GEOCONSULTANCY

Groundwater & Mineral Investigation

APPROVED BY THE GOVT. OF A.P

N.KRISHNA SASTRY,
EXECUTIVE GEOLOGIST & RQP

OPP. to, SSN Degree College,
Besides Syndicate Bank Lane, MM Road
ONGOLE, PRAKASAM DISTRICT IN A.P.
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QUOTATION FOR SP SCAN SURVEY SERVICES

TO
SRI JAGARLAMUDI SAI S/O SURESH BABU, ADVOCATE
ONGOLE
CONTACT NO. 75692 24444 & 99480 50947

SUBJECT:
Quotation for Geophysical Self-Potential (SP) Scan Survey for Mineral Exploration

SCOPE OF WORK:
*Conduct SP scan survey to detect hidden mineral deposits at subsurface level.
*Pinpoint testing with minimum 12 testing points per site/Quarry Lease (QL) area
(+/ - Depends on size of site)
*Each test includes data collection, analysis, and report with source conformity recommendations.
*Report delivery with scientific and systematic field facts.

Description	Quantity (Min.)	Unit Rate (₹)	Total Amount (₹)
SP Scan Survey Test Point	12 points/site	15,000	1,80, 000*
Transportation, Boarding & Lodging	As applicable	Extra	To be borne by client

*Including Report preparation and submition of soft copy / mail / what's app posting only

Payment Terms:

- 50% advance payment on work order confirmation.
- Remaining 50% due on or before completion of fieldwork.

Conditions:

- Minimum 12 testing points per site; could vary per site size.
- Transportation and accommodation costs excluded, payable separately by client.
- Rates exclusive of taxes.
- Survey conducted with scientific rigor and result-oriented approach.
- Field assistance workers 3 no's with accessories in field requirements and etc.,

Declaration:
"Our service is systematic, scientific, with field facts report, aiming for result-oriented output as far as practicable."

EXECUTIVE GEOLOGIST & RQP

N. KRISHNASASTRI
DT.06.06.2025

APPRAISAL REPORT ON GRANITE DEPOSIT

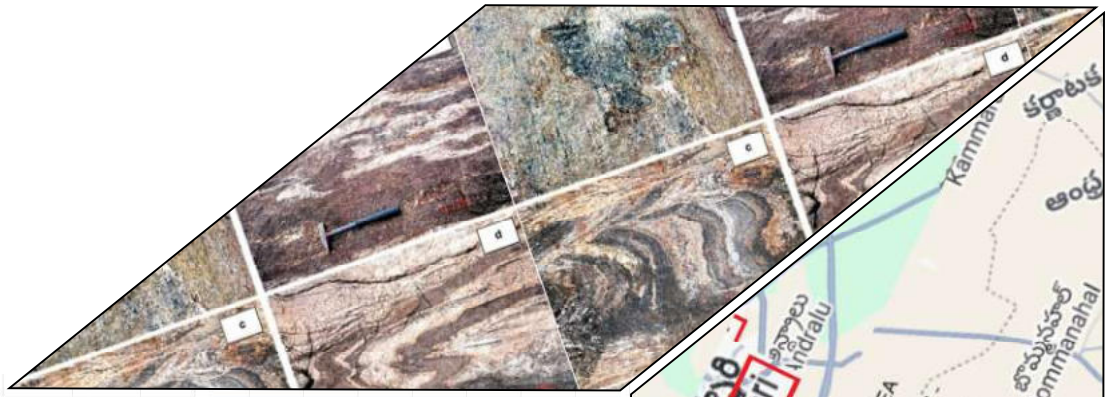
GEOPHYSICAL ELECTRICAL TECHNOLOGY- SCANNING OF SPONTANEOUS POTENTIAL METHOD- TO FIND OUT HIDDEN GRANITE DEPOSIT IN SUBSURFACE DEPTH LEVEL SCANNING SURVEY REPORT

OVER AN EXTENT OF 12.89 + 7.03 ACRES, IN SY.NO. 212/B & 207/B OF
PULAKURTHY VILLAGE, DANDINA HIRE HALLI MANDAL, ANANTHAPURAM DISTRICT, AP.

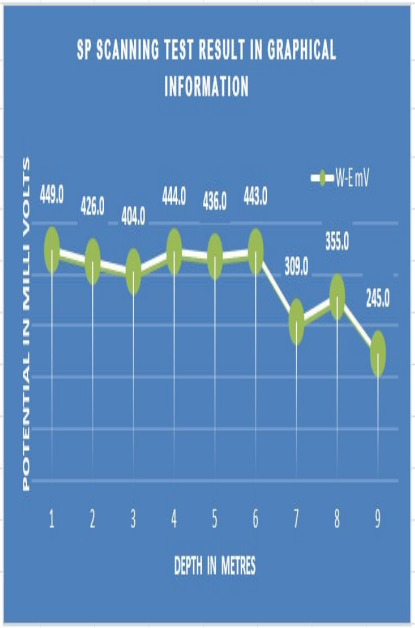
IN FAVOUR OF

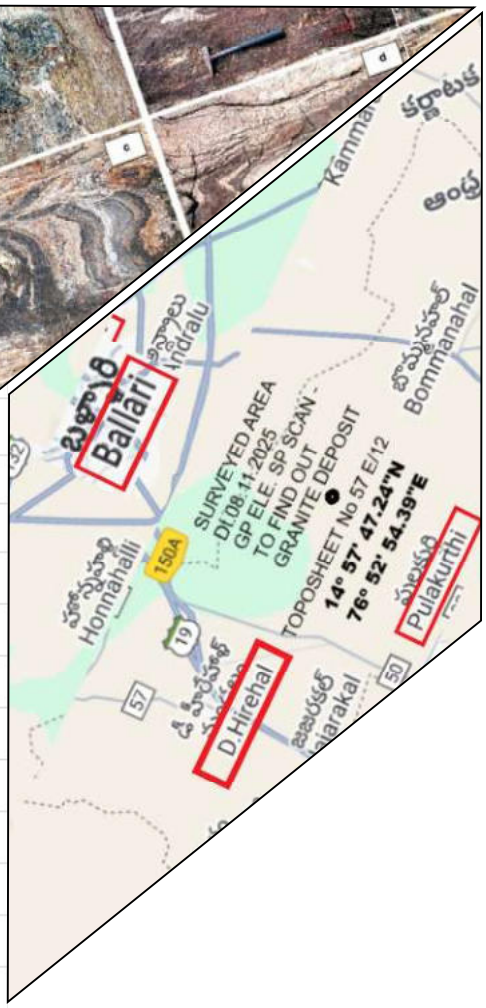
SRI JAGARLAMUDI SAI S/O SURESH BABU, ADVOCATE

CONTACTS: **75692 24444 & 99480 50947**



TESTING POINT - BW SP1		
SL	Distance	W-E
No	Mts	mV
1	10	449.0
2	30	426.0
3	40	404.0
4	50	444.0
5	70	436.0
6	90	443.0
7	110	309.0
8	130	355.0
9	150	245.0





PREPARED BY

N. KRISHNASASTRY,

EXECUTIVE GEOLOGIST & RQP

RQP. DMG. HYD. 069/ 2K3 &
RQP. GWD. HYD.AP080031617/2021

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GEOPHYSICAL ELECTRICAL EXPLORATION OF SPONTANEOUS POTENTIAL METHOD- TO FIND OUT HIDDEN GRANITE DEPOSIT IN SUBSURFACE DEPTH LEVEL SCANNING SURVEY REPORT OVER AN EXTENT OF 12.89 + 7.03 ACRES, IN SY.NO.212/B & 207/B OF PULAKURTHY VILLAGE, DANDINA HIRE HALLU MANDAL, ANANTHAPURAM DISTRICT, AP.

IN FAVOUR OF

SRI JAGARLAMUDI SAI S/O SURESH BABU, ADVACATE, ONGOLE

1. INTRODUCTION

A brief predictive with field facts report on Granite deposit, based on geological & in and around the existing quarries experience, result oriented way- to find out hidden Granite deposit, in sub-surface depth level SP scanning survey report. The investigation carried out on dated 08.11.2025, proposed Quarry Lease area over an extent of **12.89 + 7.03** Acres in Sy. Nos. **212/B & 207/B** of Pulakurthy Village, (near Ballary) Dandina Hire Hallu Mandal, Ananthapuram District, AP. The land comes under documented registered patta lands which belongs to Sri Jagarlamudi Sai S/O Suresh, Advacate, Ongole

Location of the subject area is situated NE 2.5 KM of the **Pulakurthy** Village (14° 57' 47.24"N, 76° 52' 54.32"E), is about SW 5.0 KM radial distance (20 KM by road) from the Bellarry head quarters. Topographically, the subject area comes under Survey of India Toposheet No. 57 E/12 and is 1:50K scaled map. The subject area is located at geo co ordinates i.e. North Latitude: 14° 59' 14.60" and East Longitude: 76° 53' 33.25".

2. GEOLOGY & EXPLORATION

REGIONAL GEOLOGY.

The regional geology of Pulakurthy Village, D. Hire Hal Mandal, near Bellary in Anantapur District, Andhra Pradesh, is mainly influenced by the geological features of the Rayalaseema Plateau, which forms part of the extensive Deccan Plateau. The area is underlain predominantly by granitic gneiss formations, which are typically gray in color and fine to medium grained. The terrain is rugged and undulating, with moderate slopes generally trending in the NNW–SSE direction. The surface layer is covered by gravel to a depth of about 1.5 to 2.0 meters.

The district geology generally includes an assemblage of Archaean crystalline rocks such as granitic gneiss and granulite suites (including khondalites), along with Proterozoic sedimentary formations. The Rayalseema plateau is known for its weathered crystalline and metamorphic rocks, predominantly granitic types, and red soils derived from iron diffusion. The mining leases and quarry operations in this area focus on road metal, building stone, and gravel, exploiting these granitic gneiss formations.

Notably, the region around Ananthapuram also lies close to greenstone belts such as the Ramagiri Greenstone Belt, known for basic to ultramafic volcanic rocks and mineralization including gold, which reflects a complex geological setting in the wider district area

.

a summary in table format regarding the regional and local geology of Pulakurthy near Bellary, based on recent survey GP ELE. SP SCANNING and its analytical field report references.

Regional Geology Table

Feature	Description
Major Rocks	Schists, Conglomerate, Basalt, laterite, limestone, shale, sandstone
Key Minerals	Gold, Iron Ore, Diamond, Barytes, Steatite
Geological Structures	Granite intrusive bodies, gneissic domes, quartzite ridges
Surrounding Formations	Khondalite complex, charnockite, hornblend-biotite gneiss
Associated Districts	Bellary, Ananthapuramu, adjoining Karnataka belt
Regional Stratigraphy	Archean-Proterozoic basement with overlain sedimentaries and volcanic rocks

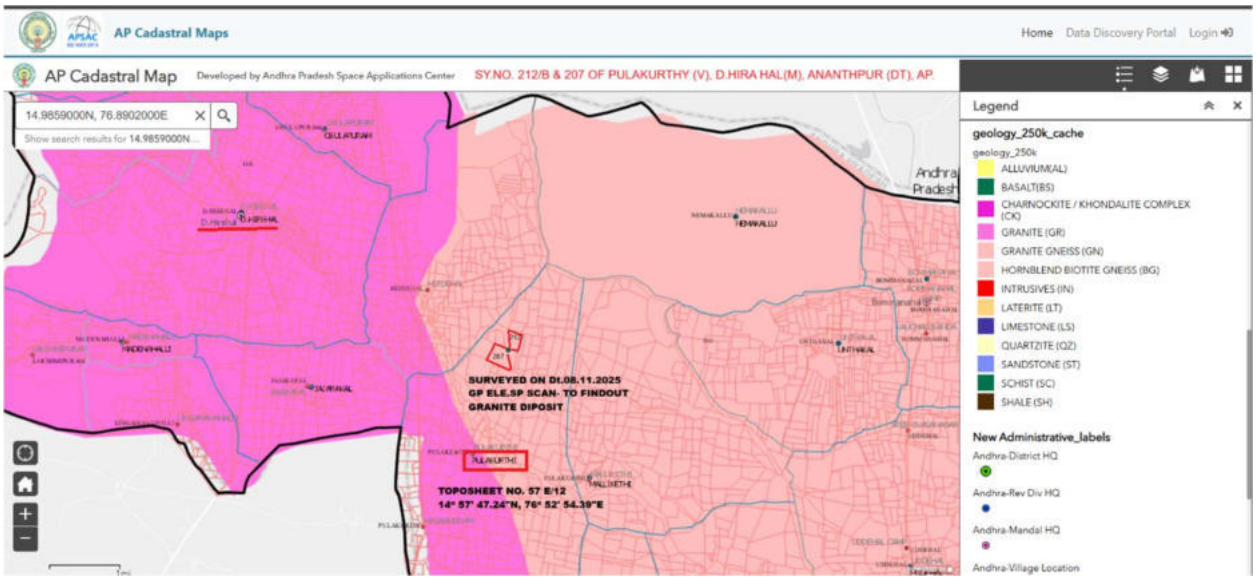
LOCAL GEOLOGY

Pulakurthy Village is located in D. Hirehal Mandal of Anantapur District, Andhra Pradesh, near Bellary (Karnataka), about 26 kilometers away. The village area is approximately 4392 hectares with predominantly agricultural land, mostly unirrigated. The local geology of Anantapur district, including D. Hirehal Mandal, is characterized mainly by crystalline rocks where about 92% of the area is underlain by Archaean to Proterozoic age rocks such as banded gneissic complex (66%) and granites (21%). The northeastern part of the district has about 8% area under Proterozoic metasediments of the Cuddapah Supergroup, mainly shales and limestone.

The granitic and gneissic rocks form the primary hydrogeological formations. Fractures and weathered zones in these rocks provide groundwater storage, with fractures mostly within 100 meters depth. The shales and limestones from the Cuddapah group in the northeastern parts contribute to differing hydrogeological conditions, with fractures found up to depths around 188 meters.

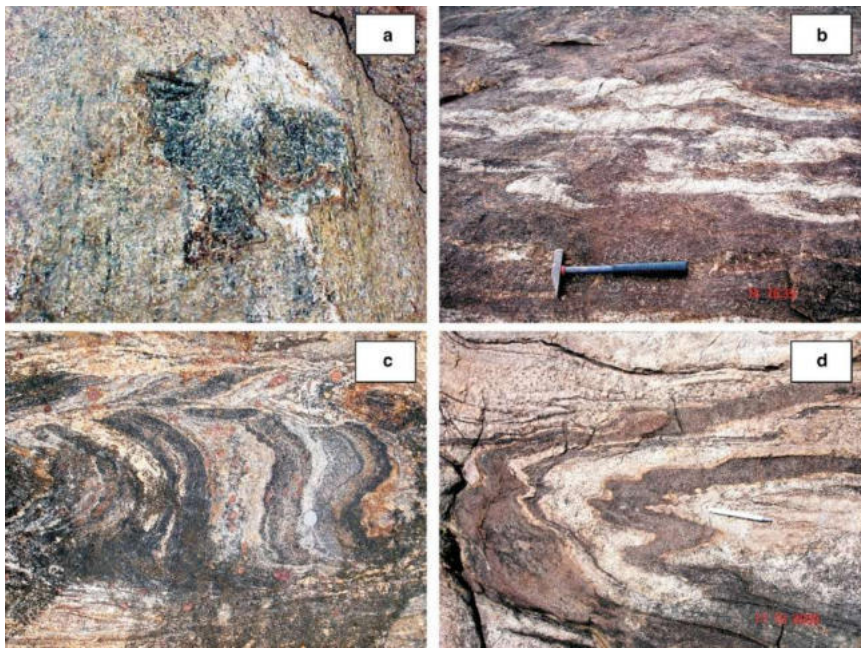
Soils in the area are a mix of clayey skeletal soils, loamy soils, and montmorillonitic types. The groundwater extraction is mainly from boreholes drilled up to 300 meters in granitic rock formations, with yields varying widely depending on fracturing and weathering. This geological setting influences the availability of groundwater and irrigation capability in Pulakurthy and surrounding areas.

In summary, Pulakurthy's local geology is dominantly crystalline rock basement of gneisses and granites with minor deposits of sedimentary Cuddapah group rocks to the northeast, supporting a mostly agriculture-based land use dependent on limited irrigation from borewells tapping fractured zones in rocks.



Local Geology Table (Pulakurthy Vicinity)	
Feature	Description
Primary Rock	Granite (massive, grey, and pink varieties)
Secondary Rocks	Granite gneiss, quartzite, phyllite, shale, schist
Land Extent	Sy.No. 212B – 12.89 acres, Sy.No. 207B – 7.03 acres
GPS Coordinates	14.9859000N, 76.8902000E
Nearby Landmarks	D Hire Hall Mandal, main Bellary district, Ananthapuramu border
Geological Features	Granite outcrops, shallow regolith, laterite cap locally, mapped mineral veins
Survey Methods	Geophysical SP and resistivity scans; confirmed granite at surveyed depths
This data synthesizes the mapped geology and mineral presence, confirming the Pulakurthy region as a granite-rich area with typical southern Indian crystalline	

Geological map and rock types around Pulakurthi village



The geological map and rock types around Pulakurthi Village in D. Hirehal Mandal, Anantapur district are dominated by granitic gneiss formations. Specifically, the area contains:

- Granitic gneiss as the primary rock type exposed, which is grayish in color, fine to medium-grained with a phaneritic texture.
- These rocks compose the main building stone and road metal resource mined locally.

- Principal minerals in the granitic gneiss include quartz and feldspar, with secondary constituents such as mica, amphiboles, and pyroxene.
- The terrain has gravel cover soil from 1.5 to 2 meters depth above the bedrock.
- The granitic gneiss shows multiple sets of joints and fractures but lacks major faults or folds, indicating relatively stable regional geology.
- The rock is hard and compact, suitable for quarrying as building stone and road metal.
- The geological setting features relatively flat terrain with a moderate gradient sloping northeast.

Overall, the geological character for Pulakurthi village vicinity is crystalline basement rocks of granitic gneiss with minor soil and gravel cover, representative of the broader Archaean-Proterozoic basement complex of the Anantapur region.

This summary is based on detailed mining lease reports and regional geological data for the area around Pulakurthy

The quality of aggregates from local quarries around Pulakurthi village is directly influenced by the types of rocks extracted and their geological properties: Rock Type: Crystalline rocks like granitic gneiss, dominant around Pulakurthi, generally produce high-strength aggregates due to their hardness and mineral composition (quartz, feldspar). Igneous and metamorphic rocks typically yield durable and strong aggregates suitable for construction and road building. Mineral Composition: High silica content in rocks like granite and gneiss improves hardness and abrasion resistance. Minerals such as mica and amphiboles in minor amounts may affect workability but generally do not degrade aggregate quality. Rock Texture and Fractures: Aggregates from fresh, unweathered, dense rock with minimal microfractures exhibit better strength and durability. Weathered or highly fractured rocks lead to weaker, less durable aggregates and more fines after crushing. Particle Shape: Crushing granitic gneiss tends to produce angular, cubical aggregates which have superior interlocking ability and shear resistance in pavements and concrete. Flaky or elongated particles, often from softer rocks, reduce aggregate quality.

3. GEOPHYSICAL ELECTRICAL TECHNOLOGY AS SELF-POTENTIAL SCANNING EXPLORATION METHODOLOGY

Geophysical Electrical Resistivity Technology- Spontaneous Potential Scanning Method - to study of subsurface Granite deposit formations either Horjantal or vertical (to find out hidden Granite):

It is the subsurface investigation carried out as dipole method (One stable and another one is moving electrodes). In this process, collecting field data with the aid of RESISTIVITY

METER (Model DDR-2 made by IGIS of geo sensors, Hyderabad) mainly vertical study of subsurface litho layers and its graphical representation in between Horizontals distance denotes for depth in Meters VS variation of million Volts of potential properties and its results as anomalies denotes target of mineral and its degree of strctures.. By the practice and experience of exploration will give good results.

Spontaneous-potential or self potential

means one of the geophysical electrical surveying methods refers to used as electrical anomalies in the ground electrical resistivity exploration responses of the spontaneous potential (SP). The Non- Polarized electrodes were carried out with different altitudes and electrode spacing in the field. The aim of the exploration was to obtain characteristic signatures that may be diagnostic of similar geological targets.

Data were received across the mineral zone and the obtained data were used to generate graphs as " depth in Mts against the Potential in mV ". The results denote SP profiles delineate the electrical resistivity giving in the subject area, information on the magnitude and direction of inclination, and quantitative estimation of the depth of burial. It is primarily used in mineral exploration, groundwater source selection surveys, archaeological prospection and basic knowledge for oil & gas presence. Streaming-potential values are varying due to dissolved minerals or hydrocarbons moving in the ground as an electrolyte. Variation in SP values for each new spacing of electrode.

Result and discussion of application

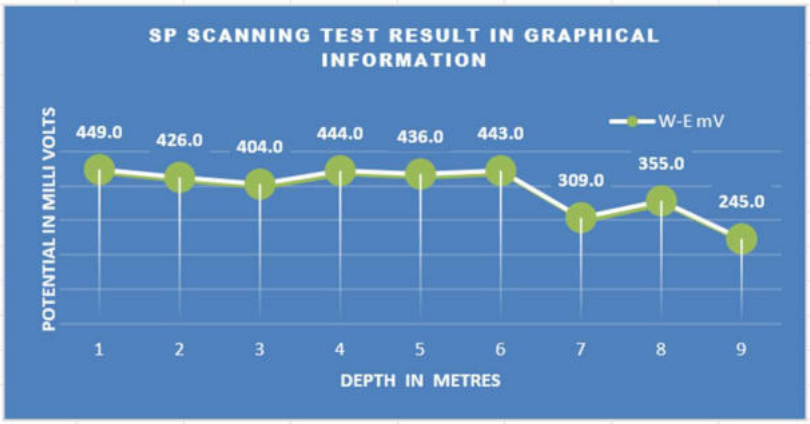
The field data denotes in survey depth in meters below ground level and observed potential in Milli Volts obtained from the investigation. SP values of ground with varies in the observed potential values and its change each new spacing of electrode which gives an idea regarding the presence of aim / target (Quartz or ground water structural information, archaeological prospection and development of hydrocarbons as oil & gas reconnaissance survey) result indicates as an anomaly of SP method. Most commonly, *SP* used for shallow investigations, from characterizing sacrificial materials to investigating resistivity down to depths as great as 1 to 2 km, although greater depths of investigation are possible with some techniques and under some conditions.

In this process subsurface lithology and target mineral will give up synthesizing the observed data. The data collection with the aid of Copper rods with charged once or porous spots

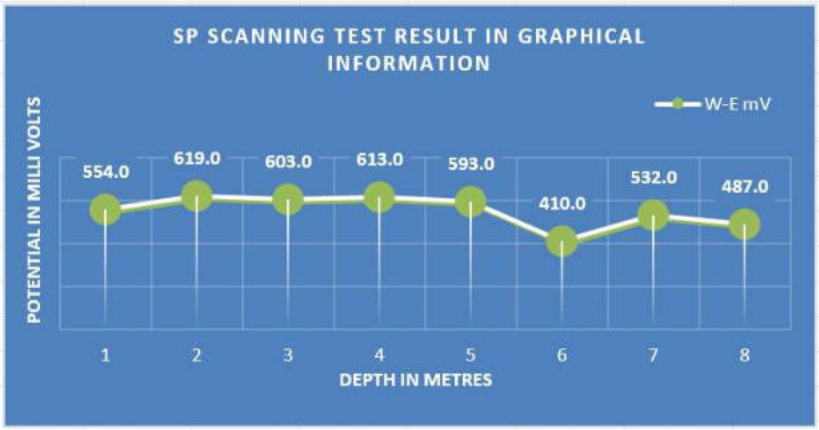
either saturated copper sulphate or activated carbon fillings. Increasing the electrode separation horizontal means depth of below ground level potential is increased. Maximum electrode separation is 150 M distance i.e. the depth of investigation. The survey have been conducted 11 no of pin point of SP Scanning tasts carried out in the subject area . In this subject area do not have any out crops of the granite body outcrops evidence in field except contaminated white colour boulders rock one or 2 outcrops observed. All the 11 No. of pinpoint testing locations as well land boundary stones also demarcated with geo co ordinates with aid of Garmin "etrax 20" Hand Held GPS System with WGS - 84 Datum. All the information shown in related graphs & resulted tables. (refer in Annexure)

GEOPHYSICAL ELECTRICAL PROSPECTING METHOD AS SELF POTENTIAL OR SPONTANEOUS POTENTIAL SURVEY & ITS GRAPHICAL DEPTH VS MILLI VOLTS INFORMATION

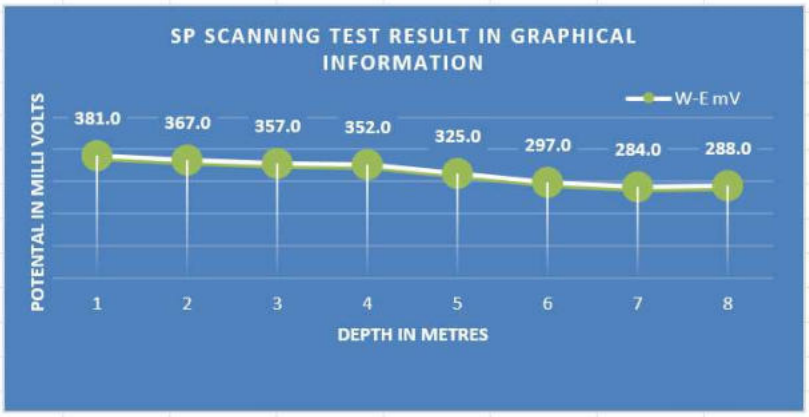
TESTING POINT - BW SP1		
SL No	Distance Mts	W-E mV
1	10	449.0
2	30	426.0
3	40	404.0
4	50	444.0
5	70	436.0
6	90	443.0
7	110	309.0
8	130	355.0
9	150	245.0



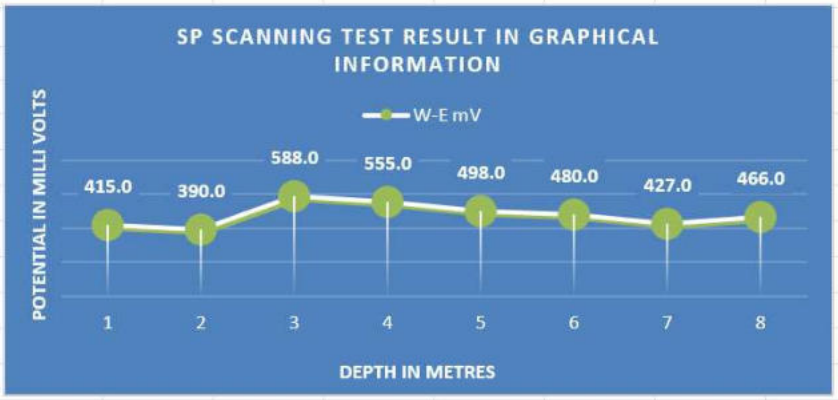
TESTING POINT - BW SP2		
SL No	Distance Mts	W-E mV
1	10	554.0
2	30	619.0
3	50	603.0
4	70	613.0
5	90	593.0
6	110	410.0
7	130	532.0
8	150	487.0



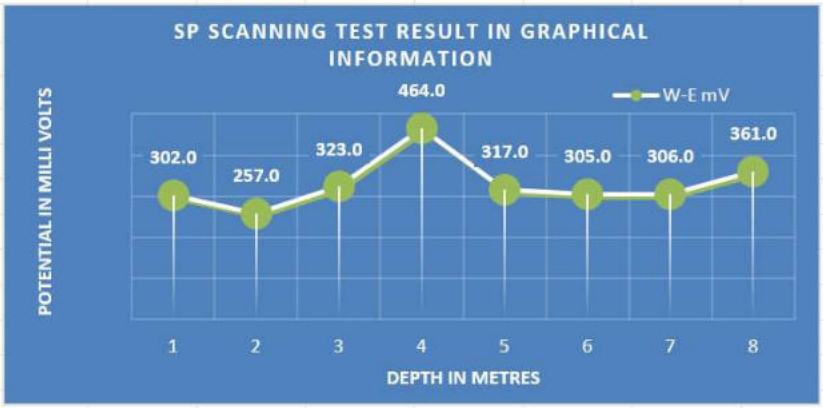
TESTING POINT - BW SP3		
SL No	Distance Mts	W-E mV
1	10	381.0
2	30	367.0
3	50	357.0
4	70	352.0
5	90	325.0
6	110	297.0
7	130	284.0
8	150	288.0



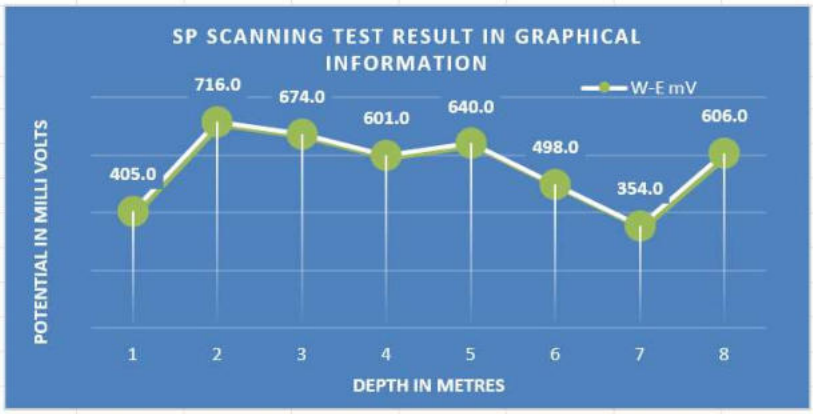
TESTING POINT - BW SP4		
SL No	Distance Mts	W-E mV
1	10	415.0
2	30	390.0
3	50	588.0
4	70	555.0
5	90	498.0
6	110	480.0
7	130	427.0
8	150	466.0



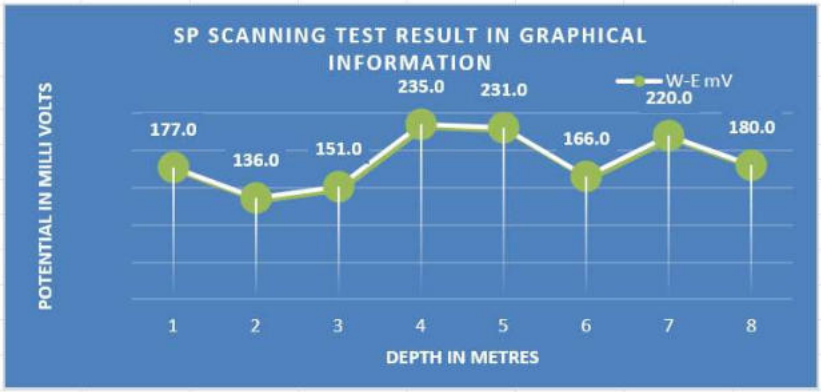
TESTING POINT - BW SP5		
SL No	Distance Mts	W-E mV
1	10	302.0
2	30	257.0
3	50	323.0
4	70	464.0
5	90	317.0
6	110	305.0
7	130	306.0
8	150	361.0



TESTING POINT - BW SP6		
SL No	Distance Mts	W-E mV
1	10	405.0
2	30	716.0
3	50	674.0
4	70	601.0
5	90	640.0
6	110	498.0
7	130	354.0
8	150	606.0



TESTING POINT - SP7		
SL No	Distance Mts	W-E mV
1	10	177.0
2	30	136.0
3	50	151.0
4	70	235.0
5	90	231.0
6	110	166.0
7	130	220.0
8	150	180.0



GP Electrical SP Scanning survey depth results and its all graphs & its resulted depths wise tables furnished as following.

EXPECTED LITHOLOGY LAYERS & DEPTH RANGE IN M BELOW GROUND LEVEL ACC. TO GP ELE. SP SCAN GRAPHICAL ANOMALIES

OVER AN EXTENT OF 12.89 + 7.03 ACRES,
IN SY.NO.212/B & 207/B OF PULAKURTHY VILLAGE,
DANDINA HIRE HALLU MANDAL, ANANTHAPURAM DISTRICT, AP

STRUCTURE	LITHOLOGY	BW-SP1	BW-SP2	BW-SP3	BW-SP4	BW-SP5	BW-SP6	SP7	SP8	SP9	SP10	SP11
	OVER-BURDEN	0-10	0-10	0-10	0-10	0-20	0-20	0-20	0-20	0-20	0-10	0-10
	SHEET ROCK	10-120	10-110	10-150	10-150	20-40	20-100	0	20-150	20-100	10-110	10-140
	FRACTURED ROCK	120-130	110-120			40-80	100-140	20-40		100-120	110-130	140-150
	SHEET ROCK	130-150	120-150			80-150	140-150	40-70		120-150	130-150	
	FRACTURED ROCK							70-100				
	SHEET ROCK							100-150				

4. Recommendations & Estimation of the Granite Deposit:

OVER AN EXTENT OF 12.89 + 7.03 ACRES,
IN SY.NO.212/B & 207/B OF PULAKURTHY VILLAGE,
DANDINA HIRE HALLU MANDAL, ANANTHAPURAM DISTRICT IN AP
PER HECTARE (100*100 SQ.M) **AREA CALCULATION IN THE SUBJECT AREA**

OVER BURDEN	SHEET ROCK	FRACTURED ROCK
150000	1180000	170000
CBM	CBM	CBM
	RECOVERY =10%	
	118000 CBM	
	MORE ECONOMICAL GRADE 15% : 17700 CBM	
	ECONOMICAL GRADE 25% : 29500 CBM	
	SUB ECONOMICAL GRADE 60% : 70800 CBM	

SP Scan Pin Points testing and its anomalies are encouraging Quality & Quantity of data wise one another respectively. The average depths overburden, sheet rock as well fracture rock thickness which are 15.00M, 118.00M and 17.00M calculated from the field data graphs.

GRANITE DEPOSIT VOLUME: SUBJECT AREA X AVERAGE THICKNESS OF DEPOSIT

Here taking for calculation as ONE HECTARE (100M*100M SQ.M)

The thickness of granite : 118 .00M

1 Hectare area Volume of GRANITE :10000*118 : 1180000 CBM

10% Expected Recovery percentage Deposit: (1180000 / 100)x10
: 118000 CBM/Cubic Meters

MARKETABLE GRADES: Market rates variable depends on demand of type of granite.
(**WITHIN 10% RECOVERY OF GRANITE DEPOSITE: 118000 CBM**)

1.MORE ECONAMICAL (PRIME RATES) 15% volume: 17700 CBM
2.ECONAMICAL (GENERAL RATES) 25% volume: 29500 CBM
3.SUB ECONAMICAL (LOW RATES) 60% Volume: 70800 CBM

5. Suggestions:

- Before going for a mine execution plan some bore wells are to be drilled for Confirmation of the identified formations through geophysical SP Scanning survey. It is also useful for ore estimation accurately. After trial bores have been drilled, the geophysical data may be reinterpreted correlating the bore logs. Some more testing's will be conducted if necessary to identify the boundaries more accurately.
- ACCURACY and VARIATIONS in QUALITY & QUANTITY of mineral can be denotes the information of the bore hole data to be collected through trial bore of DTH drilling as well Core drilling mandatory.

Limitations:

i) Subsurface lithology is inferred from SP survey is based on the electrical properties of the subsurface formations.

ii) The Profiles or traverses were conducted as each and every pin point 10m distance maintaining as interval accuracy of the Boundaries may be variable maximum 1.5m.

DATE: 18.11.2025 EXECUTIVE GEOLOGIST & RQP

STATION: ONGOLE

(N. KRISHNA SASTRY)
RQP/DMG/HYD/069 / 2003

N.KRISHNASASTRI

Subject Compliance Notice Status

All applicable Acts and Regulations have been observed in the subject area. If further permissions are needed, the relevant person, contractor, or beneficiary should contact appropriate authorities, including forest department authorities, marine or port departments as necessary.

Statutory Advice

SP (Self-Potential) exploration results and related geophysical data & geological data from this area should be re-confirmed using drilling methods such as DTH (Down-The-Hole) or core drilling, with professional oversight from a qualified exploration geologist.

Disclaimer

Our service provides scientific field data in a clear pictorial report with result-oriented recommendations, as far as practicable. GEOCONSULTANCY (tnt winrock.com, geo enviro consultants) strives to deliver reliable and accurate data and interpretations, backed by over 40 years of experience.

DATE: 18.11.2025

STATION: ONGOLE

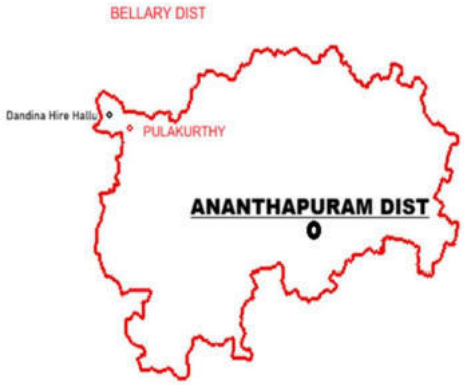
EXECUTIVE GEOLOGIST & RQP

(N. KRISHNA SASTRY)
RQP/DMG/HYD/069 / 2003

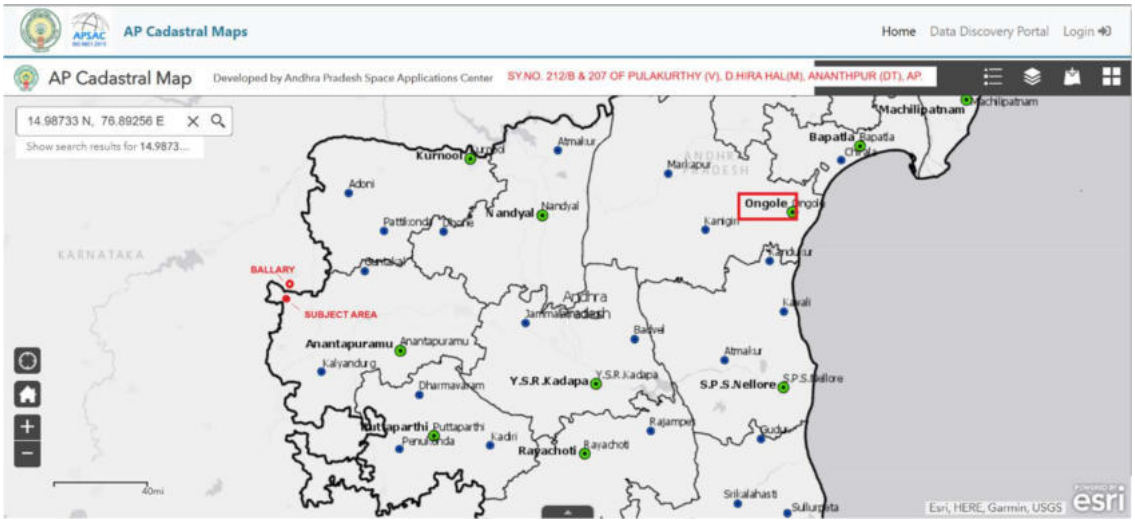
N.KRISHNASASTRI

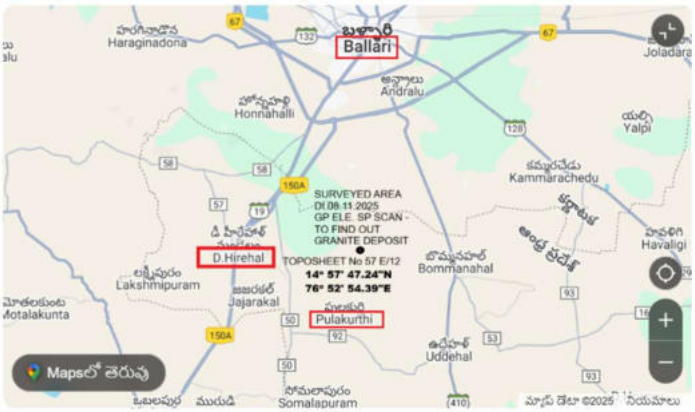
ANNEXURE

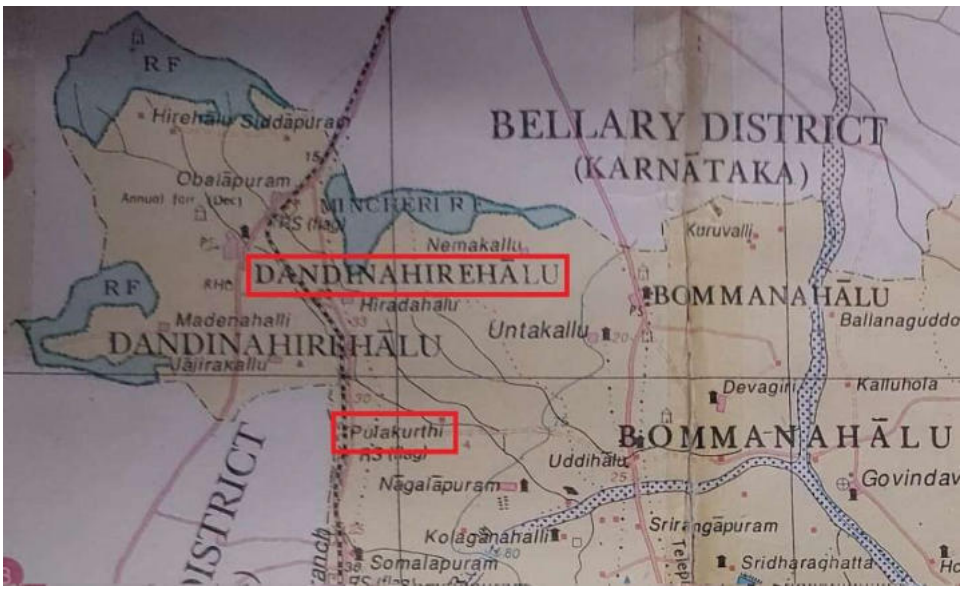
ORIENTATION OF THE SUJECT AREA



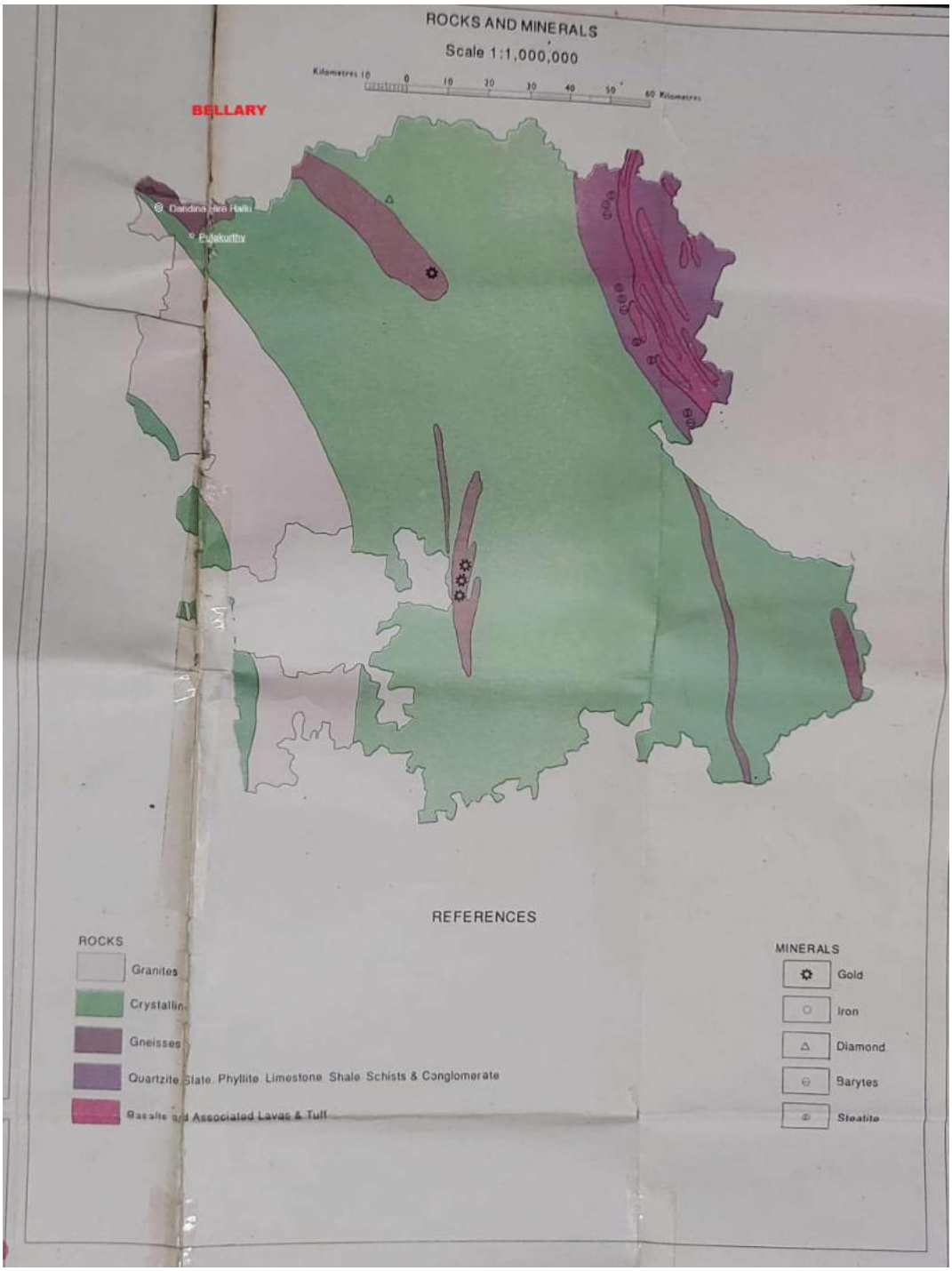
SUBJECT AREA ROUTE MAP







ROCKS AND MINERALS IN AROUND THE PULAKURTHY (V), DANDINA HIRE HALLU (M) ANANTHAPURAM (DT), AP IN INDIA

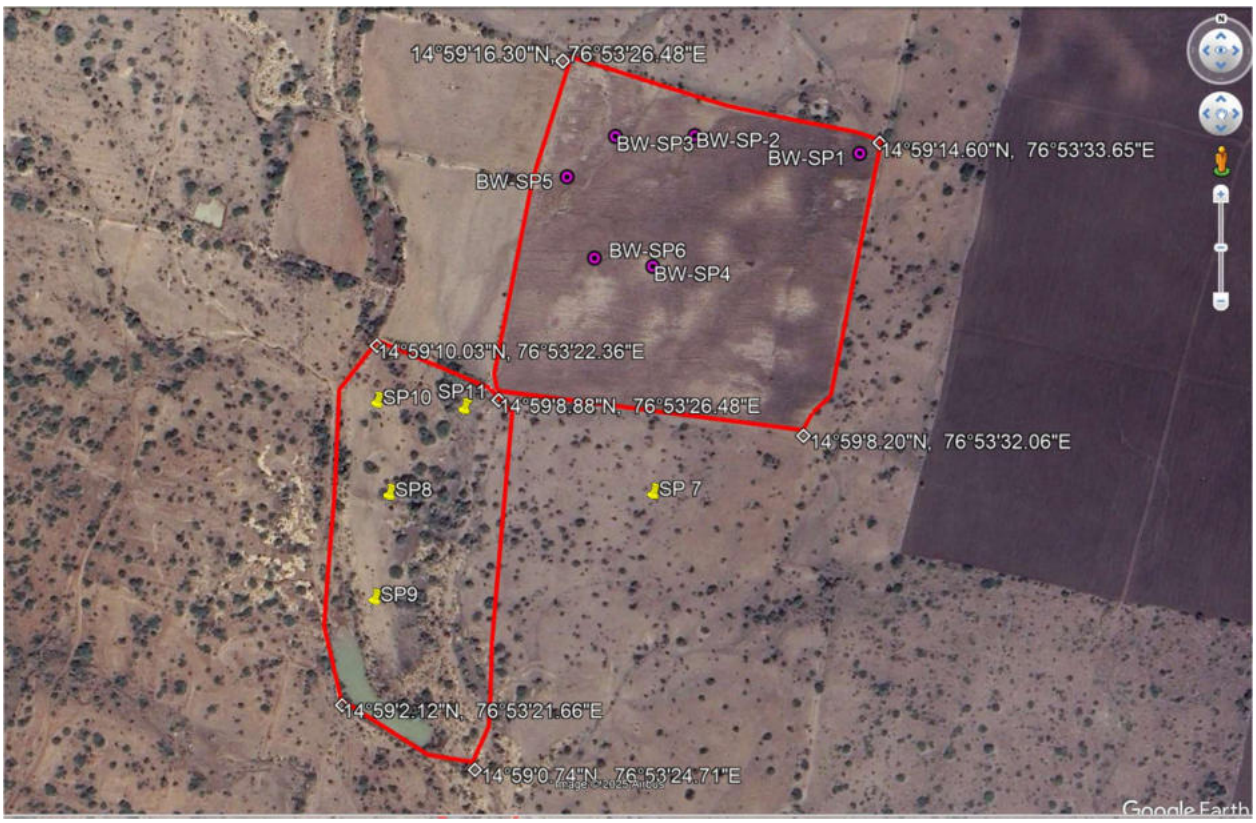


SELF POTENTIAL OR SPONTANEOUS POTENTIAL SURVEY TO FINDOUT GRANITE DEPOSIT IN SUBSURFACE LEVEL & ITS GRAPHICAL VIEW OF DEPTH IN METRES VS MILLI VOLTS INFORMATION

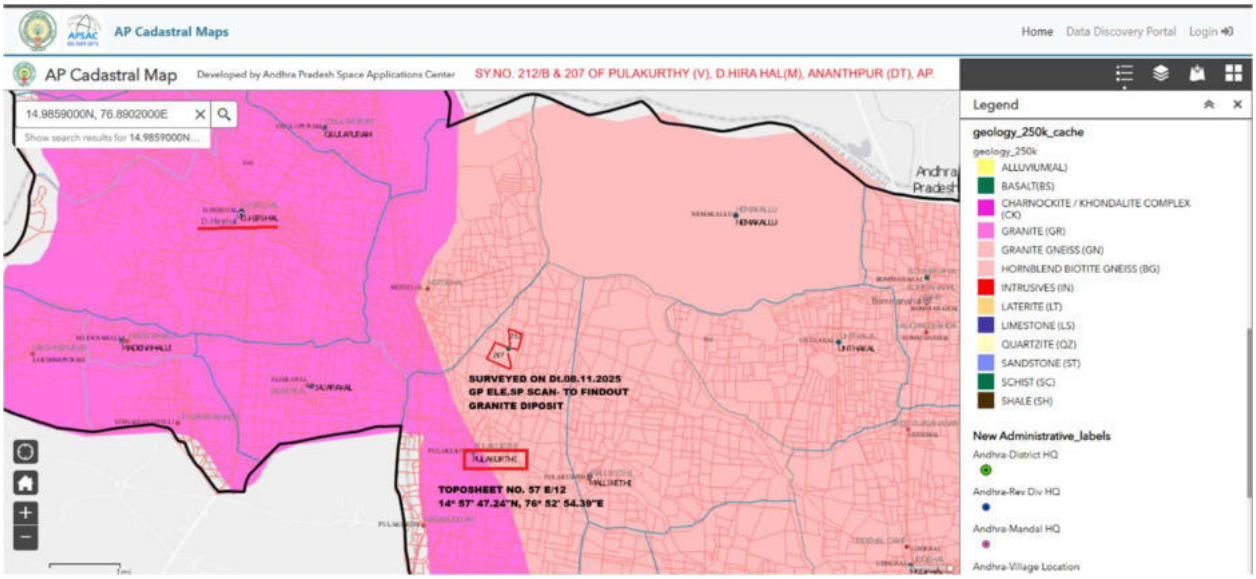
12.89 ACS & 7.03 ACS IN SY.NOS. 212/ B & 207/B OF PULAKURTHY(V), D HIRE HALL (NEAR BELLARY), ANANTHAPURAM DT IN AP, INDIA

BASIC DATA								DATE OF SURVEY :08.11.2025
INVESTIGATION SITE @ EXTENT & SY.NOS .12.89 ACS & 7.03 ACS IN 212/B & 207/B OF PULAKURTHY, D HIRE HAL, NEAR BELLARY- SOUTH 5 KM RADIAL DISTANCE								
LOCATION: 14 59' 14.39'' N, 76 53' 33.22'' E, D Hire Hal MANDAL, ANAN THAPURAM DIST, AP, INDIA								
GARMIN "Etrax 20" Hand Held GPS Systam, WGS - 84 DATUM								
GPS	Elevation	N.Latitude			E.Longitude			Land
	in M	DD	MM	SS.S	DD	MM	SS.S	Mark
1	492	14	59	14.39	76	53	33.22	In Sy.No.212/B Borewell & SP Scan Testing Point-1
2	486	14	59	14.75	76	53	29.51	In Sy.No.212/B Borewell & SP Scan Testing Point-2
3	482	14	59	14.71	76	53	27.71	In Sy.No.212/B Borewell & SP Scan Testing Point-3
4	481	14	59	11.88	76	53	28.00	In Sy.No.212/B Borewell & SP Scan Testing Point-4
5	483	14	59	13.81	76	53	26.63	In Sy.No.212/B Borewell & SP Scan Testing Point-5
6	483	14	59	12.05	76	53	27.28	In Sy.No.212/B Borewell & SP Scan Testing Point-6
7	480	14	59	6.65	76	53	28.60	In Sy.No.207/B SP Scan Testing Point-7
8	483	14	59	6.54	76	53	22.60	In Sy.No.207/B SP Scan Testing Point-8
9	487	14	59	4.24	76	53	22.31	In Sy.No.207/B SP Scan Testing Point-9
10	483	14	59	8.56	76	53	22.31	In Sy.No.207/B SP Scan Testing Point-10
11	482	14	59	8.45	76	53	24.29	In Sy.No.207/B SP Scan Testing Point-11

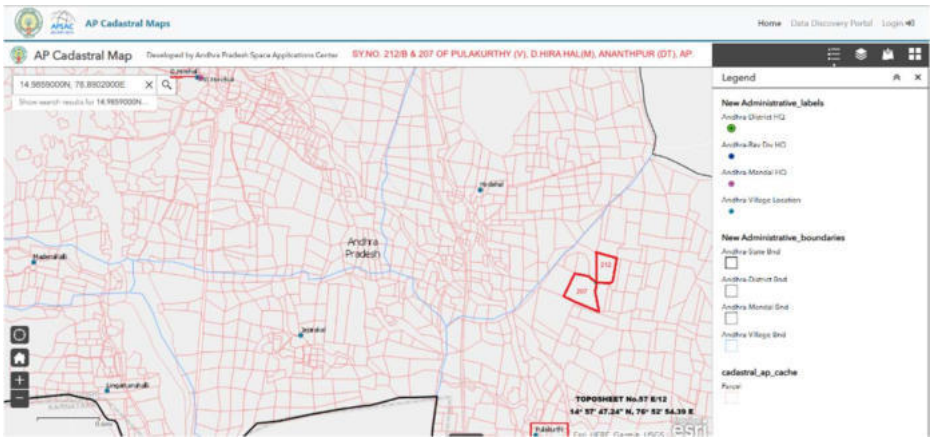
SP SCAN PIN POINT TESTINGS ORIENTAION IN THE SUBJECT AREA WITH GEOCOORDINATES OF BOUNDARY PILLARS



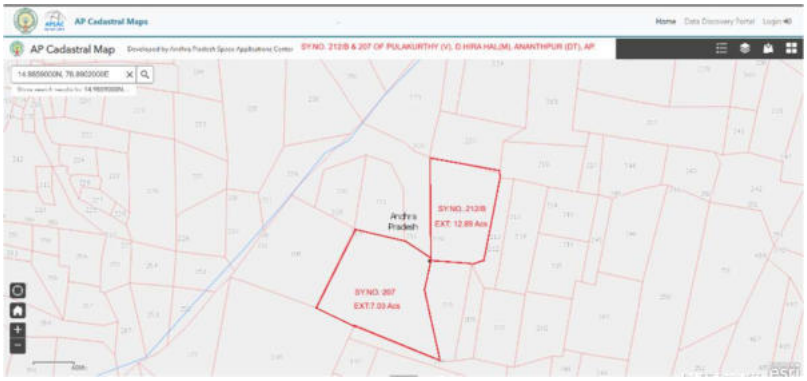
GEOLOGY OF THE AREA



VILLAGE MAP



SUBJECT AREA



Spontaneous-potential or self potential

means one of the geophysical electrical surveying methods refers to used as electrical anomalies in the ground electrical resistivity exploration responses of the spontaneous potential (SP). The Non- Polarized electrodes were carried out with different altitudes and electrode spacing in the field. The aim of the exploration was to obtain characteristic signatures that may be diagnostic of similar geological targets.

Data were received across the mineral zone and the obtained data were used to generate graphs as " depth in Mts against the Potential in mV ". The results denote SP profiles delineate the electrical resistivity giving in the subject area, information on the magnitude and direction of inclination, and quantitative estimation of the depth of burial. It is primarily used in mineral exploration, groundwater source selection surveys, archaeological prospection and basic knowledge for oil & gas presence. Streaming-potential values are varying due to dissolved minerals or hydrocarbons moving in the ground as an electrolyte. Variation in SP values for each new spacing of electrode.

Result and discussion of application

The field data denotes in survey depth in meters below ground level and observed potential in Milli Volts obtained from the investigation. SP values of ground with varies in the observed potential values and its change each new spacing of electrode which gives an idea regarding the presence of aim / target (Quartz or ground water structural information, archaeological prospection and development of hydrocarbons as oil & gas reconnaissance survey) result indicates as an anomaly of SP method. Most commonly, *SP* used for shallow investigations, from characterizing sacrificial materials to investigating resistivity down to depths as great as 1 to 2 km, although greater depths of investigation are possible with some techniques and under some conditions.

GEOPHYSICAL ELECTRICAL TECTNOLOGY- SELF POTENTIAL / SPONTANEOUS POTENTIAL / SP SCAN METHODOLOGY

The electrical self-potential (SP) scan survey method, a geophysical technique that measures natural electric fields in the ground. Electrical Self-Potential (SP) Survey is a geophysical method used to measure natural electric fields generated in the earth. In this survey, a fixed electrode (permanent electrode) and a moving electrode (moving electrode) are used to measure voltage differences at various points in the survey area. Main steps and procedures in the survey:

1.Equipment Preparation:

High-impedance voltmeter (MV) Resistivity Meter required for precise measurements in SP surveys. (Model DDR-2 made by IGIS of geo sensors, Hyderabad)

• Electrodes: One electrode is fixed in a specific location as a reference point. The other electrode is moved around the survey area.

• Lead wires: These connect the electrodes to the voltmeter.

2. Field Setup: Reference electrode setup: An electrode is placed deep into the ground at a stable location with moist soil. • Operating electrode setup: The second electrode is moved to measurement points in moist soil.

3. Taking Measurements:

The voltmeter measures voltage difference between the fixed and moving electrodes. • Each measurement is carefully recorded. • SP surveys measure natural electric currents in the ground, so voltage readings are usually in millivolts (mV).

4. Data Collection and Analysis:

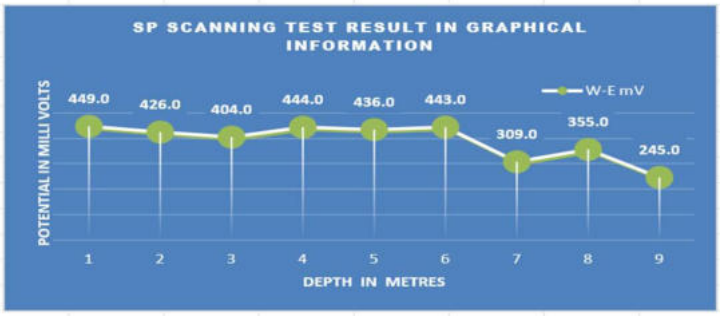
The survey data is recorded on a chart. • By analyzing the data, electrical potential anomalies caused by metallic sulphide minerals, groundwater flow, or other factors underground can be identified.

5. Importance:

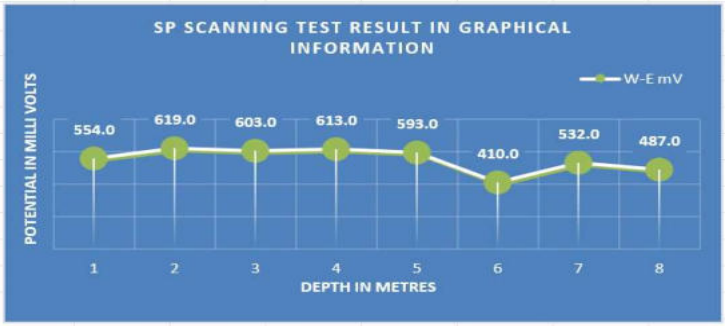
Accurate SP surveys provide useful information about natural underground resources or geological structures. • This method is important in mining, engineering geology, and environmental studies. This summary captures the core procedure and significance of the electrical SP survey method

GEOPHYSICAL ELECTRICAL PROSPECTING METHOD AS SELF POTENTIAL OR SPONTANEOUS POTENTIAL SURVEY & ITS GRAPHICAL DEPTH VS MILLI VOLTS INFORMATION

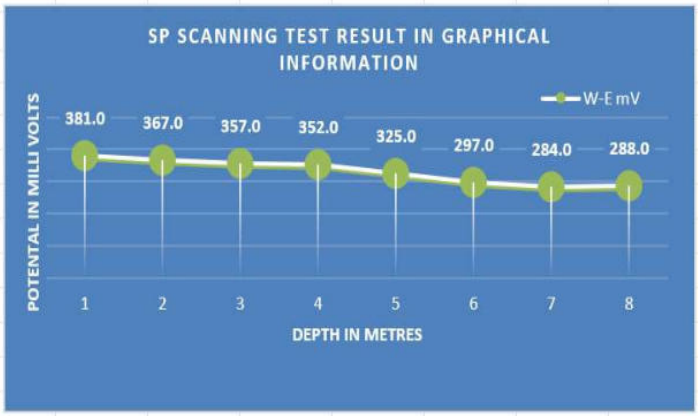
TESTING POINT - BW SP1		
SL No	Distance Mts	W-E mV
1	10	449.0
2	30	426.0
3	40	404.0
4	50	444.0
5	70	436.0
6	90	443.0
7	110	309.0
8	130	355.0
9	150	245.0



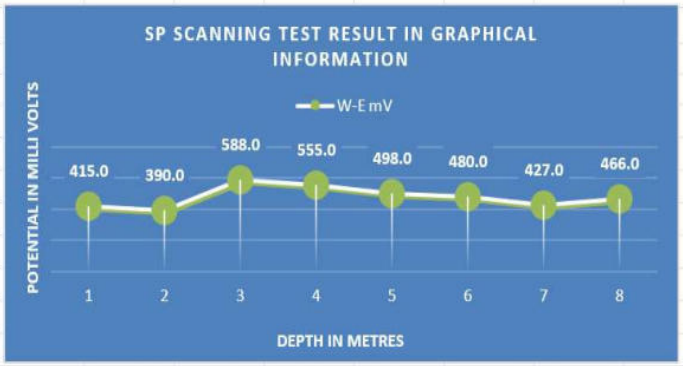
TESTING POINT - BW SP2		
SL No	Distance Mts	W-E mV
1	10	554.0
2	30	619.0
3	50	603.0
4	70	613.0
5	90	593.0
6	110	410.0
7	130	532.0
8	150	487.0



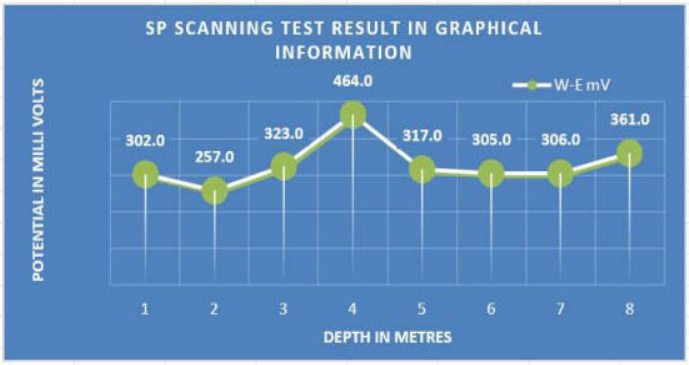
TESTING POINT - BW SP3		
SL No	Distance Mts	W-E mV
1	10	381.0
2	30	367.0
3	50	357.0
4	70	352.0
5	90	325.0
6	110	297.0
7	130	284.0
8	150	288.0



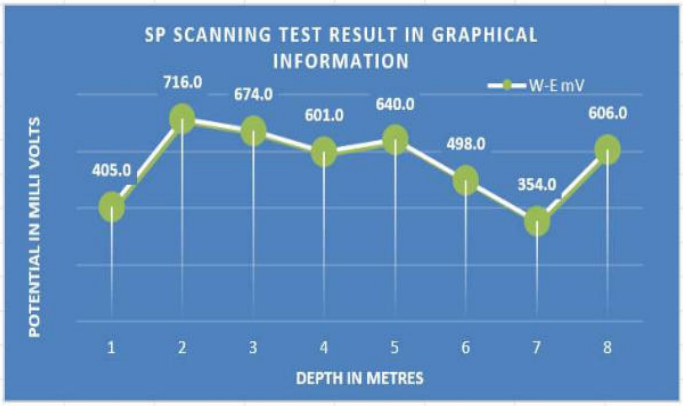
TESTING POINT - BW SP4		
SL	Distance	W-E
No	Mts	mV
1	10	415.0
2	30	390.0
3	50	588.0
4	70	555.0
5	90	498.0
6	110	480.0
7	130	427.0
8	150	466.0



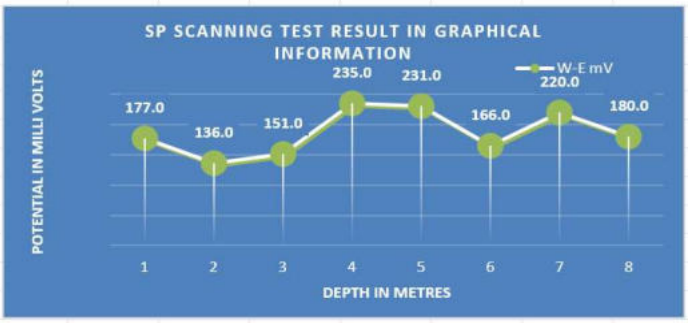
TESTING POINT - BW SP5		
SL	Distance	W-E
No	Mts	mV
1	10	302.0
2	30	257.0
3	50	323.0
4	70	464.0
5	90	317.0
6	110	305.0
7	130	306.0
8	150	361.0



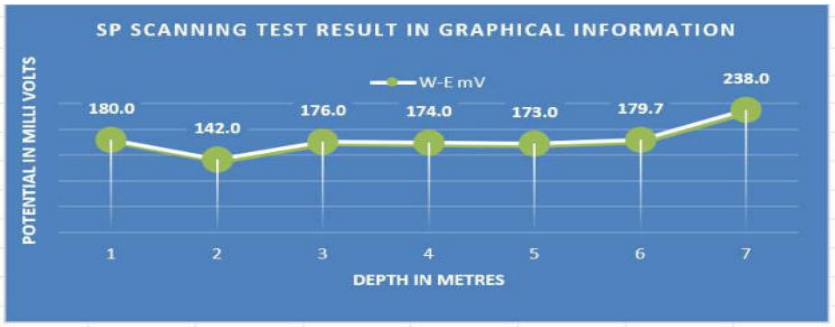
TESTING POINT - BW SP6		
SL	Distance	W-E
No	Mts	mV
1	10	405.0
2	30	716.0
3	50	674.0
4	70	601.0
5	90	640.0
6	110	498.0
7	130	354.0
8	150	606.0



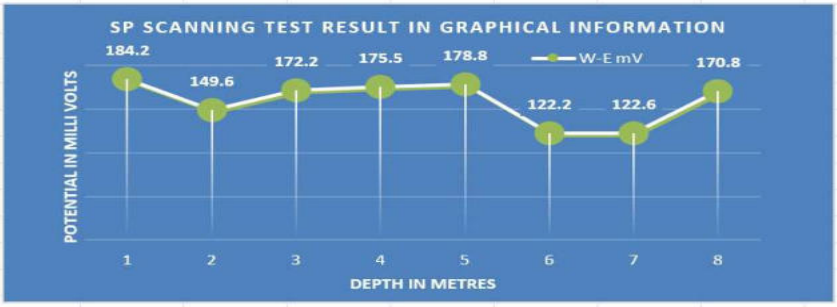
TESTING POINT - SP7		
SL	Distance	W-E
No	Mts	mV
1	10	177.0
2	30	136.0
3	50	151.0
4	70	235.0
5	90	231.0
6	110	166.0
7	130	220.0
8	150	180.0



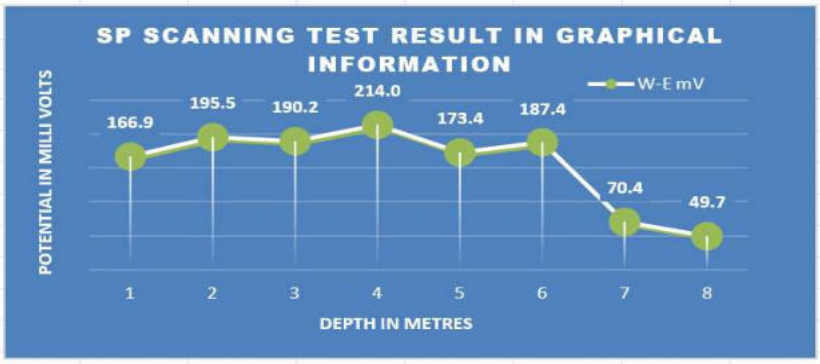
TESTING POINT - SP8		
SL No	Distance Mts	W-E mV
1	10	180.0
2	30	142.0
3	50	176.0
4	70	174.0
5	90	173.0
6	110	179.7
7	130	238.0



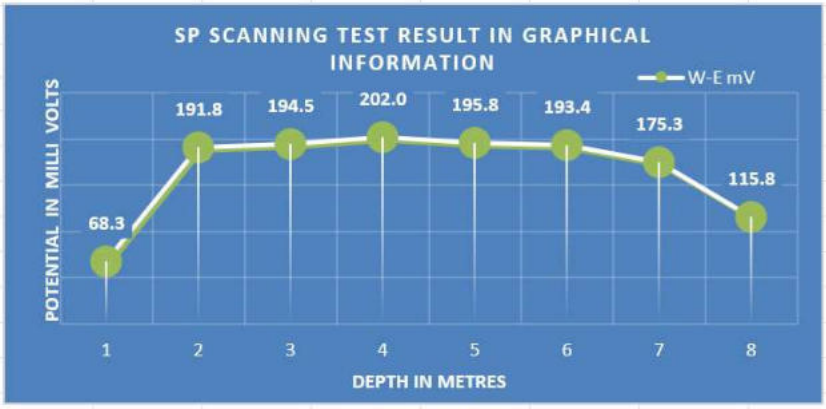
TESTING POINT - SP9		
SL No	Distance Mts	W-E mV
1	10	184.2
2	30	149.6
3	50	172.2
4	70	175.5
5	90	178.8
6	110	122.2
7	130	122.6
8	150	170.8



TESTING POINT - SP10		
SL No	Distance Mts	W-E mV
1	10	166.9
2	30	195.5
3	50	190.2
4	70	214.0
5	90	173.4
6	110	187.4
7	130	70.4
8	150	49.7



TESTING POINT - SP11		
SL No	Distance Mts	W-E mV
1	10	68.3
2	30	191.8
3	50	194.5
4	70	202.0
5	90	195.8
6	110	193.4
7	130	175.3
8	150	115.8



Minor Mineral Resources of Anantapur District:

The mineral resources map of Anantapuramu District of ADMG & DDMG Anantapuramu / DMG, Hyderabad Offices concern Maps based information

Black Granite: Black granite, commercially known as G20, is a premium variety found in Ananthapuramu.

Its appearance is entirely black and is mainly used for monuments, as well as for dimension stones in flooring and wall tiling also available M/S Sadiya Granites, has been granted typical granite QL.No.810, over an extent 2.00Acres in Sy.No.197 of (Part) of Badan Hatti Village, Ballari or Part of sy no. 486/A, Sirigeri Village, Siruguppa Taluk, Ballari District in Chiyyedu village in Anantapur Mandal,
Poletipalle village in ChenneKothapalle Mandal,
Gollapalle and Rangasamudram villages in Gummagatta Mandal,
Varli village in Kalyandurg Mandal,
Gotukuru village in Kudair Mandal,
Mulakaledu and Yatakal villages in Settur Mandal,
Pandiparthi village in Somandepalle Mandal, and
West Kodipalle village in Brahmasamudram Mandal.

Road Metal: Used for construction purposes and railway ballast, road metal is available in Chiyyedu, Kodimi, and Mannila villages in Anantapur Mandal,
Bandur, Nemakallu, and Siddarampuram villages in Bommanahal Mandal,
Hirehal, Hiredahal, Hulikal, Jajarakal, Kudulur, Lakshmipuram, Lingamanahalli, Madenahalli, Malapanagudi, and Pulakurthi villages in D.hirehal Mandal
.in Bethapalle, Engilibanda, Jakkalacheruvu, Karadikonda, and Thondapadu villages in Gooty Mandal,
Gollapalle village in Gummagatta Mandal,
Mukthapuram village in Kanaganapalle Mandal,

Udiripikonda village in Kudair Mandal, Gulimikondla, Kandlapalle, and Pamidi villages in Pamidi Mandal, Jutur village in Peddapappur Mandal, Chintakunta village in Putlur Mandal. It is also available in Marur village in Raptadu Mandal, Chadam, Mallapuram, and Veparalla villages in Rayadurg Mandal, Yatakal village in Settur Mandal, Chakrayapeta village in Singanamala Mandal, Somandepalle, Velagamakulapalle

Building Stone: Used for construction purposes, building stone is available in B. kotha Kota village in Chiyyedu, Kodimi villages in Anantapur Mandal, Bandur and Nemakallu villages in Bommanahal Mandal, Siddarampuram village in Bommanahal Mandal, D.hirehal, Hulikal, Jajarakal, Lakshmipuram, Lingamanahalli, Madenahalli, Malapanagudi, and Pulakurthi villages in D.hirehal Mandal, Bethapalle, Engilibanda, Jakkalacheruvu, Karadikonda, and Thondapadu villages in Gooty Mandal. Gollapalle village in Gummagatta Mandal, Mukthapuram village in Kanaganapalle Mandal, Kammuru village in Kudair Mandal Gulimikondla and Pamidi villages in Pamidi Mandal, Chintakunta village in Putlur Mandal, Marur village in Raptadu Mandal, Veparalla village in Rayadurg Mandal, Yatakal village in Settur Mandal, Chakrayapeta village in Singanamala Mandal, Somandepalle, Velagamakulapalle, and Velidadakala villages in Somandepalle Mandal, Konakondla village in Vajrakarur Mandal, and Vidapanakal village in Vidapanakal Mandal

Color Granite: Predominantly used for monuments and as dimension stones for flooring and wall tiling, color granite is available in Theetakal and Siddarampuram village in Brahmasamudram Mandal, as well as Bramhanapalle and Ganginepalle village in ChenneKothapalle Mandal.

Gollapalle and Veerapuram villages in Gummagatta Mandal,
Kambadur,Mulakanur, and Pallur villages in Kambadur Mandal,
Marutla village in Kudair Mandal,
Peddavadugur village in Peddavadugur Mandal,
Chadam and Mallapuram
villages in Rayadurg Mandal,
Akuledu and Rachepalle villages in SinganamalaMandal, and
Naginayani cheruvu village in Somandepalle Mandal.

Cubes, Kerbs: Bodiganidoddi and Kondakindaagraharam village in Bukkarayasamudram Mandal.

Gravel: Gravel is used for the construction of unpaved roads and for filling low-lying areas. It is available in
Alamuru and Kodimi villages in Anantapur Mandal.
Nemak Allu village in Bommanahalli Mandal,
Bukkaraya Samudra village in Bukkaraya samudram Mandal,
Jajarakal village in D. Hirchal Mandal.
Engilibanda and Kothapeta villages in Gooty Mandal,
Pamidi village in Pamidi Mandal,
Jutur village in Peddapappur Mandal
Gondireddipalle village in Raptadu Mandal.

Iron Ore: Used for construction, transportation, energy infrastructure, and household appliances, iron ore is available
in Obulapuram village in D.hirehal Mandal.

Silica Sand: Used in flooring, mortars, and cement, silica sand is available in Illuru village in Garladinne Mandal.

Barytes (White): Used in high-grade paint, paper-making, pharmaceuticals, rubber, cosmetics, and plastics, barytes is available in Amalladinne village in Peddapappur Mandal.

China Clay: China clay, utilized in making paper, rubber, paint, and many other products, in Chinnayakkaluru village in Peddapappur Mandal, Kristipadu village in Peddavadugur Mandal, and Madugupalle in Putlur Mandal.

Limestone (Others): Limestone, used in steel manufacturing, mining,paper production, water treatment and purification, plastic production, and cement industries, is available in Peddayakkaluru village in Peddapappur Mandal, Kristipadu village in Peddavadugur Mandal, Talaricheruvu, and Uruchinthala village in Tadipatri Mandal, as well as Gudipadu, Konuppalapadu, and Nagarur villages in Yadiki Mandal, and Goddumarri village in Yellanur Mandal.

Mosaic Chips: Mosaic chips, utilized in flooring and outdoor decorations, are available in Chintalacheruvu village in Peddavadugur Mandal.

Ochre: Ochre, used in painting and plastic and other industries, Ochre is available in Putlur village in Putlur Mandal.

White Shale: Used to make bricks, tiles, and pottery, white shale can be found in Joolakalva villages in Singanamala Mandal, as well as Konuppalapadu and Puppala villages in Yadiki Mandal. and Velidadakala villages in Somandepalle Mandal,

Konakondla villages in Vajrakarur Mandal, and
Vidapanakal villages in Vidapanakal Mandal.

Quartz: Quartz available in Ananthapuramu district is utilized in the paint, ceramic tiles, and glass industries. It is available in
D.cherlopalle village in Bathalapalle Mandal,Mustikovila village in ChenneKothapalle Mandal, and
D.hirehal, Obulapuram, Pulakurthi villages in D.hirehal Mandal.
in Jakkalacheruvu and Thondapadu villages in Gooty Mandal,
Ameenpalle,Koganapalle, and Patha kothachervu villages in Guntakal Mandal,
as well as Appecherla, Medimakulapalle, and Muppalaguthi villages in Peddavadugur Mandal, and
Tarimela villages in Singanamala Mandal.

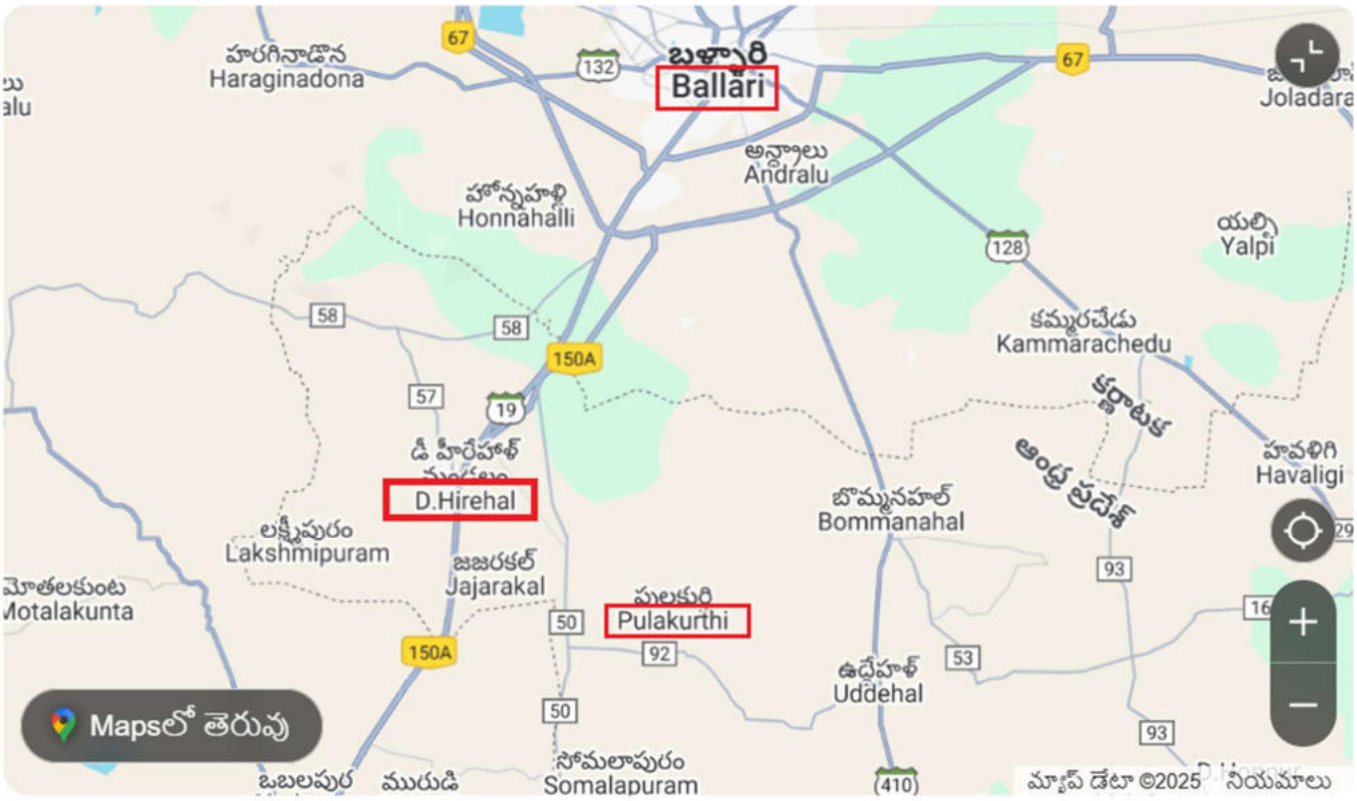
Dolomite: Dolomite is utilized instead of limestone as an aggregate for both cement and bitumen mixes, as well as a flux in blast furnaces. This mineral is available in Gugudu village in Narpala Mandal,
Chagallu Peddapappur, Peddayakkaluru, and Tabjula villages Kristipadu and Ravuludiki village in Peddavadugur Mandal,
Joolakalva and Ullikallu villages in Singanamala Mandal, and
Chandana and Nagarur villagesin Yadiki Mandal.

Manufactured Sand: Used as a substitute for river sand in construction, mostly in the production of concrete and mortar mix, manufactured sand is available in
Chiyyedu village in Anantapur Mandal,
Engilibanda and Karadikondavillages in Gooty Mandal,
Gollapalle villages in Gummagatta Mandal,
Mukthapuram villages in Kanaganapalle Mandal, and

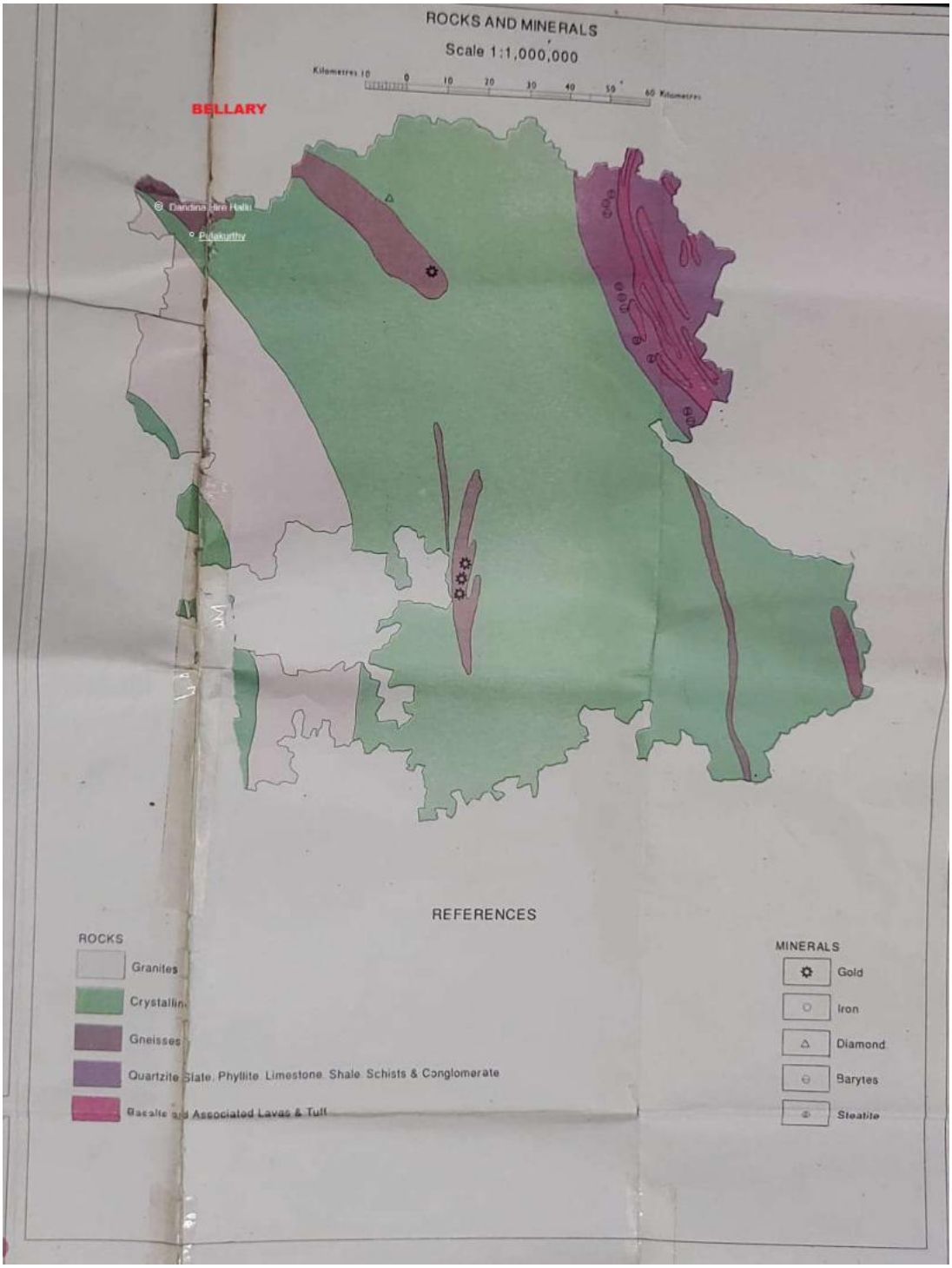
Somandepalle villages in Somandepalle Mandal.

Iron Ore: Used for construction, transportation, energy infrastructure, and household appliances, iron ore is available in Obulapuram village in D.hirehal Mandal.

Silica Sand: Used in flooring, mortars, and cement, silica sand is available in Illuru village in Garladinne Mandal in the Ananthapuram district



DISTRICT OF MAP OF ANANTHAPURAM MINERALS AVAILABILITY AS DIAMOND, GOLD, BARYTIS, IORN ORE & STEATITE



DISTRICT MAP SHOWING MANDALS & RAIN FALL ISOHYTES & STRUCTURAL MAP

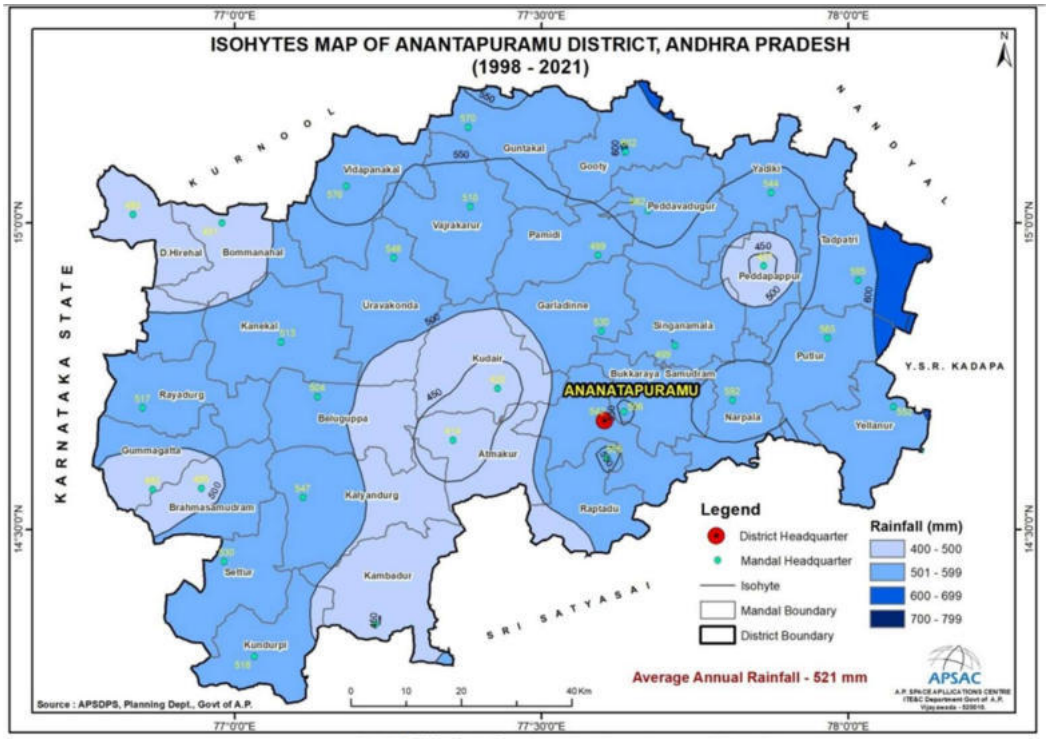


Figure-5: Rainfall distribution in Anantapur District

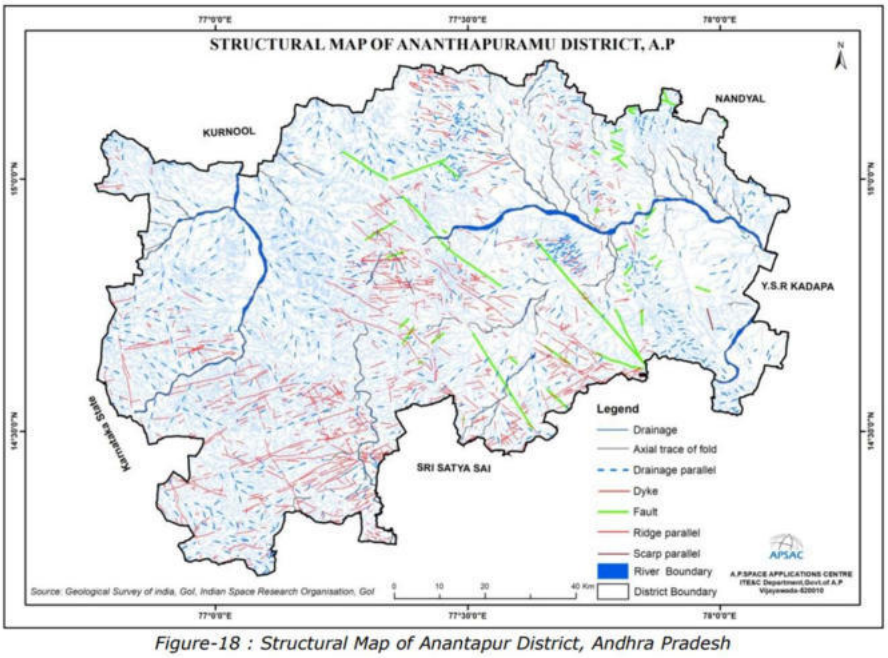


Figure-18 : Structural Map of Anantapur District, Andhra Pradesh

GEOLOGICAL MAP OF THE ANANTHAPURAM DISTRICT MAP

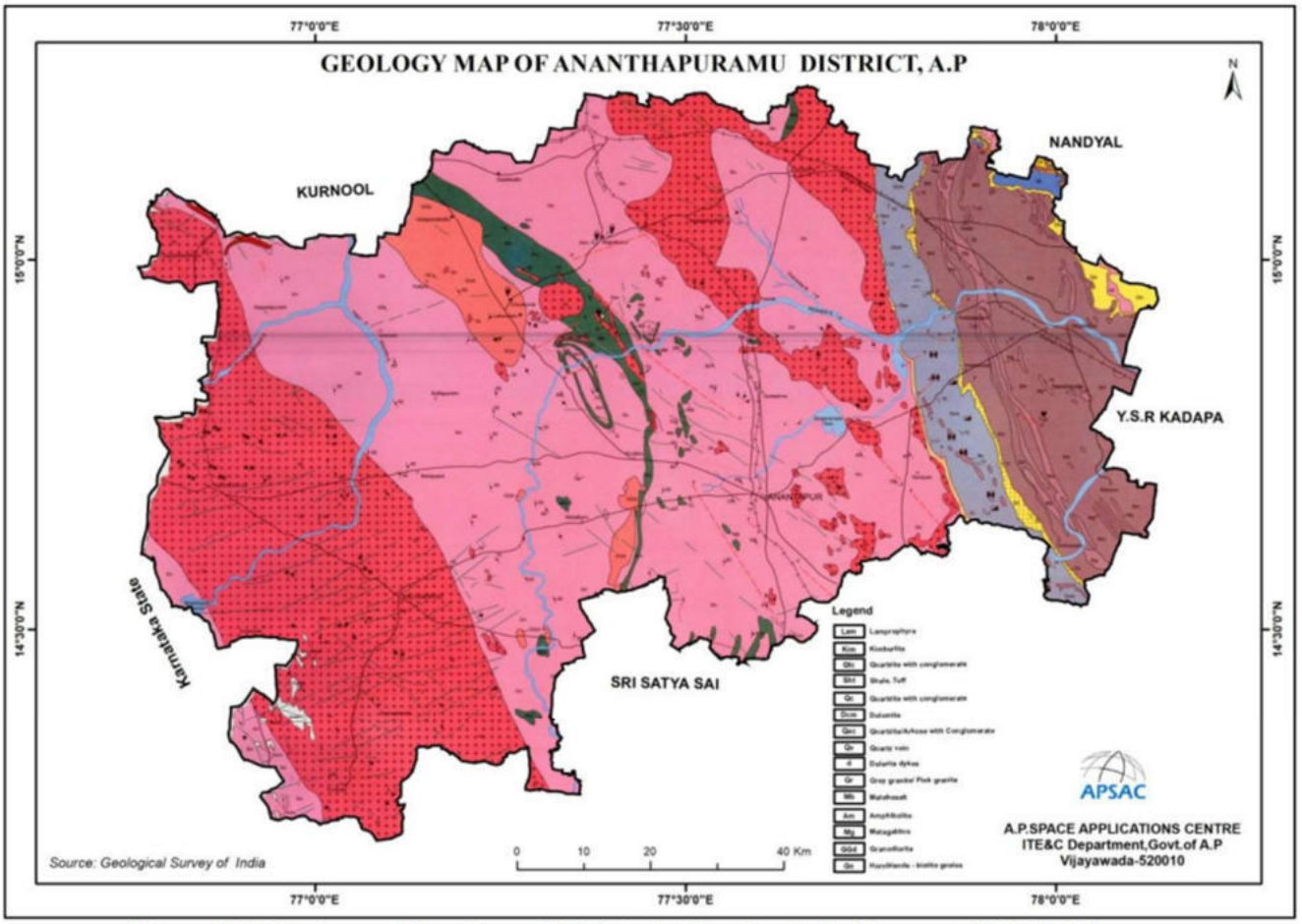
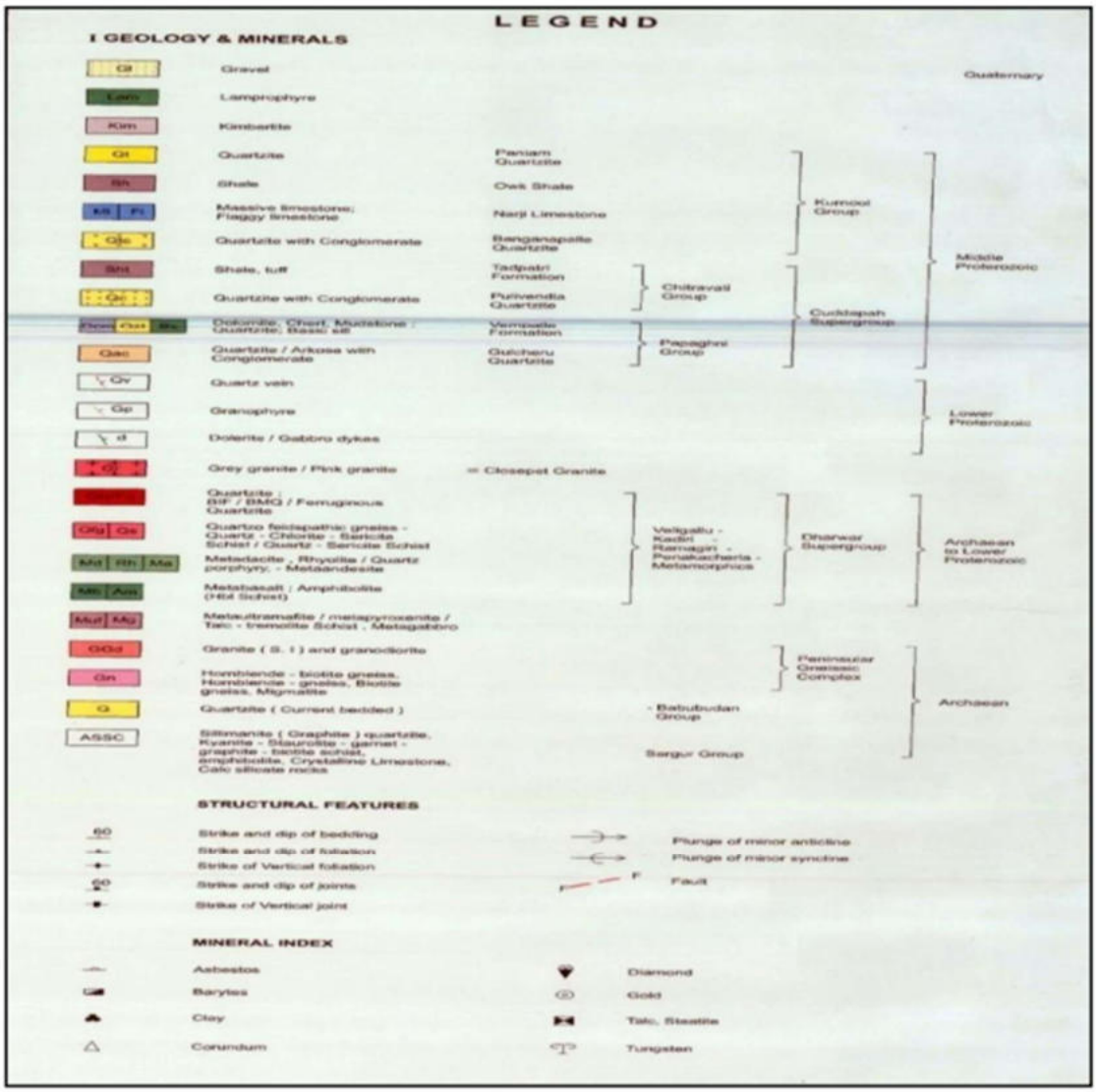


Figure 20: Geology of Anantapur District, Andhra Pradesh (Source: GSI, 2000)

DETAILED LEGEND WITH STRATIGRAPHIC SEQUANCE OF ANANTHAPURAM DISTRICT MAP



Detailed Legend with Stratigraphic Sequence of Anantapur District