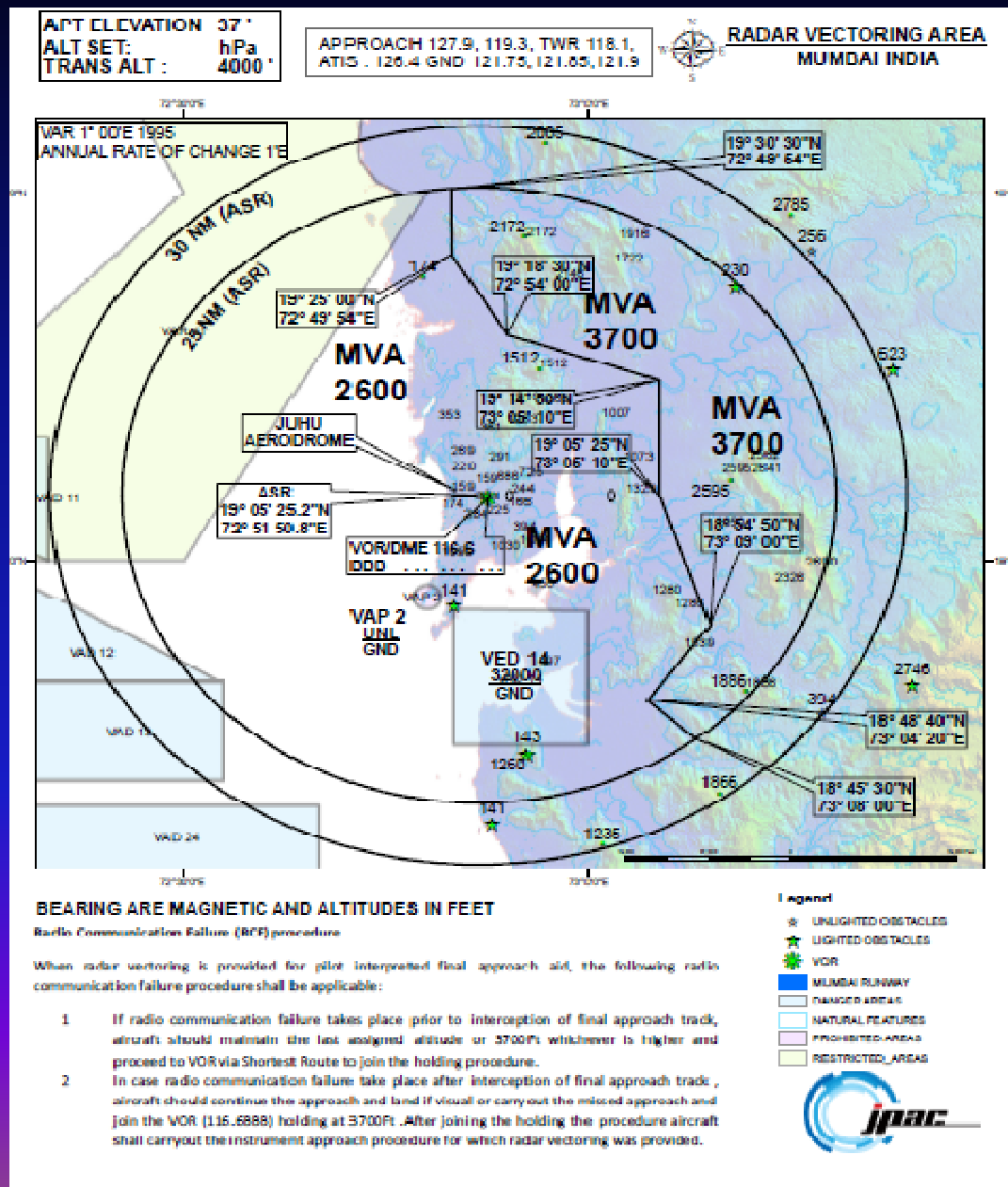
17°13'30"

17°13'30"

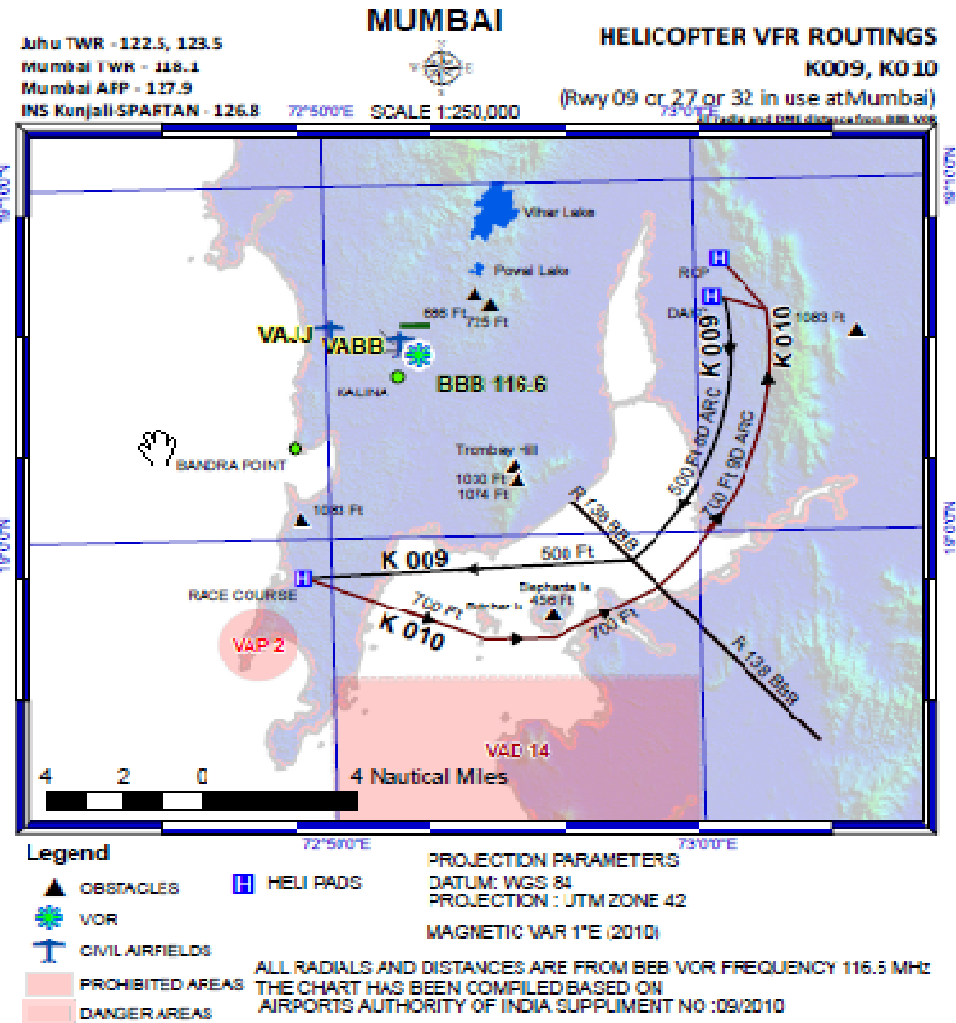
17°13'07"

17°13'07"

The Radar Altitude Chart



A typical helicopter route chart at Mumbai Airport



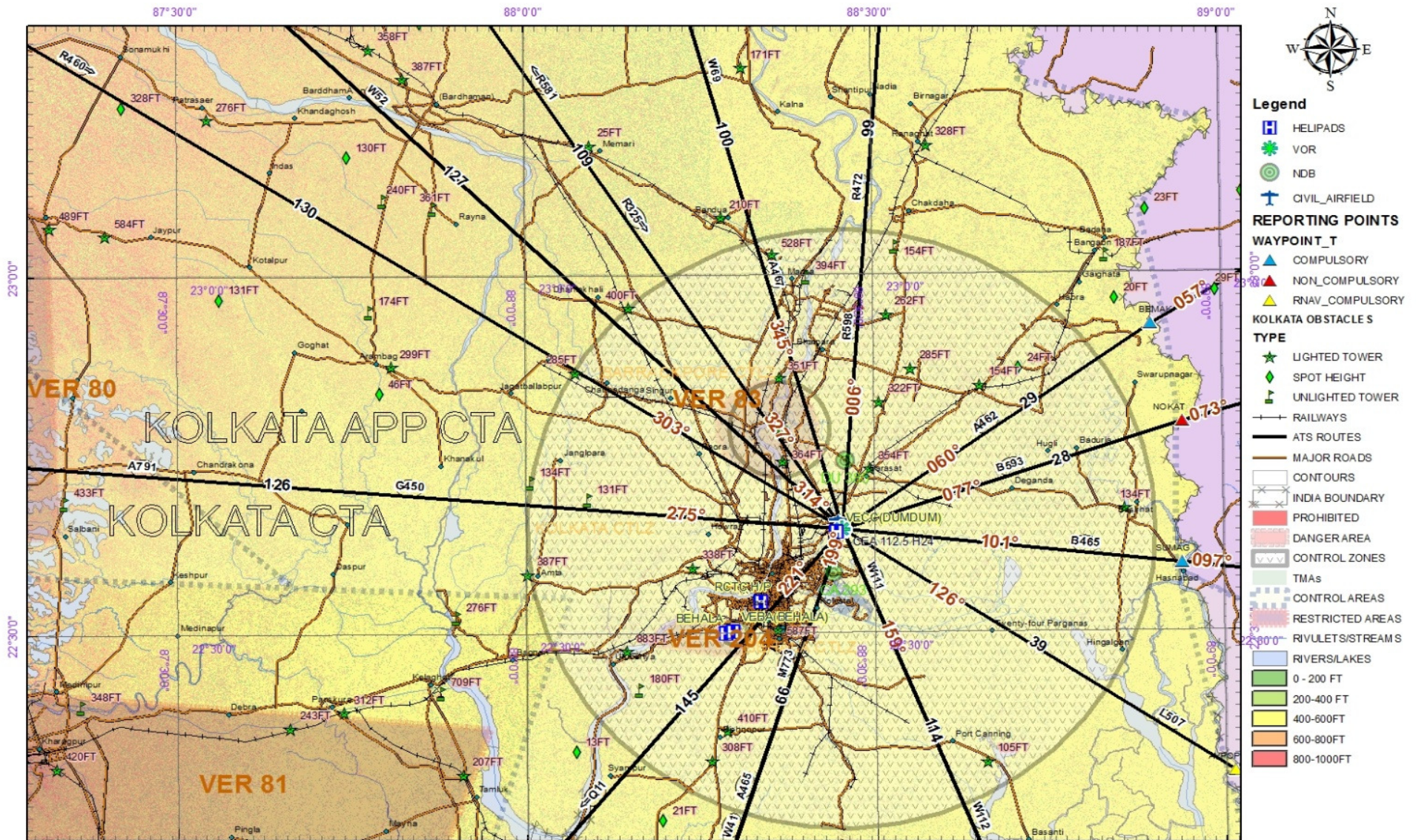
Helicopters to relay position and obtain traffic information from INS Kunjali, callign "SPARTAN" on 126.8MHz.

K009 - (DAKC Heliport to Mahalaxmi Racecourse)
Climb to 500 Ft AGL and join 8D arc to proceed south. After crossing R-138, turn right and proceed to Mahalaxmi racecourse keeping Trombay Hill to the right and Elephanta Island and Butcher Island to the left.

K010 - (Mahalaxmi Racecourse to DAKC Heliport)
Climb 700 Ft AGL and proceed initially south-east; and then north-east keeping Butcher Island and Elephanta Island to the left, crossing R-138 (BBB), turn left and join 9D arc and proceed to DAKC heliport.

Note- Any deviation to avoid obstacle, traffic or wake turbulence shall normally be in the direction away from the Mumbai airport. If unable, any deviation towards Mumbai airport shall be in coordination with Mumbai approach.

JMaps | Exhibits | Helicopter Maps



- Legend**
- HELIPADS
 - VOR
 - NDB
 - CIVIL AIRFIELD
- REPORTING POINTS**
- WAYPOINT_T
 - COMPULSORY
 - NON_COMPULSORY
 - RNAV_COMPULSORY
- KOLKATA OBSTACLE S**
- LIGHTED TOWER
 - SPOT HEIGHT
 - UNLIGHTED TOWER
- TYPE**
- RAILWAYS
 - ATS ROUTES
 - MAJOR ROADS
 - CONTOURS
 - INDIA BOUNDARY
 - PROHIBITED
 - DANGER AREA
 - CONTROL ZONES
 - TMA
 - CONTROL AREAS
 - RESTRICTED AREAS
 - RIVULETS/STREAM S
 - RIVERS/LAKES
 - 0 - 200 FT
 - 200-400 FT
 - 400-600 FT
 - 600-800 FT
 - 800-1000 FT

10 5 0 10 Nautical Miles

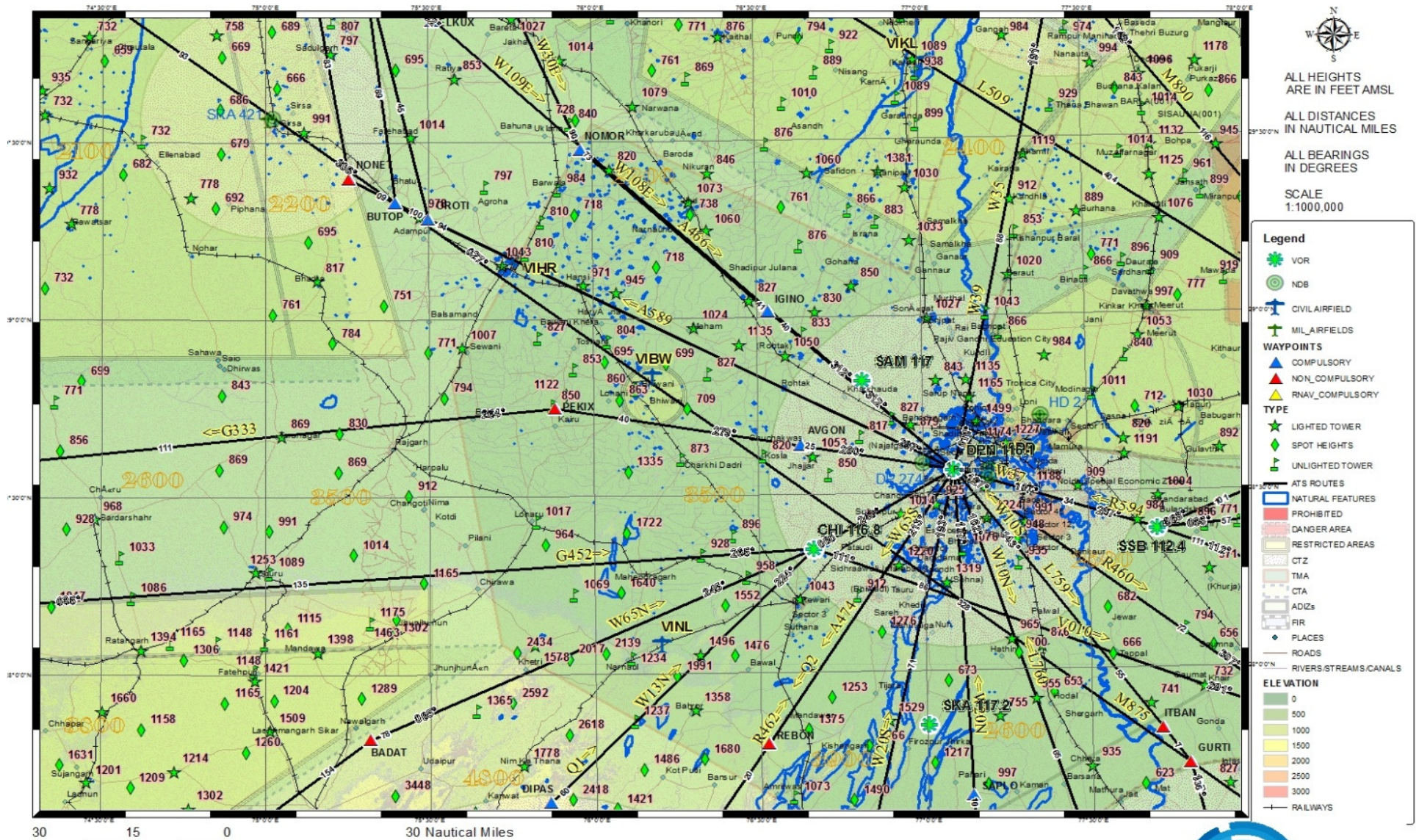
PROJECTION : UTM ZONE 46 FOR INDIA
 DATUM: WGS 84

MAP COMPILED AS SAMPLE FOR USE IN ROTARY WING FLYING
 COMPILED BY JPAC TECHNOLOGIES PVT LTD NOIDA

SCALE OF MAP : 1:500,000 : SCALE FACTOR: 1:0.9996
 ELEVATION AND TOPOGRAPHIC DATA COMPILED FROM OPEN SOURCES
 CAUTION: THE POLITICAL BOUNDARIES ARE APPROXIMATE. PLEASE CONTACT STATE AUTHORITIES FOR ACCURATE DATA.
 THE AERONAUTICAL DATA COMPILED FROM E-AIP PUBLISHED BY AAI



IMaps | Exhibits | Fixed Wing Aircraft Map



DATUM: WGS 84
 PROJECTION: UTM_Zone_43N False Easting: 500000.000000
 False Northing: 0.000000 Central Meridian: 75.000000
 Scale Factor: 0.999600 Latitude Of Origin: 0.000000

MAP COMPILED AS SAMPLE FOR USE IN FIXED WING FLYING
 COMPILET AT JPAC TECHNOLOGIES PVT LTD NOIDA
 ELEVATION AND TOPOGRAPHICAL DATA COMPILED FROM OPENSOURCES
 CAUTION THE POLITICAL BOUNDARIES ARE APPROXIMATE
 PLEASE CONTACT STATE AUTHORITIES FOR ACCURATE DATA
 THE AERONAUTICAL DATA COMPILED FROM E AIP PUBLISHED BY AAI AND UPDATED UP TO 06 JUN 14



- Safety

- Facilitates selection of optimum routes and location of new geography
- Facilitates in project Safety Evaluation and Mitigation plan
- With integrated Satellite Image within the Charts / Maps provides better visibility

- Engineering

- Automated procedure for Charts / Maps update (Push Update)
- Single Sign-on
- Elimination of redundant paper work

- Data Management

- Integrated view of entire Charts/ Maps
 - Work feasibility
 - Ease of Operation
- Seamless charts updation between Web Server and Tablet/Mobile environment
- Faster availability of updated charts/maps

- Planning

- Charts / Maps availability resulting rapid critical decision
- Efficient trip planning with minimal efforts



IPAC Technologies Pvt. Ltd | Few Clients

70+
Projects

IPAC

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