

REPORT ON G2 EXPLORATION OF MADINAPADU LIMESTONE BLOCK, GUNTUR DISTRICT, ANDHRA PRADESH

**FOR
DIRECTOR OF MINES AND GEOLOGY, ANDHRA PRADESH,
THROUGH
MINERAL EXPLORATION RESEARCH AND INNOVATION TRUST (MERIT)
GOVT. OF ANDHRA PRADESH, IBRAHIMPATNAM, A.P.**

*(In accordance with Part-II and III of MEMC Rules-2015, Reported in accordance with
Part-IVA and Part-V of Amended MEMC Rules-2021)*



**CONSORTIUM OF
JP KORDRILLING - LEAD MEMBER
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Cover Photo: Limestone exposed in the southeastern part of Madinapadu Limestone Block.

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EXECUTIVE SUMMARY

LIMESTONE IN INDUSTRY

Limestone is the main raw material for production of cement. It is also used as flux in metallurgical industry. High grade limestone is used in chemical, alkali, sugar, paper, glass and leather tanning industries.

The Cement Industry which is one of the key infrastructure industries recorded exponential growth pattern in successive years since the introduction of partial decontrol in 1982, total decontrol in 1989 and post delicensing of the Industry and Policy Reforms initiated in 1991. As per Cement Survey 2017, the total annual installed capacity of cement in 2017 was 501.86 million tonnes (IBM 2018).

TENDERING AND WORK ORDER BY MERIT

Mineral Exploration Research and Innovation Trust (MERIT), DMG, AP, had invited tender for G-2 level exploration work in Madinapadu, Tangeda, Mutyalampadu-Tangeda and Ramapuram Limestone Blocks in Guntur District, A.P. as per Tender No. 2/MERIT/ Re-tender/2018/3, ID 232252 dated 01.11.2018.

Consortium of M/s JP Kordrilling as Lead Member and M/s Geosolutions as Consortium Member qualified in the tender. Work Order No. 2/MERIT/Re-Tender/2018/3/2 dated 05.12.2018 was issued by CEO, MERIT for G-2 level exploration work in Madinapadu, Tangeda, Mutyalampadu-Tangeda and Ramapuram Limestone Blocks in Guntur District, A.P. The scope of exploration work includes topographical survey, geological mapping, core drilling, litho-logging, sampling, chemical analysis, petrographic studies and preparation of Geological Report (GR) with ore resource estimation.

M/s Geosolutions have planned and co-ordinated all the aspects of field operations and prepared the Geological Report (GR). Core drilling and sampling was carried out by M/s JP Kordrilling, the lead member of the Consortium. Chemical analysis of samples was carried out by NABL accredited laboratories of M/s RCA laboratories, Kolkata.

The exploration work of topographical survey and geological mapping was started on 08.03.2019 and completed by May 2019 in all the blocks. Core drilling in Madinapadu block was started on 27.04.2019. In spite of our best efforts core drilling progress was hampered due to the drilling problems in the area like increase in depth of boreholes and other constraints. Further, the limestone block is located in

cultivation fields and monsoon period has started. The local farmers have started harvesting during June, 2019 and strongly resisted further drilling in their fields till the cultivation of crops is completed i.e. up to March 2020. Under the circumstances it was requested vide our letter dated 7.6.2019 for extending the time period of the work order up to July 2020, which was agreed upon based on field conditions. Core drilling and sampling was completed by May 2020. However, chemical analysis of the samples got delayed due to the Covid-19 pandemic. Hence, further extension of time period up to October 2021 was requested and the same was approved by NMET.

The total exploration work in Madinapadu limestone block including topographical survey, geological mapping, core drilling, litho-logging, core sampling, chemical analysis, petrographic studies and preparation of Geological Report (GR) with ore resource estimation were completed. The quantum of work proposed and the work completed in Madinapadu limestone block are given in the following Table.

Work proposed and work completed in Madinapadu Limestone Block

S. No	Item of Work	Work Proposed	Work Completed
1	Surface Core Drilling 40m depth each (400x400m grid)	1440m (36 BHs)	2328m (36 BHs)
2	GI Sheet Core Box 5 m run each	288 No.	327 No.
3	Topographic survey on 2m contour interval on 1:1000 scale for the area (Ha.) mentioned with scope of work.	660 Ha	660 Ha
	Survey party days	15	15
4	Geological Mapping on 1:5000 scale for the area (Ha.) mentioned with scope of work.	660 Ha	660 Ha
	Geologist party days	30	30
5	Core Sampling based on the surface core drilling- Refer Point-1 of drilling	1440No	2129 No.
	Party days	30	45
6	Chemical Analysis - CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , LOI at NABL accredited laboratory (original samples + 10% check samples)	1584 No.	2357 No.
7	Chemical Analysis - SO ₃ , P ₂ O ₅ at NABL accredited laboratory (original samples + 10% check samples)	1584 No.	2357 No.
8	Chemical Analysis - Na ₂ O, K ₂ O at NABL accredited laboratory	208 No.	208 No.
9	Preparation of Thin section	10 No.	10 No.
10	Petrographic Studies	10 No.	10 No.
11	Exploration Report (GR)	1 No.	1 No.

LOCATION, ACCESSIBILITY AND LAND USE PATTERN

The Madinapadu Limestone Block is oval in shape and comprises an area of 660 Ha. The block is bounded by latitudes 16° 37' 39.20" N and 16° 39' 50.97" N and longitudes 79° 45' 07.11" E and 79° 47' 7.10" E and forms part of Survey of India Toposheet No. 56P/14. The Madinapadu limestone block for exploration is located 500m east of Madinapadu village which is situated at about 8.2 km northeast of Dachepalli town. Dachepalli is the Mandal headquarters in Guntur district, Andhra Pradesh and is situated on Hyderabad-Guntur State Highway SH-21. Dachepalli is approachable by train and by road. The nearest railway station is Nadikude about 8.7 km southwest of Madinapadu, on the Hyderabad-Guntur broad-gauge line of South Central Railway (Figs. 1.1, 1.2, 1.3 and PLATE No. IA, IB).

The nearest township is Dachepalli situated at about 8.2 km to the southwest of Madinapadu village. It is the Mandal headquarters with educational and health facilities. Dachepalli is well connected with all major cities of Guntur, Vijayawada and Hyderabad by rail and road. All basic amenities such as school, hospital, market etc. are available here. The nearest Police Station is at Dachepalli. Guntur is the district headquarters and is located at a distance of about 96 km towards southeast of Dachepalli. Hyderabad is situated about 184 km towards the North West. The nearest sea port is Krishnapatnam at a distance of 350 km. The nearest Airport is located in Vijayawada at distance of 170 km SE of the block and Hyderabad is situated about 184 km towards the northwest of the block.

A number of cement plants are located around Madinapadu. Bhavya Cements Limited is located at a distance of 19.5km in the northeast, Nagarjuna Cements Limited is at a distance of 25.8 km (north of Krishna River) and Sagar Cements Limited at a distance of 29.4km (north of Krishna River).

As per the cadastral data the Madinapadu limestone block of 660 Ha is mainly an agricultural land belonging to four (4) villages. It consists of 653.95 Ha (99.08%) of private patta land and 6.05 Ha (0.92%) of government land. Major part of the land of about 607.78 Ha (92.09 %) belongs to Madinapadu village. The remaining land of 52.22 Ha (7.91%) belongs to three villages of Tangeda, Dachepalli and Gamalapadu villages. The details of private and government land, village wise, are given in Table 1.4. Cadastral map of Madinapadu limestone block is given as PLATE No. II and the details of cadastral/land record are given in Annexure II. The area represents an agricultural land with crop of cotton, chilly, bengal gram, jawar etc. annually.

FIELD EXPLORATION IN MADINAPADU LIMESTONE BLOCK

G2 Exploration of Madinapadu Limestone Block in Guntur district, Andhra Pradesh was taken up as per the work order from MERIT, Ibrahimpatnam, Vijayawada. The scope of exploration work consists of topographical survey, geological mapping, core drilling, litho-logging, drill core sampling, chemical analysis, petrographic studies and preparation of Geological Report (GR).

TOPOGRAPHICAL SURVEY

Topographic survey of the Madinapadu limestone block has been completed by using DGPS (Spectra) and Leica Total Station (TS 06 Plus model). Four ground control points TD-9, TD-10, TD-11 and TD-12 were established in Madinapadu limestone block and X, Y coordinates were fixed using DGPS. One known bench mark BM 95.49m from Nadikude Junction (Railway), in Survey of India Toposheet No. 56 P/14 (Fig. 2.1) is taken as reference point and the elevation (Z) is calibrated to ground control points TD-9, TD-10, TD-11 and TD-12 established in Madinapadu limestone block by DGPS.

Coordinates from ground control points TD-9, TD-10, TD-11 and TD-12 were transferred to other base station points established in Madinapadu limestone block. Based on these coordinates, block boundary points and borehole locations at 400m x 400m grid interval provided by MERIT were ground fixed in Madinapadu limestone block. Reduced level of borehole collars was deduced from DGPS survey (Fig. 2.4 A) and coordinates of all the boreholes in the block were calculated with reference to the reference bench mark. Detailed survey and surface topographical mapping has been carried out with the help of Total Station (Fig. 2.4 B) and surface topographic maps on 1:5000 and 1:1000 scale with 2 m contour interval incorporating boundary pillars, borehole locations and cadastral data were prepared (PLATE Nos. I, II, III and V). Data points (RLs) of the Madinapadu limestone block were collected at an average distance of 75m.

The Madinapadu limestone block represents an agricultural land and comprises an area of 660Ha. The block is oval in shape and extends in a NE-SW direction. It is about 5.0km in length (NE-SW) with a width varying from 0.25km in the NE to 2.0km in the SW. The topography of the block is plain with surface reduced levels varying from 110m in the SW to 90m in the NE (above MSL) sloping towards northeast. The block area is devoid of major streams/nalas. However, minor seasonal streamlets can be seen. Madinapadu Major Canal passes through the block flowing from south to

north. A metal road from Madinapadu to Sarangapalli passes through the block in the western part. A high tension power line passes through the area in an E-W direction.

REGIONAL GEOLOGY

The area covering Madinapadu Limestone Block is located in the central part of Palnad Sub-basin which forms the northeastern part of the crescent shaped Cuddapah Basin (Fig 2.5). The crescent shaped Proterozoic Cuddapah Basin has an aerial extent of 44,500 sq. km. and it is considered to be one of the most important Purana Basins in Southern India. It has a concave eastern margin 440 km long, with a maximal basinal width of 145 km in the middle and exposes 6 to 12 km thick Mesoproterozoic volcano-sedimentary sequence belonging to Cuddapah Supergroup and Neoproterozoic Kurnool Group (Nagaraja Rao et al., 1987).

The Palnad Sub-basin forming the northeastern part of the crescent shaped Cuddapah Basin covers an area of about 3600 sq. km. in the Krishna valley. It comprises of sequence of arenaceous, argillaceous and carbonate sediments belonging to Neoproterozoic Kurnool Group. These sediments unconformably overlie the older Cuddapah sediments in the eastern part where as older granitoids form the basement in the north and west. The Kurnool sediments are divided into six formations viz., Banganapalle, Narji, Auk (Owk), Paniam, Koilkuntla and Nandyal Formations (Nagaraja Rao et al., 1987).

The Palnad Sub-basin occupies parts of Krishna and Guntur districts of Andhra Pradesh and Nalgonda district of Telangana. A complete succession of the Neoproterozoic Kurnool Group is developed in the Palnad Sub basin. The Madinapadu Limestone Block is located in the central part of Palnad Sub-basin (Fig.2.6).

GEOLOGY OF MADINAPADU LIMESTONE BLOCK

Geological mapping of the Madinapadu Limestone Block on 1:5000 scale has been carried out. Detailed geological map of the block has been prepared incorporating all the litho-units, litho-contacts and structural details as well as the borehole data (Fig. 2.7, PLATE No. IV). Geological cross sections along drilled boreholes are also prepared and given in PLATE No. VI.

Geologically, the block area consists of limestone belonging to the Narji Formation of Kurnool Group of rocks. Minor exposures of limestone are seen on the

surface in the eastern part of the block area (Fig. 2.8 A and B). The limestone is covered by thin veneer of black cotton soil in most part of the block.

The Narji limestone in the area overlies the Banganapalle quartzite of Kurnool Group (Nagaraja Rao et al., 1987). Outcrops of massive limestone are observed in the eastern part of the block. The massive limestone is light grey to dark grey, fine grained and thickly bedded with ribs and furrows on the surface. It is hard and breaks with conchoidal fracture where ever siliceous matrix/content is conspicuous. The limestone strikes $N25^{\circ}$ to $45^{\circ}E$ - $S25^{\circ}$ to $45^{\circ}W$ with a gentle dip of 3° to 6° towards SE. Joints are commonly sub-vertical to vertical in limestone and are trending in N - S, E - W, $N60^{\circ}$ to $80^{\circ}W$ - $S60^{\circ}$ to $80^{\circ}E$.

CORE DRILLING

Sub-surface Exploration by Diamond Core drilling (Voltas-90 rigs) (Fig. 3.1) was carried out to establish both the lateral and vertical continuation of limestone. As per the proposed borehole plan given by MERIT thirty six (36) boreholes were planned with a total meterage of 1440m to drill up to a depth of 40m at 400m x 400m grid interval (Fig. 3.2).

A total of 2328m of core drilling was carried out in 36 boreholes up to a depth varying from 34m (BH-5) to 100m (BH-12) against the tendered quantity of 1440m in 36 boreholes up to a depth of 40m. Significant increase in total drilling meterage is mainly due to large thickness of limestone up to 90m (BH-12) as compared to the anticipated thickness of 40m. Out of the 36 boreholes, one borehole (BH-12) was drilled up to a depth of 100m and the remaining 35 boreholes were drilled up to the bottom of limestone horizon or up to a maximum depth of 70m only as indicated by MERIT/NMET (Fig. 3.3). All the boreholes were drilled vertically with NX core size as the litho-units are sub-horizontal to gentle dipping on a grid pattern of 400m x 400m grid interval.

All the boreholes intercepted massive limestone and the core recovery is more than 90%. However, in the case of weathered and fractured zones and also due to the presence of solution cavities and clay intercalations, the core recovery is low.

The depth of 36 boreholes varies from 34.00m (BH-5) to 100m (BH-12). The thickness of the limestone varies from 20.00m (BH-5) to 90.00m (BH-12). The area is a flat terrain and covered by black cotton soil. The overburden (soil) varies from 1.00m (BH-14) to 12.00m (BH-21). The cores from all the 36 boreholes are preserved in 327 GI core boxes and duplicate samples were handed over to MERIT as per the tender.

LITHO-LOGGING

A total of 2328m of drill core from 36 boreholes was lithologically logged. Below the soil cover, massive limestone is encountered in the entire block. The massive limestone is light grey to dark grey, fine grained, thickly bedded and exhibits conchoidal fracture wherever siliceous matrix/content is conspicuous. The thickness of massive limestone varies from 20.00m (BH-5) to 90.00m (BH-12). Thin veins of calcite and quartz are seen within the limestone. Pyrite is found as segregations and also as disseminated cubic crystals.

Out of 36 boreholes drilled, 4 boreholes (BH-14, BH-15, BH-22 and BH-34) intercepted intercalation of limestone + shale below the massive limestone. Five boreholes (BH-5, 8, 13, 21 and 24) intercepted white quartz vein at the bottom of limestone unit.

CORE SAMPLING

Core is preserved in the GI Sheet core boxes. Limestone drill core of every 1 meter is sampled and processed for chemical analysis. After the physical examination of the core, it is split longitudinally into two equal halves with the help of motorized core splitter. One longitudinal half of the core of every meter is crushed with jaw crusher into 6.5 mm size pieces. After coning and quartering, half of this is preserved as representative sample with proper labeling and the remaining material is powdered to -100 mesh by pulveriser. The powdered core sample is homogenised after coning and quartering. 250gm of homogenized powder sample is considered for chemical analysis and out of which 20gm is taken for analysis. Duplicate sample is labeled and preserved for future reference.

Core of every 1 meter from 36 boreholes with limestone below the overburden of soil is sampled and processed for chemical analysis. A total of 2129 representative core samples at 1m interval have been collected for chemical analysis from these 36 boreholes with limestone. In addition, about 10% check samples i.e. 228 samples were also collected and a total of 2357 samples (2129 + 228) were analyzed chemically.

As per a separate work order chemical analysis of Na_2O and K_2O was also carried out for composite samples of drilled cores for every 10m length/interval, in addition to the regular analysis of eight radicals. Accordingly, 208 composite core samples were drawn for every 10m length/interval of the core from all the 36 drilled boreholes in limestone in Madinapadu Block and analysed.

Samples of overburden soil in these 36 boreholes were not collected for analysis (as indicated by MERIT).

CHEMICAL ANALYSIS

Drill core samples from 36 boreholes with limestone were chemically analyzed at NABL accredited chemical laboratory of M/s RCA Laboratories, Kolkata. As per the work order of MERIT, all the samples were analyzed for LOI, SiO_2 , Fe_2O_3 , Al_2O_3 , CaO, MgO, SO_3 and P_2O_5 . Samples are analyzed for these 8 radicals as per the standard procedure of Indian Standards (IS) and standard procedures of RCA chemical laboratory. A total of 2357 samples including 2129 drill core samples and 228 check samples (about 10%) were prepared and analyzed.

The chemical data of limestone samples from Madinapadu block (Table 4.2) indicate that the average CaO content is 48.87% in >48% CaO category and it decreases to 37.53% in 34-40% CaO category. The average content of SiO_2 is 9.68% in >48% CaO category and it increases to 29.42% in 34-40% CaO category. The average content of Al_2O_3 , and Fe_2O_3 increases from >48% CaO category to 34-40% CaO category whereas the average content of MgO and LOI decreases. The limestone considered for ore resource estimation comprising of four grade-wise categories in Madinapadu block, on an average analyzed 43.04% CaO, 0.37% MgO, 20.32% SiO_2 , 1.05% Al_2O_3 , 0.75% Fe_2O_3 , 33.40% LOI, 0.04% SO_3 and 0.092% P_2O_5 . The average silica content in the ore grade categories of 40-45% CaO and 34-40% CaO in general is higher varying from 22.29 to 29.42% SiO_2 with an average of 25.25% SiO_2 .

The analytical data of 228 check samples is compared with the data of the original samples. The data shows that the analytical data of check samples is similar to the original samples. The scatter plots show a linear trend line indicating that both the primary sample analysis data and the check sample analysis data are in full agreement. All the parameters/oxides show positive Correlation Coefficient indicating that both the primary and check sample analytical data is in perfect agreement.

A total of 208 composite core samples were collected from 36 boreholes drilled in Madinapadu limestone block and analysed for Na_2O and K_2O and the chemical analysis results of all the samples, borehole-wise, are given in Annexure VI. The original analysis reports from M/s RCA Laboratories, Kolkata are given in Annexure VII. Na_2O values range from 0.032% (MP/14/1) to 0.103% (MP/29/6) and the average value is 0.056%. The K_2O content varies from 0.161% (MP/19/2) to 2.472% (MP/29/6) and the average value is 0.361%. The total R_2O ($\text{Na}_2\text{O} + \text{K}_2\text{O}$) varies from 0.214%

(MP/7/2) to 2.575% (MP/29/6) and the average value is 0.417% which is within the permissible limit for limestone ore for cement industry.

ORE RESOURCE ESTIMATION

A total of 2328m of core drilling was carried out in 36 boreholes up to a depth varying from 34m (BH-5) to 100m (BH-12). Out of the 36 boreholes, one borehole (BH-12) was drilled up to a depth of 100m and the remaining 35 boreholes were drilled up to the bottom of limestone horizon or up to a maximum depth of 70m only as indicated by MERIT/NMET (Fig. 3.3). In two boreholes (sinkholes BH-23 and 33) gaping of 12m is encountered. All the 36 boreholes encountered massive limestone with a total meterage of 2052m (Table 3.1).

The extent of limestone mineralization in the exploration block is 655Ha (6.55 sq.km) (Fig. 5.3 and PLATE No. VIII A). The total thickness of the limestone varies from 20.00m (BH-5) to 90.00m (BH-12). The overburden soil thickness varies from 1.00m (BH-14) to 12.00m (BH-21). Massive limestone analyzing >34% CaO is considered for ore resource estimation. Top soil, interlayered soil and the limestone analyzing <34% CaO are considered as overburden and estimated separately.

The resources of limestone have been estimated by cross sectional method as well as by polygon method. A deduction of 10% from gross in-situ resource has been made to arrive at net in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc.

Ore resource estimation by cross sectional method

A total of 12 dip cross sections are generated in AutoCAD, based on the data of 36 boreholes falling in the section lines and with various lithologies encountered (Fig. 5.3 and Plate No. VIII A and B). The 12 dip cross sections are designated as L-L', M-M', N-N', O-O', P-P', Q-Q', R-R', S-S', T-T', U-U', V-V' and W-W'. Ore resource estimation has been carried out in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO as per the latest Notification of IBM dated 25.4.2018, indicating a threshold value of 34% CaO for limestone. The breakup of the limestone resource into above four categories is estimated by incorporating the zones with colour notation in the 12 dip sections prepared for limestone resource estimation.

A total of 810.08 Million Tonnes (MT) net in-situ limestone resource in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO has been estimated, by cross sectional method, in Madinapadu Limestone Block with 677.23

MT as indicated resource and 132.85 MT as inferred resource (Table 5.1 and Table-5.2).

The total net in-situ indicated resource of 677.23 Million Tonnes (MT) consists of 84.52 MT of >48% CaO, 183.32 MT of 45-48% CaO, 238.94 MT of 40-45% CaO and 170.45 MT of 34-40% CaO.

A total inferred resource of 132.85 Million Tonnes (MT) includes 24.33 MT of >48% CaO, 28.76 MT of 45-48% CaO, 51.47 MT of 40-45% CaO and 28.29 MT of 34-40% CaO.

Ore resource estimation by polygon method

The limestone resources in Madinapadu block have also been estimated by polygon method. In this method also ore resource estimation has been carried out in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO as per the latest Threshold Values Notification of IBM dated 25.4.2018, indicating a threshold value of 34% CaO for limestone.

A total of 820.77 Million Tonnes (MT) net in-situ limestone resource in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO has been estimated, by polygon method, in Madinapadu Limestone Block with 676.99 MT as indicated resource and 143.78 MT as inferred resource (Table 5.3A). The net in-situ indicated resource of 676.99 MT of limestone consists of 80.77 MT of >48% CaO, 186.52 MT of 45-48% CaO, 240.32 MT of 40-45% CaO and 169.38 MT of 34-40% CaO. The net in-situ inferred resource of 143.78 MT comprises of 22.49 MT of >48% CaO, 34.61 MT of 45-48% CaO, 54.94 MT of 40-45% CaO and 31.74 MT of 34-40% CaO.

Ore resource locked up under surface barriers

There are three types of surface constraints / features (Fig. 5.4) including one canal, one road and one high tension power line, which are crisscrossing in the Madinapadu Limestone Block. A width of 45m on either side from the center of the surface constraints/features of canal and road is considered as Barrier (MMR 1961, clause 109).

A total of 87.30 Million Tonnes (MT) of net in-situ limestone resource is locked up under the identified surface barrier area of one canal, one road and one high tension power line including 72.34 MT in indicated category and 14.96 MT in the inferred category. The details of barrier-wise ore resource estimation are given in Table 5.4. A total of 810.08 MT net in-situ limestone resource has been estimated, by cross sectional method, in Madinapadu Limestone Block (Table 5.1 and Table 5.2).

After excluding the resource locked up under the surface barriers of one canal, one road and one high tension power line, the total net in-situ limestone resource of Madinapadu Limestone Block is 722.78 MT.

Estimation of soil and low grade limestone overburden

The thickness of overburden soil in the area varies from 1.00m (BH-14) to 12.00m (BH-21). The top soil, few interlayered soil and Kankar are the overburden lithology. In few boreholes, the kankar bed which has more than 34% CaO is taken into resource estimation. The limestone analyzing less than 34% CaO is considered as overburden and estimated separately.

In order to estimate the overburden, the sectional area of the overlying soil cover is calculated from the 12 dip sections drawn for estimation of limestone resources. A specific gravity of 2.0 is taken for soil for tonnage calculation.

A total of 100.73 million tonnes of surface soil overburden and low grade limestone and inter-bedded waste is calculated for the entire Madinapadu Limestone Block with 85.49 MT in the indicated resource area and 15.24 MT in the inferred resource area (Table 5.5).

Stripping Ratio

A total resource of 810.08 million Tonnes (MT) net in-situ limestone resource has been estimated, by cross sectional method, in Madinapadu Limestone Block (Table 5.1 and 5.2). A total of 100.73 million tonnes of overburden is calculated in the limestone ore resource block (Table 5.5). The calculated stripping ratio of limestone ore to overburden in Madinapadu Limestone Block is 1: 0.12 in the resource area.

Summary of ore resources

A total of 810.08 Million Tonnes (MT) net in-situ limestone resource has been estimated, by cross sectional method and a total of 820.77 MT is estimated by polygon method in Madinapadu Limestone Block. The difference of resources estimated in both the methods is 1.01% which is well within tolerance limit.

The limestone of Madinapadu block is of stratiform and tabular type and hence the ore resources estimated by cross-sectional method are considered. A total of 810.08 Million Tonnes (MT) net in-situ limestone resource has been estimated, by cross sectional method, in Madinapadu Limestone Block with 677.23 MT as indicated resource and 132.85 MT as inferred resource in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO (Table 5.1 and Table 5.2). The net in-situ indicated resource of 677.23 MT consists of 84.52 MT of >48% CaO, 183.32 MT of 45-48% CaO, 238.94 MT of 40-45% CaO and 170.45 MT of 34-40% CaO. The

inferred resource of 132.85 MT comprises of 24.33 MT of >48% CaO, 28.76 MT of 45-48% CaO, 51.47 MT of 40-45% CaO and 28.29 MT of 34-40% CaO. The summary of ore resource estimated by cross-sectional method is shown in the following Table.

Summary of net in-situ ore resource estimated by cross sectional method in Madinapadu limestone block

(in Million Tonnes)				
>48% CaO	45 - 48% CaO	40 - 45% CaO	34 - 40% CaO	TOTAL
INDICATED				
84.52	183.32	238.94	170.45	677.23
12%	27%	35%	25%	
INFERRED				
24.33	28.76	51.47	28.29	132.85
18%	22%	39%	21%	
TOTAL RESOURCES				
108.85	212.08	290.41	198.74	810.08
13%	26%	36%	25%	

A total of 87.30 MT net in-situ limestone resource is estimated as locked up resource under surface barrier areas of one canal, one road and one high tension line in the Madinapadu ore block (Table 5.4). After excluding the resource locked up under the surface barriers of one canal, one road and one high tension line, the total limestone resource of Madinapadu Limestone Block is 722.78 MT. Total ore resource estimated by cross sectional method, the resource locked up under surface barrier areas and balance resource after deducting the resource locked up under the surface barrier areas in Madinapadu limestone block are given in Table 5.6.

The net in-situ limestone resource of 810.08 Million Tonnes (MT) estimated in Madinapadu Limestone Block consists of 108.85 MT of >48% CaO grade analysing 48.87% CaO and 9.68% SiO₂; 212.08 MT of 45 - 48% CaO grade analyzing 46.55% CaO and 14.33% SiO₂; 290.41 MT of 40 - 45% CaO grade analyzing 42.16% CaO and 22.29% SiO₂ and 198.74 MT of 34 - 40% CaO grade analyzing 37.53% CaO and 29.42% SiO₂ (Table 5.7).

Out of the total net in-situ resource of 810.08 Million Tonnes (MT), 611.34 MT (75.47%) belongs to +40% CaO, comprising of 108.85 MT (13.44%) of > 48% CaO grade category, 212.08 MT (26.18%) of 45-48% CaO grade category and 290.41 MT (35.85%) of 40-45% CaO grade category. This resource of 611.34 MT (75.47% of the total resource) on an average analyzed 44.88% CaO and 17.28% SiO₂ (Table 5.7).

The remaining 198.74 MT (24.53%) of the resource belongs to 34-40% CaO grade category. This resource of 198.74 MT (24.53% of the total resource) analyzed 37.53% CaO and 29.42% SiO₂ (Table 5.7). MERIT has indicated that ore resource estimation has to be carried out by taking 34% CaO as cutoff for the limestone, irrespective of SiO₂ content.

As per the latest IBM notification dated 25.4.2018, a threshold value of 34% CaO indicated for limestone. Considering the IBM's cut off of 34% CaO, a total net in-situ resource of 810.08 MT has been estimated in four grade wise categories which has analysed on an average 43.04% CaO, 0.37% MgO, 20.32% SiO₂, 1.05% Al₂O₃, 0.75% Fe₂O₃, 33.40% LOI, 0.04% SO₃ and 0.092% P₂O₅ (Table 5.7).

By considering 40% CaO and above i.e. 40-45% CaO, 45-48% CaO and >48% CaO grade categories, the total resource estimated is 611.34 MT constituting 75.47% of the total resource estimated which has analysed on an average 44.88% CaO, 0.39% MgO, 17.28% SiO₂, 0.87% Al₂O₃, 0.62% Fe₂O₃, 34.94% LOI, 0.04% SO₃ and 0.089% P₂O₅ (Table 5.7) indicating that it is suitable for cement industry.

The remaining 198.74 MT (24.53%) of the resource belongs to 34-40% CaO grade category which analysed on an average 37.53% CaO, 0.28% MgO, 29.42% SiO₂, 1.59% Al₂O₃, 1.15% Fe₂O₃, 28.79% LOI, 0.05% SO₃ and 0.101% P₂O₅ (Table 5.7). This type of ore requires blending/beneficiation during the mining stage.

UNFC Classification

As per UNFC classification, the exploration in the Madinapadu Limestone Block falls under category-I i.e. Stratiform, strata bound and tabular deposits of regular habit. The G2 or general exploration with core drilling at 400m x 400m grid interval, sampling of every 1m of core and chemical analysis has established the main geological features, size, shape and grade of the Madinapadu Limestone Block. As per the UNFC classification, out of the total net in-situ resource of 810.08 Million Tonnes (MT) of limestone estimated in Madinapadu Limestone Block, a resource of 677.23 MT can be categorized as Indicated Mineral Resource (332) and a resource of 132.85 MT can be categorized as Inferred Mineral Resource (333).

REPORTING OF MINERAL RESOURCES AS PER MEMC (RULES 2021)

All the data collected in the G2 Exploration of Madinapadu Limestone Block has been tabulated as per Part IV and V of schedule: MEMC Rules-2015 and Amended MEMC Rules-2021 and is given in Chapter-6.

RECOMMENDATION AND SUGGESTIONS

The G2 or general exploration with core drilling at 400m x 400m grid interval, sampling of every 1m of core and chemical analysis has established a total net in-situ resource of 810.08 Million Tonnes (MT) of limestone with 677.23 MT as indicated resource and 132.85 MT as inferred resource in Madinapadu Limestone Block.

By considering 40% CaO and above i.e. 40-45% CaO, 45-48% CaO and >48% CaO grade categories, the total resource estimated is 611.34 MT constituting 75.47% of the total resource estimated which has analysed on an average 44.88% CaO, 0.39% MgO, 17.28% SiO₂, 0.87% Al₂O₃, 0.62% Fe₂O₃, 34.94% LOI, 0.04% SO₃ and 0.089% P₂O₅ indicating that it is suitable for cement industry.

The remaining 198.74 MT (24.53%) of the resource belongs to 34-40% CaO grade category which analysed on an average 37.53% CaO, 0.28% MgO, 29.42% SiO₂, 1.59% Al₂O₃, 1.15% Fe₂O₃, 28.79% LOI, 0.05% SO₃ and 0.101% P₂O₅. This type of ore requires blending/beneficiation during the mining stage.

The resource estimated in Madinapadu Limestone Block is sizeable and warrants taking up Prefeasibility Study and Detailed Exploration.

CHAPTER-1

INTRODUCTION

1.1 LIMESTONE IN INDUSTRY

Limestone is the main raw material for production of cement. It is also used as flux in metallurgical industry. High grade limestone is used in chemical, alkali, sugar, paper, glass and leather tanning industries.

Limestone used for industrial purpose falls under 'major mineral', while the use of limestone in lime kilns and for building purposes comes under 'minor mineral' as per Mines and Minerals (Development and Regulation) Act, 1957.

The Cement Industry which is one of the key infrastructure industries recorded exponential growth pattern in successive years since the introduction of partial decontrol in 1982, total decontrol in 1989 and post delicensing of the Industry and Policy Reforms initiated in 1991. As per Cement Survey 2017, the total annual installed capacity of cement in 2017 was 501.86 million tonnes and it is likely to touch 550.00 million tonnes by 2020. Most of these capacities are modern and based on the energy efficient dry process technology. The number of plants and capacity are more in the southern region (Andhra Pradesh, Tamil Nadu, Kerala, Karnataka and Telangana) of the country. The total production of cement (all kinds) in 2017-18 was about 338.55 million tonnes (IBM 2018).

The Cement Industry produces a variety of cement such as Ordinary Portland Cement (OPC), Portland Pozzolana Cement (PPC), Portland Blast Furnace Slag Cement (PBFC), Oil Well Cement, White Cement, etc. to suit a host of applications. The Indian Cement industry today produces 11 varieties of cement including ordinary Portland cement (71%), Portland pozzolana cement (18%) and Portland blast furnace slag cement (10%). The balance one per cent is of all special cements. Broad chemical specifications of cement grade (Run-of-Mine) limestone are given in Table 1.1 (IBM, 2018). The end use of limestone grades for different industries as given by Ramam (2012) are given in Table 1.2.

The country has witnessed Infrastructure boom in recent years and the cement Industry has been one of the main beneficiary in terms of demand. The cement market has growth due to the central government liberalization policies and new schemes for housing, road projects etc. Cement demand growth is anticipated to be about 11% increase mainly through road projects and housing projects.

Continuous demand for exports to China and other south-east Asian countries along with the increased requirement of the domestic sector has been the lead for all the cement manufacturers in the country to plan for increased capacities.

Table 1.1 Broad chemical specifications of cement grade (Run-of-Mine) limestone (Clause 6.1.1)

Oxide component/ Other Constituents	Acceptable range for manufacture of Ordinary Portland Cement (33, 43 & 53 Grade) (percent)	Limiting values taking into consideration other types of cements scope of beneficiation and blending (percent)
CaO	44-52	40 (min)
MgO	3.5 (max.)	5.0 (max)
SiO ₂	To satisfy LSF, silica	–
Al ₂ O ₃	Modules and alumina	–
Fe ₂ O ₃	Modules	–
TiO ₂	<0.5	<1.0
Mn ₂ O ₃	<0.5	<1.0
R ₂ O (Na ₂ O + K ₂ O)	<0.6	<1.0
Total S as SO ₃	<0.6	<0.8
P ₂ O ₅	<0.6	<1.0
Cl	<0.015	<0.05
Free silica	<8.0	<10.0

Source: Report on Norm for limestone deposits for cement manufacture by National Council for Cement and Building Materials, New Delhi, May 2001.

Table 1.2 End use of limestone grades for different industries

Cement	CaO	35 % (Min)
	MgO	4 % (Max)
	SiO ₂	18 % (Max)
	Alkalis	0.5 % (Max)
Blast Furnace (BF)	CaO	42 % (Min)
	MgO	6 % (Max)
	Total Insoluble	8-12 %
	Alkalis	0.4 %
Steel Melting Shop (SMS)	CaO	48 % (Min)
	SiO ₂	4 % (Max)
	MgO	4 % (Max)
White Cement	CaO	48 % (Min)
	Al ₂ O ₃	1% (Max)
	Fe ₂ O ₃	1 % (Max)
Chemical Grade	CaO	50 % (Min)
	SiO ₂	2 % (Max)
	Fe ₂ O ₃	0.25 % (Max)

Source: Mineral resources of Andhra Pradesh by Ramam, 2012

1.2 TENDERING AND WORK ORDER BY MERIT

Mineral Exploration Research and Innovation Trust (MERIT) had invited tender for G-2 level exploration work in Madinapadu, Tangeda, Mutyalampadu-Tangeda and Ramapuram Limestone Blocks in Guntur District, A.P. as per Tender No. 2/MERIT/ Re-tender/2018/3, ID 232252 dated 01.11.2018.

Consortium of M/s JP Kordrilling as Lead Member and M/s Geosolutions as Consortium Member qualified in the tender. Work Order No. 2/MERIT/Re-Tender/2018/3/2 dated 05.12.2018 was issued by CEO, MERIT for G-2 level exploration work in Madinapadu, Tangeda, Mutyalampadu-Tangeda and Ramapuram Limestone Blocks in Guntur District, A.P. The scope of exploration work includes topographical survey, geological mapping, core drilling, litho-logging, sampling, chemical analysis, petrographic studies and preparation of Geological Report (GR) with ore resource estimation.

The progress of work in the area has been hampered due to the standing crops in all the blocks. The matter was brought to the notice of CEO, MERIT vide our letters dated 14.12.2018 and 15.2.2019 and it was requested to extend the time period of the work order by at least 4 months for starting the G2 Exploration in Madinapadu, Tangeda, Mutyalampadu-Tangeda and Ramapuram Limestone Blocks in Guntur District, A.P., which was agreed up on based on field conditions.

The exploration work of topographical survey and geological mapping was started on 08.03.2019 and completed by May 2019 in all the blocks. Core drilling in Madinapadu block was started on 27.04.2019. In spite of our best efforts core drilling progress was hampered due to the drilling problems in the area like increase in depth of boreholes and other constraints. Further, the limestone block is located in cultivation fields and monsoon period has started. The local farmers have started harvesting during June, 2019 and strongly resisted further drilling in their fields till the cultivation of crops is completed i.e. up to March 2020. Under the circumstances it was requested vide our letter dated 7.6.2019 for extending the time period of the work order up to July 2020, which was agreed upon based on field conditions. Core drilling and sampling was completed by May 2020. However, chemical analysis of the samples got delayed due to the Covid-19 pandemic. Hence, further extension of time period up to October 2021 was requested and the same was approved by NMET.

M/s Geosolutions have planned and co-ordinated all the aspects of field operations and prepared the Geological Report (GR). Core drilling and sampling was

carried out by M/s JP Kordrilling, the lead member of the Consortium. Chemical analysis of samples was carried out by NABL accredited M/s RCA Laboratories, Kolkata.

The work in Madinapadu block including topographical survey, geological mapping, core drilling, litho-logging, core sampling, chemical analysis, petrographic studies and preparation of Geological Report (GR) with ore resource estimation were completed.

The quantum of work proposed and the work completed in Madinapadu limestone block are given in Table 1.3.

Table 1.3 Work proposed and work completed in Madinapadu limestone block

S. No	Item of Work	Work Proposed	Work Completed
1	Surface Core Drilling 40m depth each (400x400m grid)	1440m (36 BHs)	2328m (36 BHs)
2	GI Sheet Core Box 5 m run each	288 No.	327 No.
3	Topographic survey on 2m contour interval on 1:1000 scale for the area (Ha.) mentioned with scope of work.	660 Ha	660 Ha
	Survey party days	15	15
4	Geological Mapping on 1:5000 scale for the area (Ha.) mentioned with scope of work.	660 Ha	660 Ha
	Geologist party days	30	30
5	Core Sampling based on the surface core drilling- Refer Point-1 of drilling	1440No	2129 No.
	Party days	30	45
6	Chemical Analysis - CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , LOI at NABL accredited laboratory (original samples + 10% check samples)	1584 No.	2357 No.
7	Chemical Analysis - SO ₃ , P ₂ O ₅ at NABL accredited laboratory (original samples + 10% check samples)	1584 No.	2357 No.
8	Chemical Analysis - Na ₂ O, K ₂ O at NABL accredited laboratory	208 No.	208 No.
9	Preparation of Thin section	10 No.	10 No.
10	Petrographic Studies	10 No.	10 No.
11	Exploration Report (GR)	1 No.	1 No.

1.3 EXPERTISE OF M/s GEOSOLUTIONS (www.geosolutions.in)

“GEOSOLUTIONS” is a professional and scientific consultant agency established by a team of experienced professional and geoscientific personnel with an ambition to provide quality solutions in the field of Mineral Exploration and

evaluation needs of the Mining industry and also in the field of Geotechnical, Remote Sensing & GIS, Hydro-geological and related sectors. It is located at Malkajgiri, Hyderabad.

A team of multidisciplinary and experienced personnel effectively addresses Geological and Geophysical Exploration, Mining and Environmental issues and provides services to the best satisfaction of the utilitarian clients. The members of the team have worked for long years in Governmental organizations, Universities and Public Sector Companies in key positions like Directors, Professors, Chief Mining Geologists, General Managers etc. who have successfully executed various geological exploration, mining and environmental projects. State-of-the-art techniques and technology are practiced to ensure assured and exclusive outputs. The projects are being handled with a blend of academic expertise and professional excellence. Profile of M/s Geosolutions stating the expertise, team of experts, projects completed etc. is given in Annexure-I.

Team of experts from M/s Geosolutions associated with this exploration and evaluation work includes Dr. P. V. Ramesh Babu, Principal Geologist and exploration expert and Dr. R. Pavanaguru, Mineralogist and Geochemistry expert, Dr. G. Nagendra Babu, Chief Geologist, Dr. D. Roop Kumar and Shri L. Premchandrar, both Exploration Geologists, and Dr. Ch. Ravi, Geologist. The team also includes 2 more young and energetic Geologists.

Core drilling and sampling was carried out by M/s JP Kordrilling, the lead member of the Consortium. Chemical analysis of samples was carried out by NABL accredited laboratory M/s RCA Laboratories, Kolkata.

1.4 LOCATION AND ACCESSIBILITY

The Madinapadu Limestone Block is oval in shape and comprises an area of 660 Ha. The block is bounded by latitudes 16° 37' 39.20" N and 16° 39' 50.97" N and longitudes 79° 45' 07.11" E and 79° 47' 7.10" E and forms part of Survey of India Toposheet No. 56P/14. The Madinapadu limestone block for exploration is located 500m east of Madinapadu village which is situated at about 8.2 km northeast of Dachepalli town. Dachepalli is the Mandal headquarters in Guntur district, Andhra Pradesh and is situated on Hyderabad-Guntur State Highway SH-21. Dachepalli is approachable by train and by road. The nearest railway station is Nadikude about 8.7 km southwest of Madinapadu, on the Hyderabad-Guntur broad-gauge line of South Central Railway (Figs. 1.1, 1.2, 1.3 and PLATE No. IA, IB).

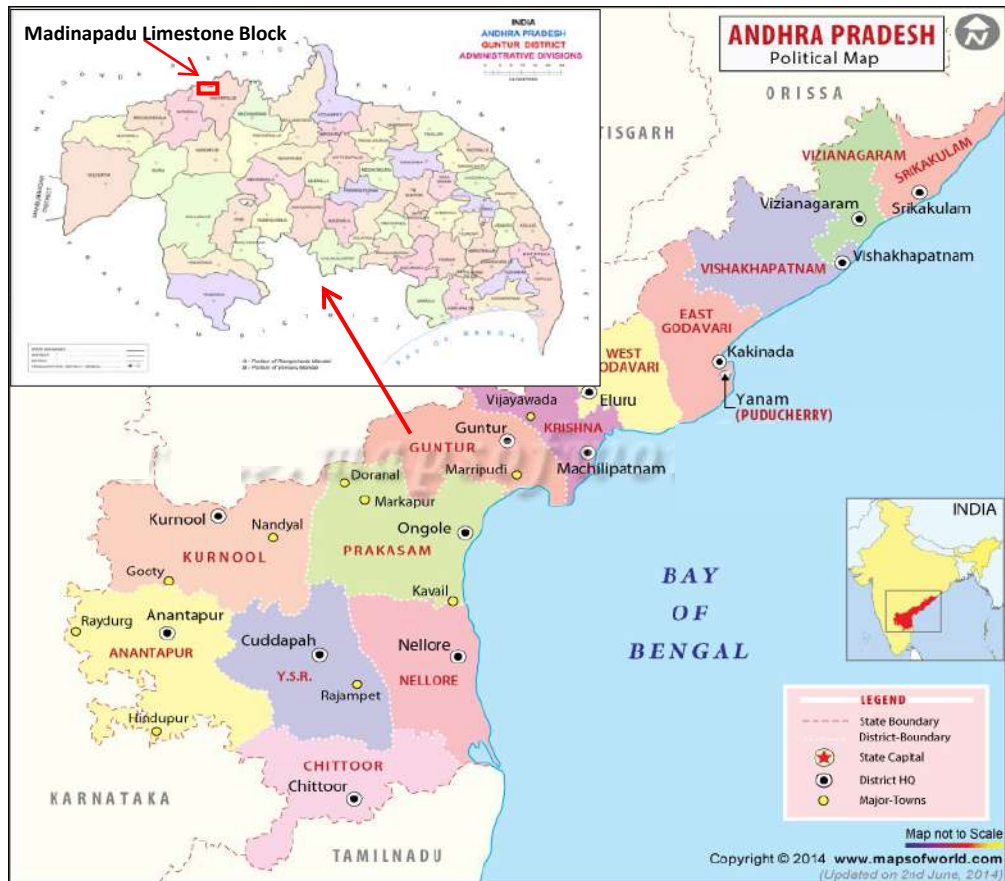


Figure 1.1 Location map of Madinapadu limestone block, Guntur District, A.P.

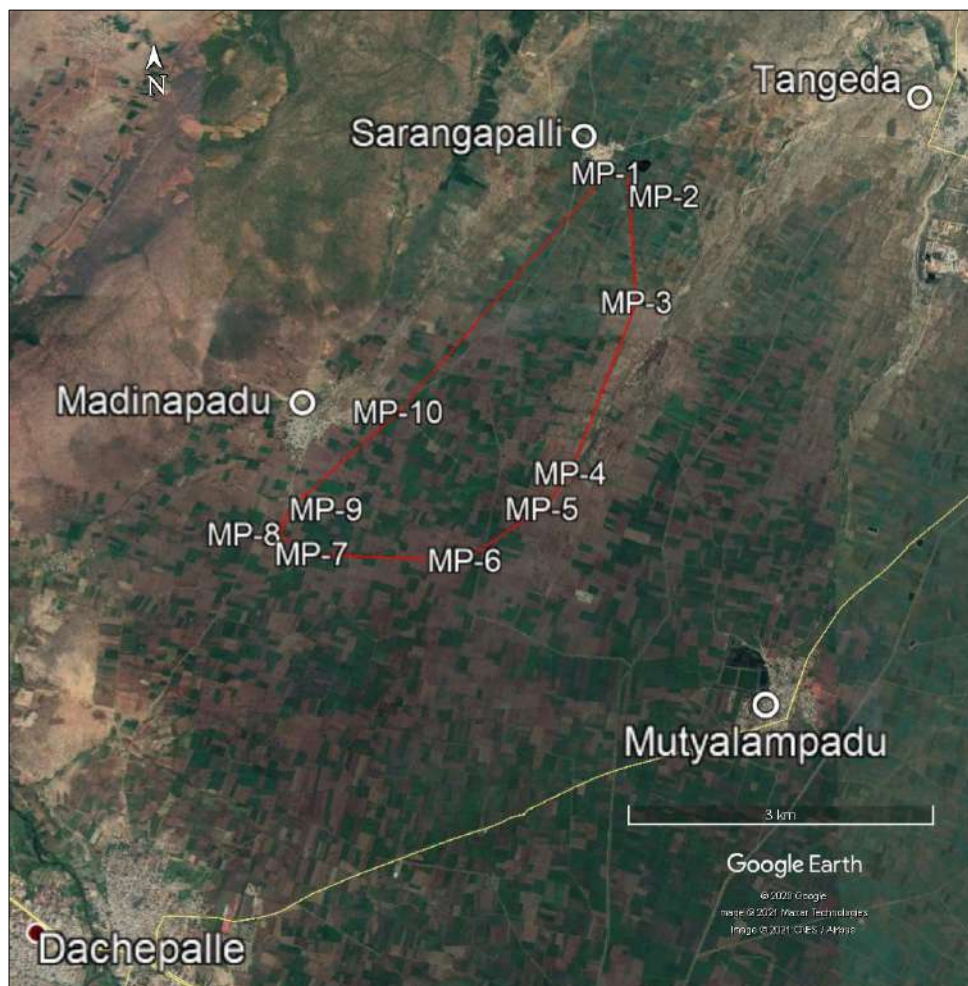


Figure 1.2 Google map showing Madinapadu limestone block, Guntur District, A.P.

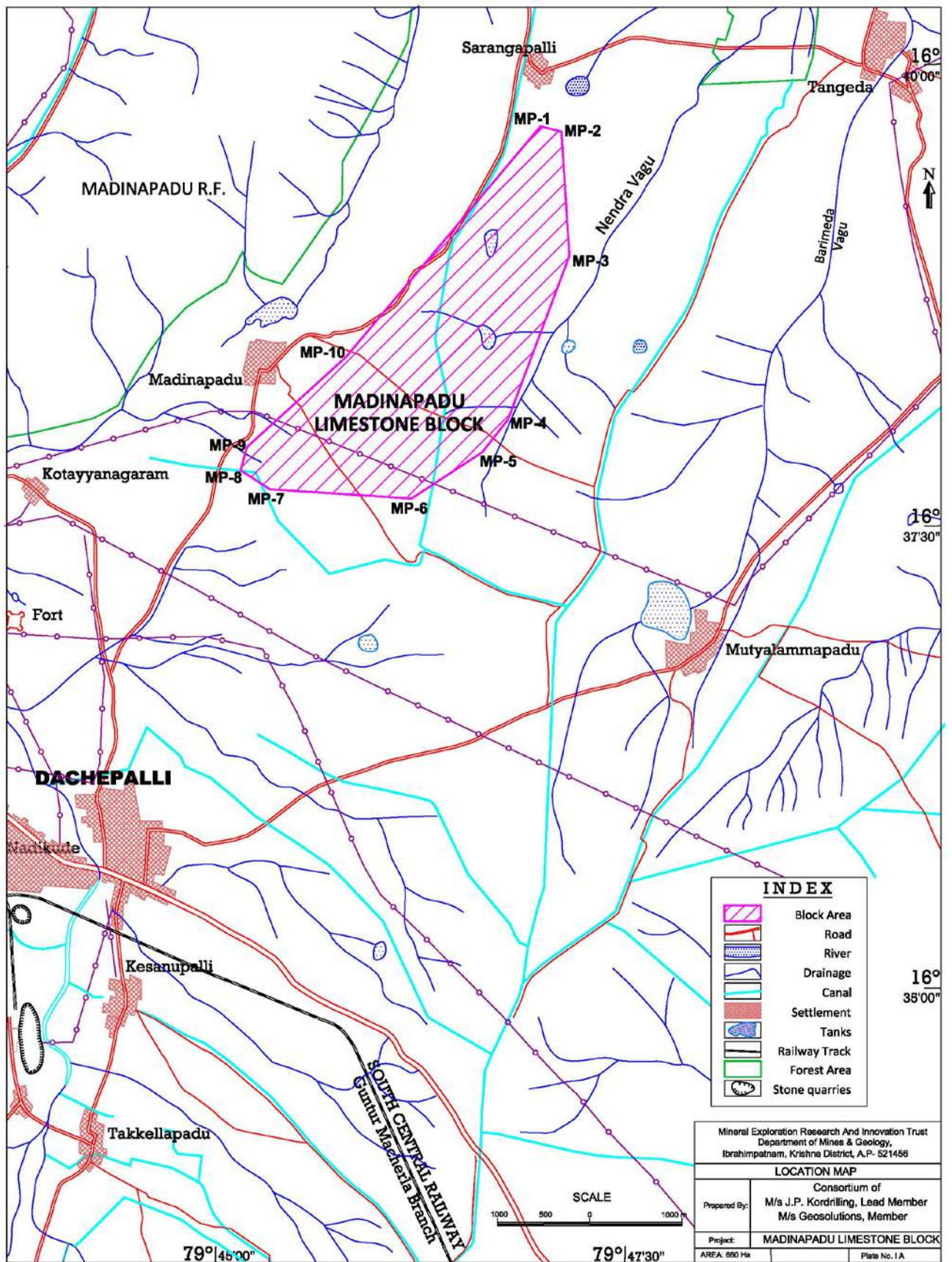


Figure 1.3 Map showing the road network around Madinapadu.

1.5 INFRASTRUCTURE

The nearest township is Dachepalli situated at about 8.2 km to the southwest of Madinapadu village. It is the Mandal headquarters with educational and health facilities. Dachepalli is well connected with all major cities of Guntur, Vijayawada and Hyderabad by rail and road. All basic amenities such as school, hospital, market etc. are available here. The nearest Police Station is at Dachepalli. Guntur is the district headquarters and is located at a distance of about 96 km towards southeast of Dachepalli. Hyderabad is situated about 184 km towards the North West. The nearest sea port is Krishnapatnam at a distance of 350 km. The nearest Airport is located in Vijayawada at distance of 170 kms SE of the block and Hyderabad is situated about 184 km towards the North west of the block.

A number of cement plants are located around Madinapadu. Bhavya Cements Limited is located at a distance of 19.5km in the northeast, Nagarjuna Cements Limited is at a distance of 25.8 km (north of Krishna River) and Sagar Cements Limited at a distance of 29.4km (north of Krishna River).

1.6 CLIMATE

The area is located in a tropical climatic belt. The hot season commences early in March and ends up in second week of June. The months of May and June are the hottest months in the year with temperatures reaching up to 42°C. December and January are comparatively the cooler months with the average temperature of about 18°C. The rainy season is generally distributed during the months of July to December under the influence of southwest and northeast monsoons with an annual average precipitation of 595 mm.

1.7 LAND USE PATTERN

The Madinapadu limestone block comprises an area of 660Ha area and represents an agricultural land. The topography of the block is plain with surface reduced levels varying from 110m in the SW to 90m in the NE (above MSL) sloping towards northeast. The block area is devoid of major streams/nalas. However seasonal streamlets can be seen. A metal road from Madinapadu to Sarangapalli passes through the block in the western part. A high tension power line passes through the area in an E-W direction. Madinapadu Major canal passes through the block flowing from south to north. Most part of the block area is covered by black

cotton soil with sporadic and isolated limestone outcrops. Light grey to dark grey massive limestone is exposed in the eastern part of the block

As per the cadastral data the Madinapadu limestone block of 660 Ha is mainly an agricultural land belonging to four (4) villages. It consists of 653.95 Ha (99.08%) of private patta land and 6.05 Ha (0.92%) of government land. Major part of the land of about 607.78 Ha (92.09 %) belongs to Madinapadu village. The remaining land of 52.22 Ha (7.91%) belongs to three villages of Tangeda, Dachepalli and Gamalapadu villages as per the cadastral/land records. The details of private and government land, village wise, are given in Table 1.4. Cadastral map of Madinapadu limestone block is given as PLATE No. II and the details of cadastral/land record are given in Annexure II. The area represents an agricultural land with crop of cotton, chilly, bengal gram, jawar etc. annually.

Table 1.4 Village-wise details of private and government land in Madinapadu limestone block

Name of Village	Area in Acres			Area in Hectares			Total %		
	Private	Govt.	Total	Private	Govt.	Total	Private	Govt.	Total
Madinapadu	1489.08	12.78	1501.86	602.61	5.17	607.78	91.30	0.78	92.09
Tangeda	66.72	2.18	68.9	27.00	0.88	27.88	4.09	0.13	4.22
Dachepalli	23.17	-	23.17	9.38	-	9.38	1.42	-	1.42
Gamalapadu	36.96	-	36.96	14.96	-	14.96	2.27	-	2.27
Total	1615.93	14.96	1630.89	653.95	6.05	660.00	99.08	0.92	100.00

1.8 MINERALIZED AREA OF THE BLOCK

The total mineralized area of Madinapadu Limestone block is covering an extent of 655 Ha out of the total block area of 660Ha.

CHAPTER-2

FIELD EXPLORATION IN MADINAPADU LIMESTONE BLOCK

2.1 GENERAL

The southern part of the Indian peninsula witnessed development of a number of large intra-cratonic sedimentary basins traditionally referred to as Purana basins spanning in age from Paleoproterozoic to Neoproterozoic. One among such large Proterozoic sedimentary basin is the Cuddapah basin. Others include Pranahita-Godavari valley basin, Bhima basin and Kaladgi-Badami basin. The Cuddapah sediments in parts of Kundair Valley and Palnad tract are unconformably overlain by the Kurnool Group of rocks which comprises 500m thick succession of sandstone/quartzite, limestone and shale (Nagaraja Rao et al., 1987).

Most favourable conditions for large accumulation of chemically precipitated limestone are climatically stable, warm, shallow, relatively sluggish water with slow but continuous subsidence of the sea bottom. Normal marine limestones are common in such stable shelf sedimentary environments. Sedimentation took place during Meso- to Neoproterozoic period and the sedimentary sequences developed in Cuddapah basin, Pakhal basin and Kurnool (includes Palnad Sub-basin) and Bhima basin may be similar to such stable shelf sedimentary environs (Nagaraja Rao et al., 1987).

India has huge resources of limestone distributed over different parts of the country. The total reserves/resources of limestone of all categories and grades as per NMI data based on UNFC system as on 1.4.2015 have been estimated at 203,224 million tonnes, of which 16,336 million tonnes (8%) are placed under reserves/proved category and 186,889 million tonnes (92%) are under remaining resources category. Therefore, more thrust is being given for exploration of cement grade limestone deposits to bring the **resource category** to the **reserves category**. Further, concerted efforts are also required to identify new cement-grade limestone as well as SMS and BF grade limestone deposits to meet the growing demand (IBM 2017, 2018).

G2 Exploration of Madinapadu Limestone Block in Guntur district, Andhra Pradesh was taken up as per the work order from MERIT, Ibrahimpatnam, Vijayawada. The scope of exploration work consists of topographical survey, geological mapping, core drilling, litho-logging, drill core sampling, chemical analysis, petrographic studies and preparation of Geological Report (GR).

2.2 TOPOGRAPHICAL SURVEY

The Madinapadu limestone exploration block is located 500m east of Madinapadu village which is situated at about 8.2 km northeast of Dachepalli town. It occupies an area of 660 Ha and forms part of Survey of India Toposheet No. 56P/14. The block is bounded by latitudes $16^{\circ} 37' 39.20''$ N and $16^{\circ} 39' 50.97''$ N and longitudes $79^{\circ} 45' 07.11''$ E and $79^{\circ} 47' 7.10''$ E. Topographic survey of the Madinapadu limestone block has been completed by using DGPS (Spectra) and Leica Total Station (TS 06 Plus model).

Four ground control points TD-9, TD-10, TD-11 and TD-12 were established in Madinapadu limestone block and X, Y coordinates were fixed using DGPS. One known bench mark BM 95.49m from Nadikude Junction (Railway), in Survey of India Toposheet No. 56 P/14 (Fig. 2.1) is taken as reference point and the elevation (Z) is calibrated to ground control points TD-9, TD-10, TD-11 and TD-12 established in Madinapadu limestone block by DGPS.



Figure 2.1 Location of known Bench Mark point of Nadikude Junction

Coordinates from ground control points TD-9, TD-10, TD-11 and TD-12 were transferred to other base station points established in Madinapadu limestone block. Based on these coordinates, block boundary points and borehole locations at 400m x 400m grid interval provided by MERIT were ground fixed in Madinapadu limestone block. The details of ground control points TD-9, TD-10, TD-11 and TD-12 are given in Table 2.1.

Table 2.1 Details of ground control points TD-9, TD-10, TD-11 and TD-12 in Madinapadu limestone block

S. No	GEOGRAPHIC COORDINATES		UTM COORDINATES		RL (m)	Station No.	Name of Village
	Latitude	Longitude	Easting	Northing			
1	16° 37' 4.4" N	79° 47' 6.9" E	370431.53	1837677.37	106.17	TD-9	Madinapadu
2	16° 37' 5.3" N	79° 47' 5.2" E	370380.75	1837705.98	104.97	TD-10	Madinapadu
3	16° 37' 46.5" N	79° 46' 17.2" E	368967.43	1838981.81	104.59	TD-11	Madinapadu
4	16° 37' 46.3" N	79° 46' 17" E	368960.40	1838974.77	103.46	TD-12	Madinapadu

The boundary points (BP) of Madinapadu limestone block, provided by MERIT, were ground fixed with DGPS. The UTM data, geographic coordinates and the RLs of the boundary points are given in Table 2.2. The photographs the DGPS locations of the boundary points are given in Figure 2.2 and the photographs of boundary pillars with GPS reading are given in Figures 2.3 A, B and C.

Table 2.2 Details of boundary points of Madinapadu limestone block

S. No	BP No.	GEOGRAPHIC COORDINATES		UTM COORDINATES		RL (m)
		Latitude	Longitude	Easting	Northing	
1	MP 1	16° 39' 50.97" N	79° 46' 56.20" E	370145	1842799	91.050
2	MP 2	16° 39' 49.19" N	79° 47' 03.89" E	370373	1842743	90.233
3	MP 3	16° 39' 05.30" N	79° 47' 07.10" E	370459	1841393	89.550
4	MP 4	16° 38' 07.40" N	79° 46' 45.00" E	369794	1839618	94.864
5	MP 5	16° 37' 55.70" N	79° 46' 35.60" E	369513	1839260	97.442
6	MP 6	16° 37' 39.20" N	79° 46' 09.80" E	368745	1838758	104.016
7	MP 7	16° 37' 42.20" N	79° 45' 17.90" E	367208	1838859	101.414
8	MP 8	16° 37' 48.79" N	79° 45' 07.11" E	366890	1839064	100.129
9	MP 9	16° 37' 57.01" N	79° 45' 09.40" E	366959	1839316	100.219
10	MP 10	16° 38' 29.01" N	79° 45' 45.40" E	368032	1840293	101.591

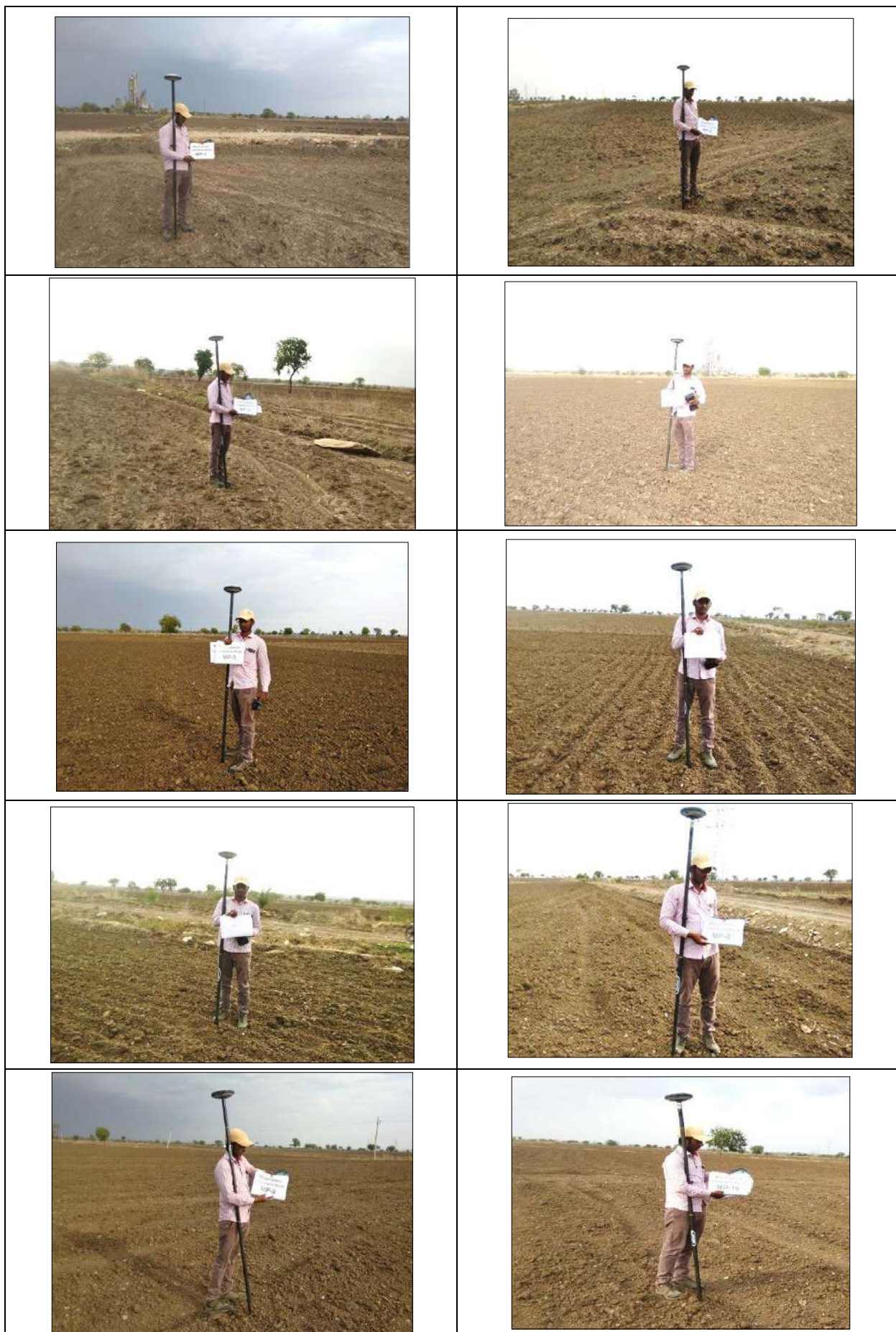


Figure 2.2 Photographs of DGPS locations of eight boundary points MP 1 to MP 10 in Madinapadu limestone block



Figure 2.3 A. Photographs of boundary pillars BP 1 to BP 4 with GPS reading in Madinapadu limestone block



Figure 2.3 B. Photographs of boundary pillars BP 5 to BP 8 with GPS reading in Madinapadu limestone block



Figure 2.3 C. Photographs of boundary pillars BP 9 and BP 10 with GPS reading in Madinapadu limestone block

Borehole locations at 400m x 400m grid interval were ground fixed with DGPS. Reduced level of borehole collars was deduced from DGPS survey (Fig. 2.4 A) and coordinates of all the boreholes in the block were calculated with reference to the reference bench mark. Detailed survey and surface topographical mapping has been carried out with the help of Total Station (Fig. 2.4 B) and surface topographic maps on 1:5000 and 1:1000 scale with 2 m contour interval incorporating boundary pillars, borehole locations and cadastral data were prepared (PLATE Nos. I, II, III and V). Data points (RLs) of the Madinapadu limestone block were collected at an average distance of 75m.



Figure 2.4 A. DGPS Survey



Figure 2.4 B. Total Station Survey

The Madinapadu limestone block represents an agricultural land and comprises an area of 660Ha. The block is oval in shape and extends in a NE-SW direction. It is about 5.0km in length (NE-SW) with a width varying from 0.25km in the NE to 2.0km in the SW. The topography of the block is plain with surface reduced levels varying from 110m in the SW to 90m in the NE (above MSL) sloping towards northeast. The block area is devoid of major streams/nalas. However, minor seasonal streamlets can be seen. Madinapadu Major Canal passes through the block flowing from south to north. A metal road from Madinapadu to Sarangapalli passes through the block in the western part. A high tension power line passes through the area in an E-W direction.

2.3 REGIONAL GEOLOGY

The area covering Madinapadu Limestone Block is located in the central part of Palnad Sub-basin which forms the northeastern part of the crescent shaped Cuddapah Basin (Fig 2.5).

Cuddapah Basin

The Intracratonic Proterozoic Cuddapah Basin of peninsular India (Fig. 2.5) is one of the largest sedimentary basins in the world that preserves a thick sequence of clastic and non-clastic rocks and associated magmatic rocks. The crescent shaped Proterozoic Cuddapah Basin has an aerial extent of 44,500 sq. km. and it is considered to be one of the most important Purana Basins in Southern India. It has a concave eastern margin 440 km long, with a maximal basinal width of 145 km in the middle and exposes 6 to 12 km thick Mesoproterozoic volcano-sedimentary sequence belonging to Cuddapah Supergroup and Neoproterozoic Kurnool Group (Nagaraja Rao et al., 1987).

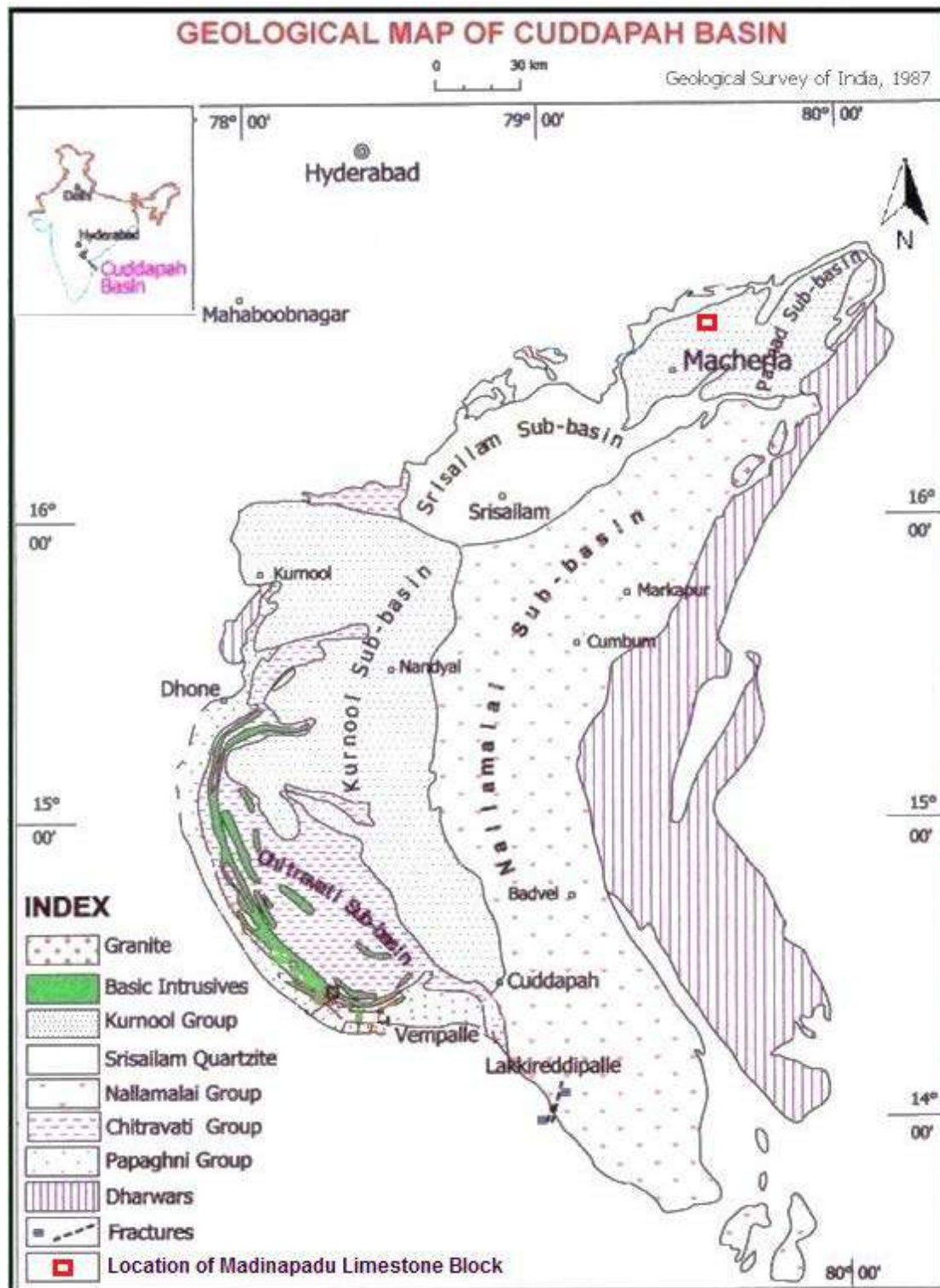


Figure 2.5 Geological map of Cuddapah Basin showing various sub-basins and location of Madinapadu limestone block (Nagaraja Rao et al., 1987)

The Cuddapah Supergroup is developed in Papaghni and Srisaillam Sub-basins and the Nallamalai fold belt in the east, which has resulted from easterly

compression and thrusting related to the Eastern Ghat Orogeny. Kurnool Group is developed in the Kurnool and Palnad Sub-basins. It is the conjunction of several sub-basins which has given rise to the main Cuddapah Basin and later tectonic activity has resulted in giving rise to the present crescent shape to the Cuddapah Basin (Nagaraja Rao et al., 1987).

The Cuddapah sediments are predominantly arenaceous to argillaceous with subordinate calcareous units and are well developed in Papaghni/Chitravati, Nallamalai and Srisailam Sub-basins (Fig. 2.5). They are overlain by Neoproterozoic Kurnool sediments dominated by carbonate facies with subordinate arenaceous and argillaceous facies and are well developed in Kurnool and Palnad Sub-basins. Regional lithostratigraphic succession of Cuddapah Basin is given in Table 2.3.

Table 2.3 Regional litho-stratigraphic succession of Cuddapah Basin and Kurnool Sub-basin (After Nagaraja Rao et al., 1987)

	Group	Formation	Thickness (m)	Lithology
	KURNOOL GROUP	Nandyal Shale	50-100	Shale
		Koilkuntla Limestone	15-50	Limestone
		Paniam Quartzite	10-35	Quartzite
		Owk Shale	10-15	Shale
		Narji Limestone	100-200	Limestone
		Banganapalle Quartzite	10-50	Quartzite, Conglomerate
	----- Non-Conformity -----			
CUDDAPAH SUPERGROUP		Srisailam Formation	300	Quartzite, Shale
	----- Unconformity -----			
	NALLAMALAI GROUP	Cumbum Shale	2000	Shale/Phyllite Quartzite, dolomite
		Bairenkonda Quartzite	1500-4000	Quartzite, Shale, Conglomerate
	----- Angular Unconformity -----			
	CHITRAVATHI GROUP	Gandikota Quartzite	300	Quartzite, Shale
		Tadpatri Formation	4600	Shale, ash fall tuffs, Quartzite, Dolomite with intrusives
		Pulivendla Quartzite	1-75	Quartzite, Conglomerate
	----- Disconformity -----			
	PAPAGHNI GROUP	Vempalle Formation	1900	Dolostone, Mudstone, Quartzite
		Gulcheru Quartzite	28-210	Quartzite, Conglomerate
	----- Non-Conformity -----			
Archaean and Dharwar				

Palnad Sub-basin

The Palnad Sub-basin forms northeastern part of the crescent shaped Cuddapah basin and extends between latitudes $16^{\circ}18''$ - $16^{\circ}55''$ and longitudes $79^{\circ}18''$ - $80^{\circ}26''$ in parts of Survey of India Toposheet Nos. 56 P/6,7,8,10,11, 14 and 65 D/1 and 2. It covers an area of about 3600 sq km in the Krishna valley and comprises sequence of arenaceous, argillaceous and carbonate sediments belonging to Neoproterozoic Kurnool Group. These sediments unconformably overlie the older Cuddapah sediments in the eastern part where as older granitoids form the basement in the north and west (Fig. 2.6).

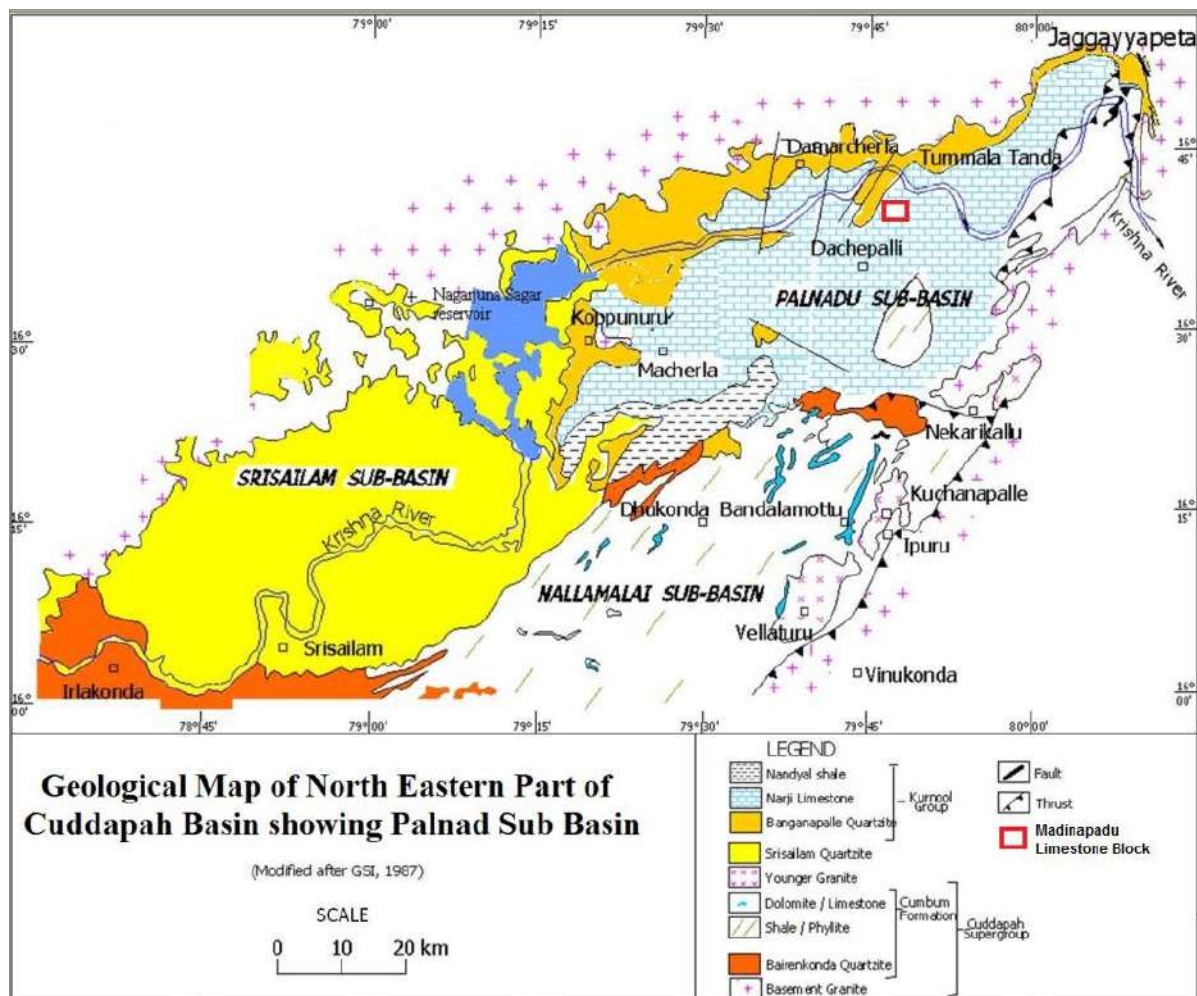


Figure 2.6 Geological map of Srisailem and Palnad Sub-basins showing Madinapadu Limestone Block in Palnad Sub-basin (geology after GSI, 1987)

The Kurnool sediments are divided into six formations viz., Banganapalle, Narji, Auk (Owk), Paniam, Koilkuntla and Nandyal Formations (Table 2.3). The Banganapalle Formation is the oldest sedimentary lithounit of the Palnad Sub-basin and represented by 10–173m thick quartz arenite and intercalated grey shale sequence with basal conglomerate. This is overlain by thick sequence of massive

limestone with silicic stylolites and flaggy calcareous shale belonging to Narji Formation (Table 2.3). The Auk Formation consists of ferruginous ochreous calc-shale while a few outliers of younger Paniam quartzite occur at ridge tops.

Palnad Sub-basin occupies parts of Krishna and Guntur districts of Andhra Pradesh and Nalgonda district of Telangana. A complete succession of the Neoproterozoic Kurnool Group is developed in the Palnad Sub-basin. The Narji limestone Formation is quite extensive in these districts and the limestone deposits are being mined in several areas for large number of cement plants.

The Madinapadu Limestone Block is located in the central part of Palnad Sub-basin (Fig.2.6). The block area of Madinapadu mainly exposes the Narji Formation consisting of massive, light grey to dark grey colored limestone belonging to the Neoproterozoic Kurnool Group of rocks. The Banganapalle quartzite of Kurnool Group underlies the Narji Formation (Ravindra Babu et al., 1984).

2.4 PREVIOUS GEOLOGICAL AND EXPLORATION WORK IN THE AREA

The Madinapadu area forms part of Palnad Sub-basin in Guntur district. The Palnad Sub-basin occupies parts of Guntur and Krishna districts of Andhra Pradesh and Nalgonda district of Telangana. The Sub-basin forms the northeastern part of the crescent shaped Cuddappah Basin (Dutt, 1975 and Nagaraja Rao et al., 1987). The previous pioneering geological work in and around this area was carried out by R.Bruce Foote and the findings were compiled by William King (1872). Later, Heron (1948) mapped the area north of Krishna River. William King (1872) in his classic memoir has documented the earliest geological account of Palnad Sub-basin and the present work area forms part of it.

Investigation for flux grade limestone in the Narji limestone Formation of the Palnad Sub-basin in parts of Guntur district was carried out by K.V.J.R. Krupanidhi (1966-67), C.Nageshwara Rao and C.J.R.Varaprasada Rao (1967-68). Lithounits of this area are sub-horizontal but generally show gentle dips mainly towards the center of the basin. The major portion of the Palnad Sub-basin is made up of Narji limestone of Kurnool Group of Neoproterozoic age. The Narji limestone is underlain by Banganapalle quartzite.

Later, the main geological work was carried out by GSI officers (G.Ramalingaswamy, F.S: 1975-76, A.Sekharam, F.S:1978-79 and 1979-80, Ravindra Babu et al., 1984 and Nagaraja Rao et al., 1987).

2.5 GEOLOGY OF MADINAPADU LIMESTONE BLOCK

The Madinapadu limestone block is located in the Palnad Sub-basin forming the northeastern part of the crescent shaped Cuddapah Basin (Figs. 2.5 and 2.6). The block area of Madinapadu mainly exposes the Narji limestone which is underlain by Banganapalle quartzite belonging to the Neoproterozoic Kurnool Group. The geological succession of the area is given in Table 2.4.

Table 2.4 Geological succession in the area

Group	Formation
Recent	Soil and Alluvium
Kurnool Group	Narji Limestone Banganapalle quartzite

The Madinapadu exploration block is oval in shape and extends in a NE-SW direction. The block is about 5.0km in length (NE-SW) with a width varying from 0.25km in the NE to 2.0km in the SW. The Madinapadu limestone block comprises an area of 660Ha and forms part of Survey of India Toposheet No. 56P/14 and is bounded by latitudes 16° 37' 39.20" N and 16° 39' 50.97" N and longitudes 79° 45' 07.11" E and 79° 47' 7.10" E. The topography of the block is plain with surface reduced levels varying from 110m in the SW to 90m in the NE (above MSL) sloping towards northeast. The block area is devoid of any streams/nalas. However, minor seasonal streamlets can be seen. Madinapadu Major Canal passes through the block flowing from south to north.

Geological mapping of the Madinapadu Limestone Block on 1:5000 scale has been carried out. Detailed geological map of the block has been prepared incorporating all the litho-units, litho-contacts and structural details as well as the borehole data (Fig. 2.7, PLATE No. IV). Geological cross sections along drilled boreholes are also prepared and given in PLATE No. VI.

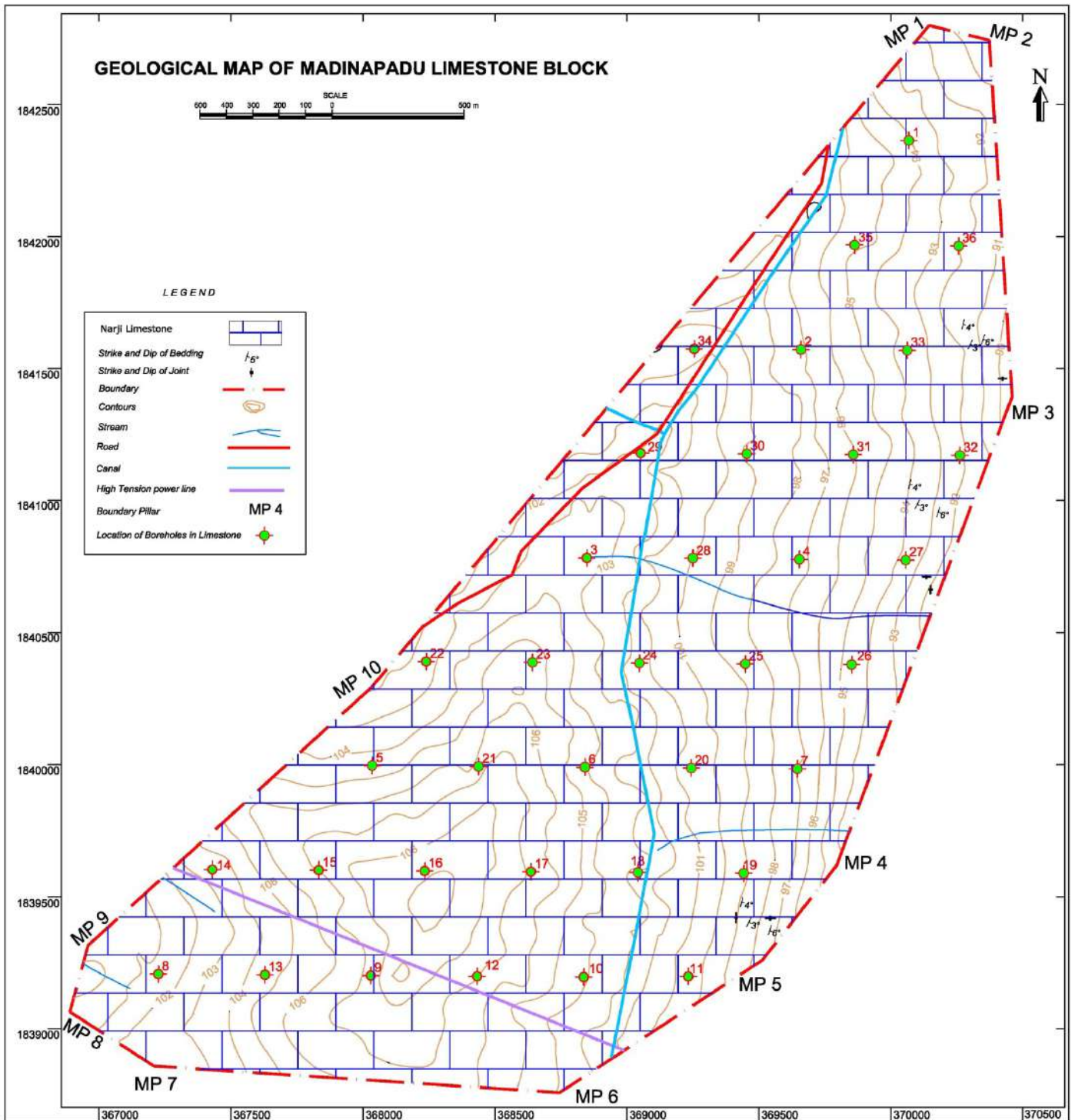


Figure 2.7 Geological map of the Madinapadu Limestone Block

Geologically, the block area consists of limestone belonging to the Narji Formation of Kurnool Group of rocks. Minor exposures of limestone are seen on the surface in the eastern part of the block area (Fig. 2.8 A and B). The limestone is covered by thin veneer of black cotton soil in most part of the block.

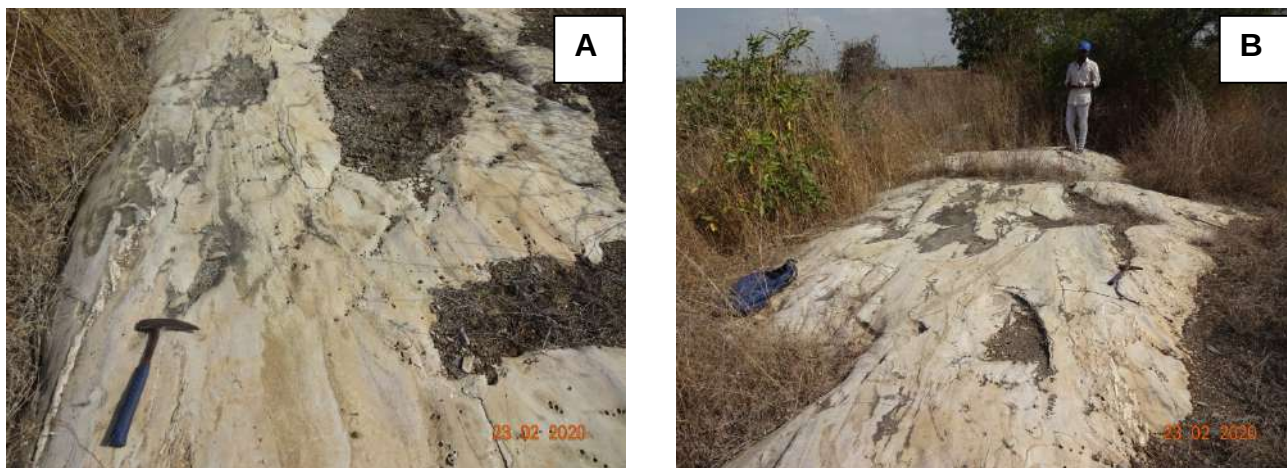


Figure 2.8 A and B. Limestone exposed in Madinapadu block

Narji limestone

The Narji limestone in the area overlies the Banganapalle quartzite of Kurnool Group. Outcrops of massive limestone are observed in the eastern part of the block. The massive limestone is light grey to dark grey, fine grained and thickly bedded with ribs and furrows on the surface. It is hard and breaks with conchoidal fracture where ever siliceous matrix/content is conspicuous. Pyrite crystals, calcite and quartz veins are found. Stylolitic structures filled with cherty matter are common. Vertical fractures are prominent and at places silicification is observed along the fractures.

Drill cores from 9 boreholes (BH-5, 8, 13, 14, 15, 21, 22, 23 and 24) in the southwestern part of the block have intercepted intercalated sequence of limestone and shale with quartz veins. The thickness of shale partings varies from 0.25m to 1.0 m. Within the massive limestone highly siliceous nature of limestone is observed in several boreholes at varying depths.

In the northern part of the block, profuse silicification as evidenced by the presence of thick quartz veins, chert veins, calcite veins and stringers is observed. Indicating faulting. At places fault breccia, ferruginisation, vugs are noticed. In boreholes BH-23 and BH-33 caving was also noticed which is indicative of fault zone. In addition, at the bottom of the limestone thick quartz veins are intercepted. In drill core samples quartz, chert and calcite veins are noticed. Similar silicification features are also observed in the outcrops in the peripheral areas outside the block.

Banganapalle quartzite

The Banganapalle quartzite of Kurnool Group is the older formation underlying the Narji limestone in the block area. No exposures of quartzite are observed in the block.

Structure

The limestone is exposed in the northeastern and eastern part of the block area. Rock exposures are limited and wherever outcrops are exposed, the structural data is recorded. The limestone strikes $N25^{\circ}$ to $45^{\circ}E$ - $S25^{\circ}$ to $45^{\circ}W$ with a gentle dip of 3° to 6° towards SE. Joints are commonly sub-vertical to vertical in limestone and are trending in N - S, E - W, $N60^{\circ}$ to $80^{\circ}W$ - $S60^{\circ}$ to $80^{\circ}E$. They are normally open and wide spaced and some are filled with calcite (white to pink), chert and quartz veins. Primary structures seen are bedding planes and at places limestone exhibits ripple marks with wide wave lengths. Stylolite structures are observed and at place filled with cherty material.

2.6 PETROGRAPHY

Madinapadu limestone block exposes Narji Formation consisting of light to dark grey limestone with minor calcite and quartz veins/stringers and earthy ferruginous material. The limestone in general is fine grained, light to dark grey in colour, massive and thickly bedded. Ten samples (6 from surface and 4 from borehole cores) of different types of light grey and dark grey variants of limestone were collected, thin sections were prepared and petrographic studies were carried out. The details of samples, megascopic characters and petrography are given in Table 2.5.

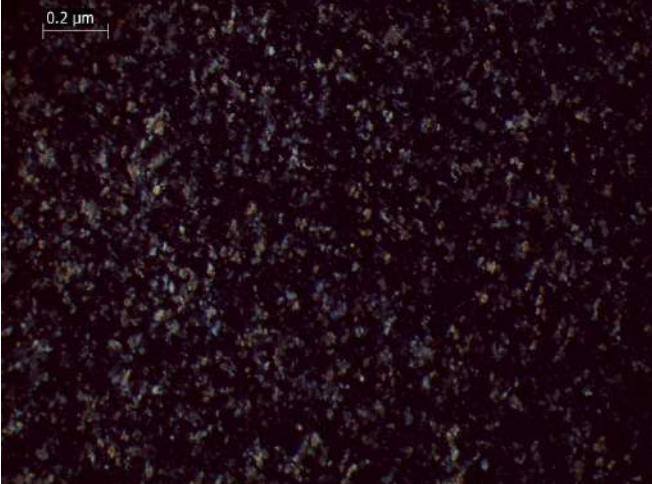
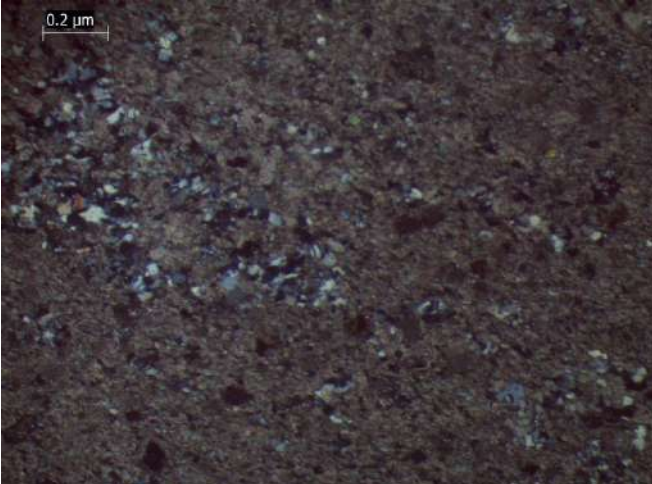
Megascopically, the limestone samples are light grey to dark grey coloured with occasional ferruginous and siliceous cementing material. It is fine grained, hard and compact and breaks with conchoidal fracture. The limestone samples show feeble ferruginisation with oxidized sulphide casts. Occurrence of relatively coarse calcite, quartz and chert veins are observed. Cubic crystals of pyrite are also seen in limestone at places.

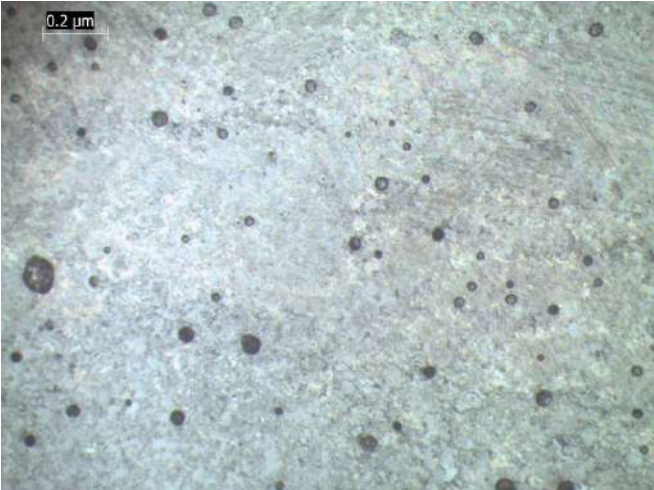
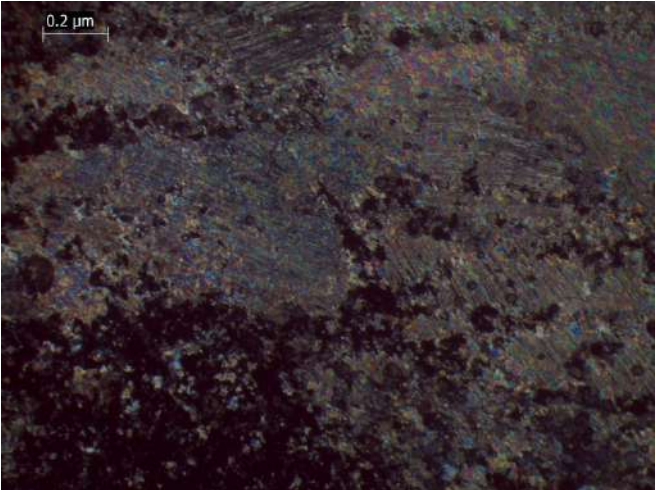
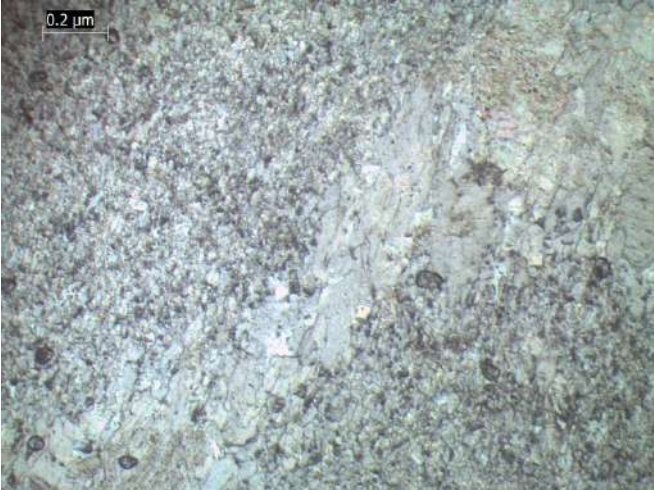
Microscopically, the Madinapadu limestone is fine grained, siliceous and texturally micritic and show minor variations. Disseminated opaques (Fig. 2.10) and subhedral grains as well as veinlets of quartz along fractures (Fig. 2.11, Fig. 2.13, Fig. 2.15) are common. Sulphides mainly pyrite are seen as subhedral grains, cubic crystals and thin veinlets (Fig. 2.12 and Fig. 2.14). Calcite grains and thin veins along with ferruginous material are found along fractures (Fig. 2.16, Fig. 2.17 and Fig. 18).

Table 2.5 Megascopic and petrography details of limestone samples from
Madinapadu Limestone Block.

S. No.	Sample No.	Rock Type	Megascopic Observations	Microscopic Observations
1	MP/1	Light grey massive limestone	Light grey, fine grained, hard, massive with conchoidal fracture with presence of iron stains, and siliceous in nature.	Fine grained, highly micritic with fine disseminated opaques. Thin veinlets/streaks/blebs of quartz are observed.
2	MP/2	Light grey massive limestone	Light grey, fine grained, hard, massive with conchoidal fracture with presence of black ferruginous matter.	Fine grained, highly micritic with fine disseminated opaques. Thin veinlets/streaks of quartz are observed along fractures.
3	MP/3	Grey massive limestone	Grey, fine grained, hard, massive, with cherty encrustations on the surface, conchoidal fracture and siliceous.	Fine to medium grained micritic limestone, disseminated subhedral sulphide crystals (pyrite) along with fine ferruginous matter.
4	MP/4	Light grey massive limestone	Light grey, fine grained, hard, massive with cherty encrustations on the surface, conchoidal fracture and siliceous.	Fine to medium grained micritic limestone with fine disseminations of opaques along with scattered subhedral quartz grains.
5	MP/5	Grey limestone	Grey, fine grained, massive, with conchoidal fracture, pitted surface and cherty matter along bedding planes.	Fine grained micritic limestone with disseminated pyrite grains and thin veinlets/streaks of quartz/chert.
6	MP/6	Grey limestone	Grey, fine grained, massive with conchoidal fracture, pitted surface and cherty matter along bedding.	Fine grained micritic, with subhedral grains of pyrite and fine disseminated opaques. Segregation of coarse grained quartz is also observed.
7	MP/7	Light grey massive limestone	Light grey, fine grained, massive with stylolitic structures. Silica and ferruginous banding are seen.	Very fine grained micritic limestone with presence of disseminated opaques. Thin veinlet of quartz is observed along a fracture.
8	MP/8	Light grey limestone	Light grey, fine grained, massive with Fe banding and conchoidal fracture. Minor stylolitic structures observed.	Fine grained, micritic limestone with abundant rounded pyrite crystals. Thin ferruginous streaks are present along with fine grained quartz grains. subhedral grains of calcite are also seen.
9	MP/9	Grey limestone	Grey, fine grained, massive siliceous limestone, with thin silica veins and black ferruginous matter.	Fine to medium grained micritic limestone with seggregations of quartz and calcite. Sulphide disseminations are also present.
10	MP/10	Light grey limestone	Light grey, fine grained, hard, massive siliceous limestone with conchoidal fractures.	Fine grained micritic limestone with presence of ferruginous matter.

Photomicrograph under polarised light	Photomicrograph under Crossed Nicols
	
Figure 2.10 Fine grained, highly micritic with fine disseminated opaques (MP/1).	
	
Figure 2.11 Fine grained, highly micritic with thin veinlet of quartz along fractures (MP/2).	
	
Figure 2.12 Fine to medium grained micritic limestone, disseminated subhedral sulphide crystals (pyrite) along with fine ferruginous matter (MP/3).	

Photomicrograph under polarised light	Photomicrograph under Crossed Nicols
	
Figure 2.13 Fine to medium grained micritic limestone, with fine disseminations of opaques with scattered subhedral quartz grains (MP/4).	
	
Figure 2.14 Fine grained micritic with subhedral grains of pyrite and fine disseminated opaques and segregation of coarse grained quartz (MP/6).	
	
Figure 2.15 Micritic limestone with presence of disseminated opaques. Thin veinlet of quartz is observed along a fracture. (MP/7).	

Photomicrograph under polarised light	Photomicrograph under Crossed Nicols
	
Figure 2.16 Fine grained, micritic limestone with fine grained quartz grains and subhedral grains of calcite (MP/8).	
	
Figure 2.17 Micritic limestone with segregations of quartz and calcite (MP/9).	
	
Figure 2.18 Fine grained micritic limestone with presence of ferruginous matter (MP/10).	

CHAPTER-3

SUB-SURFACE EXPLORATION BY CORE DRILLING

3.1 INTRODUCTION

The Madinapadu exploration block extends in a NE-SW direction and is oval in shape. The block is about 5.0km in length (NE-SW) with a width varying from 0.25km in the NE to 2.0km in the SW. The topography of the block is plain with surface reduced levels varying from 110m in the SW to 90m in the NE (above MSL) sloping towards northeast. The block area is devoid of major streams/nalas. However, minor seasonal streamlets can be seen. Madinapadu Major Canal passes through the block flowing from south to north. Geologically, the block area of Madinapadu mainly exposes the Narji limestone which is underlain by Banganapalle quartzite belonging to the Neoproterozoic Kurnool Group. Exposures of limestone are seen on the surface in eastern part of the block area. The limestone is covered by thin veneer of black cotton soil.

3.2 CORE DRILLING

Sub-surface Exploration by Diamond Core drilling (Voltas-90 rigs) (Fig. 3.1) was carried out to establish both the lateral and vertical continuation of limestone. As per the proposed borehole plan given by MERIT thirty six (36) boreholes were planned with a total meterage of 1440m to drill up to a depth of 40m at 400m x 400m grid interval (Fig. 3.2). A total of 2328m of core drilling was carried out in 36 boreholes up to a depth varying from 34m (BH-5) to 100m (BH-12) against the tendered quantity of 1440m in 36 boreholes up to a depth of 40m. Significant increase in total drilling meterage is mainly due to large thickness of limestone up to 90m (BH-12) as compared to the anticipated thickness of 40m. Out of the 36 boreholes, one borehole (BH-12) was drilled up to a depth of 100m and the remaining 35 boreholes were drilled up to the bottom of limestone horizon or up to a maximum depth of 70m only as indicated by MERIT/NMET (Fig. 3.3).

All the boreholes were drilled vertically with NX core size as the litho-units are sub-horizontal to gentle dipping on a grid pattern of 400m x 400m grid interval. The original borehole plan of the block as given by MERIT is shown in Figure 3.2 and the drilled borehole plan is given in Figure 3.3 and PLATE No. III and IV.



Figure 3.1 Core drilling in Madinapadu limestone block

All the boreholes intercepted massive limestone and the core recovery is more than 90%. However, in the case of weathered and fractured zones and also due to the presence of solution cavities and clay intercalations, the core recovery is low.

The location, RL and other details of the boreholes drilled are given in Table 3.1. The depth of 36 boreholes varies from 34.00m (BH-5) to 100m (BH-12). The thickness of the limestone varies from 20.00m (BH-5) to 90.00m (BH-12). The area is a flat terrain and covered by black cotton soil. The overburden (soil) varies from 1.00m (BH-14) to 12.00m (BH-21).

After completion of drilling, each borehole has been sealed and pillars are constructed with borehole number, latitude, longitude and RL. Photographs of the borehole pillars of all the 36 drilled boreholes in Madinapadu limestone block are given in Annexure III.

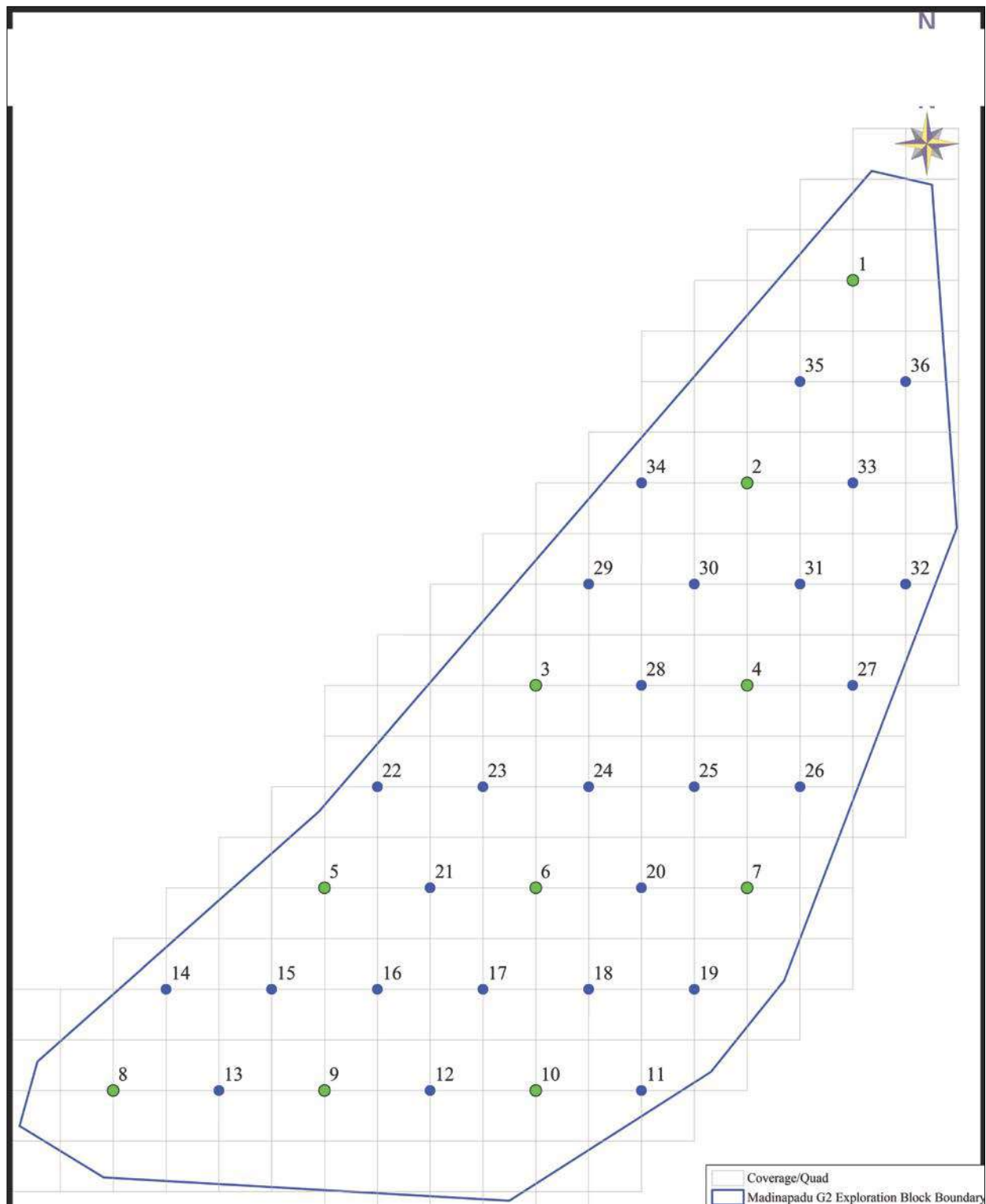


Figure 3.2 Original borehole plan of Madinapadu limestone block as given by MERIT

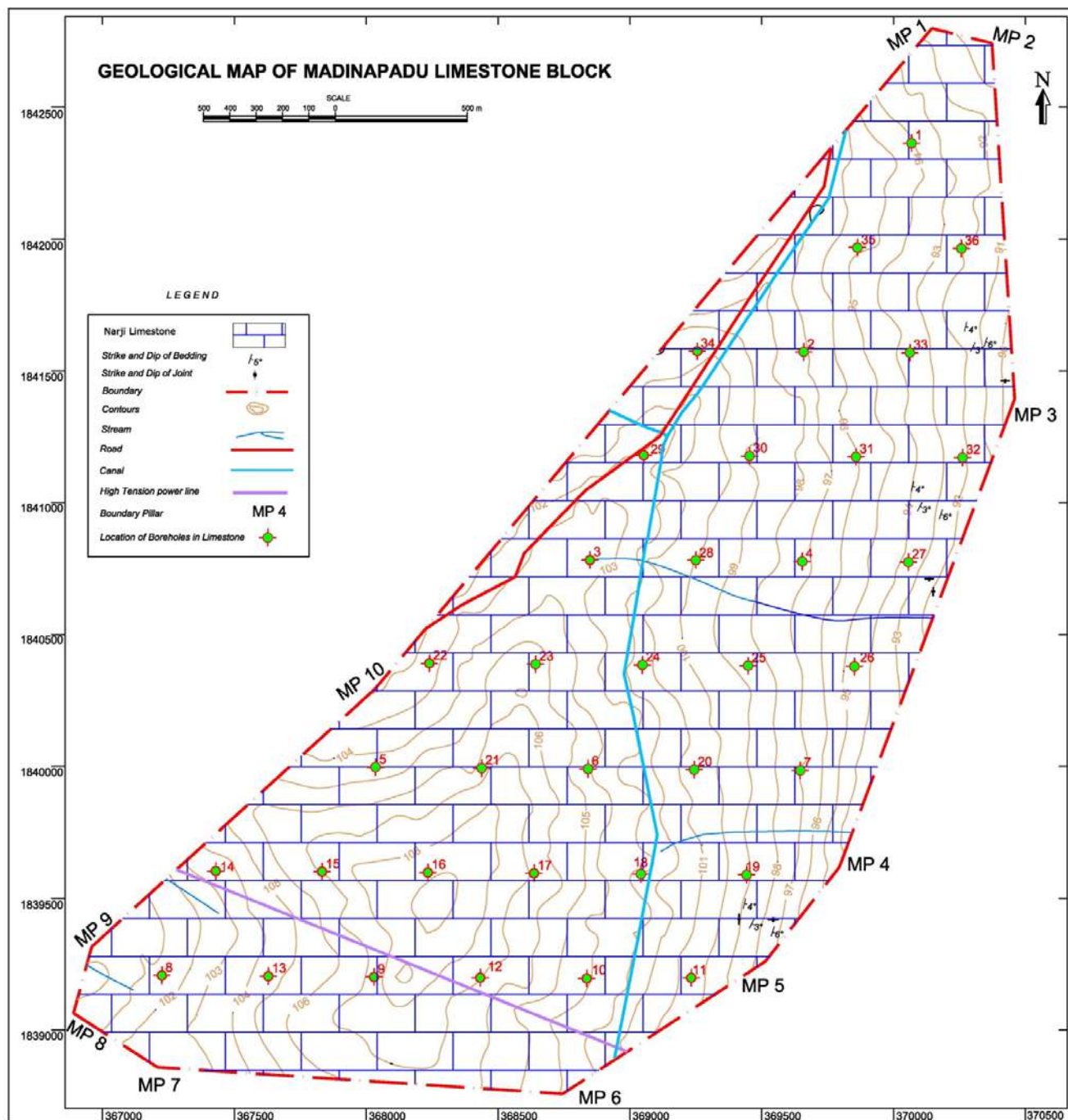


Figure 3.3 Final modified borehole plan of Madinapadu limestone block after discussion with CEO, MERIT

Table 3.1 Details of boreholes drilled in Madinapadu limestone block

S. No.	BH. No	Location		RL (m)	Lithology (Numbers are in meters)					Core Boxes	No. of samples analysed
		Easting	Northing		Soil	Massive Limestone	Intercalation of Limestone & Shale	Shale	Total Drilled Depth		
1	BH-1	370067.66	1842363.77	94.09	4	66			70	9	66
2	BH-2	369658.71	1841571.40	97.12	6	64			70	10	65
3	BH-3	368848.35	1840783.89	103.57	9	61			70	9	61
4	BH-4	369653.08	1840778.18	97.21	9	61			70	9	61
5	BH-5	368035.15	1839997.16	104.45	6	20	8		34	5	29
6	BH-6	368841.15	1839990.59	104.24	7	63			70	10	66
7	BH-7	369645.88	1839984.87	96.84	4	66			70	10	67
8	BH-8	367224.82	1839207.57	101.29	6	30	2		38	5	32
9	BH-9	368029.51	1839201.86	107.41	4	66			70	10	66
10	BH-10	368837.08	1839196.04	104.16	6	64			70	10	67
11	BH-11	369237.87	1839193.20	100.45	3+1	66			70	9	66
12	BH-12	368432.17	1839198.96	107.14	2+1	90	7		100	17	96
13	BH-13	367628.47	1839204.66	104.75	4	36	1		41	7	36
14	BH-14	367428.77	1839603.54	103.43	1	29	16	3	49	6	48
15	BH-15	367832.56	1839600.68	107.18	3+2	47	3		55	6	52
16	BH-16	368233.84	1839597.83	108.76	6	64			70	11	65
17	BH-17	368636.57	1839594.97	106.89	6	64			70	9	68
18	BH-18	369041.44	1839592.10	103.01	4	66			70	11	67
19	BH-19	369442.24	1839589.25	99.24	2	68			70	11	68
20	BH-20	369243.51	1839987.73	100.41	4	66			70	11	66
21	BH-21	368437.81	1839993.45	106.60	12+1	25	5		43	5	31
22	BH-22	368239.47	1840391.16	102.56	7	36	3		46	7	39
23	BH-23	368642.20	1840388.30	105.42	9	31	8 Sink hole		48	5	33
24	BH-24	369047.07	1840385.42	101.30	4+1	45	9		59	7	54
24	BH-25	369447.87	1840382.58	98.65	9	61			70	10	61
26	BH-26	369851.27	1840379.61	94.61	6	64			70	9	64
27	BH-27	370055.86	1840775.32	93.75	3	67			70	10	67
28	BH-28	369249.14	1840781.04	99.98	7	63			70	10	64
29	BH-29	369052.71	1841179.45	101.98	10+2	58			70	10	60
30	BH-30	369453.51	1841176.61	98.46	7	63			70	9	63
31	BH-31	369857.11	1841173.74	96.03	3	67			70	11	67
32	BH-32	370260.86	1841170.88	92.10	2	68			70	12	68
33	BH-33	370061.75	1841568.53	93.35	4	62	4 sink hole		70	8	61
34	BH-34	369254.77	1841574.26	99.60	9	56			65	9	56
35	BH-35	369862.95	1841967.13	95.14	6	64			70	10	64
36	BH-36	370256.35	1841964.33	92.14	3+2	65			70	10	65
Total					207	2052	54	3	2328	327	2129

3.3 LITHO-LOGGING

The details of the boreholes drilled and the lithology are given in Table 3.1. The lithologs of all the thirty six (36) boreholes are given in Figure 3.4 a, b, c, d , e, f, g, h, i, j and k and PLATE No. VII A, B, C, D, E, F, G, H, I, J and K.

A total of 2328m of drill core from 36 boreholes was lithologically logged. The cores from all the 36 boreholes are preserved in 327 GI core boxes and duplicate samples were handed over to MERIT as per the tender. Black cotton soil is seen as overburden in most of the boreholes and its thickness varies from 1.00m (BH-14) to 12.00m (BH-21). Below the soil cover, massive limestone is encountered in the entire block.

The massive limestone is light grey to dark grey, fine grained, thickly bedded and exhibits conchoidal fracture wherever siliceous matrix/content is conspicuous. The thickness of massive limestone varies from 20.00m (BH-5) to 90.00m (BH-12). Thin veins of calcite and quartz are seen within the limestone. Pyrite is found as segregations and also as disseminated cubic crystals.

Out of 36 boreholes drilled, 4 boreholes (BH-14, BH-15, BH-22 and BH-34) intercepted intercalation of limestone + shale below the massive limestone. Five boreholes (BH-5, 8, 13, 21 and 24) intercepted white quartz vein at the bottom of limestone unit.

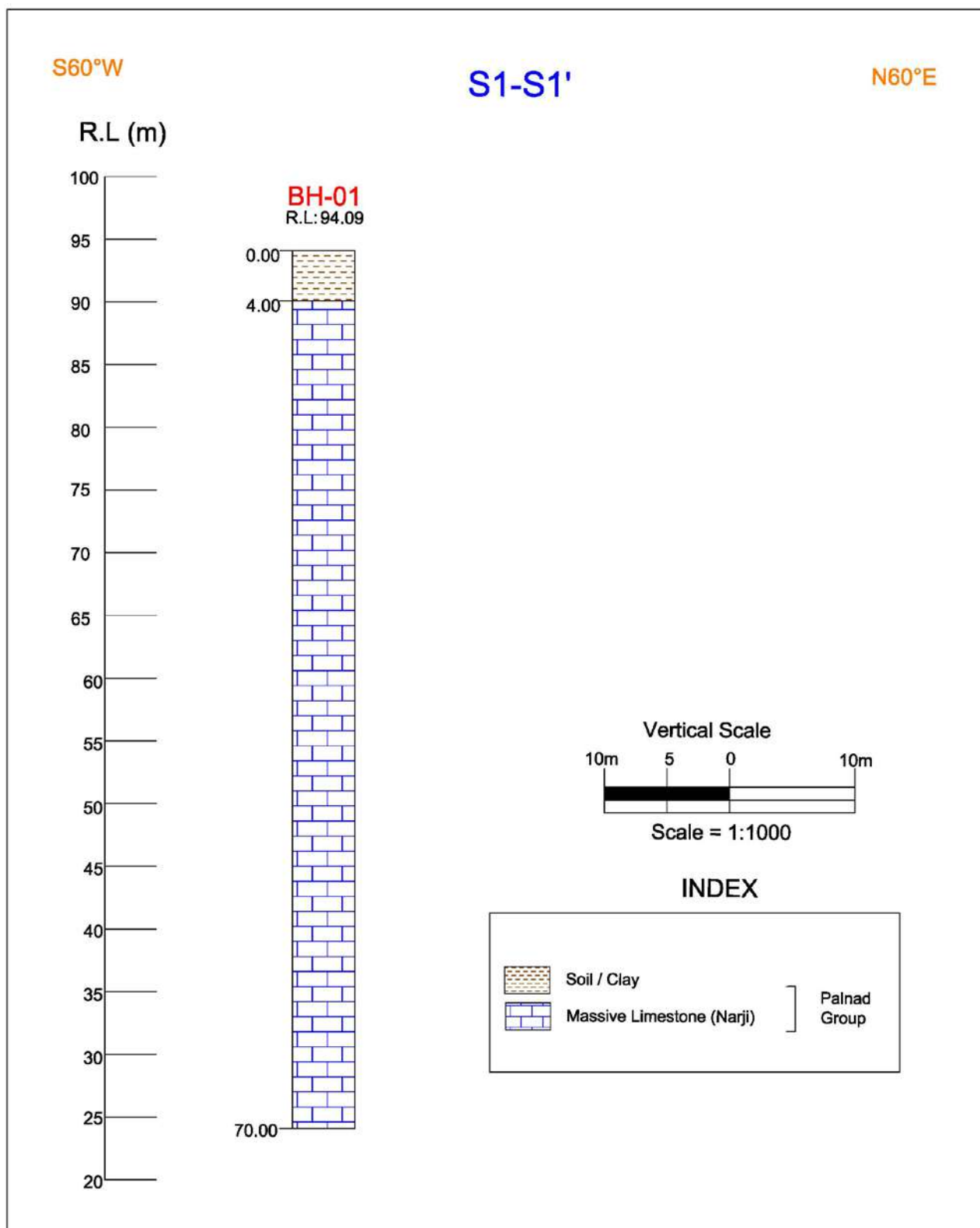


Fig. 3.3a Lithologs of drilled boreholes along longitudinal section line S1-S1' in Madinapadu Limestone Block

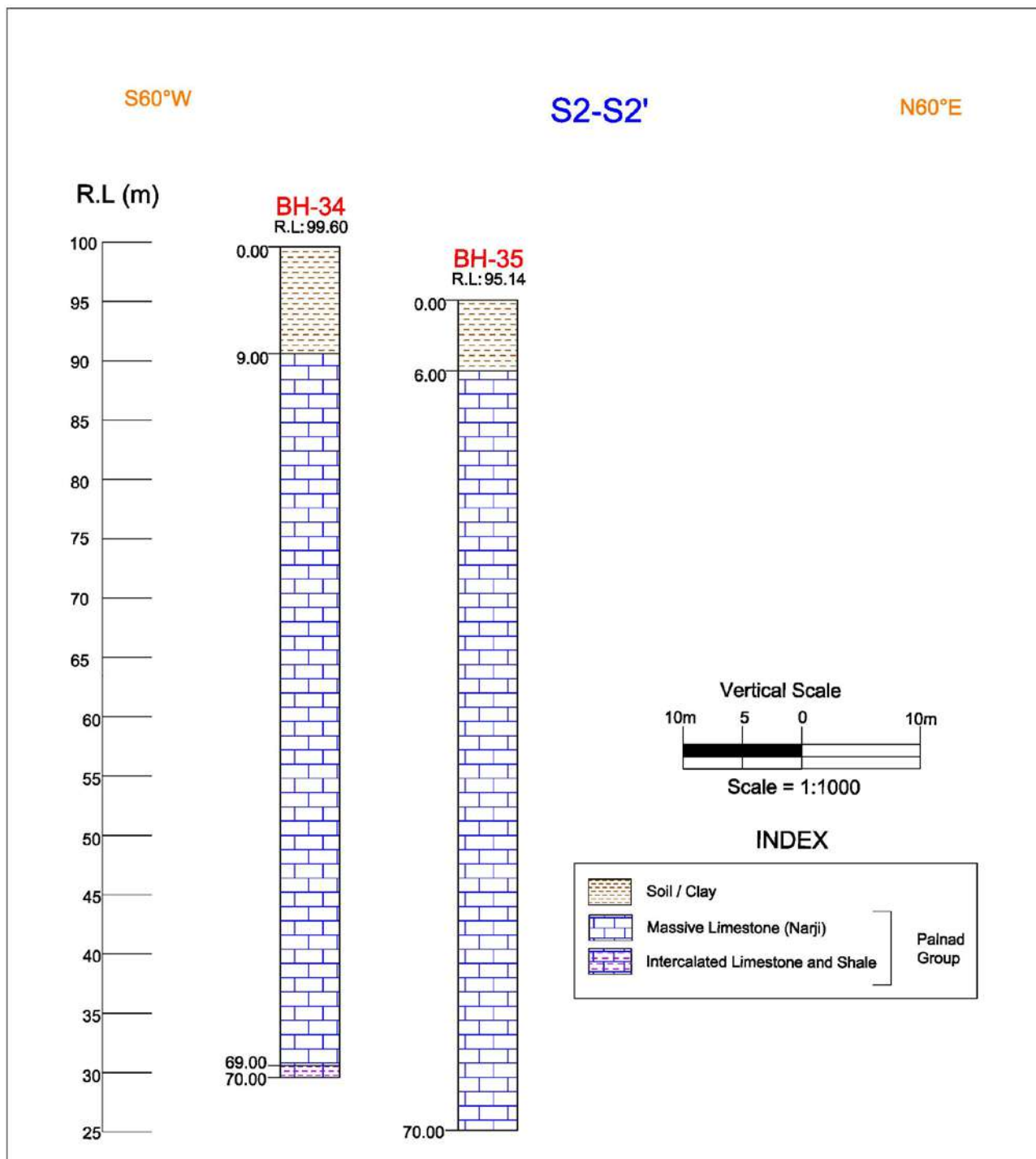


Fig. 3.3b Lithologs of drilled boreholes along longitudinal section line S2-S2' in Madinapadu Limestone Block

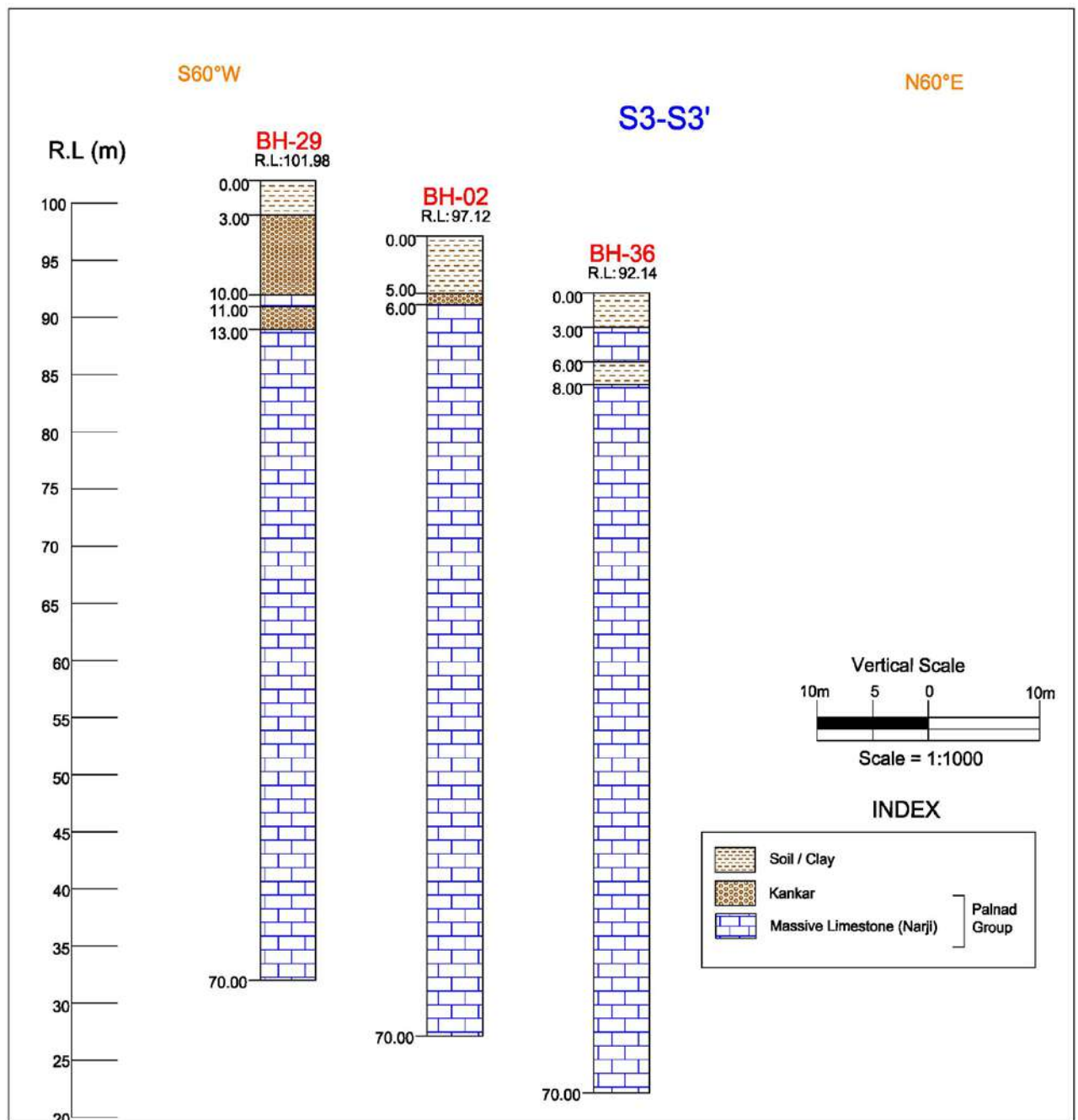


Fig. 3.3c Lithologs of drilled boreholes along longitudinal section line S3-S3' in Madinapadu Limestone Block

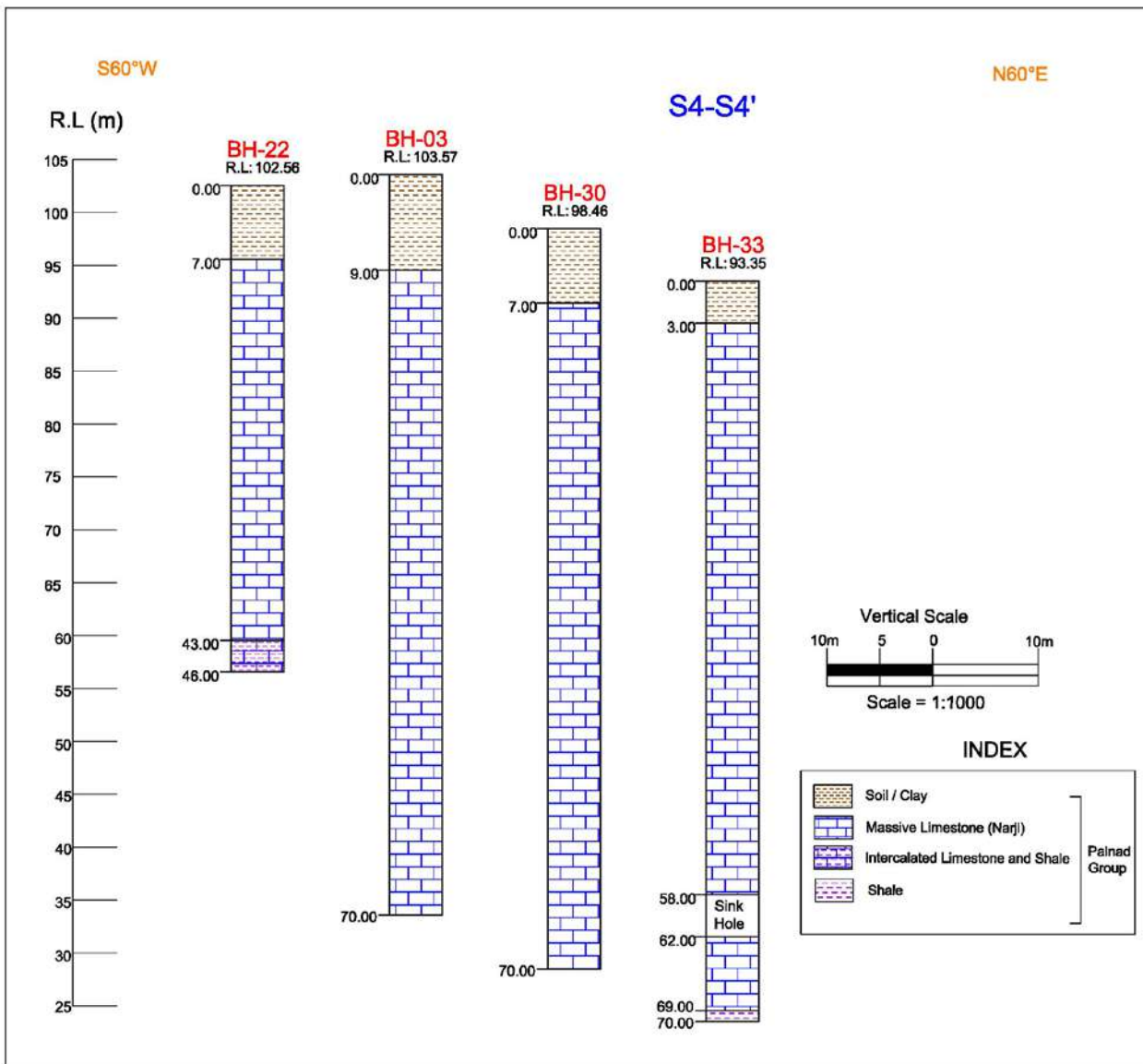


Fig. 3.3d Lithologs of drilled boreholes along longitudinal section line S4-S4' in Madinapadu Limestone Block

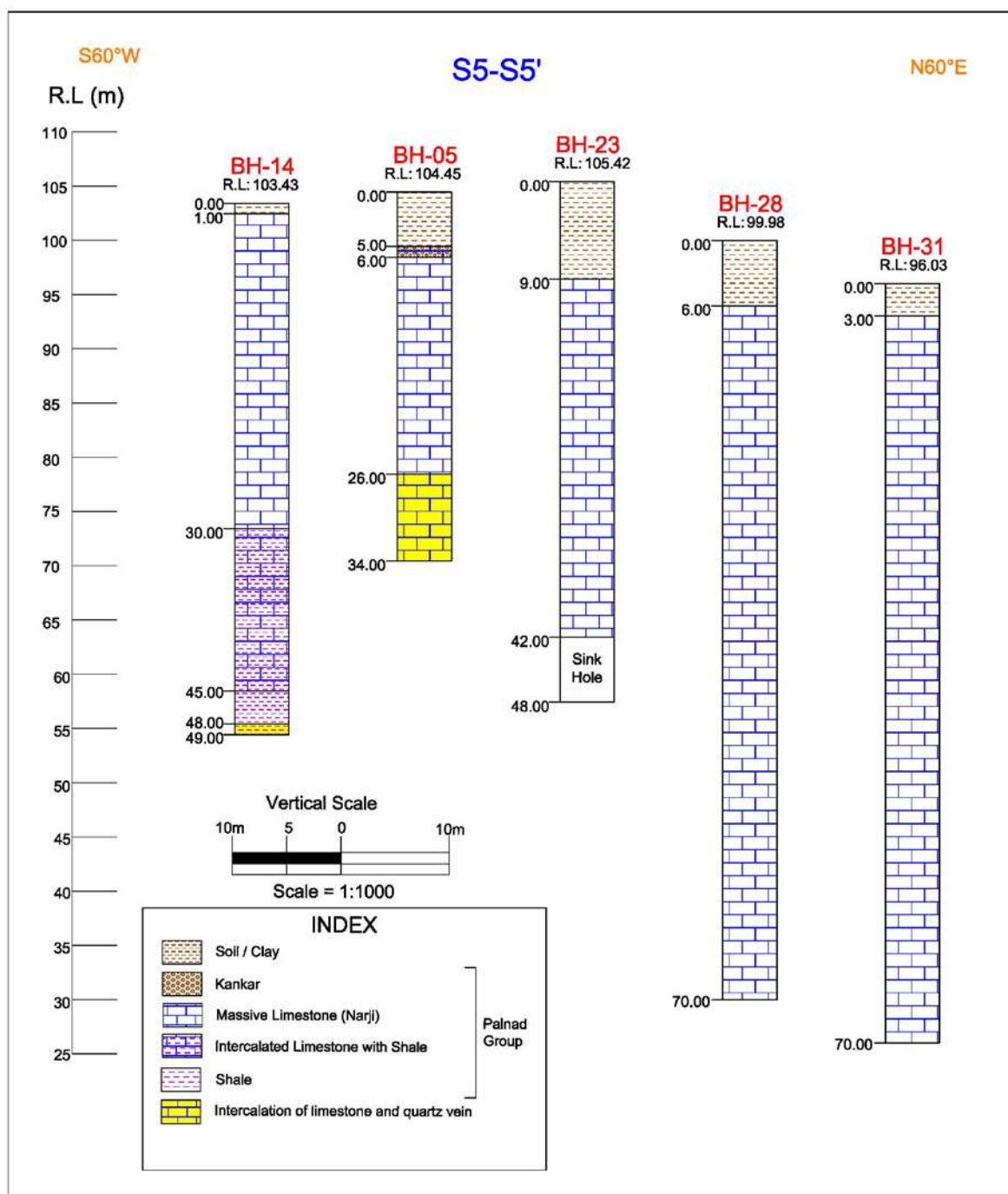


Fig. 3.3e Lithologs of drilled boreholes along longitudinal section line S5-S5' in Madinapadu Limestone Block

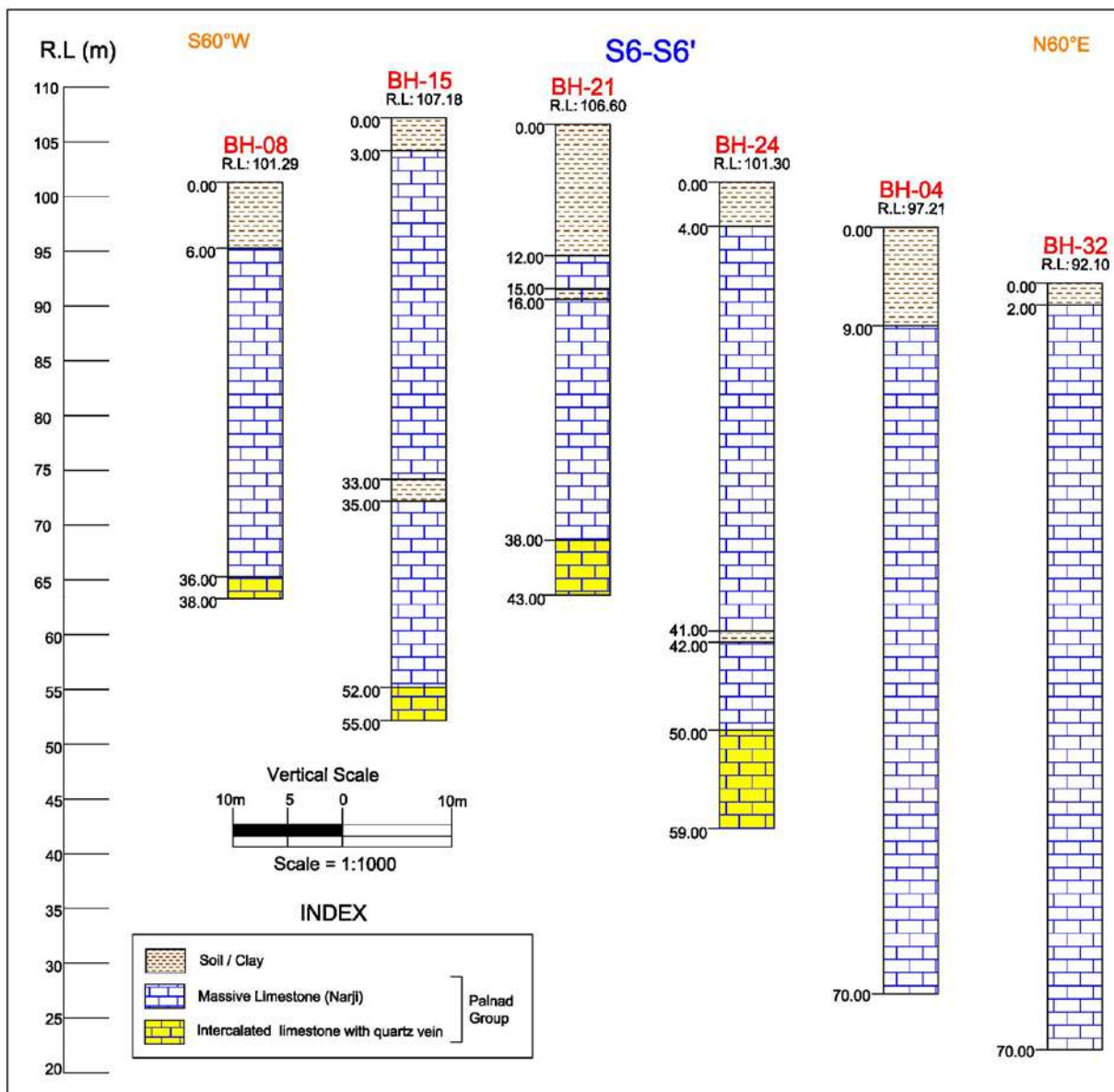


Fig. 3.3f Lithologs of drilled boreholes along longitudinal section line S6-S6' in Madinapadu Limestone Block

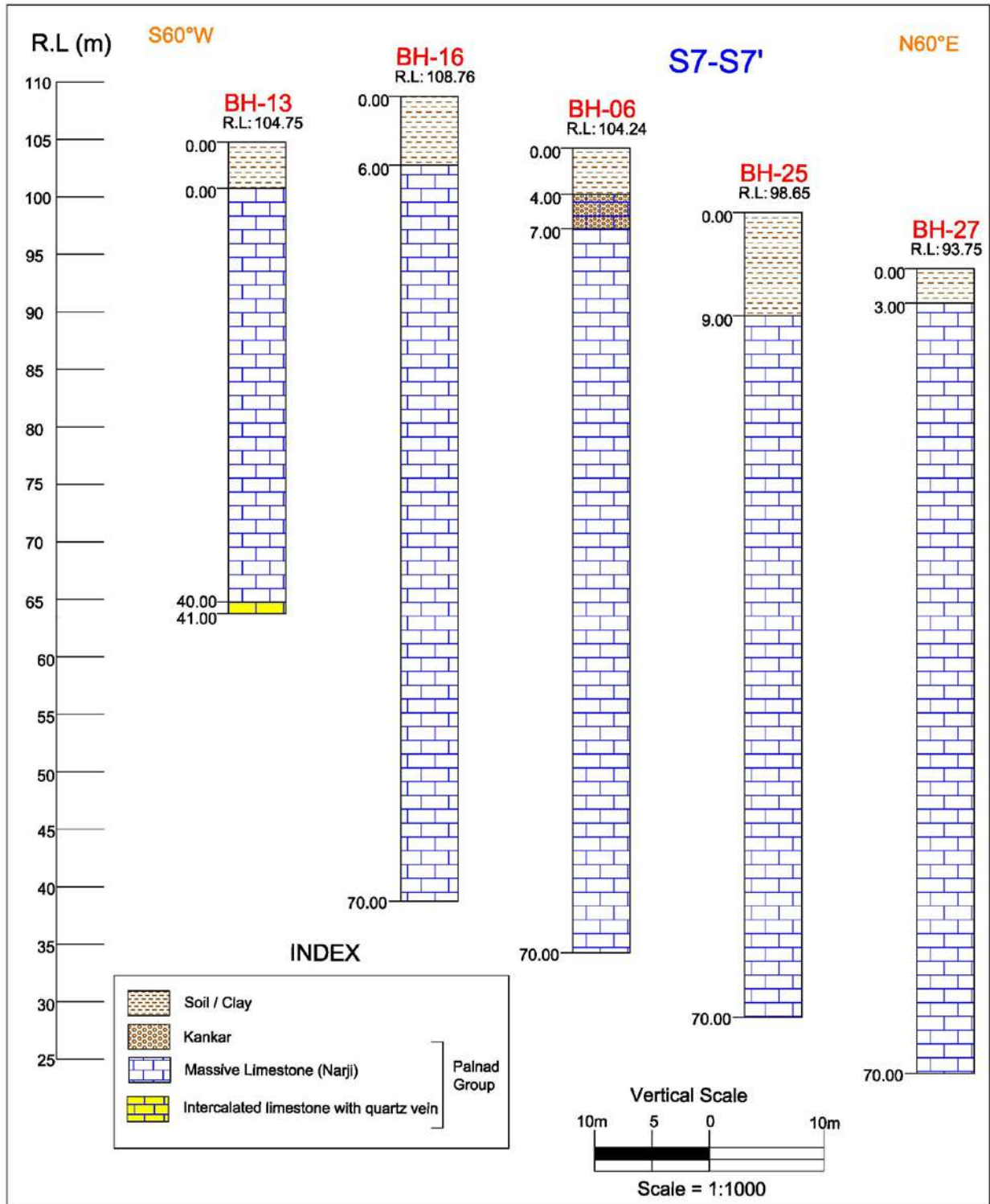


Fig. 3.3g Lithologs of drilled boreholes along longitudinal section line S7-S7' in Madinapadu Limestone Block

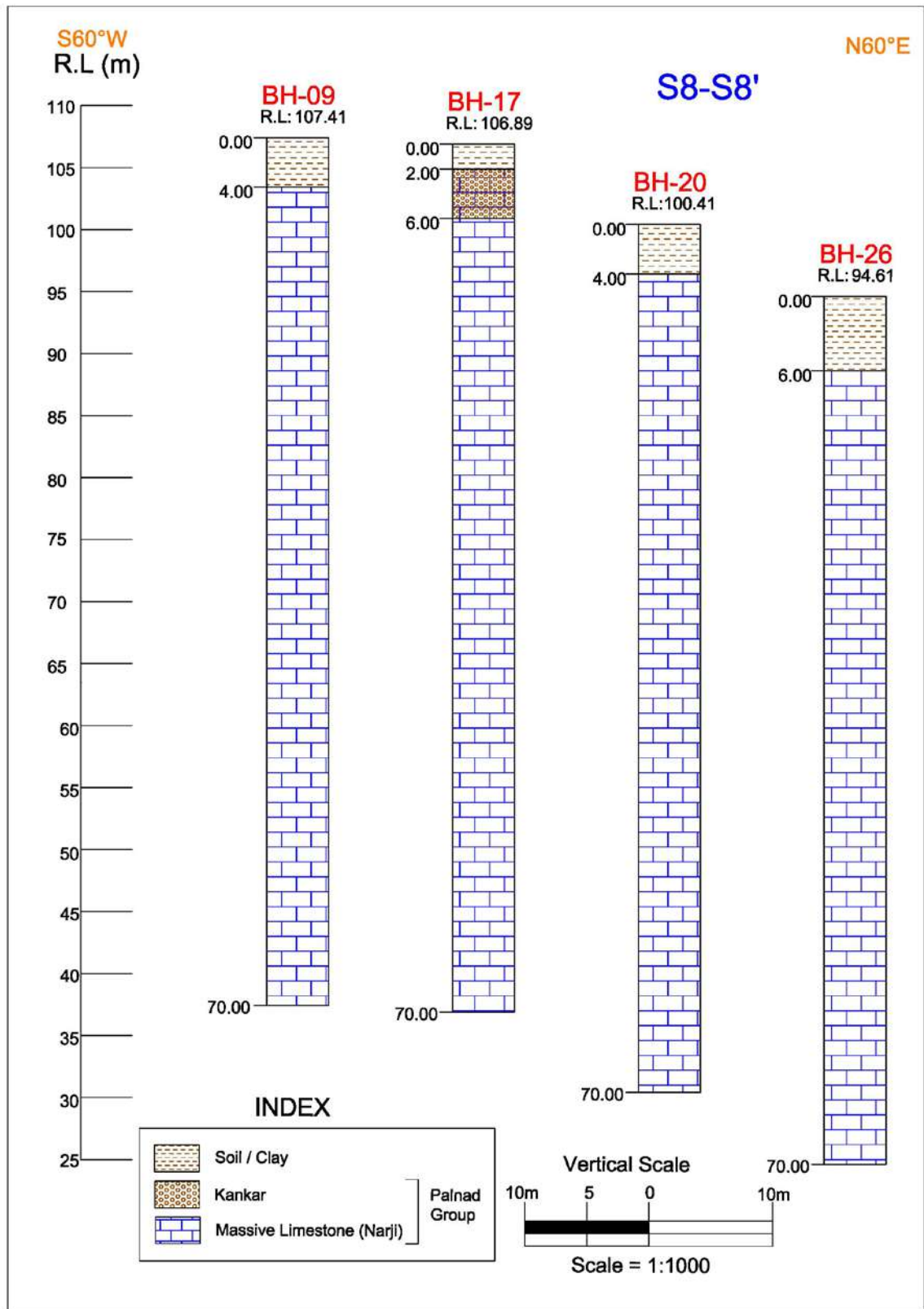


Fig. 3.3h Lithologs of drilled boreholes along longitudinal section line S8-S8' in Madinapadu Limestone Block

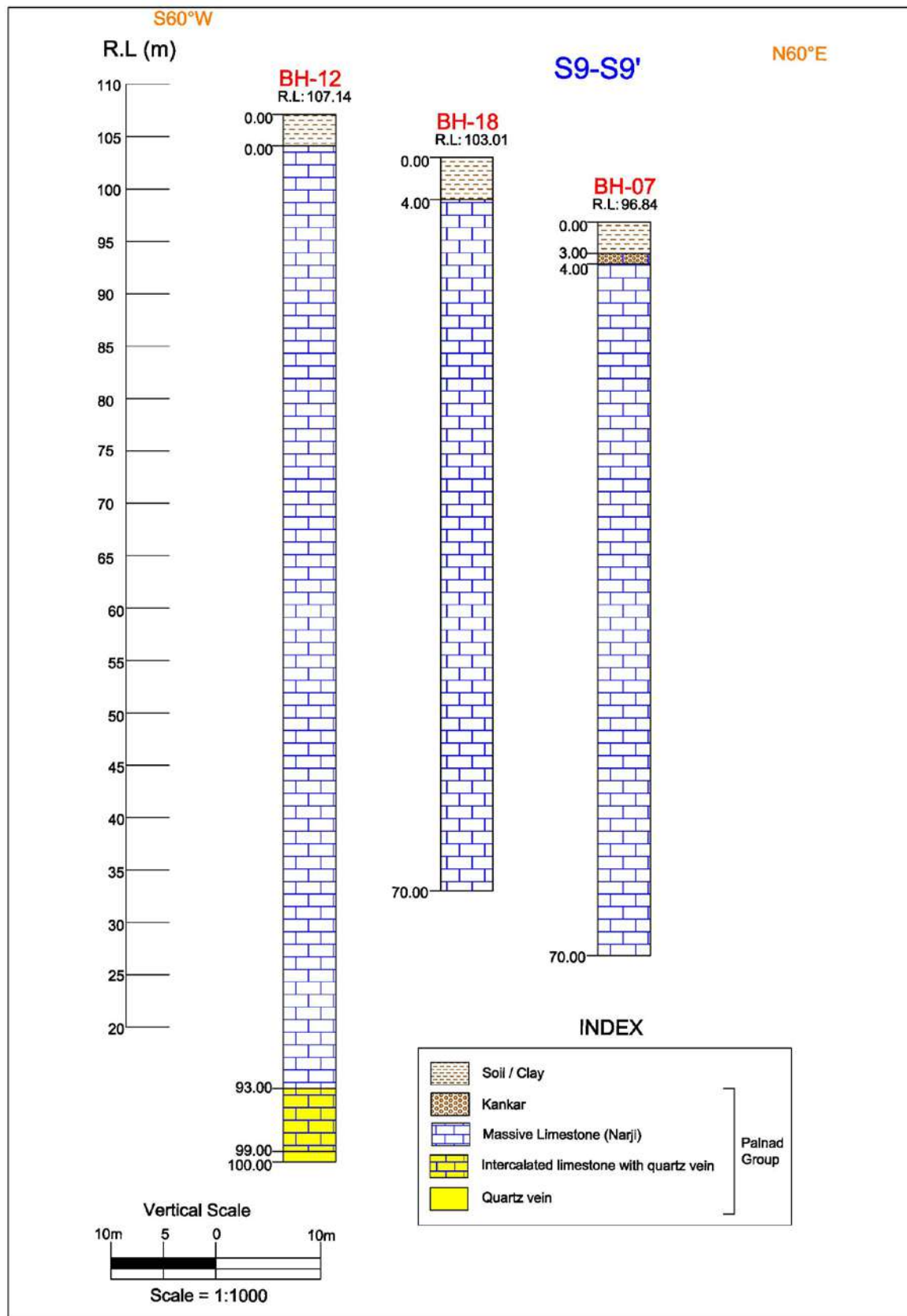


Fig. 3.3i Lithologs of drilled boreholes along longitudinal section line S9-S9' in Madinapadu Limestone Block

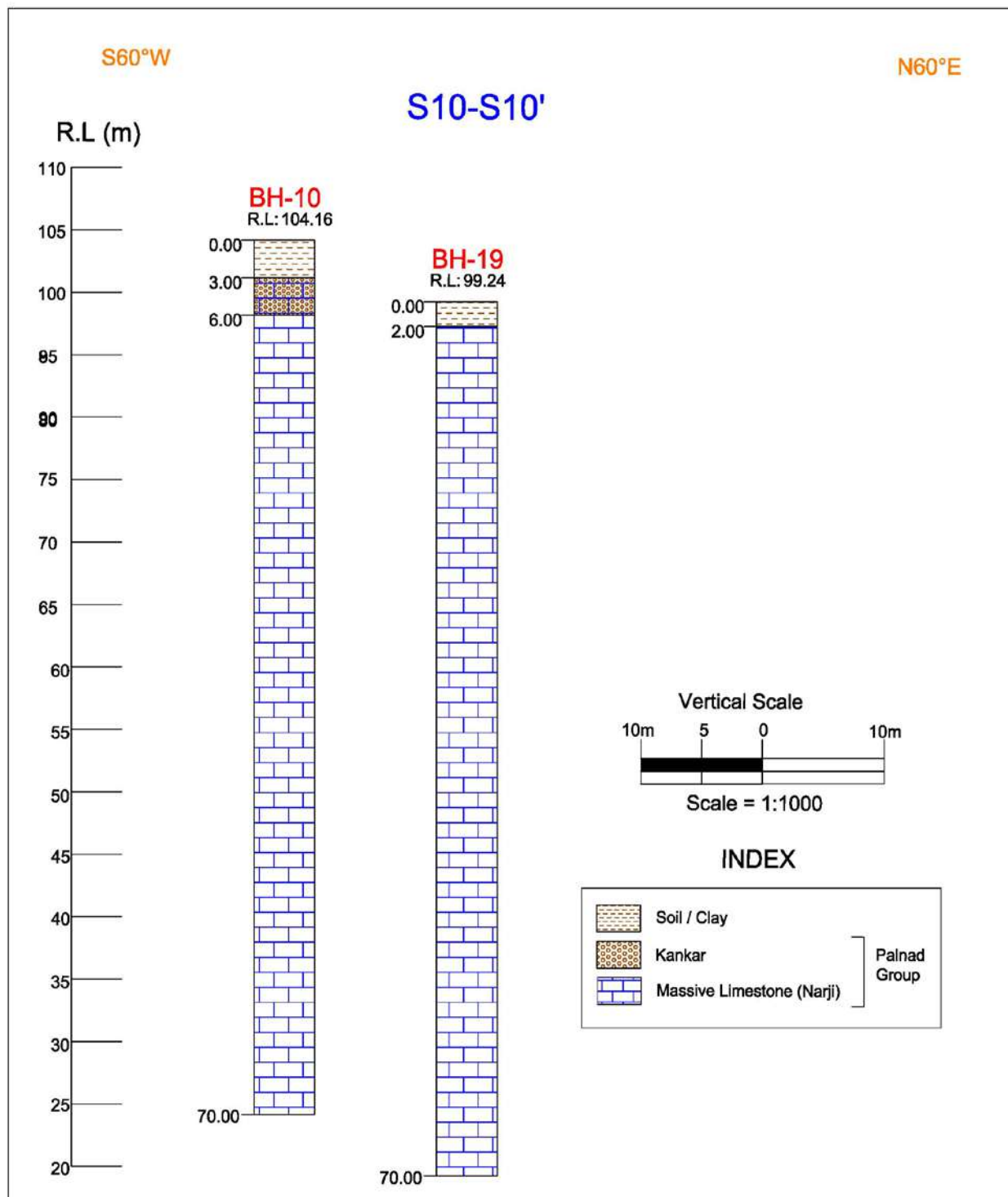


Fig. 3.3j Lithologs of drilled boreholes along longitudinal section line S10-S10' in Madinapadu Limestone Block

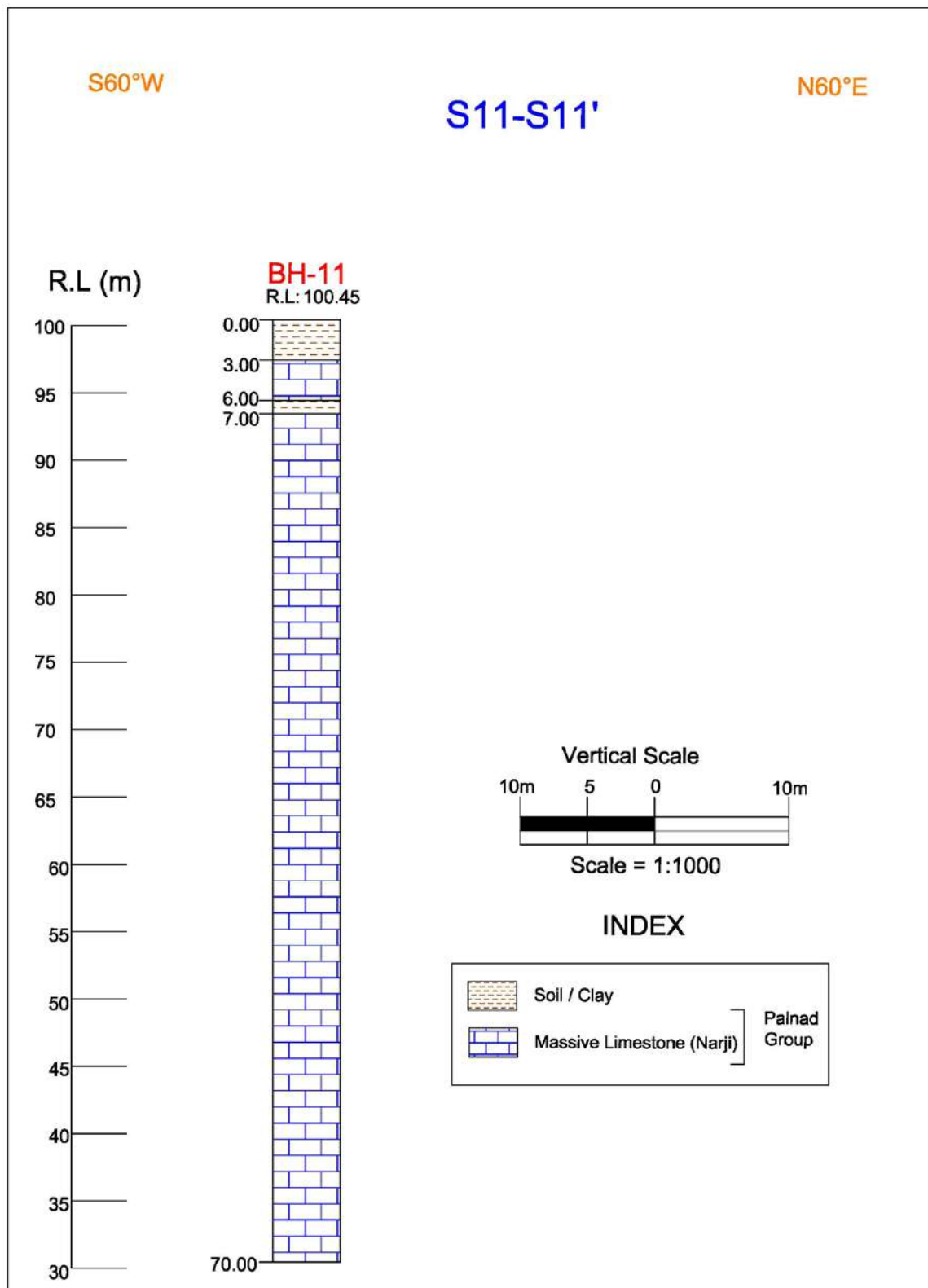


Fig. 3.3k Lithologs of drilled boreholes along longitudinal section line S11-S11' in Madinapadu Limestone Block

3.4 DRILL CORE STORAGE IN CORE BOXES

The drill core is preserved in the 22 gauge G.I. core boxes. These are of 1.00m long with 5 longitudinal compartments, thus each core box is normally capable of preserving 5.0m length of core. The core is kept in the core boxes and arranged in a “Book Fashion”. The core boxes are marked with inscriptions like, name of the block area, box number, borehole number and from-to depth on the top and inside front face of the core box (Fig. 3.5). Depth of the borehole is marked at the end of every run. An arrow mark is shown on each drill core piece indicating the direction towards depth.



Figure 3.5 Markings on Core Box and the core

A total of 2328m of core drilling was carried out in 36 boreholes in Madinapadu limestone block. The total core obtained from these 36 boreholes is properly labelled and stored in 327 core boxes. All the core boxes and duplicate samples were handed over to MERIT as per the tender. Photographs of the core boxes of all the 36 boreholes drilled are given as Annexure IV.

3.5 CORE SAMPLING

Core splitting

Core is preserved in GI sheet core boxes. Limestone drill core of every 1 meter is sampled and processed for chemical analysis. After the physical examination of the core, it is split longitudinally into two equal halves with the help of motorized core splitter. One half of the split core is preserved in the core box with details like Sample

No., BH No. and depth, for future reference. The other half of the sample is processed for chemical analysis.

Sampling and powdering

Limestone core is sampled for every 1 meter and processed for chemical analysis. One longitudinal half of the core of every meter is crushed with jaw crusher into 6.5 mm size pieces. After coning and quartering, half of this is preserved as representative sample with proper labeling and the remaining material is powdered to -100 mesh by pulveriser. The powdered core sample is homogenised after coning and quartering. 250gm of homogenized powder sample is considered for chemical analysis and out of which 20gm is taken for analysis. Duplicate sample is labeled and preserved for future reference.

Samples for chemical analysis

Core of every 1 meter from 36 boreholes with limestone below the overburden of soil is sampled and processed for chemical analysis. A total of 2129 representative core samples at 1m interval have been collected for chemical analysis from these 36 boreholes with limestone. In addition, about 10% check samples i.e. 228 samples were also collected and a total of 2357 samples (2129 + 228) were analyzed chemically.

As per a separate work order chemical analysis of Na_2O and K_2O was also carried out for composite samples of drilled cores for every 10m length/interval, in addition to the regular analysis of eight radicals. Accordingly, 208 composite core samples were drawn for every 10m length/interval of the core from all the 36 drilled boreholes in limestone in Madinapadu Block and analysed.

Samples of overburden soil in these 36 boreholes were not collected for analysis (as indicated by MERIT).

CHAPTER-4

CHEMICAL ANALYSIS OF CORE SAMPLES

4.1 INTRODUCTION

As part of G2 exploration work in Madinapadu Limestone Block, a total of 2328m of core drilling was carried out in 36 boreholes up to a depth varying from 34m (BH-5) to 100m (BH-12). Out of the 36 boreholes, one borehole (BH-12) was drilled up to a depth of 100m and the remaining 35 boreholes were drilled up to the bottom of limestone horizon or up to a maximum depth of 70m only as indicated by MERIT/NMET (Table 4.1).

4.2 CHEMICAL ANALYSIS

Drill core samples from all the 36 boreholes with limestone were chemically analyzed. Limestone core of every 1 meter is sampled and is processed for chemical analysis. Samples of limestone as well as intercalated limestone + shale and shale from all the drilled boreholes were taken for chemical analysis as indicated by MERIT. A total of 2357 samples including 2129 drill core samples and 228 check samples (about 10%) were prepared and analyzed. Details of the samples, borehole wise, are given in Table 4.1. Samples of overburden soil in these 36 boreholes were not collected for analysis (as indicated by MERIT).

All the samples were analyzed at NABL accredited M/s RCA Laboratories, Kolkata. The certificate of accreditation from NABL is given separately. As per the work order of MERIT, all the samples are analyzed for LOI, SiO_2 , Fe_2O_3 , Al_2O_3 , CaO , MgO , SO_3 and P_2O_5 . Samples are analyzed for these 8 radicals as per the standard procedure of Indian Standards (IS) and standard procedures of RCA chemical laboratory. The chemical analysis results of all the samples, borehole-wise, are given in Annexure VI. The original analysis reports from M/s RCA Laboratories, Kolkata are given in Annexure VII.

Table 4.1 Details of lithology and number of samples analysed from boreholes drilled in Madinapadu limestone block

S. No.	BH. No	Lithology (In Meters)					Core Boxes (No.s)	No. of samples analysed
		Soil	Massive Limestone	Intercalation of Limestone & Shale	Shale	Total Drilled Depth		
1	BH-1	4	66			70	9	66
2	BH-2	6	64			70	10	65
3	BH-3	9	61			70	9	61
4	BH-4	9	61			70	9	61
5	BH-5	6	20	8		34	5	29
6	BH-6	7	63			70	10	66
7	BH-7	4	66			70	10	67
8	BH-8	6	30	2		38	5	32
9	BH-9	4	66			70	10	66
10	BH-10	6	64			70	10	67
11	BH-11	3+1	66			70	9	66
12	BH-12	2+1	90	7		100	17	96
13	BH-13	4	36	1		41	7	36
14	BH-14	1	29	16	3	49	6	48
15	BH-15	3+2	47	3		55	6	52
16	BH-16	6	64			70	11	65
17	BH-17	6	64			70	9	68
18	BH-18	4	66			70	11	67
19	BH-19	2	68			70	11	68
20	BH-20	4	66			70	11	66
21	BH-21	12+1	25	5		43	5	31
22	BH-22	7	36	3		46	7	39
23	BH-23	9	31	8 (sink hole)		48	5	33
24	BH-24	4+1	45	9		59	7	54
24	BH-25	9	61			70	10	61
26	BH-26	6	64			70	9	64
27	BH-27	3	67			70	10	67
28	BH-28	7	63			70	10	64
29	BH-29	10+2	58			70	10	60
30	BH-30	7	63			70	9	63
31	BH-31	3	67			70	11	67
32	BH-32	2	68			70	12	68
33	BH-33	4	62	4 (sink hole)		70	8	61
34	BH-34	9	56			65	9	56
35	BH-35	6	64			70	10	64
36	BH-36	3+2	65			70	10	65
Total		207	2052	54	3	2328	327	2129

The ore resource estimation in Madinapadu limestone block has been carried out in four grade-wise categories of >34-40%, 40-45%, 45-48% and > 48% CaO as indicated by MERIT and as per the latest Notification of IBM dated 25.4.2018 showing a threshold value of 34% CaO for limestone. The minimum, maximum, average (mean) and standard deviation of chemical analysis results of limestone samples in the above four grade-wise categories are given in Table 4.2. The standard deviation values are within the acceptable limit except for SiO₂ and CaO. This may be due to the wide variation in silicious material and as different grade wise categories of CaO are being considered.

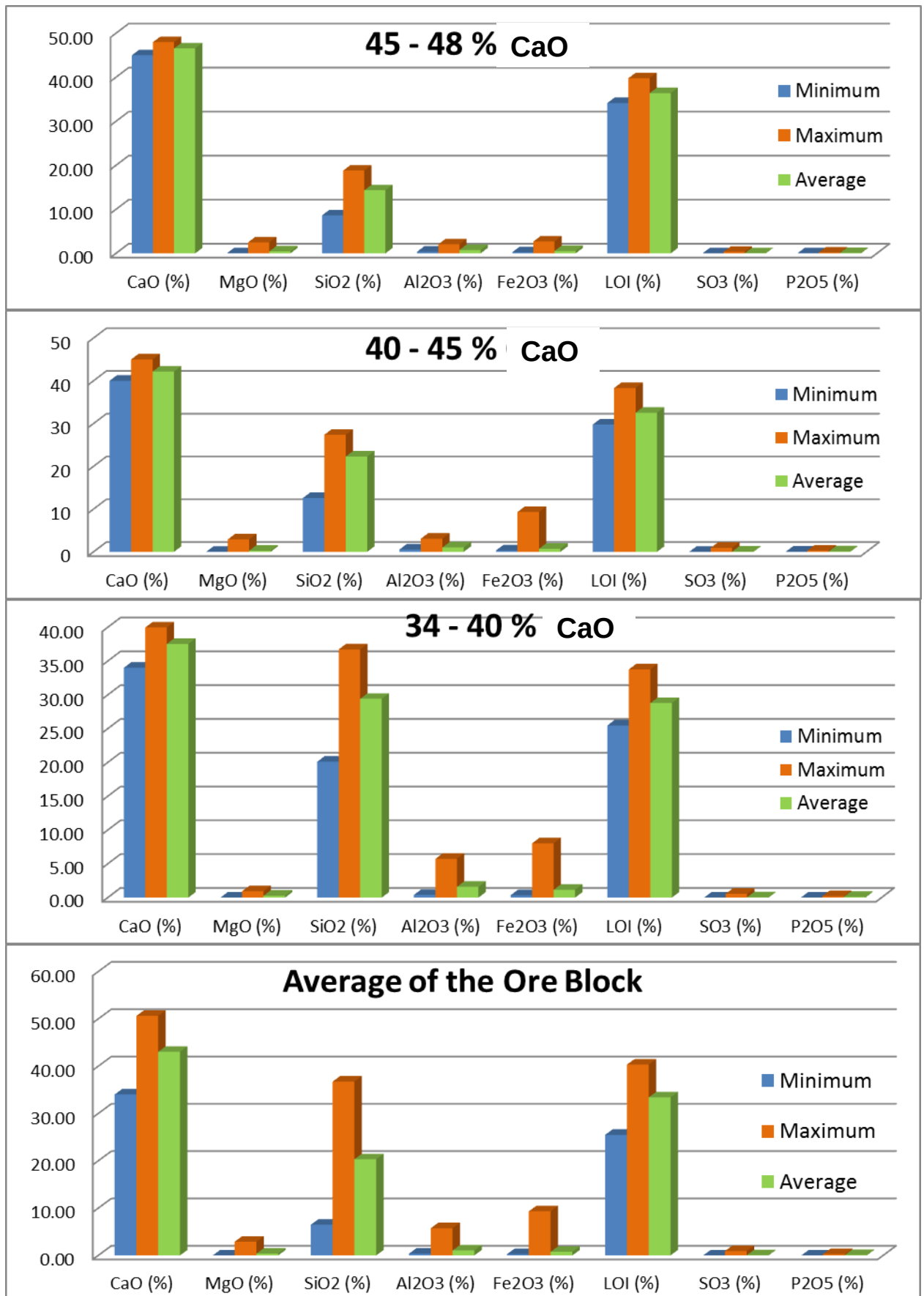
Table 4.2 variation and average of the chemical analysis of limestone samples in the grade-wise categories in Madinapadu Limestone Block.

Thickness (m) / No. of samples	Description	CaO (%)	MgO (%)	SiO ₂ (%)	Al ₂ O ₃ (%)	Fe ₂ O ₃ (%)	LOI (%)	SO ₃ (%)	P ₂ O ₅ (%)
	> 48 % CaO								
238	Minimum	48.01	0.17	6.49	0.36	0.31	36.38	0.00	0.033
	Maximum	50.63	1.80	13.67	1.56	1.07	40.32	0.31	0.115
	Average (Mean)	48.87	0.63	9.68	0.73	0.59	38.59	0.04	0.060
	Standard Deviation	0.59	0.37	1.47	0.25	0.16	0.90	0.05	0.02
	45 - 48 % CaO								
554	Minimum	45.00	0.03	8.63	0.38	0.26	34.15	0.00	0.033
	Maximum	47.98	2.50	18.80	2.05	2.69	39.79	0.36	0.181
	Average (Mean)	46.55	0.44	14.33	0.76	0.54	36.39	0.04	0.090
	Standard Deviation	0.81	0.33	1.91	0.23	0.22	1.01	0.05	0.02
	40 - 45 % CaO								
694	Minimum	40.01	0.01	12.58	0.53	0.32	29.74	0.002	0.027
	Maximum	44.99	2.88	27.36	3.08	9.31	38.30	0.92	0.284
	Average (Mean)	42.16	0.27	22.29	1.01	0.70	32.52	0.05	0.100
	Standard Deviation	1.33	0.18	2.69	0.31	0.55	1.29	0.07	0.02
	34 - 40 % CaO								
493	Minimum	34.01	0.02	20.11	0.41	0.36	25.48	0.00	0.002
	Maximum	39.98	0.94	36.74	5.74	8.04	33.77	0.56	0.220
	Average (Mean)	37.53	0.28	29.42	1.59	1.15	28.79	0.05	0.101
	Standard Deviation	1.69	0.14	2.96	0.88	0.93	1.45	0.06	0.03
	Average of the Ore Block								
1979	Average	43.04	0.37	20.32	1.05	0.75	33.40	0.04	0.092

The weighted average analysis for the entire Madinapadu ore block is calculated taking in to consideration of the average composition of each grade category and the thickness of respective grades. The thickness is same as the no. of samples, as 1 m length of core was taken as one sample. The chemical analysis results are also shown graphically in Figure 4.1

The chemical data of limestone samples from Madinapadu block (Table 4.2) indicate that the average CaO content is 48.87% in >48% CaO category and it decreases to 37.53% in 34-40% CaO category. The average content of SiO₂ is 9.68% in >48% CaO category and it increases to 29.42% in 34-40% CaO category. The average content of Al₂O₃, and Fe₂O₃ increases from >48% CaO category to 34-40% CaO category whereas the average content of MgO and LOI decreases. The limestone considered for ore resource estimation comprising of four grade-wise categories in Madinapadu block, on an average analyzed 43.04% CaO, 0.37% MgO, 20.32% SiO₂, 1.05% Al₂O₃, 0.75% Fe₂O₃, 33.40% LOI, 0.04% SO₃ and 0.092% P₂O₅. The average silica content in the ore grade categories of 40-45% CaO and 34-40% CaO in general is higher varying from 22.29 to 29.42% SiO₂ with an average of 25.25% SiO₂.

Figure 4.1 Histogram of minimum, maximum and average of the chemical analysis of limestone core samples of Madinapadu block



Some boreholes have intercepted intercalation of limestone + shale and shale. Samples from the intercalated sequence of limestone + shale at the contact of limestone and the underlying shale at the bottom of the boreholes have analyzed 02.88% to 36.08% CaO. Intercalation of limestone and shale samples analysed 01.65% to 38.48% CaO.

Na₂O and K₂O analysis

As per a separate work order No. 328/MERIT-NMET Meetings/2018/14 dated 04.10.2019 from CEO, MERIT, chemical analysis of Na₂O and K₂O was to be carried out for composite samples of drilled cores for every 10m length/interval, in addition to the regular analysis of eight radicals. Accordingly, composite samples were drawn for every 10m length/interval of the core from all the 36 drilled boreholes in limestone in Madinapadu Block and analysed at the NABL accredited chemical laboratory of M/s RCA Laboratories, Kolkata.

A total of 208 composite core samples were collected from 36 boreholes drilled in Madinapadu limestone block and analysed for Na₂O and K₂O and the chemical analysis results of all the samples, borehole-wise, are given in Annexure VI. The original analysis reports from M/s RCA Laboratories, Kolkata are given in Annexure VII. Na₂O values range from 0.032% (MP/14/1) to 0.103% (MP/29/6) and the average value is 0.056%. The K₂O content varies from 0.161% (MP/19/2) to 2.472% (MP/29/6) and the average value is 0.361%. The total R₂O (Na₂O + K₂O) varies from 0.214% (MP/7/2) to 2.575% (MP/29/6) and the average value is 0.417% which is within the permissible limit for limestone ore for cement industry.

The limiting value of R₂O for ordinary Portland cement is <0.6% and for other types of cements and with scope for beneficiation and blending, the limit is <1.0% (IBM 2017, 2018). As composite samples were drawn for every 10m length/interval of the core from all the drilled boreholes in Madinapadu Block and analysed, as indicated by MERIT, it may not be possible to assess Na₂O, K₂O and R₂O content in the four grade-wise categories.

4.3 METHODOLOGY FOR CHEMICAL ANALYSIS

The analysis of core samples of Madinapadu Limestone block for LOI, SiO₂, Fe₂O₃, MgO, Al₂O₃, CaO, SO₃ and P₂O₅ has been carried out by adopting standard procedures. The method and standards followed is given in the following.

XRF method

1. ISO :12677:2011 – Al₂O₃, CaO, MgO, Fe₂O₃, SiO₂, P₂O₅ and SO₃

Wet Chemical method

1. IS: 1760 (Part – 1)-1991 – LOI
2. IS: 1760 (Part – 2)-1991 – SiO₂
3. IS: 1760 (Part – 3)-1992 - CaO, MgO, Al₂O₃
4. RCA/KOL/TPM/SOP-001 – Fe₂O₃
5. RCA/KOL/TPM/SOP-002 – P₂O₅

QA/QC Protocol Followed

As a NABL accredited laboratory, M/s RCA Laboratories, Kolkata are maintaining QA/QC as per QAP & IQC plan which is complying necessary requirements of ISO/IEC 17025:2017.

QA/QC protocol followed is as given below.

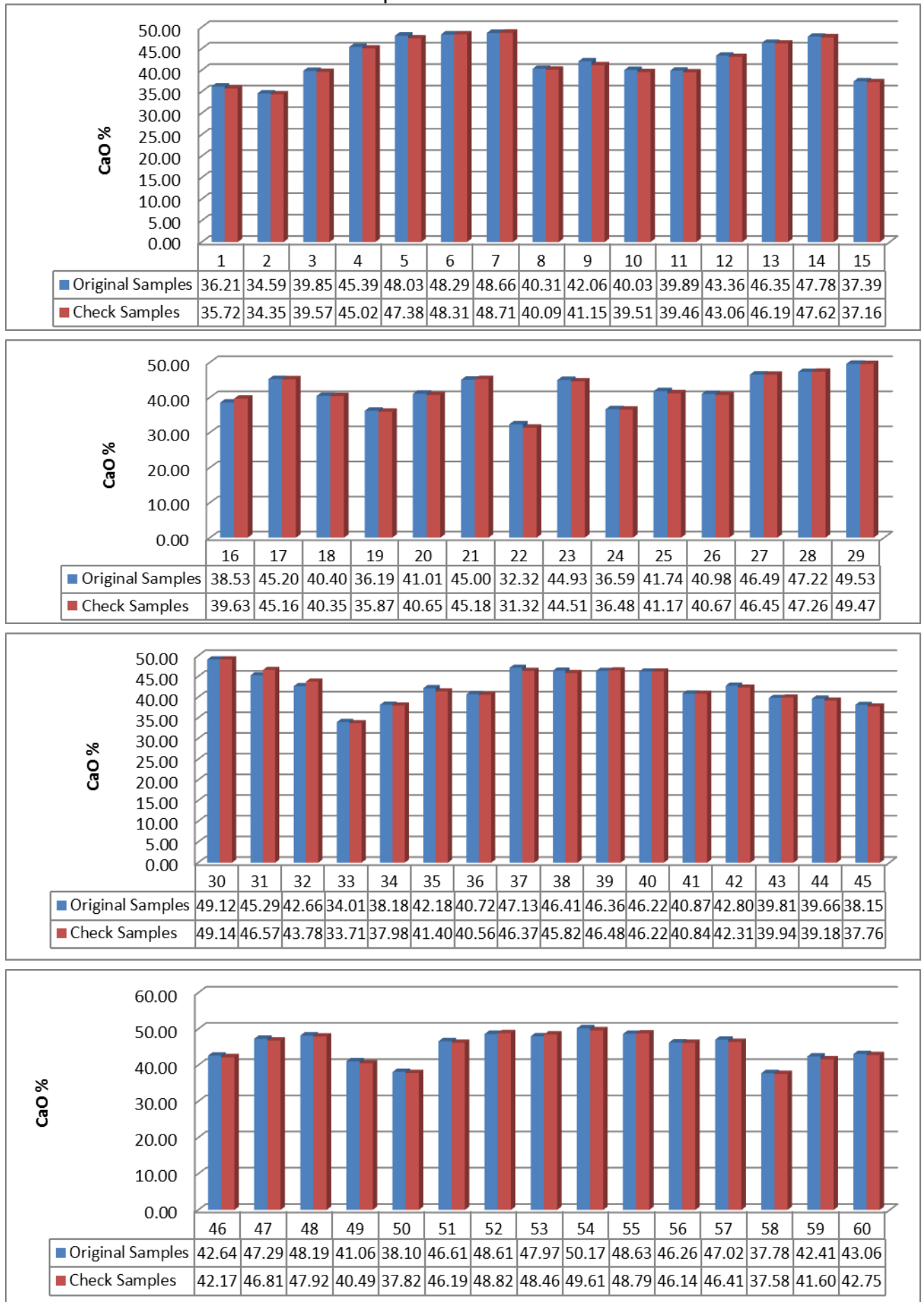
1. Calibration of the XRF by CRM & SRM using the following CRM & SRM for calibration purpose:
 - a) BCS CRM No 393
 - b) SX 35-15
 - c) NCS DC 73375
 - d) NML 71.1
 - e) BCS CRM No 782-1
 - f) NCS DC 14020a
 - g) NCS DC 11003
2. Checking the accuracy by using CRM at a regular interval of 25 to 40 samples.
3. Cross checking by wet chemical method - cross checking random samples by wet chemical method also.

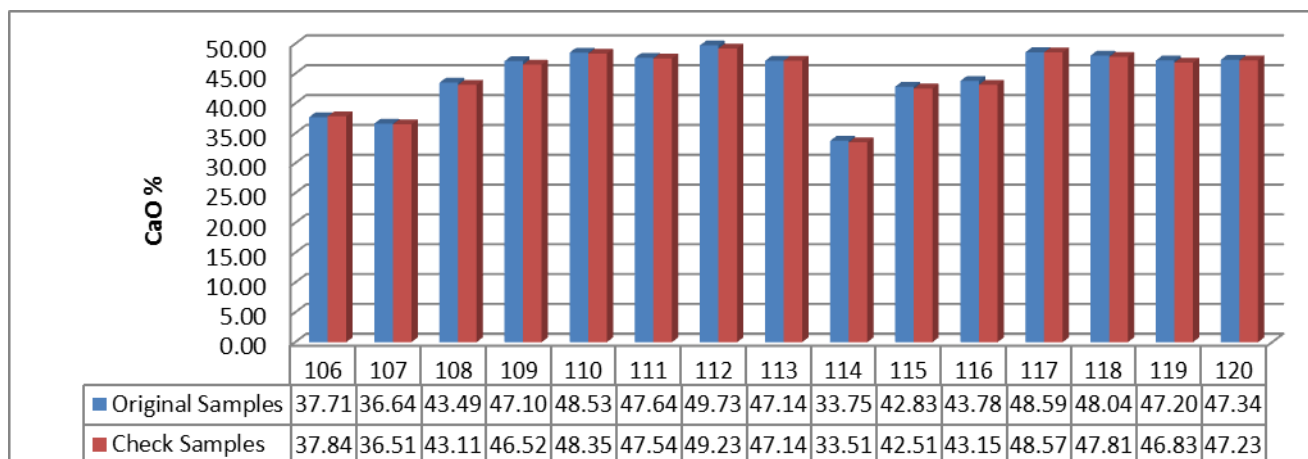
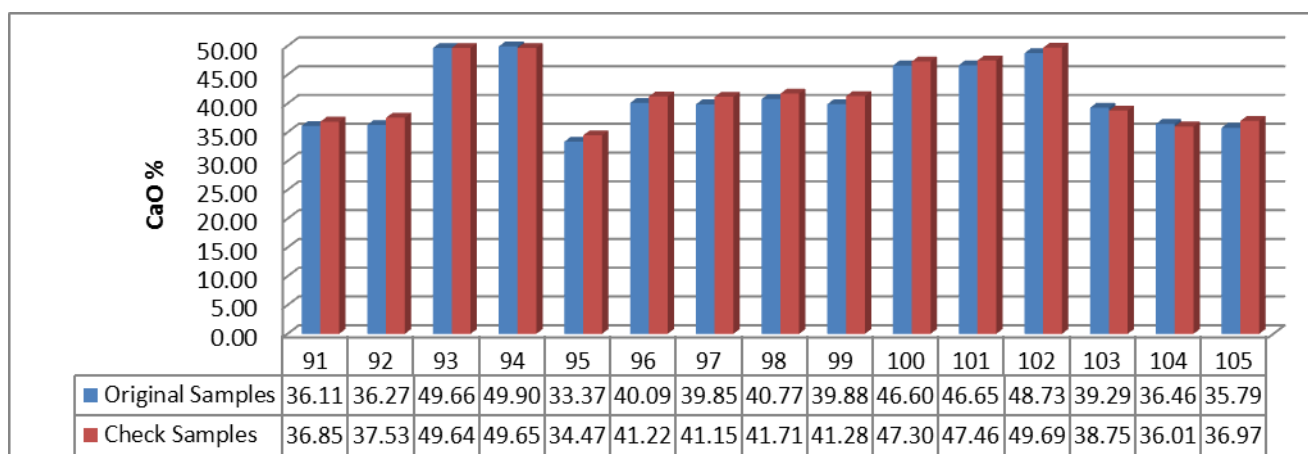
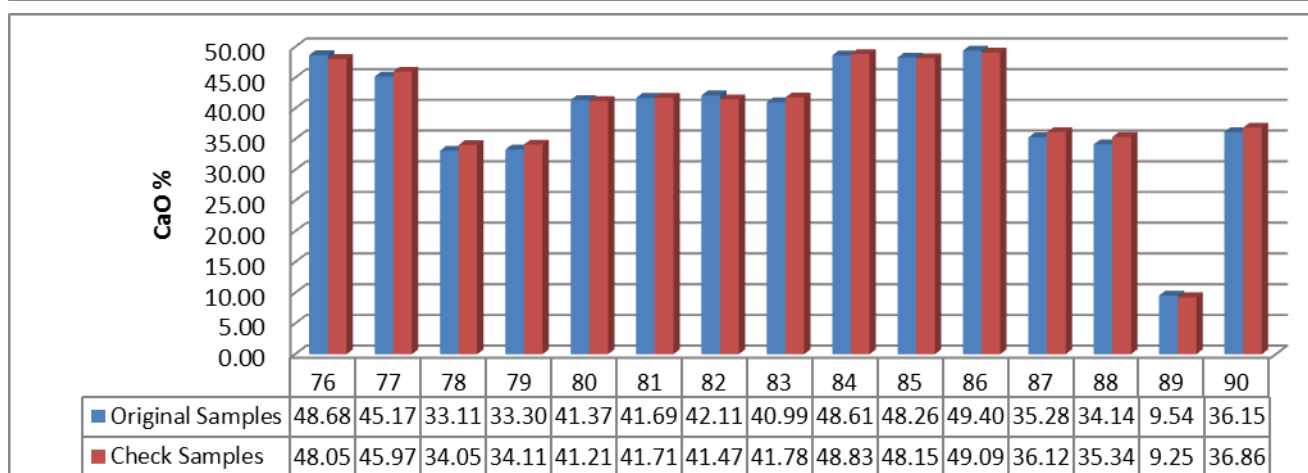
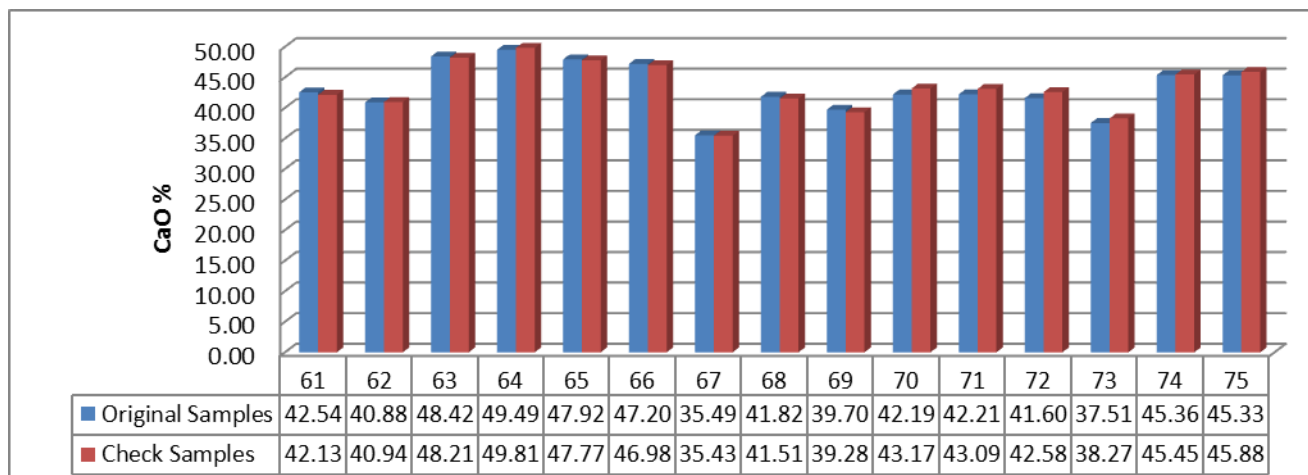
4.4 CHECK SAMPLES

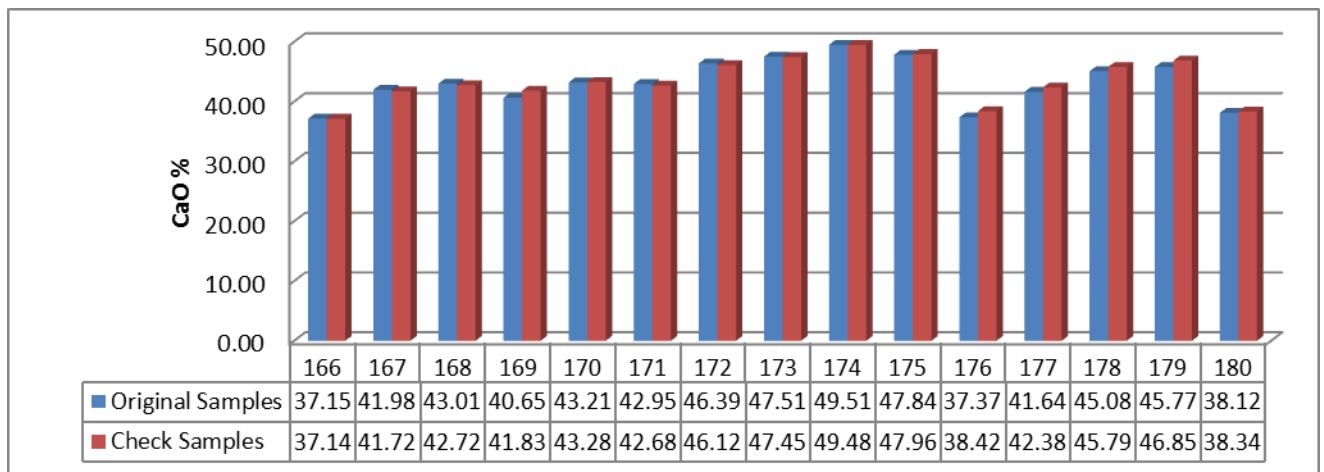
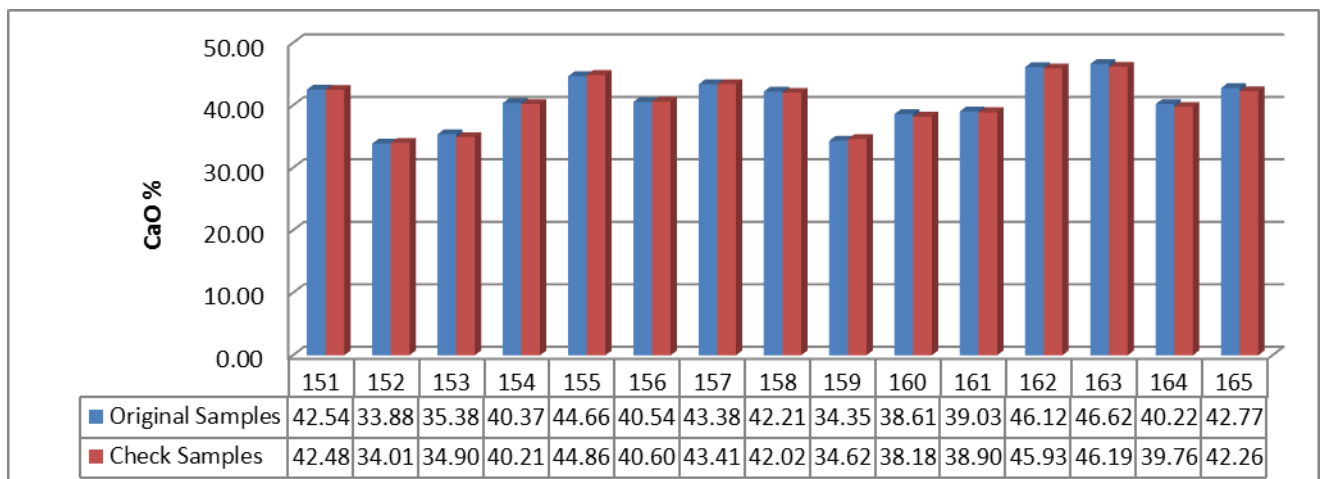
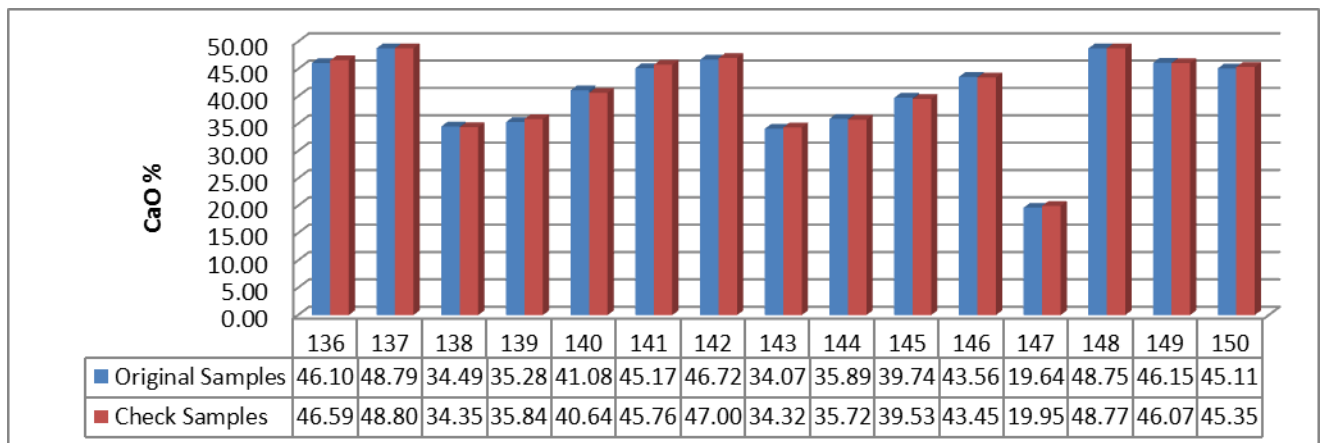
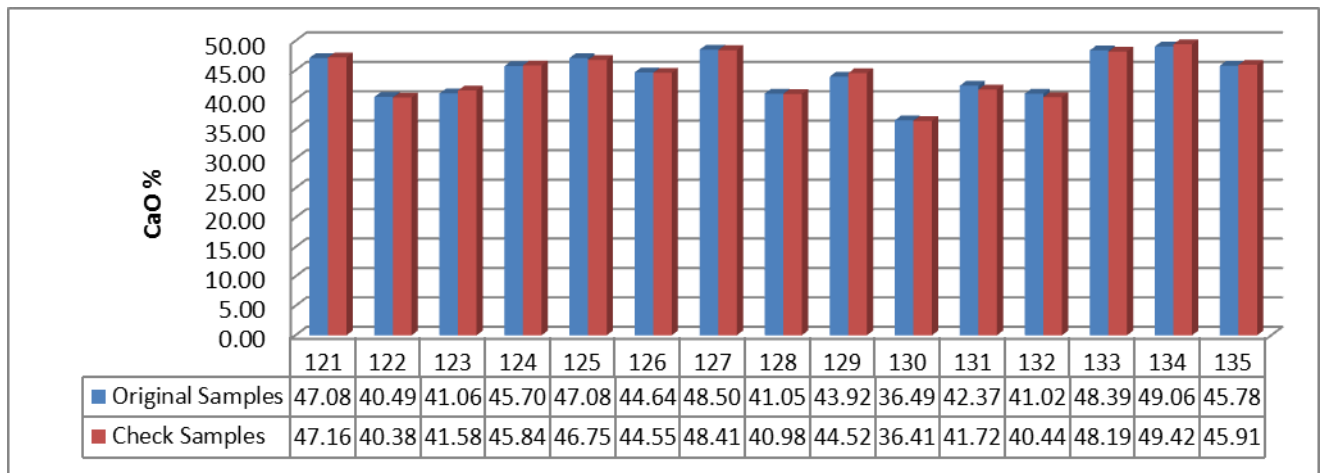
The check samples were selected and sent for analysis by M/s Geosolutions so that these samples are distributed from all the boreholes considered for ore reserve estimation. Separate numbers were given for these check samples selected for analysis. The analytical data of 228 check samples is compared with the data of the original samples and given in Annexure VI. The data shows that the analytical data of check samples is similar to the original samples. The variation of %CaO of the original samples and the check samples is shown graphically in Fig. 4.2.

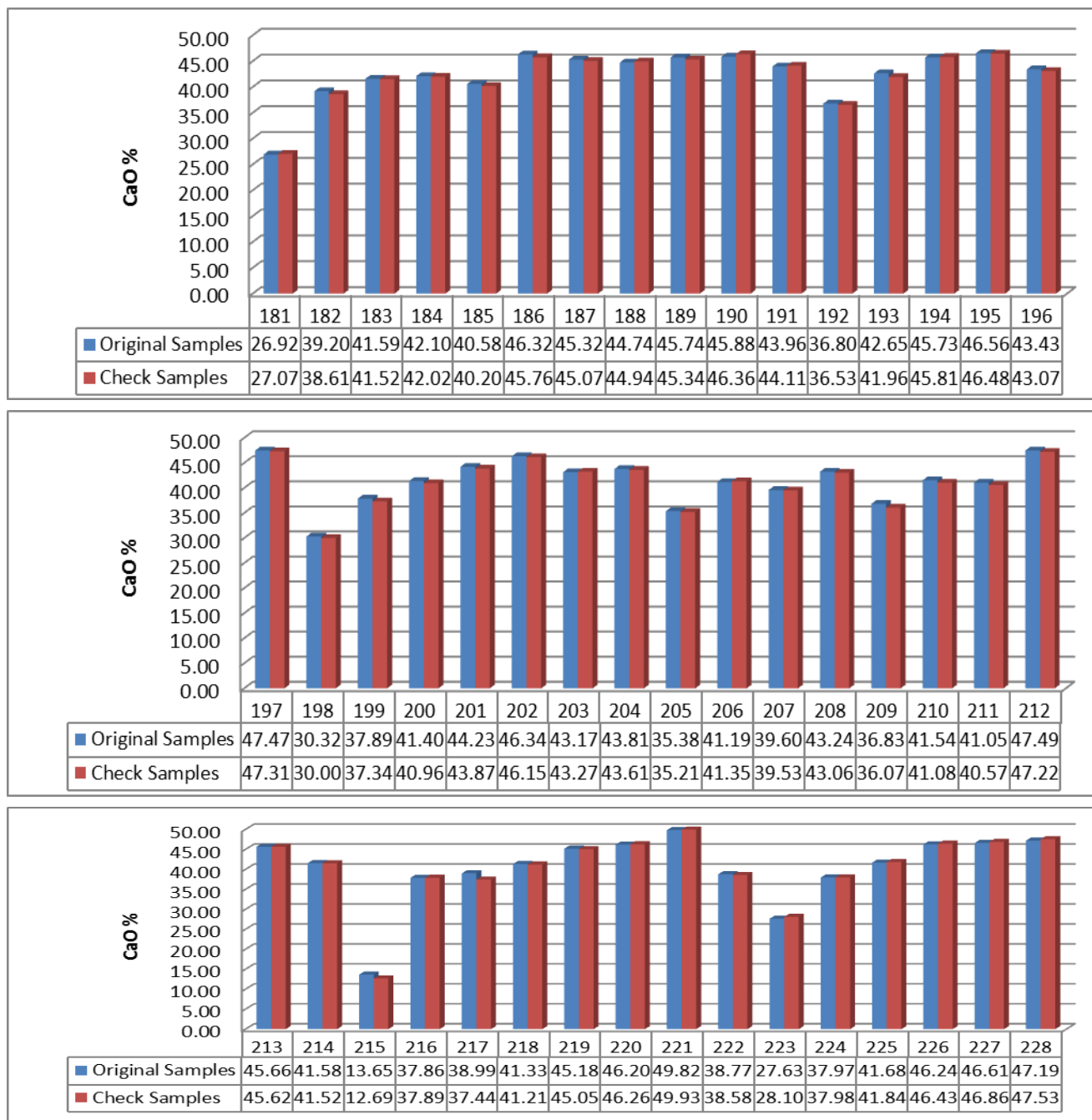
The analytical results of all the 2129 core samples, borehole-wise and 228 check samples and comparison of original and check samples are given in Annexure-VI. The original analysis reports from RCA laboratories, Kolkata are given in Annexure VII.

Figure 4.2 Histograms of %CaO of original samples Vs Check samples of limestone from Madinapadu limestone block.



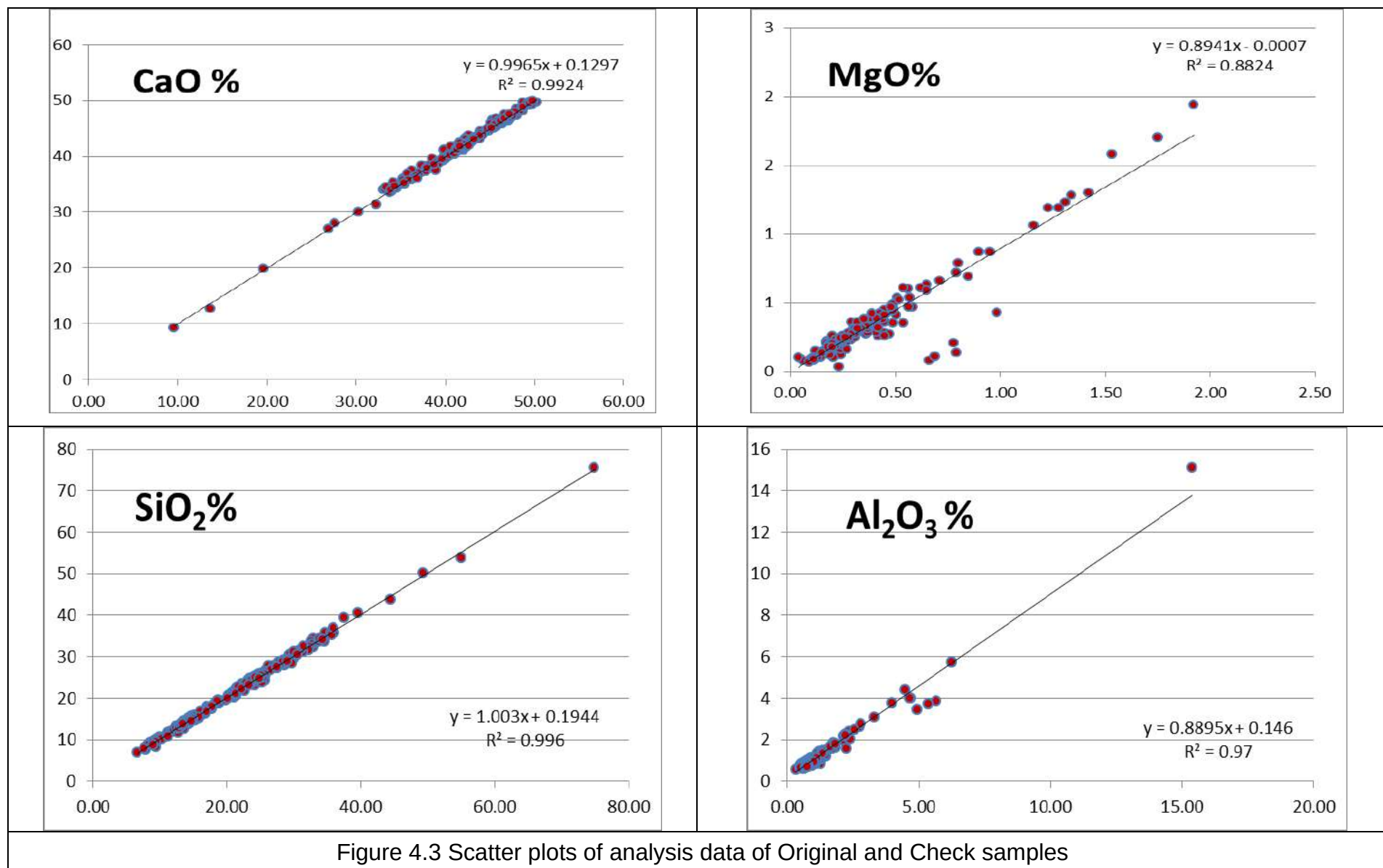


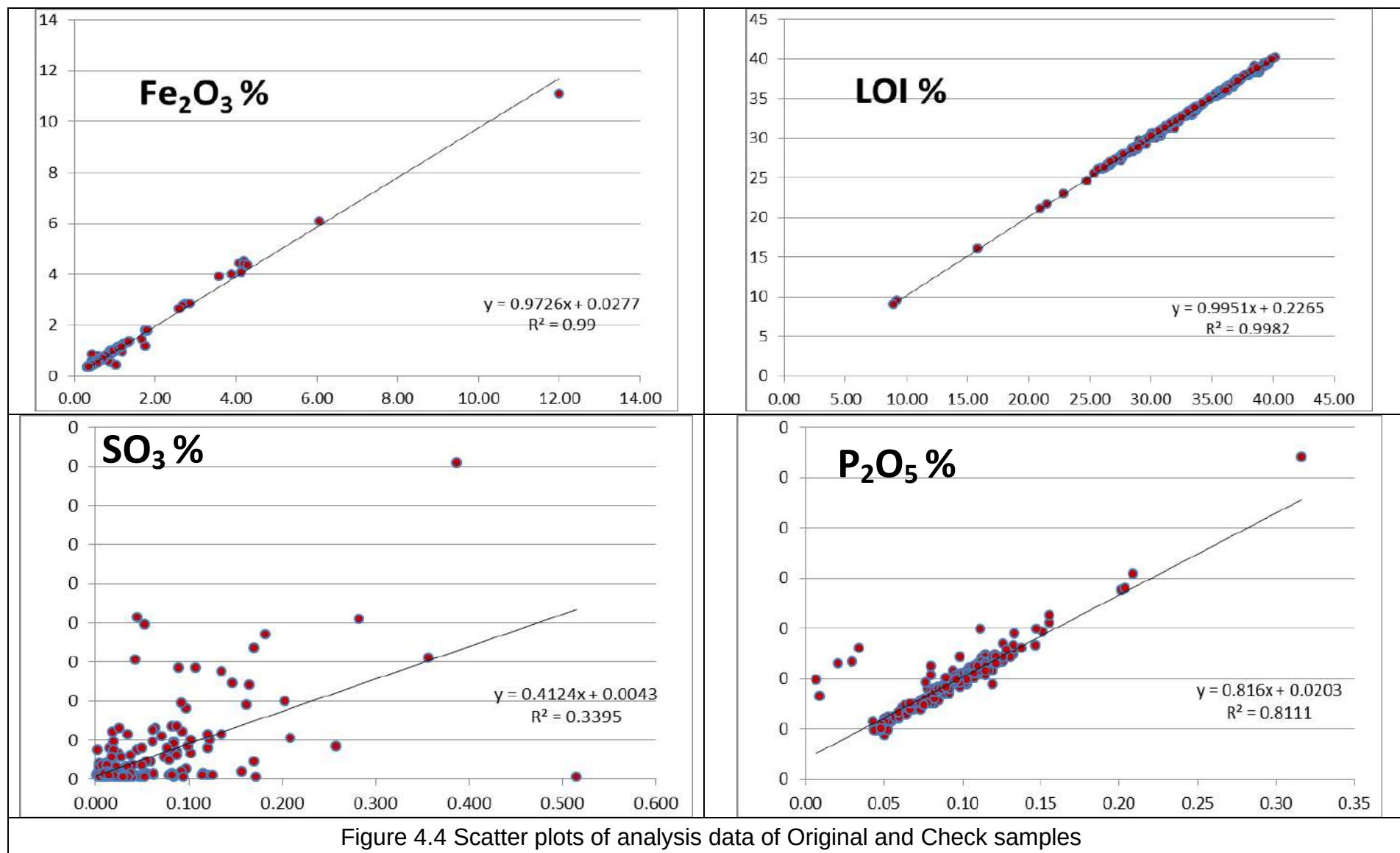




A comparative study of analytical data of primary and check samples is also done to establish the agreement between the two. This study is done by plotting the analysis data of primary and check samples for each parameters/oxides as scatter diagrams (Fig. 4.3 and Fig.4.4). The plots show a linear trend line indicating that both the primary sample analysis data and the check sample analysis data are in full agreement. All the parameters/oxides show positive Correlation Coefficient as given in the following table indicating that both the primary and check sample analytical data is in perfect agreement.

Parameter/Oxide	CaO (%)	MgO (%)	SiO ₂ (%)	Al ₂ O ₃ (%)	Fe ₂ O ₃ (%)	LOI (%)	SO ₃ (%)	P ₂ O ₅ (%)
Correlation Coefficient	1.00	0.94	1.00	0.99	1.00	1.00	0.58	0.90





CHAPTER-5

ORE RESOURCE ESTIMATION AND EVALUATION

5.1 GENERAL

Mineral resource estimation is directly related to successful mine development. Criteria of particular importance to the evaluation of mineral deposits are, the Geological mapping, Geo-referencing, Survey and Drilling, Laboratory analysis, Tonnage factors, Estimation techniques, Cut-off grades and Classification of reserves and resources. Exploration results are meaningfully reported on plans and cross sections. Political, legal, environmental and social factors need to be properly addressed before development of an apparently economic deposit.

5.2 UNITED NATIONS FRAMEWORK CLASSIFICATION (UNFC)

United Nations Framework Classification for Mineral Reserves and Resources and Fossil Energy 2009 (UNFC-2009) is universally acceptable and internationally applicable scheme for the classification and reporting of mineral resources / reserves. The UNFC consists of a three dimensional system with three axes of Geological Assessment, Feasibility Assessment and Economic viability.

The process of geological assessment is generally conducted in stages of increasing details. The typical successive stages of geological investigation are G-4 (Reconnaissance), G-3 (Prospecting), G-2 (General Exploration) and G-1 (Detailed Exploration), generate resource data with a clearly defined degree of geological assurance. These four stages are therefore used as geological assessment categories in the classification.

Feasibility assessment studies form an essential part of the process of assessing a mining project. The typical successive stages of feasibility assessment i.e. geological study as initial stage followed by prefeasibility study and feasibility study/mining report are well defined.

The degree of economic viability (economic or sub-economic) is assessed in the course of prefeasibility and feasibility studies. A prefeasibility study provides a preliminary assessment with a lower level of accuracy than that of a feasibility study, by which economic viability is assessed in detail.

It is a three digit code based system (Fig. 5.1), the Economic viability axis representing the first digit, the Feasibility axis the second digit and the Geologic axis the third digit. The three categories of economic viability have codes 1, 2 and

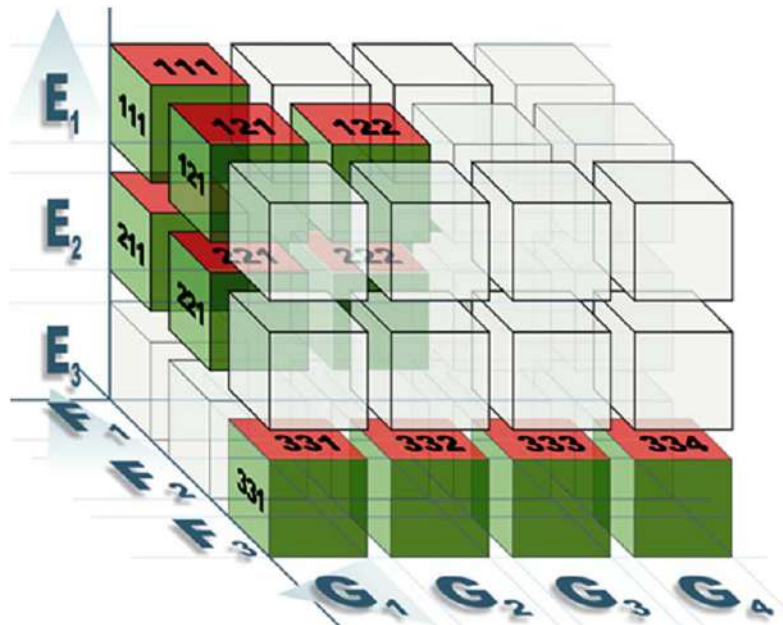


Figure 5.1 -Three Digit code based system of UNFC

3 in decreasing order, similarly the three categories of feasibility study have also codes 1,2 and 3 while the four stages of geological assessment are represented by 4 codes i.e. 1 (Detailed Exploration), 2 (General Exploration), 3 (Prospecting) and 4 (Reconnaissance). Thus the highest category of resources under UNFC system will have the code (111) and lowest category the code (334) (Rule 45(1) (c)).

Under this classification the various terms used for Total Mineral Resource and their definitions are as follows:

(i) Measured Mineral Resource (331)

- That part of mineral resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence i.e. based on detailed exploration.

(ii) Indicated Mineral Resource (332)

- Tonnage, densities, shape, physical characteristic, grade and mineral content can be estimated with reasonable level of confidence based on exploration, sampling and testing information, location of borehole, pits etc. too widely spaced.

(iii) Inferred Mineral Resource (333)

- Tonnage, grade and mineral content can be estimated with low level of confidence inferred from geological evidence.

5.3 G2 GENERAL EXPLORATION

G2 General Exploration involves the initial delineation of an identified deposit. Methods used include surface mapping, widely spaced sampling, trenching and drilling for preliminary evaluation of mineral quantity and quality (including mineralogical tests on laboratory scale if required), and limited interpolation based on indirect methods of investigation. The objective is to establish the main geological features of a deposit, giving a reasonable indication of continuity and providing an initial estimate of size, shape, structure and grade. The degree of accuracy should be sufficient for deciding whether a Prefeasibility Study and Detailed Exploration are warranted. This stage of exploration involves geological mapping on 1:25000 to 1:5000 or larger scale, drilling boreholes at 200 to 400m grid in the case of limestone, systematic core sampling, chemical analysis and petrographic study.

All the above aspects of exploration were carried out in Madinapadu Limestone Block as given in the following Table.

S. No	Item of Work	Work Proposed	Work Completed
1	Surface Core Drilling 40m depth each (400x400m grid)	1440m (36 BHs)	2328m (36 BHs)
2	GI Sheet Core Box 5 m run each	288 No.	327 No.
3	Topographic survey on 2m contour interval on 1:1000 scale for the area (Ha.) mentioned with scope of work.	660 Ha	660 Ha
	Survey party days	15	15
4	Geological Mapping on 1:5000 scale for the area (Ha.) mentioned with scope of work.	660 Ha	660 Ha
	Geologist party days	30	30
5	Core Sampling based on the surface core drilling- Refer Point-1 of drilling	1440No	2129 No.
	Party days	30	45
6	Chemical Analysis - CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , LOI at NABL accredited laboratory (original samples + 10% check samples)	1584 No.	2357 No.
7	Chemical Analysis - SO ₃ , P ₂ O ₅ at NABL accredited laboratory (original samples + 10% check samples)	1584 No.	2357 No.
8	Chemical Analysis - Na ₂ O, K ₂ O at NABL accredited laboratory	208 No.	208 No.
9	Preparation of Thin section	10 No.	10 No.
10	Petrographic Studies	10 No.	10 No.
11	Exploration Report (GR)	1 No.	1 No.

5.4 ORE RESOURCE ESTIMATION

The Madinapadu Limestone Block is an NE-SW trending oval shaped block with a length of 5km with an increase in width from 0.25km in the north to 2.0km in the south. The western boundary of the block is more or less a straight line whereas the eastern boundary is arcuate with angular deflections. It covers an area of 660 Ha and forms part of Survey of India Toposheet No. 56P/14.

Geologically, the block area of Madinapadu mainly exposes the Narji limestone which is underlain by Banganapalle quartzite belonging to the Neoproterozoic Kurnool Group. The limestone is covered by thin veneer of black cotton soil. Below the soil cover, massive limestone is encountered in most part of the block.

A total of 2328m of core drilling was carried out in 36 boreholes up to a depth varying from 34m (BH-5) to 100m (BH-12). The location, RL and other details of the boreholes drilled are given in Table 3.1. All the boreholes were drilled vertically with NX core size as the litho-units are sub-horizontal to gentle dipping on a grid pattern of 400m x 400m grid interval. The drilled borehole plan is given in Figure 3.3 and PLATE No. III and IV.

Out of the 36 boreholes, one borehole (BH-12) was drilled up to a depth of 100m and the remaining 35 boreholes were drilled up to the bottom of limestone horizon or up to a maximum depth of 70m only as indicated by MERIT/NMET (Fig. 3.3). In two boreholes (sinkholes BH-23 and 33) gaping of 12m is encountered. All the 36 boreholes encountered massive limestone with a total meterage of 2052m (Table 3.1).

The extent of limestone mineralization in the exploration block is 655Ha (6.55 sq.km) (Fig. 5.3 and PLATE No. VIII A). The total thickness of the limestone varies from 20.00m (BH-5) to 90.00m (BH-12). The overburden soil thickness varies from 1.00m (BH-14) to 12.00m (BH-21).

Massive limestone analyzing >34% CaO is considered for ore resource estimation. Top soil, interlayered soil and the limestone analyzing <34% CaO are considered as overburden and estimated separately.

The resources of limestone have been estimated by cross sectional method as well as by polygon method. The methodology and ore resource estimation by cross sectional method and by polygon method is given below.

Ore resource estimation by Cross sectional method

A total of 12 dip cross sections are generated in AutoCAD, based on the data of 36 boreholes falling in the section lines and with various lithologies encountered (Fig. 5.3 and Plate No. VIII A and B). The 12 dip cross sections are designated as L-L', M-M', N-N', O-O', P-P', Q-Q', R-R', S-S', T-T', U-U', V-V' and W-W'. Ore resource estimation has been carried out in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO as per the latest Notification of IBM dated 25.4.2018, indicating a threshold value of 34% CaO for limestone. The breakup of the limestone resource into above four categories is estimated by incorporating the zones with colour notation in the 12 dip sections prepared for limestone resource estimation.

The Madinapadu block boundary is not having a regular rectangular shape. The block is oval in shape, slightly rotated to northeastern side with an extended area in the southern part. Due to this, the rectangular influence area of dip sections could not be terminated up to the block boundary in many sections. In few sections, the left-out triangle area beyond rectangle section boundary, forms counterpart for the extension of that section. The left out triangle or additional area resource is estimated based on the nearest borehole data on polygonal method.

As per the established practice, the resources falling within the 200m influence area of each borehole is estimated under Indicated category. The remaining resources falling beyond 200m and up to the block boundary in the northern and southern part is calculated under Inferred category. The distance between boreholes is also not in uniform grid of 400m with marginal increase at places. The distance between the section lines varies from 342m to 386m.

Brief particulars and aspects considered for Ore Resource calculation by cross sectional method are given below:

1. A total of 12 dip cross sections (L-L' to W-W') are generated in AutoCAD, based on the data of 36 boreholes falling in the section lines.
2. The limestone resource in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO is estimated by incorporating the grade zones with colour notation in the dip sections, prepared for limestone resource estimation.
3. The cross sectional area of limestone is worked out with grade-wise thickness of the limestone and the lateral extension on either side of the borehole.
4. In most of the boreholes the lateral correlation of grade is present and it is integrated as continuous polygon considering the vertical shift of the grade. Wherever the change in grade is encountered with no lateral continuity, the same is shown as petering out, to estimate the sectional area.
5. The block boundary of the Madinapadu Limestone Block intersects the dip section lines at various distances from the last drilled borehole. The area of

limestone in the section is taken up to the intersection point of the section line with the block boundary.

6. The resources calculated up to the influence limit of 200m from the last drilled boreholes are categorized as **Indicated**. It is observed that the western and eastern boundaries of the block are falling mostly beyond the 200m influence limit of boreholes in the section. The resources calculated beyond the influence limit of 200m from the last boreholes up to the block boundary are categorized as **Inferred**.
7. The volume of the limestone is arrived by taking into consideration the sectional area and influence of 200m on either side of the section i.e. between 342m to 386m.
8. The tonnage is arrived by taking the specific gravity of limestone as 2.5. Bulk density of 6 borehole core samples of limestone from Madinapadu Limestone Block is measured after the removal of moisture by placing the samples in an electric oven at $\sim 800^{\circ}\text{C}$ for one hour and dried at the room temperature. The diameter and length of each core sample is measured using digital calipers thrice and averaged for computing the bulk volume. The weight (mass) of each dried core sample is measured using an electronic balance. The bulk density is calculated using the equation: $\rho \text{ (g /cm}^3\text{)} = \text{mass of sample / volume of sample}$. The average value of bulk density obtained is 2.67 g/cm³. However, limestone in this area is siliceous and is associated with minor intercalated shale (Sp. Gr. 2.2 to 2.6). Hence Sp. Gr. of 2.5 is taken for computing the tonnage.
9. A deduction of 10% from gross in-situ resource has been made to arrive at net in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc.
10. There are three types of surface constraints (Figure 5.5) including a canal, a road and a high tension power line which are crisscrossing in the Madinapadu Limestone Block. A width of 45m on either side from the center of the surface constraints like canal/ power line / road is considered as barrier. The volume of the limestone in the barrier area is arrived by taking into consideration the grade-wise thickness of limestone of boreholes falling nearby the surface constraints and the width of barrier as mentioned above. The tonnage is arrived by taking the specific gravity of limestone as 2.5 for both indicated and inferred area as per the presence of the surface constraints/features.
11. The soil thickness in limestone area varies from 1.00m (BH-14) to 12.00m (BH-21) over the massive limestone in the ore resource block. In order to estimate the overburden, the sectional area of the overlying soil cover is calculated from the 12 dip sections drawn for estimation of limestone resources. The volume of overburden is arrived by taking into consideration the sectional area and influence of 200m on either side of the section. The additional area beyond the 200m section line influence from the last borehole is arrived from Auto CAD and the volume is estimated by taking the soil thickness data of the nearby borehole. A specific gravity of 2.0 is taken for soil for tonnage calculation.
12. Similar method has been used for calculating the ore resource of the upper part of limestone analyzing <34% CaO which is considered as overburden in the sections and taking the specific gravity as 2.5.

A total of 810.08 Million Tonnes (MT) net in-situ limestone resource in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO has been estimated, by cross sectional method, in Madinapadu Limestone Block with 677.23 MT as indicated resource and 132.85 MT as inferred resource (Table 5.1). Ore resource estimation map is given as Figure 5.3 and PLATE No. VIII A and the dip sections are given in PLATE No. VIII B. The details of ore resource estimation with section-wise and grade-wise ore resource calculation by cross sectional method are given in Table 5.2.

Table 5.1 Summary of net in-situ ore resource estimated by cross sectional method in Madinapadu limestone block

(in Million Tonnes)				
>48% CaO	45 - 48% CaO	40 - 45% CaO	34 - 40% CaO	TOTAL
INDICATED				
84.52	183.32	238.94	170.45	677.23
12%	27%	35%	25%	
INFERRED				
24.33	28.76	51.47	28.29	132.85
18%	22%	39%	21%	
TOTAL RESOURCES				
108.85	212.08	290.41	198.74	810.08
13%	26%	36%	25%	

Indicated Resources

A total net in-situ indicated resource of 677.23 Million Tonnes (MT) of limestone in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO has been estimated in Madinapadu Limestone Block (Table 5.1). The resources include 84.52 MT of >48% CaO, 183.32 MT of 45-48% CaO, 238.94 MT of 40-45% CaO and 170.45 MT of 34-40% CaO.

Inferred Resources

A total net in-situ inferred resource of 132.85 Million Tonnes (MT) of limestone in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO has been estimated in Madinapadu Limestone Block (Table 5.1). The resources include 24.33 MT of >48% CaO, 28.76 MT of 45-48% CaO, 51.47 MT of 40-45% CaO and 28.29 MT of 34-40% CaO.

The indicated and inferred resource estimated in Madinapadu Limestone Block is graphically shown in Figure 5.2. Ore resource estimation map is given as

Figure 5.3 and the dip sections are given in Figure 5.4 and Plate No. VIII A and B. The summary of ore resource estimation and details of section-wise ore resource calculation are given in Table 5.2.

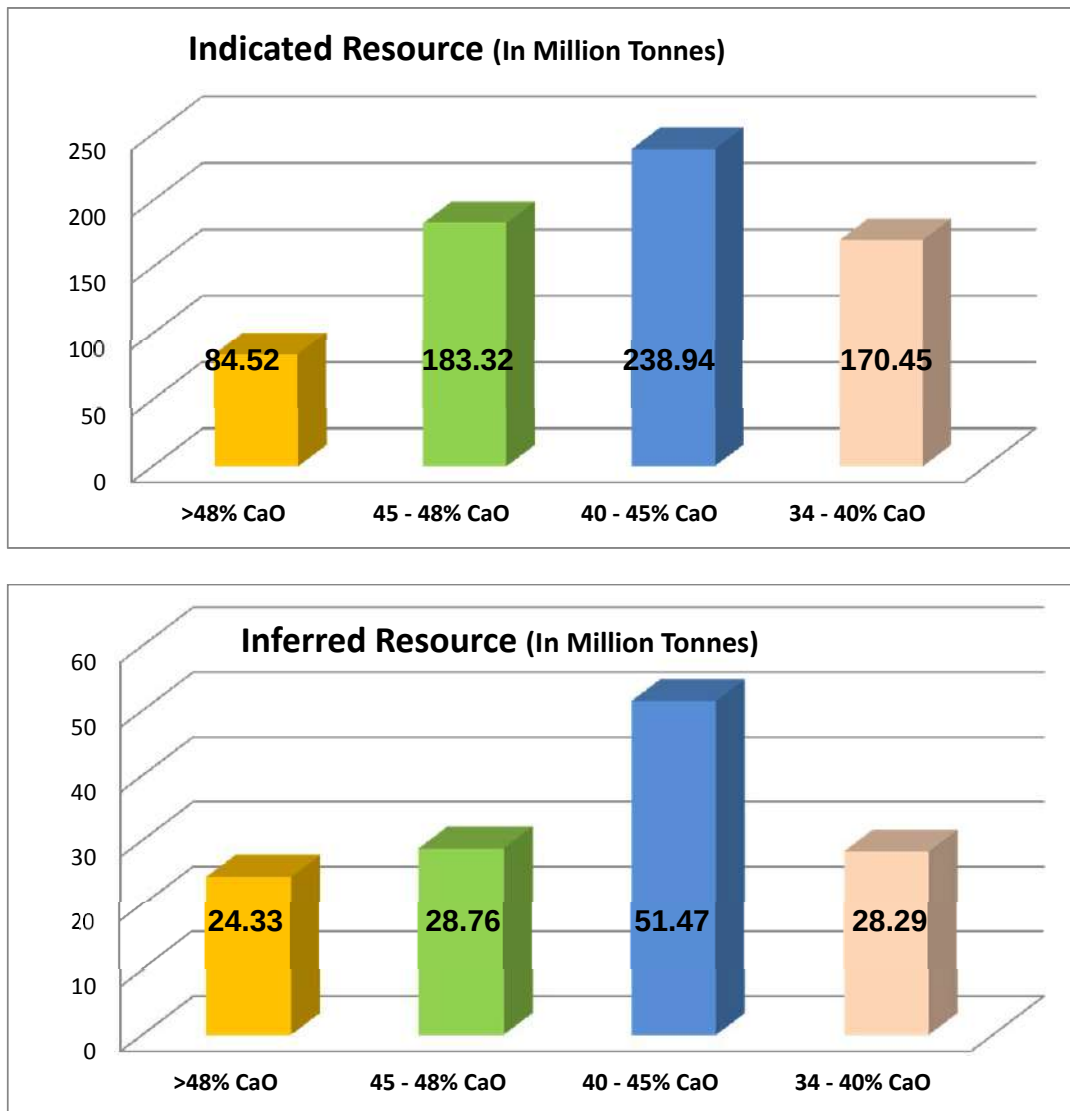


Figure 5.2 Histogram of grade-wise Indicated and Inferred resources in Madinapadu Limestone Block

Table 5.2 Ore Resource Estimation of Madinapadu Limestone Block

Dip Section	Section/ Polygon	SP. GR.	INFLU -ENCE	>48% CaO				45-48% CaO				40-45% CaO				34-40% CaO				Total	
				AREA	VOLUME	GROSS RESOURCE (Tonnes)	NET RESOURCE (Tonnes)	AREA	VOLUME	GROSS RESOURCE (Tonnes)	NET RESOURCE (Tonnes)	AREA	VOLUME	GROSS RESOURCE (Tonnes)	NET RESOURCE (Tonnes)	AREA	VOLUME	GROSS RESOURCE (Tonnes)	NET RESOURCE (Tonnes)	GROSS RESOURCE (Tonnes)	NET RESOURCE (Tonnes)
			(m)	(sq.m.)	(cu.m.)			(sq.m.)	(cu.m.)			(sq.m.)	(cu.m.)			(sq.m.)	(cu.m.)				
INDICATED RESOURCE																					
D1	SECTION	2.50	371.00	9150.45	3394818.62	8487046.55	7638341.89	9469.67	3513248.58	8783121.46	7904809.31	8316.71	3085498.65	7713746.61	6942371.95	8766.35	3252317.12	8130792.81	7317713.53	33114707.43	29803236.68
D2	SECTION	2.50	380.00	4627.14	1758312.58	4395781.44	3956203.30	20298.16	7713301.04	19283252.61	17354927.35	29288.78	11129735.21	27824338.02	25041904.22	16811.55	6388387.86	15970969.66	14373872.69	67474341.73	60726907.55
D3	SECTION	2.50	379.00	2716.20	1029439.48	2573598.70	2316238.83	25408.65	9629876.71	24074691.77	21667222.60	33488.10	12691990.02	31729975.05	28556977.55	18959.19	7185533.64	17963834.09	16167450.68	76342099.62	68707889.66
D4	SECTION	2.50	371.00	3522.43	1306823.01	3267057.54	2940351.78	17177.64	6372904.67	15932261.68	14339035.52	48800.69	18105054.70	45262636.74	40736373.06	25855.62	9592435.43	23981088.57	21582979.71	88443044.53	79598740.07
D5	SECTION	2.50	369.00	6845.64	2526042.21	6315105.53	5683594.98	27901.22	10295548.39	25738870.99	23164983.89	35841.35	13225457.58	33063643.95	29757279.56	26397.67	9740741.91	24351854.76	21916669.29	89469475.23	80522527.71
D6	SECTION	2.50	380.00	14601.31	5548498.43	13871246.07	12484121.46	33615.21	12773781.56	31934453.91	28741008.52	27472.69	10439621.11	26099052.78	23489147.50	25815.18	9809767.24	24524418.10	22071976.29	96429170.86	86786253.77
D7	SECTION	2.50	367.00	7904.44	2900928.89	7252322.23	6527090.01	30519.32	11200590.54	28001476.34	25201328.70	27696.67	10164676.61	25411691.53	22870522.38	20203.23	7414585.24	18536463.09	16682816.78	79201953.20	71281757.88
D8	SECTION	2.50	342.00	5546.40	1896868.36	4742170.91	4267953.82	19885.30	6800770.93	17001927.33	15301734.59	21696.33	7420145.08	18550362.69	16695326.42	27891.56	9538914.83	23847287.08	21462558.37	64141748.01	57727573.20
D9	SECTION	2.50	357.00	19468.24	6950160.51	17375401.26	15637861.14	25399.49	9067617.22	22669043.06	20402138.75	27986.17	9991063.59	24977658.97	22479893.07	12597.43	4497281.88	11243204.70	10118884.23	76265307.99	68638777.19
D10	SECTION	2.50	360.00	20027.95	7210063.75	18025159.37	16222643.43	6798.61	2447498.56	6118746.40	5506871.76	5506.27	1982258.06	4955645.16	4460080.64	17064.90	6143364.43	15358411.08	13822569.97	44457962.00	40012165.80
D11	SECTION	2.50	361.00	7571.68	2733376.99	6833442.47	6150098.23	327.95	118388.53	295971.33	266374.20	15324.52	5532152.99	13830382.49	12447344.24	3932.23	1419534.37	3548835.91	3193952.32	24508632.20	22057768.98
D12	SECTION	2.50	386.00	800.02	308808.45	772021.13	694819.02	4000.41	1544158.23	3860395.56	3474356.01	6290.74	2428226.49	6070566.23	5463509.61	2003.18	773228.73	1933071.83	1739764.64	12636054.76	11372449.28
TOTAL INDICATED RESOURCE						93910353.20	84519317.88			203694212.43	183324791.19			265489700.22	238940730.20			189390231.69	170451208.52	752484497.54	677236047.79
TOTAL INDICATED RESOURCE IN MILLION TONNES						93.91	84.52			203.69	183.32			265.49	238.94			189.39	170.45	752.48	677.23
INFERRED RESOURCE																					
D1	PLGNL	2.5			2486604.77	6216511.94	5594860.75		2846307.47	7115768.67	6404191.80		2360545.58	5901363.96	5311227.56		2476136.31	6190340.78	5571306.70	25423985.35	22881586.81
D2	SECTION	2.5	380	1514.88	575657.77	1439144.43	1295229.98	1228.21	466718.99	1166797.48	1050117.73	3883.77	1475834.33	3689585.83	3320627.25	2092.15	795017.59	1987543.96	1788789.57	8283071.70	7454764.53
D3	SECTION	2.5	379	1293.32	490170.04	1225425.12	1102882.61	4645.66	1760705.23	4401763.09	3961586.78	7956.20	3023357.36	7558393.39	6802554.05	2048.04	778254.19	1945635.47	1751071.93	15131217.08	13618095.37
D4	SECTION	2.5	371					43.63	16187.19	40467.97	36421.17	1436.73	534465.03	1336162.56	1202546.31	950.93	353746.53	884366.33	795929.70	2260996.86	2034897.18
D5	PLGNL	2.5		40783.56	40783.56	101958.91	91763.02	40783.57	897238.44	2243096.11	2018786.50	40783.57	652537.05	1631342.62	1468208.36	40783.57	693320.62	1733301.54	1559971.38	5709699.18	5138729.27
D6	PLGNL	2.5			287216.37	718040.93	646236.84		1240501.45	3101253.62	2791128.26		1360556.15	3401390.38	3061251.35		1492874.56	3732186.39	3358967.75	10952871.34	9857584.20
D7	SECTION	2.5	367					1759.08	645581.75	1613954.37	1452558.93	3176.71	1165852.02	2914630.06	2623167.05	2411.81	885133.86	2212834.66	1991551.19	6741419.08	6067277.17
D8	SECTION	2.5	342					2088.92	714410.57	1786026.42	1607423.78	3751.08	1282869.27	3207173.19	2886455.87	1860.78	636388.13	1590970.32	1431873.29	6584169.93	5925752.93
D9	PLGNL	2.5			2428322.95	6070807.39	5463726.65		1636396.25	4090990.63	3681891.57		3862476.64	9656191.59	8690572.43		753908.27	1884770.67	1696293.60	21702760.27	19532484.24
D10	PLGNL	2.5			4214298.06	10535745.15	9482170.63		1104828.44	2762071.09	2485863.98		1523001.38	3807503.46	3426753.11		2980210.82	7450527.05	6705474.34	24555846.75	22100262.07
D11	SECTION	2.5	361									9562.62	3452107.04	8630267.59	7767240.83					8630267.59	7767240.83
D12	PLGNL	2.5			290872.13	727180.33	654462.30		1454360.67	3635901.67	3272311.51		2181541.00	5453852.51	4908467.26		727180.33	1817950.84	1636155.75	11634885.35	10471396.82
TOTAL INFERRED RESOURCE						27034814.21	24331332.79			31958091.11	28762282.00			57187857.15	51469071.43			31430428.00	28287385.20	147611190.48	132850071.43
TOTAL INFERRED RESOURCE IN MILLION TONNES						27.03	24.33			31.96	28.76			57.19	51.47			31.43	28.29	147.61	132.85
GRAND TOTAL OF ORE RESOURCE						120945167.41	108850650.67			235652303.54	212087073.19			322677557.37	290409801.64			220820659.70	198738593.73	900095688.02	810086119.22
IN MILLION TONNES						120.95	108.85			235.65	212.08			322.68	290.41			220.82	198.74	900.09	810.08

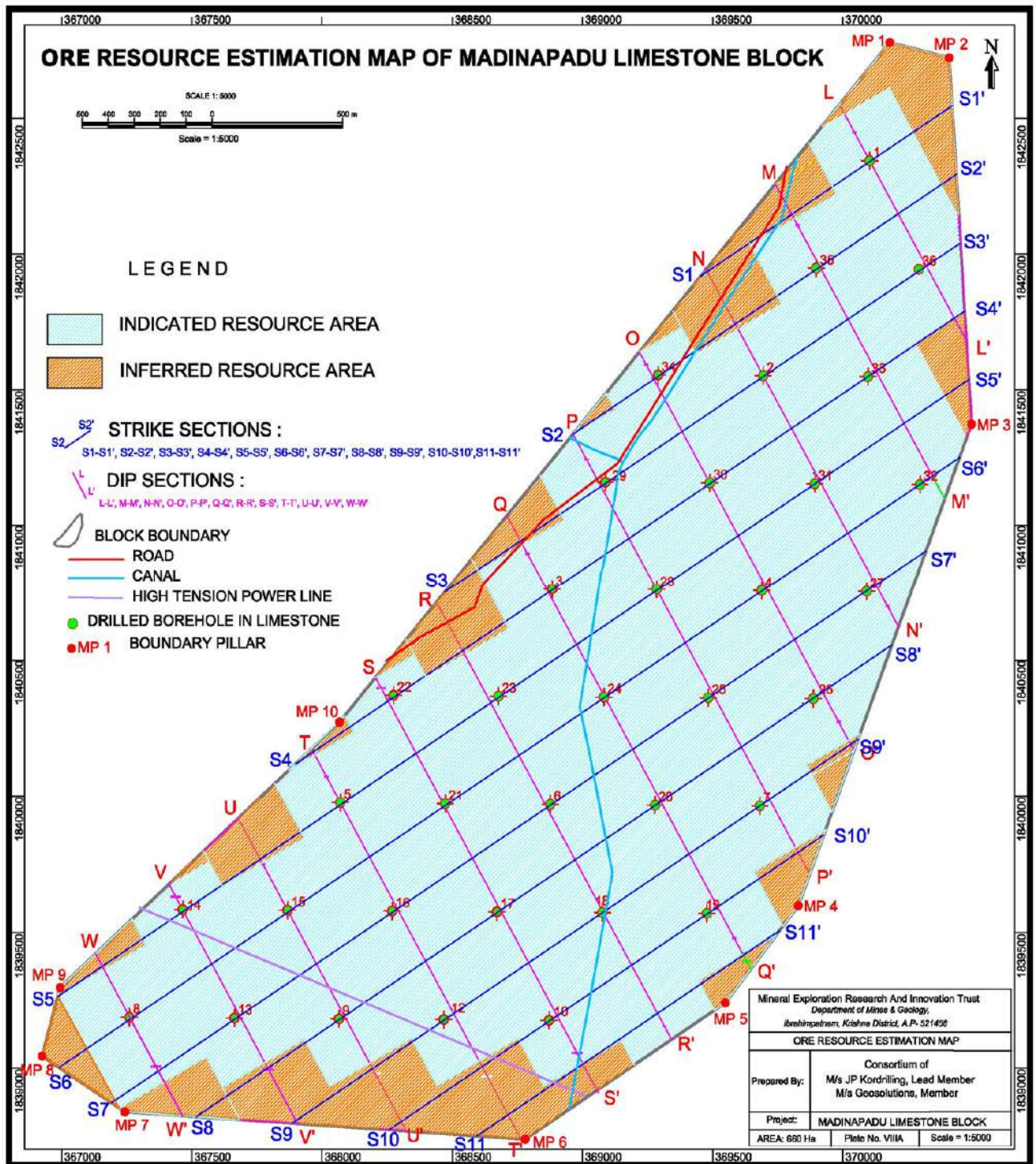


Figure 5.3 Ore Resource Estimation map of Madinapadu Limestone Block

Ore resource estimation by Polygon method

The limestone resources in Madinapadu block have also been estimated by polygon method. In this method of ore reserve estimation, polygons are constructed on plan by drawing perpendicular bisectors connecting the sample points i.e. boreholes. Polygons are developed around each sampling point with half the distance between two boreholes, in an equidistant manner, thus forming an area of influence. The thickness of mineralisation is taken from the borehole data, to assess the volume for reserve estimation.

Brief particulars and the aspects considered for ore resource calculation in Madinapadu Limestone Block by polygon method are given below:

1. The boreholes are falling in a regular grid pattern with an equal distance in between them.
2. The block boundary of Madinapadu Limestone Block intersects the dip section lines at various distances from the last drilled borehole.
3. As the block is in elongated rectangle shape, the polygon boundaries thus arrived does form as regular near square shape but for the block boundary abetting polygons.
4. The area of influence of grade of limestone thickness as encountered in borehole inside the polygon is considered for resource estimation.
5. The resource in the influence area from the borehole on either side is considered as **Indicated resource**.
6. The resource in the remaining area up to the block boundary is considered as **Inferred resource**.
7. The area of the polygons is deduced from AutoCAD drawing.
8. The gradewise limestone thickness is taken from the borehole in the centre of the polygon based on analysis to assess the volume for reserve estimation.
9. The limestone resource is estimated in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO by incorporating the grade zones from the borehole in the centre of the polygon.
10. Specific gravity of 2.5 is taken to compute the tonnage of various grades of limestone within the polygon.
11. A deduction of 10% from gross in-situ resource has been made to arrive at net in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc.

A total of 820.77 Million Tonnes (MT) net in-situ limestone resource in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO has been estimated, by polygon method, in Madinapadu Limestone Block with 676.99 MT as

indicated resource and 143.78 MT as inferred resource. The details of grade-wise ore resource estimation by polygon method are given in Table 5.3A.

The net in-situ indicated resource of 676.99 MT of limestone consists of 80.77 MT of >48% CaO, 186.52 MT of 45-48% CaO, 240.32 MT of 40-45% CaO and 169.38 MT of 34-40% CaO. The net in-situ inferred resource of 143.78 MT comprises of 22.49 MT of >48% CaO, 34.61 MT of 45-48% CaO, 54.94 MT of 40-45% CaO and 31.74 MT of 34-40% CaO. The details of ore resource estimation with section-wise and grade-wise ore resource calculation by polygon method are given in Table 5.3B.

Table 5.3A Summary of net in-situ ore resource estimated by polygon method in Madinapadu limestone block

(in Million Tonnes)				
>48% CaO	45 - 48% CaO	40 - 45% CaO	34 - 40% CaO	TOTAL
INDICATED				
80.77	186.52	240.32	169.38	676.99
11.93%	27.55%	35.50%	25.02%	
INFERRED				
22.49	34.61	54.94	31.74	143.78
15.64%	24.07%	38.21%	22.08%	
TOTAL RESOURCES				
103.26	221.13	295.26	201.12	820.77
12.58%	26.94%	35.98%	24.50%	

Table 5.3B Grade-wise Ore Resource Estimation by Polygon Method in Madinapadu Limestone Block

SL NO	DIP SEC	BH NO	POLYGON AREA (sq.m.)	SPGR	48% CaO		45 - 48 % CaO		40 - 45 % CaO		34 - 40 % CaO		TOTAL	
					GROSS RESOURCE (Tonnes)	NET RESOURCE (Tonnes)	GROSS RESOURCE (Tonnes)	NET RESOURCE (Tonnes)	GROSS RESOURCE (Tonnes)	NET RESOURCE (Tonnes)	GROSS RESOURCE (Tonnes)	NET RESOURCE (Tonnes)	GROSS RESOURCE (Tonnes)	NET RESOURCE (Tonnes)
INDICATED RESOURCE														
01	L	01	154342.75	2.5	8874707.90	7987237.11	5401996.11	4861796.50	3858568.65	3472711.79	6173709.84	5556338.86	24308982.50	21878084.25
02	L	36	135022.86	2.5	0.00	0.00	8438928.49	7595035.64	8101371.35	7291234.22	4725799.96	4253219.96	21266099.80	19139489.82
03	M	35	160711.56	2.5	4419567.80	3977611.02	4017788.91	3616010.02	9240914.50	8316823.05	5624904.48	5062414.03	23303175.69	20972858.12
04	M	33	168844.88	2.5	422112.21	379900.98	8020131.90	7218118.71	9708580.72	8737722.65	6753795.28	6078415.76	24904620.11	22414158.10
05	M	32	120589.74	2.5	0.00	0.00	8441281.92	7597153.73	7235384.50	6511846.05	4220640.96	3798576.86	19897307.38	17907576.64
06	N	02	159923.07	2.5	1999038.40	1799134.56	6796730.57	6117057.51	13193653.46	11874288.11	3198461.44	2878615.30	25187883.87	22669095.48
07'	N	31	168399.09	2.5	0.00	0.00	11366938.86	10230244.97	10103945.65	9093551.09	5472970.56	4925673.51	26943855.07	24249469.56
8	N	27	138984.64	2.5	347461.60	312715.44	5211924.02	4690731.62	8339078.44	7505170.59	6949232.03	6254308.83	20847696.09	18762926.48
09	O	34	122749.97	2.5	2148124.44	1933312.00	5523748.56	4971373.70	6137498.40	5523748.56	2454999.36	2209499.42	16264370.76	14637933.68
10	O	30	165056.28	2.5	412640.69	371376.62	7014891.70	6313402.53	12379220.65	11141298.58	5776969.64	5199272.67	25583722.67	23025350.40
11	O	04	165155.36	2.5	1238665.22	1114798.70	2064442.03	1857997.83	14451094.24	13005984.81	5780437.69	5202393.93	23534639.18	21181175.27
12	O	26	149117.16	2.5	0.00	0.00	372792.91	335513.62	12674958.84	11407462.95	8201443.95	7381299.56	21249195.70	19124276.13
13	P	29	151858.09	2.5	759290.46	683361.41	3796452.30	3416807.07	6074323.68	5466891.32	6074323.68	5466891.32	16704390.13	15033951.12
14	P	28	164046.50	2.5	5331511.27	4798360.14	6151743.77	5536569.39	13123720.04	11811348.04	1640465.01	1476418.50	26247440.08	23622696.07
15	P	25	164074.50	2.5	0.00	0.00	6562979.91	5906681.92	8613911.13	7752520.02	7793538.64	7014184.78	22970429.68	20673386.71
16	P	07	154662.86	2.5	386657.16	347991.44	8506457.53	7655811.77	6186514.56	5567863.11	6573171.72	5915854.55	21652800.97	19487520.88
17	Q	03	160626.74	2.5	0.00	0.00	4015668.50	3614101.65	8432903.84	7589613.46	11243871.79	10119484.61	23692444.12	21323199.71
18	Q	24	168795.88	2.5	4641886.69	4177698.02	2953927.89	2658535.10	5485866.08	4937279.48	7173824.88	6456442.39	20255505.54	18229954.99
19	Q	20	168798.82	2.5	5063964.71	4557568.23	10549926.47	9494933.82	5907958.82	5317162.94	5063964.71	4557568.23	26585814.70	23927233.23
20	Q	19	160326.61	2.5	4809798.21	4328818.39	12826128.57	11543515.71	6012247.77	5411022.99	2404899.11	2164409.20	26053073.65	23447766.29
21	R	23	154708.65	2.5	0.00	0.00	3094173.06	2784755.76	5414802.86	4873322.57	4254487.96	3829039.16	12763463.88	11487117.49
22	R	06	163061.86	2.5	407654.64	366889.17	5707164.93	5136448.43	12229639.13	11006675.21	7745438.11	6970894.30	26089896.80	23480907.12
23	R	18	159621.33	2.5	5586746.68	5028072.01	9976333.36	8978700.03	3591480.01	3232332.01	3990533.35	3591480.01	23145093.40	20830584.06
24	R	11	118520.91	2.5	2963022.74	2666720.46	8889068.21	8000161.38	3555627.28	3200064.55	3259325.01	2933392.51	18667043.23	16800338.91
25	S	22	106865.99	2.5	1068659.93	961793.94	5610464.64	5049418.17	1602989.90	1442690.91	1602989.90	1442690.91	9885104.36	8896593.93
26	S	21	151748.03	2.5	3034960.70	2731464.63	1517480.35	1365732.31	5690551.31	5121496.17	1138110.26	1024299.23	11381102.61	10242992.35
27	S	17	152111.64	2.5	380279.09	342251.18	3802790.94	3422511.85	3422511.85	3080260.66	15591442.86	14032298.58	23197024.75	20877322.27
28	S	10	144464.61	2.5	0.00	0.00	6500907.34	5850816.61	10834845.57	9751361.01	5417422.79	4875680.51	22753175.70	20477858.13
29	T	05	150155.85	2.5	3003117.04	2702805.34	6006234.09	5405610.68	1501558.52	1351402.67	375389.63	337850.67	10886299.28	9797669.36
30	T	16	158730.50	2.5	2380957.57	2142861.81	10317482.80	9285734.52	5158741.40	4642867.26	7936525.23	7142872.71	25793707.00	23214336.30
31	T	12	150621.29	2.5	5271745.08	4744570.57	8284170.84	7455753.76	13555915.92	12200324.33	2635872.54	2372285.29	29747704.38	26772933.94
32	U	15	152152.06	2.5	4184181.78	3765763.61	760760.32	684684.29	380380.16	342342.15	12552545.35	11297290.82	17877867.63	16090080.86
33	U	09	152151.75	2.5	12552519.56	11297267.60	4564552.57	4108097.31	5325311.33	4792780.19	2662655.66	2396390.10	25105039.11	22594535.20
34	V	14	126686.87	2.5	7284495.29	6556045.76	316717.19	285045.47	0.00	0.00	3800606.24	3420545.61	11401818.71	10261636.84
35	V	13	152152.06	2.5	0.00	0.00	0.00	0.00	13693685.84	12324317.26	0.00	0.00	13693685.84	12324317.26
36	W	08	154647.46	2.5	773237.29	695913.56	3866186.44	3479567.80	5799279.66	5219351.69	1933093.22	1739783.90	12371796.61	11134616.95
TOTAL INDICATED RESOURCE					89747004.14	80772303.72	207249367.98	186524431.18	267019036.05	240317132.44	188197862.84	169378076.55	752213271.00	676991943.90
MILLION TONNES					89.75	80.77	207.25	186.52	267.02	240.32	188.20	169.38	752.21	676.99
INFERRED RESOURCE														
01	L	01	104396.26	2.5	6002784.80	5402506.32	3653869.01	3288482.11	2609906.44	2348915.79	4175850.30	3758265.27	16442410.54	14798169.49
02	L	36	57049.46	2.5	0.00	0.00	3565591.16	3209032.04	3422967.51	3080670.76	1996731.05	1797057.94	8985289.71	8086760.74
03	M	35	55866.92	2.5	1536340.23	1382706.21	1396672.94	1257005.64	3212347.76	2891112.98	1955342.11	1759807.90	8100703.04	7290632.73
06	N	02	94583.83	2.5	1182297.82	1064068.04	4019812.59	3617831.33	7803165.61	7022849.05	1891676.51	1702508.86	14896952.53	13407257.28
8	N	27	94583.83	2.5	236459.56</									

5.5 COMPARISON OF ORE RESOURCES

Cross-sectional method

A total net in-situ limestone resource of 810.08 Million Tonnes (MT) in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO has been estimated, by cross sectional method, in Madinapadu Limestone Block after deduction of 10% from gross in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc. This includes 677.23 MT as indicated resource and 132.85 MT as inferred resource (Table 5.1 and Table 5.2). The net in-situ indicated resource of 677.23 Million Tonnes (MT) includes 84.52 MT of >48% CaO, 183.32 MT of 45-48% CaO, 238.94 MT of 40-45% CaO and 170.45 MT of 34-40% CaO. The inferred resource of 132.85 MT comprises of 24.33 MT of >48% CaO, 28.76 MT of 45-48% CaO, 51.47 MT of 40-45% CaO and 28.29 MT of 34-40% CaO.

Polygon method

A net in-situ limestone resource of 820.77 Million Tonnes (MT) has been estimated, in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO, by polygon method, in Madinapadu Limestone Block after deduction of 10% from gross in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc. This includes 676.99 MT as indicated resource and 143.78 MT as inferred resource (Table 5.3). The net in-situ indicated resource of 676.99 MT of limestone consists of 80.77 MT of >48% CaO, 186.52 MT of 45-48% CaO, 240.32 MT of 40-45% CaO and 169.38 MT of 34-40% CaO. The net in-situ inferred resource of 143.78 MT comprises of 22.49 MT of >48% CaO, 34.61 MT of 45-48% CaO, 54.94 MT of 40-45% CaO and 31.74 MT of 34-40% CaO.

Comparison of resources by Cross-sectional and Polygon methods

The limestone resources estimated in Madinapadu limestone block by cross-sectional as well as polygon methods are given below:

Method of estimation	Resource in Million Tonnes	
	Gross	Net*
Cross-sectional method	900.09	810.08
Polygon method	911.96	820.77
Difference	11.87	10.69
Difference in %	1.01	1.01

* After deducting 10% from the gross resource

The difference of resources estimated in both the methods is 1.01% which is well within tolerance limit.

5.6 ORE RESOURCE LOCKED UP UNDER SURFACE BARRIERS

There are three types of surface constraints / features (Fig. 5.4) including one canal, one road and one high tension power line, which are crisscrossing in the Madinapadu Limestone Block as described below:

- A canal is present in the central part of the block aligned in N-S direction. The length of the canal is 3.9km.
- One metaled road passes through in the western part of the block. In the northern part, it is running along the western side of the canal. It is aligned in NE-SW direction. The length of the canal is 2.5km.
- A high tension power line is present in the block in the southern part, aligned in WNN- ESE direction. The length of the power line is 1.8km.

A width of 45m on either side from the center of the surface constraints/features viz. canal, road and high tension power line is considered as barrier (MMR 1961, clause 109). The area of barrier along the canal / power line / road alignment line is worked out with AutoCAD. The volume of the grade wise limestone in the barrier area is arrived by taking into consideration the grade wise thickness of the limestone in the nearby borehole. The tonnage is arrived by taking the specific gravity of limestone as 2.5.

A total of 87.30 Million Tonnes (MT) of net in-situ limestone resource is locked up under the identified barrier area of one canal, one road and one high tension power line including 72.34 MT in indicated category and 14.96 MT in the inferred category. The details of barrier-wise ore resource estimation are given in Table 5.4. A total of 810.08 MT net in-situ limestone resource has been estimated, by cross sectional method, in Madinapadu Limestone Block (Table 5.1 and Table 5.2). After excluding the resource locked up under the surface barriers of one canal, one road and one high tension power line, the total net in-situ limestone resource of Madinapadu Limestone Block is 722.78 MT.

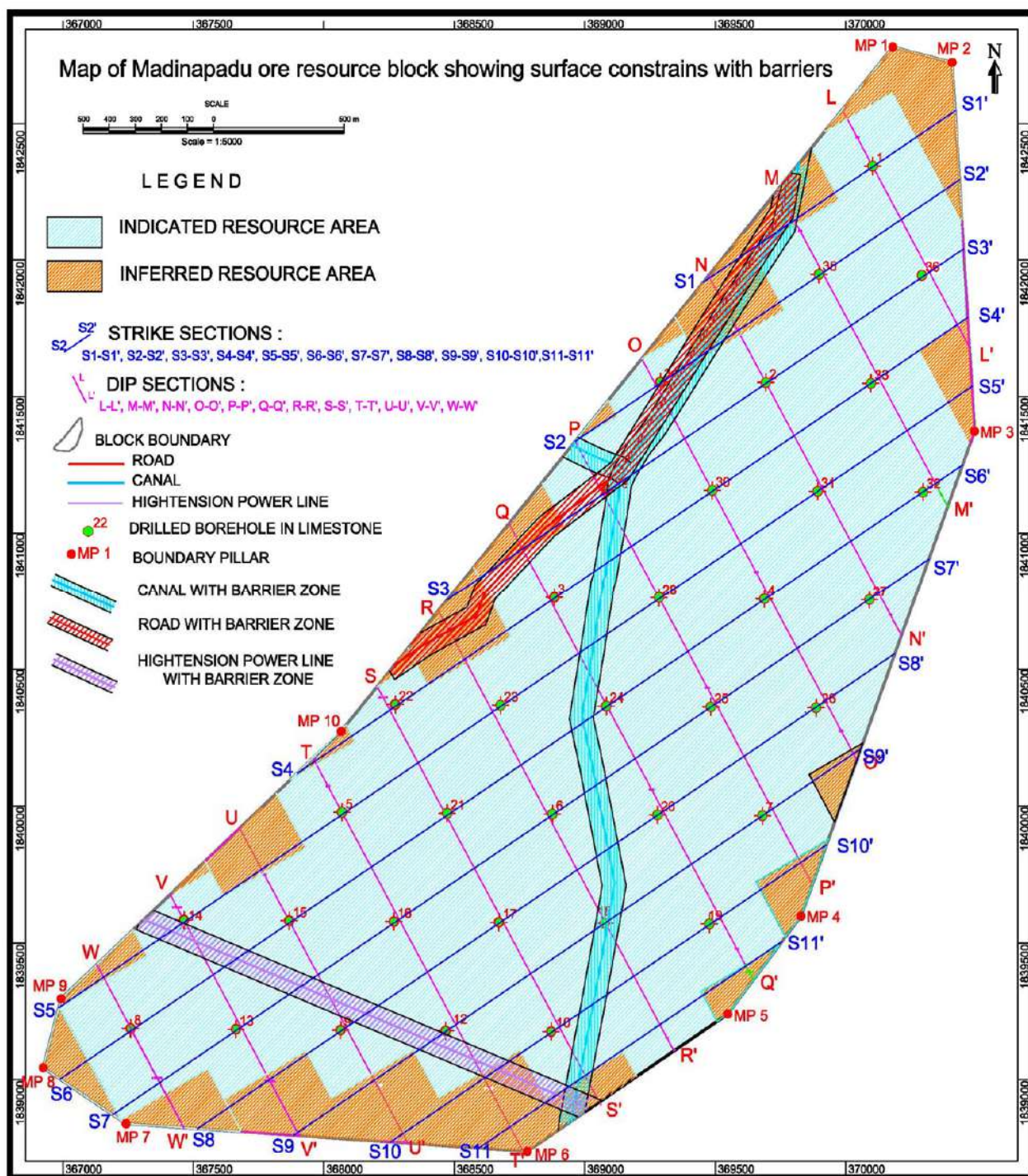


Figure 5.4 Map of Madinapadu Ore resource Block showing Surface constraints with Barriers.

Table 5.4 Details of surface barrier-wise ore resource estimation in Madinapadu Limestone Block

BARRIER ROAD/ CANAL	>48% CaO		45-48% CaO		40-45% CaO		34-40% CaO		TOTAL	
	Gross Resource (Tonnes)	Net Resources (Tonnes)	Gross Resource (Tonnes)	Net Resources (Tonnes)	Gross Resource (Tonnes)	Net Resources (Tonnes)	Gross Resource (Tonnes)	Net Resources (Tonnes)	Gross Resource (Tonnes)	Net Resources (Tonnes)
INDICATED AREA BARRIERS										
HT Power line	6410509.47	5769458.52	3511905.07	3160714.57	5019440.28	4517496.25	5005759.17	4505183.26	19947613.99	17952852.59
Canal	5794409.09	5214968.18	12793317.14	11513985.43	16420081.56	14778073.41	11799139.21	10619225.29	46806947.00	42126252.30
Road	1187207.16	1068486.45	3626659.63	3263993.67	4742072.36	4267865.13	4067303.53	3660573.18	13623242.69	12260918.42
Total	13392125.72	12052913.15	19931881.85	17938693.66	26181594.20	23563434.78	20872201.91	18784981.72	80377803.68	72340023.31
In Million Tonnes	13.39	12.05	19.93	17.94	26.18	23.56	20.87	18.78	80.38	72.34
INFERRED AREA BARRIERS										
HT Power line	0.00	0.00	933873.52	840486.17	1556455.87	1400810.28	778227.93	700405.14	3268557.32	2941701.59
Canal	1818733.15	1636859.83	2014187.40	1812768.66	3205807.58	2885226.83	1757962.99	1582166.69	8796691.12	7917022.01
Road		0.00	897477.22	807729.50	1739786.69	1565808.02	1922923.19	1730630.87	4560187.10	4104168.39
Total	1818733.15	1636859.83	3845538.14	3460984.33	6502050.14	5851845.12	4459114.11	4013202.70	16625435.54	14962891.99
In Million Tonnes	1.82	1.64	3.85	3.46	6.50	5.85	4.46	4.01	16.63	14.96
Grand Total	15210858.86	13689772.98	23777419.99	21399677.99	32683644.34	29415279.91	25331316.02	22798184.42	97003239.22	87302915.30
In Million Tonnes	15.21	13.69	23.78	21.40	32.68	29.42	25.33	22.80	97.00	87.30

5.7 ESTIMATION OF SOIL AND LOW GRADE LIMESTONE OVERBURDEN

The thickness of overburden soil in the area varies from 1.00m (BH-14) to 12.00m (BH-21). The top soil, few interlayered soil and Kankar are the overburden lithology. In few boreholes, the kankar bed which has more than 34% CaO is taken into resource estimation. The limestone analyzing less than 34% CaO is considered as overburden and estimated separately.

In order to estimate the overburden, the sectional area of the overlying soil cover is calculated from the 12 dip sections drawn for estimation of limestone resources. The volume of overburden is arrived by taking into consideration the sectional area and varying influence distance on either side of the section.

The additional area beyond the 200m section line of influence from the last boreholes is arrived from Auto CAD and the volume is estimated by taking the soil thickness data of the nearby borehole. A specific gravity of 2.0 is taken for soil for tonnage calculation.

A total of 100.73 million tonnes of surface soil overburden and low grade limestone and inter-bedded waste is calculated for the entire Madinapadu Limestone Block with 85.49 MT in the indicated resource area and 15.24 MT in the inferred resource area (Table 5.5).

Table 5.5 Details of overburden calculation in Madinapadu Limestone Block

DIP SECTION	Section / Polygon	Surface Soil					< 34% CaO Low grade Limestone					Total
		Area (Sq.m.)	Influence (m)	Volume (Cu.m.)	Sp. Gr.	Tonnage	Area (Sq.m.)	Influence (m)	Volume (Cu.m.)	Sp. Gr.	Tonnage	
OVERBURDEN IN INDICATED AREA												
D1	Section	2190.73	371.00	812760.76	2.00	1625521.51	1454.22	371.00	539514.07	2.00	1079028.13	2704549.64
D2	Section	4724.30	380.00	1795233.91	2.00	3590467.83	2576.32	380.00	979003.25	2.00	1958006.49	5548474.32
D3	Section	3829.81	380.00	1455326.18	2.00	2910652.36	4534.64	380.00	1723163.51	2.00	3446327.02	6356979.38
D4	Section	12511.23	372.00	4654175.79	2.00	9308351.57	4614.77	372.00	1716694.33	2.00	3433388.66	12741740.24
D5	Section	12291.42	370.00	4547826.34	2.00	9095652.68	13148.73	370.00	4865028.50	2.00	9730057.00	18825709.68
D6	Section	7930.51	381.00	3021523.32	2.00	6043046.65	5868.18	381.00	2235777.16	2.00	4471554.32	10514600.96
D7	Section	8177.57	367.00	3001166.48	2.00	6002332.95	4580.95	367.00	1681208.62	2.00	3362417.24	9364750.19
D8	Section	9677.85	342.00	3309823.17	2.00	6619646.34	5019.33	342.00	1716612.07	2.00	3433224.13	10052870.47
D9	Section	4556.41	357.00	1626637.17	2.00	3253274.34	314.93	357.00	112428.67	2.00	224857.34	3478131.68
D10	Section	2977.28	361.00	1074798.37	2.00	2149596.73	619.50	361.00	223640.65	2.00	447281.30	2596878.03
D11	Section	2006.48	361.00	724337.81	2.00	1448675.61		361.00		2.00	0.00	1448675.61
D12	Section	2398.78	387.00	928327.34	2.00	1856654.68		387.00		2.00	0.00	1856654.68
TOTAL						53903873.25					31586141.64	85490014.89
OVERBURDEN IN INFERRED AREA												
D1	Section / Polygon	161422.13		700492.89	2.00	1400985.78	161422.13		537575.27	2.00	1075150.53	2476136.31
D2	Section	899.24	380.00	341712.01	2.00	683424.01	1028.22	380.00	390722.20	2.00	781444.40	1464868.41
D3	Section	1442.15	380.00	548016.58	2.00	1096033.16	512.18	380.00	194626.56	2.00	389253.13	1485286.29
D4	Section	336.60	372.00	125216.19	2.00	250432.39	304.93	372.00	113435.11	2.00	226870.21	477302.60
D5	Section	40783.57		203917.83	2.00	407835.66	40783.57		407835.66	2.00	815671.31	1223506.97
D6	Section / Polygon	25028.62	381.00	464654.94	2.00	929309.89	24181.87	381.00	165976.59	2.00	331953.19	1261263.07
D7	Section	1966.26	367.00	721618.63	2.00	1443237.26			0.00	2.00	0.00	1443237.26
D8	Section	380.14	342.00	130007.21	2.00	260014.41	503.34	342.00	172143.99	2.00	344287.97	604302.39
D9	Section / Polygon	44736.78	357.00	196570.68	2.00	393141.35	34811.31	357.00	212351.10	2.00	424702.20	817843.56
D10	Section / Polygon	1696.87	722.00	612571.06	2.00	1225142.11	377.69	361.00	136347.58	2.00	272695.16	1497837.27
D11	Section	1032.97	361.00	372902.81	2.00	745805.63				2.00		745805.63
D12	Section / Polygon	145436.07		872616.40	2.00	1745232.80				2.00		1745232.80
TOTAL						10580594.44					4662028.11	15242622.56
GRAND TOTAL						64484467.70					36248169.75	100732637.45
In Million Tonnes						64.48					36.24	100.73

Stripping Ratio

In mining, 'stripping ratio' refers to the ratio of the volume of overburden (or waste material) required to be handled in order to extract some tonnage of ore. Mining at a higher stripping ratio is less profitable than mining at a lower stripping ratio because more waste must be removed. Stripping ratios take into consideration not only the volume of unwanted material present in a mine but also take into account the types of material that has to be removed to reach the ore. The overburden of the Madinapadu consists of soil and <34% CaO low grade limestone.

A total resource of 810.08 million Tonnes (MT) net in-situ limestone resource has been estimated, by cross sectional method, in Madinapadu Limestone Block (Table 5.1 and 5.2). A total of 100.73 million tonnes of overburden is calculated in the limestone ore resource block (Table 5.5). The calculated stripping ratio of limestone ore to overburden in Madinapadu Limestone Block is 1: 0.12 in the resource area.

5.8 SUMMARY OF ORE RESOURCES AND UNFC CLASSIFICATION

A total of 810.08 Million Tonnes (MT) net in-situ limestone resource has been estimated, by cross sectional method and a total of 820.77 MT is estimated by polygon method in Madinapadu Limestone Block. The difference of resources estimated in both the methods is 1.01% which is well within tolerance limit.

The limestone of Madinapadu block is of stratiform and tabular type and hence the ore resources estimated by cross-sectional method are considered. A total of 810.08 Million Tonnes (MT) net in-situ limestone resource has been estimated, by cross sectional method, in Madinapadu Limestone Block with 677.23 MT as indicated resource and 132.85 MT as inferred resource in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO (Table 5.1 and Table 5.2). The net in-situ indicated resource of 677.23 MT consists of 84.52 MT of >48% CaO, 183.32 MT of 45-48% CaO, 238.94 MT of 40-45% CaO and 170.45 MT of 34-40% CaO. The inferred resource of 132.85 MT comprises of 24.33 MT of >48% CaO, 28.76 MT of 45-48% CaO, 51.47 MT of 40-45% CaO and 28.29 MT of 34-40% CaO.

A total of 87.30 MT net in-situ limestone resource is estimated as locked up resource under surface barrier areas of one canal, one road and one high tension line in the Madinapadu ore block (Table 5.4). After excluding the resource locked up under the surface barriers of one canal, one road and one high tension line, the total limestone resource of Madinapadu Limestone Block is 722.78 MT. Total ore resource estimated by cross sectional method, the resource locked up under surface

barrier areas and balance resource after deducting the resource locked up under the surface barrier areas in Madinapadu limestone block are given in Table 5.6.

Table 5.6 Summary of ore resource estimated, resources locked up under the surface barrier areas and balance resource in Madinapadu limestone block

Grade-wise category	Total Resource Estimated by cross sectional method		Resource locked up under surface barrier areas		Balance Resource after deducting resource locked up under surface barrier areas	
	Gross	Net*	Gross	Net*	Gross	Net*
INDICATED RESOURCE (in Million Tonnes)						
>48% CaO	93.91	84.52	13.39	12.05	80.52	72.47
45 - 48% CaO	203.69	183.32	19.93	17.94	183.76	165.38
40 - 45% CaO	265.49	238.94	26.18	23.56	239.31	215.38
34 - 40% CaO	189.39	170.45	20.87	18.78	168.52	151.67
TOTAL	752.48	677.23	80.38	72.34	672.10	604.89
INFERRED RESOURCE (in Million Tonnes)						
>48% CaO	27.03	24.33	1.82	1.64	25.21	22.69
45 - 48% CaO	31.96	28.76	3.85	3.46	28.11	25.30
40 - 45% CaO	57.19	51.47	6.50	5.85	50.69	45.62
34 - 40% CaO	31.43	28.29	4.46	4.01	26.97	24.28
TOTAL	147.61	132.85	16.63	14.96	130.98	117.89
GRAND TOTAL	900.09	810.08	97.00	87.30	803.10	722.78

**Net resource is arrived at by deduction of 10% from gross in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc.*

The net in-situ ore resource estimated by cross sectional method and the average chemical analysis of limestone samples in the four grade-wise categories of > 48%, 45-48%, 40-45% and 34-40% CaO in Madinapadu limestone block is given in Table 5.7. The distribution of net in-situ ore resource estimated in the four grade-wise categories in Madinapadu limestone block is shown in Figure 5.5.

The net in-situ limestone resource of 810.08 Million Tonnes (MT) estimated in Madinapadu Limestone Block consists of 108.85 MT of >48% CaO grade analysing 48.87% CaO and 9.68% SiO₂; 212.08 MT of 45 - 48% CaO grade analyzing 46.55% CaO and 14.33% SiO₂; 290.41 MT of 40 - 45% CaO grade analyzing 42.16% CaO and 22.29% SiO₂ and 198.74 MT of 34 - 40% CaO grade analyzing 37.53% CaO and 29.42% SiO₂ (Table 5.7).

Out of the total net in-situ resource of 810.08 Million Tonnes (MT), 611.34 MT (75.47%) belongs to +40% CaO, comprising of 108.85 MT (13.44%) of > 48% CaO grade category, 212.08 MT (26.18%) of 45-48% CaO grade category and 290.41 MT (35.85%) of 40-45% CaO grade category. This resource of 611.34 MT (75.47% of the total resource) on an average analyzed 44.88% CaO and 17.28% SiO₂ (Table 5.7).

The remaining 198.74 MT (24.53%) of the resource belongs to 34-40% CaO grade category. This resource of 198.74 MT (24.53% of the total resource) analyzed 37.53% CaO and 29.42% SiO₂ (Table 5.7). MERIT has indicated that ore resource estimation has to be carried out by taking 34% CaO as cutoff for the limestone, irrespective of SiO₂ content.

As per the latest IBM notification dated 25.4.2018, a threshold value of 34% CaO indicated for limestone. Considering the IBM's cut off of 34% CaO, a total net in-situ resource of 810.08 MT has been estimated in four grade wise categories which has analysed on an average 43.04% CaO, 0.37% MgO, 20.32% SiO₂, 1.05% Al₂O₃, 0.75% Fe₂O₃, 33.40% LOI, 0.04% SO₃ and 0.092% P₂O₅ (Table 5.7).

By considering 40% CaO and above i.e. 40-45% CaO, 45-48% CaO and >48% CaO grade categories, the total resource estimated is 611.34 MT constituting 75.47% of the total resource estimated which has analysed on an average 44.88% CaO, 0.39% MgO, 17.28% SiO₂, 0.87% Al₂O₃, 0.62% Fe₂O₃, 34.94% LOI, 0.04% SO₃ and 0.089% P₂O₅ (Table 5.7) indicating that it is suitable for cement industry.

The remaining 198.74 MT (24.53%) of the resource belongs to 34-40% CaO grade category which analysed on an average 37.53% CaO, 0.28% MgO, 29.42% SiO₂, 1.59% Al₂O₃, 1.15% Fe₂O₃, 28.79% LOI, 0.05% SO₃ and 0.101% P₂O₅ (Table 5.7). This type of ore requires blending/beneficiation during the mining stage.

Table 5.7 Chemical composition of the ore resource estimated by cross sectional method in Madinapadu limestone block

Grade-wise Category	Average chemical analysis								Net ore resource estimated			
	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Million Tonnes	Percentage		
	%	%	%	%	%	%	%	%	(MT)	(%)		
> 48% CaO	48.87	0.63	9.68	0.73	0.59	38.59	0.04	0.060	108.85	611.34	13.44	75.47
45 - 48% CaO	46.55	0.44	14.33	0.76	0.54	36.39	0.04	0.090	212.08		26.18	
40 - 45% CaO	42.16	0.27	22.29	1.01	0.70	32.52	0.05	0.100	290.41		35.85	
Av. of above Grade Categories	44.88	0.39	17.28	0.87	0.62	34.94	0.04	0.089	-	-	-	-
34 - 40% CaO	37.53	0.28	29.42	1.59	1.15	28.79	0.05	0.101	198.74	198.74	24.53	24.53
Average for the Ore Block	43.04	0.37	20.32	1.05	0.75	33.40	0.04	0.092	-	-	-	-
TOTAL									810.08	100		

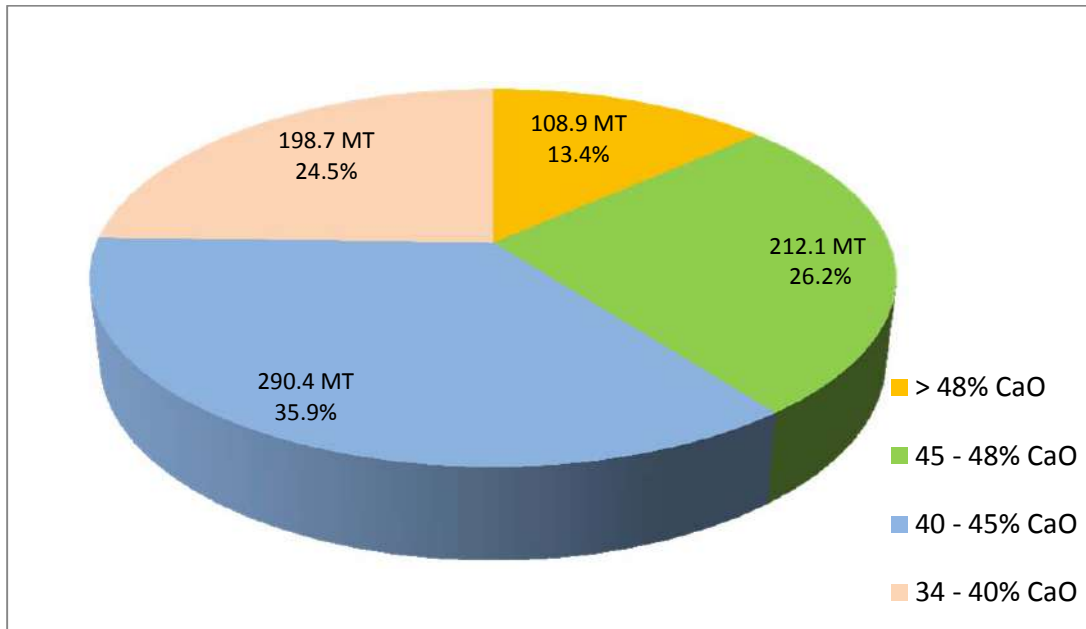


Figure 5.5 Distribution of the ore resource estimated in Madinapadu limestone block

UNFC Classification

As per UNFC classification, the exploration in the Madinapadu Limestone Block falls under category-I i.e. Stratiform, strata bound and tabular deposits of regular habit. The G2 or general exploration with core drilling at 400m x 400m grid interval, sampling of every 1m of core and chemical analysis has established the main geological features, size, shape and grade of the Madinapadu Limestone Block. As per the UNFC classification, out of the total net in-situ resource of 810.08 Million Tonnes (MT) of limestone estimated in Madinapadu Limestone Block, a resource of 677.23 MT can be categorized as Indicated Mineral Resource (332) and a resource of 132.85 MT can be categorized as Inferred Mineral Resource (333).

Fence diagram

A fence diagram of the Madinapadu limestone block with three-dimensional depiction of lithological strata is prepared based on the sub-surface information from 36 boreholes drilled in the block (Fig. 5.6).

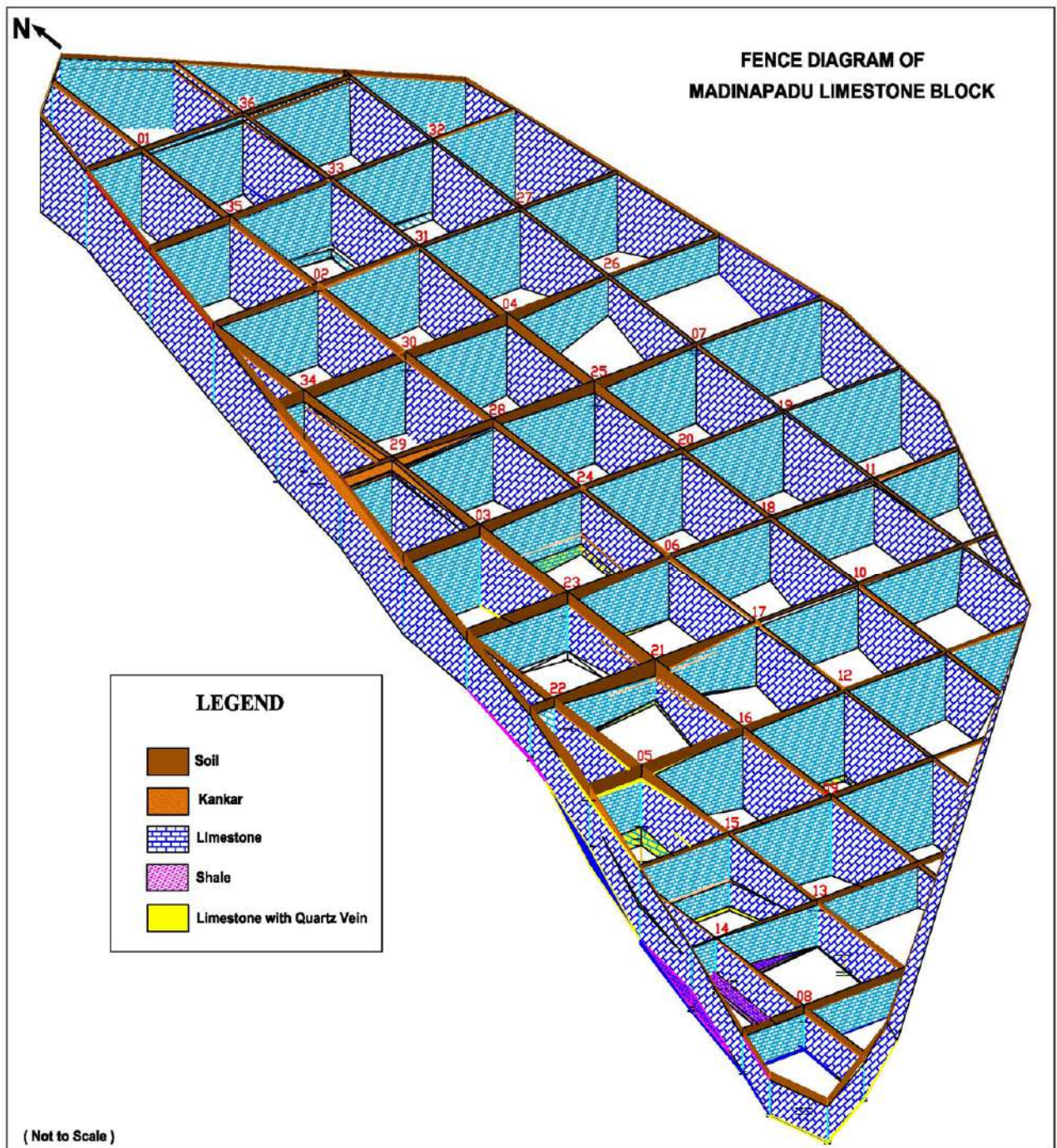


Figure 5.6 Fence diagram of the Madinapadu limestone block

Recommendation and Suggestions

The G2 or general exploration with core drilling at 400m x 400m grid interval, sampling of every 1m of core and chemical analysis has established a total net in-situ resource of 810.08 Million Tonnes (MT) of limestone with 677.23 MT as indicated resource and 132.85 MT as inferred resource in Madinapadu Limestone Block.

By considering 40% CaO and above i.e. 40-45% CaO, 45-48% CaO and >48% CaO grade categories, the total resource estimated is 611.34 MT constituting 75.47% of the total resource estimated which has analysed on an average 44.88% CaO, 0.39% MgO, 17.28% SiO₂, 0.87% Al₂O₃, 0.62% Fe₂O₃, 34.94% LOI, 0.04% SO₃ and 0.089% P₂O₅ indicating that it is suitable for cement industry.

The remaining 198.74 MT (24.53%) of the resource belongs to 34-40% CaO grade category which analysed on an average 37.53% CaO, 0.28% MgO, 29.42% SiO₂, 1.59% Al₂O₃, 1.15% Fe₂O₃, 28.79% LOI, 0.05% SO₃ and 0.101% P₂O₅. This type of ore requires blending/beneficiation during the mining stage.

The resource estimated in Madinapadu Limestone Block is sizeable and warrants taking up Prefeasibility Study and Detailed Exploration.

CHAPTER-6

PART IV-A AND V OF SCHEDULE: MEMC Rules-2015 and Amended MEMC Rules-2021

6.1 REPORTING OF MINERAL RESOURCES

Sl. No.		Criteria with parameters of reporting
1.		Executive Summary
	i	<i>The executive summary shall include details about the location of the mineral deposit, purpose of the mineral investigation and the stage of the exploration, brief geology, mineralization, exploration plan with spacing of the sample points, depth of exploration and whether the mineralisation extends beyond the depth of direct evidence. Outcome of the exploration studies including the quantity of resources identified with grade and quality under various classes.</i> Mineral Exploration Research and Innovation Trust (MERIT) had invited tender for G-2 level exploration work in Madinapadu, Tangeda, Mutyalampadu-Tangeda and Ramapuram Limestone Blocks in Guntur District, A.P. as per Tender No. 2/MERIT/ Re-tender/2018/3, ID 232252 dated 01.11.2018. Consortium of M/s JP Kordrilling as Lead Member and M/s Geosolutions as Consortium Member qualified in the tender. Work Order No. 2/MERIT/Re-Tender/2018/3/2 dated 05.12.2018 was issued by CEO, MERIT for G-2 level exploration work in Madinapadu, Tangeda, Mutyalampadu-Tangeda and Ramapuram Limestone Blocks in Guntur District, A.P. The scope of exploration work includes topographical survey, geological mapping, core drilling, litho-logging, sampling, chemical analysis, petrographic studies and preparation of Geological Report (GR) with ore resource estimation. M/s Geosolutions have planned and co-ordinated all the aspects of field operations and prepared the Geological Report (GR). Core drilling and sampling was carried out by M/s JP Kordrilling, the lead member of the Consortium. Chemical analysis of samples was carried out by NABL accredited laboratories of M/s RCA laboratories, Kolkata. The area covering Madinapadu Limestone Block is located in the central part of Palnad Sub-basin which forms the northeastern part of the crescent shaped Cuddapah Basin. Geologically, the block area consists of limestone belonging to the Narji Formation of Kurnool Group of rocks. Sub-surface Exploration by Diamond Core drilling (Voltas-90 rigs) was carried out to establish both the lateral and vertical continuity of the limestone horizon. As per the proposed borehole plan given by MERIT, thirty six (36) boreholes were planned with a total meterage of 1440m to drill up to a depth of 40m at 400m x 400m grid interval (Fig. 3.2). A total of 2328m of core drilling was carried out in 36 boreholes up to a depth varying from 34m (BH-5) to 100m (BH-12) against the tendered quantity of 1440m in 36 boreholes up to a depth of 40m. Significant increase in total drilling meterage is mainly due to large thickness of limestone up to 90m (BH-12) as compared to the anticipated thickness of 40m. Out of the 36 boreholes,

	one borehole (BH-12) was drilled up to a depth of 100m and the remaining 35 boreholes were drilled up to the bottom of limestone horizon or up to a maximum depth of 70m only as indicated by MERIT/NMET (Fig. 3.3). All the boreholes were drilled vertically with NX core size as the litho-units are sub-horizontal to gentle dipping on a grid pattern of 400m x 400m grid interval. All the boreholes intercepted massive limestone and the thickness of limestone varies from 20.00m (BH-5) to 90.00m (BH-12). The overburden soil thickness varies from 1.00m (BH-14) to 12.00m (BH-21). The extent of limestone mineralization in the exploration block is 655Ha (6.55 sq.km) (Fig. 5.3 and PLATE No. VIII A). The resources of limestone have been estimated by cross sectional method as well as by polygon method. A deduction of 10% from gross in-situ resource has been made to arrive at net in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc. The limestone of Madinapadu block is of stratiform and tabular type and hence the ore resources estimated by cross-sectional method are considered. A total of 810.08 Million Tonnes (MT) net in-situ limestone resource in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO has been estimated, by cross sectional method, in Madinapadu Limestone Block with 677.23 MT as indicated resource and 132.85 MT as inferred resource (Table 5.1 and Table-5.2). The total net in-situ indicated resource of 677.23 Million Tonnes (MT) consists of 84.52 MT of >48% CaO, 183.32 MT of 45-48% CaO, 238.94 MT of 40-45% CaO and 170.45 MT of 34-40% CaO. A total inferred resource of 132.85 Million Tonnes (MT) includes 24.33 MT of >48% CaO, 28.76 MT of 45-48% CaO, 51.47 MT of 40-45% CaO and 28.29 MT of 34-40% CaO. A total of 87.30 Million Tonnes (MT) of net in-situ limestone resource is locked up under the identified surface barrier area of one canal, one road and one high tension power line including 72.34 MT in indicated category and 14.96 MT in the inferred category (Table 5.4). A total of 810.08 MT net in-situ limestone resource has been estimated, by cross sectional method, in Madinapadu Limestone Block and after excluding the resource locked up under the surface barriers of one canal, one road and one high tension power line, the total net in-situ limestone resource of Madinapadu Limestone Block is 722.78 MT (Table 5.6). The net in-situ limestone resource of 810.08 Million Tonnes (MT) estimated in Madinapadu Limestone Block consists of 108.85 MT of >48% CaO grade analysing 48.87% CaO and 9.68% SiO₂; 212.08 MT of 45 - 48% CaO grade analyzing 46.55% CaO and 14.33% SiO₂; 290.41 MT of 40 - 45% CaO grade analyzing 42.16% CaO and 22.29% SiO₂ and 198.74 MT of 34 - 40% CaO grade analyzing 37.53% CaO and 29.42% SiO₂ (Table 5.7). As per the latest IBM notification dated 25.4.2018, a threshold value of 34% CaO indicated for limestone. Considering the IBM's cut off of 34% CaO, a total net in-situ resource of 810.08 MT has been estimated in four grade wise categories which has analysed on an average 43.04% CaO, 0.37% MgO, 20.32% SiO₂, 1.05% Al₂O₃, 0.75% Fe₂O₃, 33.40% LOI, 0.04% SO₃ and 0.092% P₂O₅ (Table 5.7). By considering 40% CaO and above i.e. 40-45% CaO, 45-48% CaO and

		>48% CaO grade categories, the total resource estimated is 611.34 MT constituting 75.47% of the total resource estimated which has analysed on an average 44.88% CaO, 0.39% MgO, 17.28% SiO₂, 0.87% Al₂O₃, 0.62% Fe₂O₃, 34.94% LOI, 0.04% SO₃ and 0.089% P₂O₅ (Table 5.7) indicating that it is suitable for cement industry. The remaining 198.74 MT (24.53%) of the resource belongs to 34-40% CaO grade category which analysed on an average 37.53% CaO, 0.28% MgO, 29.42% SiO₂, 1.59% Al₂O₃, 1.15% Fe₂O₃, 28.79% LOI, 0.05% SO₃ and 0.101% P₂O₅ (Table 5.7). This type of ore requires blending/beneficiation during the mining stage. As per the UNFC classification, out of the total net in-situ resource of 810.08 Million Tonnes (MT) of limestone estimated in Madinapadu Limestone Block, a resource of 677.23 MT can be categorized as Indicated Mineral Resource (332) and a resource of 132.85 MT can be categorized as Inferred Mineral Resource (333). Some more exploration results are summarised and given as separate Chapter-Executive Summary.
	ii	<i>The summary shall also include observation on the issues regarding the future plan or strategy for the deposit including likely mineability of the deposit based on present technological, environmental, social and market conditions.</i> The total net in-situ mineral resource of 810.08 MT of limestone with 677.23 MT as indicated resource and 132.85 MT as inferred resource estimated in Madinapadu Limestone Block is sizeable and warrants taking up Prefeasibility Study and Detailed Exploration (G1).
2.		Details of the Qualified Person(s) / Exploration Agency <i>(To be provided separately for all the qualified persons signing off the report)</i>
	i	a) Name: M/s Geosolutions, Professional and Scientific Consultants b) Address: Regd. No. 2555 of 2013, R.R.Dist., Govt. of AP Plot No.36, Vimaladevi Nagar, Malkajgiri, Hyderabad-50004 c) Contact Mobile No: 9490419035, 9440697216 d) E-Mail id: geosolutionsc@gmail.com e) Qualification: Dr.P.V.Ramesh Babu, M.Sc., Ph.D - 38 Years of experience Dr.R.Pavanaguru, M.Sc., Ph.D - 35 Years of experience Dr Dr.G.Nagendra Babu, M.Sc., Ph.D - 28 Years of experience Dr. D.Roop Kumar, M.Sc., Ph.D - 33 Years of experience Shri L. Premchandrar, M.Sc., - 35 years of experience Dr. Ch. Ravi, M.Sc., Ph.D - 5 Years of experience Brochure with details of M/s Geosolutions given as Annexure-I f) Experience: Detailed above. g) Affiliation to any organization / company, if yes, specify the name of the organisation or company: Given in Annexure-I
	ii	<i>Details of qualification and experience of persons associated with various aspects of exploration assessment of resources and reserves.</i> Given in Annexure-I
3.		Title and ownership
	i	<i>Name of the explorer / Mining or prospecting rights holder:</i>

		Address: Chief Executive Officer, Mineral Exploration Research and Innovation trust (MERIT), Directorate of Mines and Geology, Govt.of Andhra Pradesh, 5 th & 6 th Floor, Sri Anjaneya Towers, B-Block, Ibrahimpatnam, Andhra Pradesh. Telephone No: +91 9100688115 E-Mail id: ceo.merit@gmail.com																																																																																	
	ii	<i>Details of period of prospecting/mineral right if any: In case of a licence or lease:</i> Date of execution of G2 exploration is 8.3.2019 and the date of submission of Final GR is 25.10.2021 (a) Date of grant (b) Date of execution: (c) Period of licence or lease: (d) Date of completion:																																																																																	
4.		Details of the Area Under Study																																																																																	
	(i)	<i>Village, District, State</i> Madinapadu Limestone Block Village : Madinapadu Mandal : Dachepalli District : Guntur, State : Andhra Pradesh Location Plan is given as PLATE No. IA and IB.																																																																																	
	(ii)	<i>Survey of India Toposheet No., Differential Global Positioning System(DGPS) coordinates of all corner points of the area and borehole points in latitude and longitude (Degree Minutes Second) format WGS-84 Datum.</i> The Madinapadu Limestone Block is oval in shape and comprises an area of 660 Ha and forms part of Survey of India Toposheet No. 56P/14. The block is bounded by latitudes 16° 37' 39.20" N and 16° 39' 50.97" N and longitudes 79° 45' 07.11" E and 79° 47' 7.10" E. Geo-coordinates of all corner points of the Block are given below.																																																																																	
<table border="1"> <thead> <tr> <th rowspan="2">S. No</th><th rowspan="2">BP No.</th><th colspan="2">GEOGRAPHIC COORDINATES</th><th colspan="2">UTM COORDINATES</th><th rowspan="2">RL (m)</th></tr> <tr> <th>Latitude</th><th>Longitude</th><th>Easting</th><th>Northing</th></tr> </thead> <tbody> <tr><td>1</td><td>MP 1</td><td>16° 39' 50.97" N</td><td>79° 46' 56.20" E</td><td>370145</td><td>1842799</td><td>91.050</td></tr> <tr><td>2</td><td>MP 2</td><td>16° 39' 49.19" N</td><td>79° 47' 03.89" E</td><td>370373</td><td>1842743</td><td>90.233</td></tr> <tr><td>3</td><td>MP 3</td><td>16° 39' 05.30" N</td><td>79° 47' 07.10" E</td><td>370459</td><td>1841393</td><td>89.550</td></tr> <tr><td>4</td><td>MP 4</td><td>16° 38' 07.40" N</td><td>79° 46' 45.00" E</td><td>369794</td><td>1839618</td><td>94.864</td></tr> <tr><td>5</td><td>MP 5</td><td>16° 37' 55.70" N</td><td>79° 46' 35.60" E</td><td>369513</td><td>1839260</td><td>97.442</td></tr> <tr><td>6</td><td>MP 6</td><td>16° 37' 39.20" N</td><td>79° 46' 09.80" E</td><td>368745</td><td>1838758</td><td>104.016</td></tr> <tr><td>7</td><td>MP 7</td><td>16° 37' 42.20" N</td><td>79° 45' 17.90" E</td><td>367208</td><td>1838859</td><td>101.414</td></tr> <tr><td>8</td><td>MP 8</td><td>16° 37' 48.79" N</td><td>79° 45' 07.11" E</td><td>366890</td><td>1839064</td><td>100.129</td></tr> <tr><td>9</td><td>MP 9</td><td>16° 37' 57.01" N</td><td>79° 45' 09.40" E</td><td>366959</td><td>1839316</td><td>100.219</td></tr> <tr><td>10</td><td>MP 10</td><td>16° 38' 29.01" N</td><td>79° 45' 45.40" E</td><td>368032</td><td>1840293</td><td>101.591</td></tr> </tbody> </table>			S. No	BP No.	GEOGRAPHIC COORDINATES		UTM COORDINATES		RL (m)	Latitude	Longitude	Easting	Northing	1	MP 1	16° 39' 50.97" N	79° 46' 56.20" E	370145	1842799	91.050	2	MP 2	16° 39' 49.19" N	79° 47' 03.89" E	370373	1842743	90.233	3	MP 3	16° 39' 05.30" N	79° 47' 07.10" E	370459	1841393	89.550	4	MP 4	16° 38' 07.40" N	79° 46' 45.00" E	369794	1839618	94.864	5	MP 5	16° 37' 55.70" N	79° 46' 35.60" E	369513	1839260	97.442	6	MP 6	16° 37' 39.20" N	79° 46' 09.80" E	368745	1838758	104.016	7	MP 7	16° 37' 42.20" N	79° 45' 17.90" E	367208	1838859	101.414	8	MP 8	16° 37' 48.79" N	79° 45' 07.11" E	366890	1839064	100.129	9	MP 9	16° 37' 57.01" N	79° 45' 09.40" E	366959	1839316	100.219	10	MP 10	16° 38' 29.01" N	79° 45' 45.40" E	368032	1840293	101.591
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1	MP 1	16° 39' 50.97" N	79° 46' 56.20" E	370145	1842799	91.050																																																																													
2	MP 2	16° 39' 49.19" N	79° 47' 03.89" E	370373	1842743	90.233																																																																													
3	MP 3	16° 39' 05.30" N	79° 47' 07.10" E	370459	1841393	89.550																																																																													
4	MP 4	16° 38' 07.40" N	79° 46' 45.00" E	369794	1839618	94.864																																																																													
5	MP 5	16° 37' 55.70" N	79° 46' 35.60" E	369513	1839260	97.442																																																																													
6	MP 6	16° 37' 39.20" N	79° 46' 09.80" E	368745	1838758	104.016																																																																													
7	MP 7	16° 37' 42.20" N	79° 45' 17.90" E	367208	1838859	101.414																																																																													
8	MP 8	16° 37' 48.79" N	79° 45' 07.11" E	366890	1839064	100.129																																																																													
9	MP 9	16° 37' 57.01" N	79° 45' 09.40" E	366959	1839316	100.219																																																																													
10	MP 10	16° 38' 29.01" N	79° 45' 45.40" E	368032	1840293	101.591																																																																													

	(iii)	<i>Cadastral details of the area with land use, area under forest with type of forest. In case the cadastral details are not available an indicative data of breakup of government, private and forest land</i> As per the cadastral data the Madinapadu limestone block of 660 Ha is mainly an agricultural land belonging to four (4) villages. It consists of 653.95 Ha (99.08%) of private patta land and 6.05 Ha (0.92%) of government land. Major part of the land of about 607.78 Ha (92.09 %) belongs to Madinapadu village. The remaining land of 52.22 Ha (7.91%) belongs to three villages of Tangeda, Dachepalli and Gamalapadu villages as per the cadastral/land records. The details of private and government land, village wise, are given in Table 1.4. Cadastral map of Madinapadu limestone block is given as PLATE No. II and the details of cadastral/land record are given in Annexure II. The area represents an agricultural land with crop of cotton, chilly, bengal gram, jawar etc. annually.
	(iv)	<i>Mineral(s) under investigation or granted under licence or lease</i> Limestone
5.		Physiography and environment <i>(Data to be furnished up to five km. radius from the peripheral boundary of project area in case of G3,G2 and G1 stage of exploration)</i> The Madinapadu limestone block represents an agricultural land and comprises an area of 660Ha. The block is oval in shape and extends in a NE-SW direction. It is about 5.0km in length (NE-SW) with a width varying from 0.25km in the NE to 2.0km in the SW. The topography of the block is plain with surface reduced levels varying from 110m in the SW to 90m in the NE (above MSL) sloping towards northeast. The block area is devoid of major streams/nalas. However, minor seasonal streamlets can be seen. Madinapadu Major Canal passes through the block flowing from south to north. A metal road from Madinapadu to Sarangapalli passes through the block in the western part. A high tension power line passes through the area in an E-W direction.
	(i)	<i>Relief of the area with minimum and maximum elevation, drainage pattern, natural water courses, reservoirs, etc.</i> The topography of the Madinapadu limestone block is plain with surface reduced levels varying from 110m in the SW to 90m in the NE (above MSL) sloping towards northeast. The block area is devoid of major streams/nalas. However, minor seasonal streamlets can be seen. Madinapadu Major Canal passes through the block flowing from south to north.
	(ii)	<i>Roads, railway track, electric transmission line, telephone line, etc., passing through the area or nearby</i> The Madinapadu limestone block for exploration is located 500m east of Madinapadu village which is situated at about 8.2 km northeast of Dachepalli town. Dachepalli is the Mandal headquarters in Guntur district, Andhra Pradesh and is situated on Hyderabad-Guntur State Highway SH-21. Dachepalli is approachable by train and by road. The nearest railway station is Nadikude about 8.7 km southwest of Madinapadu, on the Hyderabad-Guntur broad-gauge line of South Central Railway (Figs. 1.1, 1.2, 1.3 and PLATE No. IA, IB). The nearest township is Dachepalli situated at about 8.2 km to the southwest of Madinapadu village. It is the Mandal headquarters with educational and

		health facilities. Dachepalli is well connected with all major cities of Guntur, Vijayawada and Hyderabad by rail and road. All basic amenities such as school, hospital, market etc. are available here. The nearest Police Station is at Dachepalli. Guntur is the district headquarters and is located at a distance of about 96 km towards southeast of Dachepalli. Hyderabad is situated about 184 km towards the North West. The nearest sea port is Krishnapatnam at a distance of 350 km. The nearest Airport is located in Vijayawada at distance of 170 kms SE of the block and Hyderabad is situated about 184 km towards the North west of the block.
	(iii)	<i>Host population (local tribes), Human settlements within and nearby the area</i> Total population of Madinapadu Village is 4924 and the number of houses is 1360. Male population is 2413 and female population is 2511. Village literacy rate is 47.57% with male literacy of 58.71% and the female literacy rate of 37.16%.
	(iv)	<i>Socio Demographic profile of the area and nearby</i> A number of cement plants are located around Madinapadu. Bhavya Cements Limited is located at a distance of 19.5km in the northeast, Nagarjuna Cements Limited is at a distance of 25.8 km (north of Krishna River) and Sagar Cements Limited at a distance of 29.4km (north of Krishna River).
	(v)	<i>Historical sites and archaeological monuments, places of worship, public utilities etc. within or near by</i> There are no archaeological monuments, places of worship, public utilities etc in the exploration block.
	(vi)	<i>Forests, sanctuaries, national park and wild life sanctuaries; grazing land and gochar land within or near by the area with distance from periphery of the area explored.</i> There are no sanctuaries, national park and wild life sanctuaries; grazing land and gochar land within a radius of 10km.
	(vii)	<i>Flora and Fauna within and nearby</i> The area covered by Madinapadu block and its surroundings is mainly agricultural land and devoid of any marked forest area. The flora includes spiny bushes, Cassia auriculata (Thangedu), Azadiracta indica (Vepa), Balanites aegyptiaca (Thumma), Procophis juliflora (Patnam thumma). The area is devoid of any known wild life. However Indian grey mangoose, jungle cats (Felis chaus) are seen.
	(viii)	<i>Water bodies such as river, nala, stream, reservoir, etc., within or nearby</i> The block area is devoid of major streams/nalas. However seasonal streamlets can be seen. Madinapadu Major canal passes through the block flowing from south to north.
	(ix)	<i>Climatic conditions:</i> (a) Temperature (annual) min 18°C, max 42°C Avg 30°C (b) Rain fall (annual) min 853mm, max 1357mm, Avg 889mm (c) Humidity (annual) min 30%, max 80%, Avg 60%
	(x)	<i>Any other physiographic, social and environmental factor having potential to affect the viability of the project and assessment of resources and reserves.</i>

		The area is located in a tropical climatic belt. The hot season commences early in March and ends up in second week of June. The months of May and June are the hottest months in the year with temperatures reaching up to 42°C. December and January are comparatively the cooler months with the average temperature of about 18°C. The rainy season is generally distributed during the months of July to December under the influence of southwest and northeast monsoons.
6.		Infrastructure <i>Local infrastructure with roads, railways, port facilities, electricity, water etc. with distance from the area. Details of nearby industries in the area which may use the mineral commodity likely to be mined</i> The Madinapadu limestone block for exploration is located 500m east of Madinapadu village which is situated at about 8.2 km northeast of Dachepalli town. Dachepalli is the Mandal headquarters in Guntur district, Andhra Pradesh and is situated on Hyderabad-Guntur State Highway SH-21. Dachepalli is approachable by train and by road. The nearest railway station is Nadikude about 8.7 km southwest of Madinapadu, on the Hyderabad-Guntur broad-gauge line of South Central Railway (Figs. 1.1, 1.2, 1.3 and PLATE No. IA, IB). The nearest township is Dachepalli situated at about 8.2 km to the southwest of Madinapadu village. It is the Mandal headquarters with educational and health facilities. Dachepalli is well connected with all major cities of Guntur, Vijayawada and Hyderabad by rail and road. All basic amenities such as school, hospital, market etc. are available here. The nearest Police Station is at Dachepalli. Guntur is the district headquarters and is located at a distance of about 96 km towards southeast of Dachepalli. Hyderabad is situated about 184 km towards the North West. The nearest sea port is Krishnapatnam at a distance of 350 km. The nearest Airport is located in Vijayawada at distance of 170 kms SE of the block and Hyderabad is situated about 184 km towards the North west of the block. A number of cement plants are located around Madinapadu. Bhavya Cements Limited is located at a distance of 19.5km in the northeast, Nagarjuna Cements Limited is at a distance of 25.8 km (north of Krishna River) and Sagar Cements Limited at a distance of 29.4km (north of Krishna River).
7.		Geology
	(i)	<i>Brief regional geology of the area outlining the broad geological, stratigraphical and structural frame work.</i> The Madinapadu area forms part of Palnad Sub-basin in Guntur district. The Palnad Sub-basin occupies parts of Guntur and Krishna districts of Andhra Pradesh and Nalgonda district of Telangana. The Sub-basin forms the northeastern part of the crescent shaped Cuddappah Basin (Dutt, 1975 and Nagaraja Rao et al., 1987). The previous pioneering geological work in and around this area was carried out by R.Bruce Foote and the findings were compiled by William King (1872). Later, Heron (1948) mapped the area north of Krishna River. William King (1872) in his classic memoir has documented the earliest geological account of Palnad Sub-basin and the present work area forms part of it. Investigation for flux grade limestone in the Narji limestone Formation of the

		Palnad Sub-basin in parts of Guntur district was carried out by K.V.J.R. Krupanidhi (1966-67), C.Nageshwara Rao and C.J.R.Varaprasada Rao (1967-68). Lithounits of this area are sub-horizontal but generally show gentle dips mainly towards the center of the basin. The major portion of the Palnad Sub-basin is made up of Narji limestone of Kurnool Group of Neoproterozoic age. The Narji limestone is underlain by Banganapalle quartzite. Later, the main geological work was carried out by GSI officers (G.Ramalingaswamy, F.S: 1975-76, A.Sekharam, F.S:1978-79 and 1979-80, Ravindra Babu et al., 1984, Nagaraja Rao et al., 1987).
	(ii)	<i>Local geological setting detailing the common rock types, controls of mineralization, details of old workings if any, surface exposures, etc., of the area under study also of adjoining nearby areas, if the information is likely to have an impact on the area under study.</i> The Madinapadu exploration block is oval in shape and extends in a NE-SW direction. The block is about 5.0km in length (NE-SW) with a width varying from 0.25km in the NE to 2.0km in the SW and comprises an area of 660Ha. Geologically, the block area consists of limestone belonging to the Narji Formation of Kurnool Group of rocks. Minor exposures of limestone are seen on the surface in the eastern part of the block area (Fig. 2.8 A and B). The limestone is covered by thin veneer of black cotton soil in most part of the block. The Narji limestone in the area overlies the Banganapalle quartzite of Kurnool Group. Outcrops of massive limestone are observed in the eastern part of the block. The massive limestone is light grey to dark grey, fine grained and thickly bedded with ribs and furrows on the surface. It is hard and breaks with conchoidal fracture where ever siliceous matrix/content is conspicuous.
	(iii)	<i>Structural details of the area such as dip, strike, folds, faults, etc.</i> The limestone is exposed in the northeastern and eastern part of the block area. Rock exposures are limited and wherever outcrops are exposed, the structural data is recorded. The limestone strikes N25⁰ to 45⁰E-S25⁰ to 45⁰W with a gentle dip of 3⁰ to 6⁰ towards SE. Joints are commonly sub-vertical to vertical in limestone and are trending in N - S, E - W, N60⁰ to 80⁰W-S60⁰ to 80⁰E. They are normally open and wide spaced and some are filled with calcite (white to pink), chert and quartz veins. Primary structures seen are bedding planes and at places limestone exhibits ripple marks with wide wave lengths. Stylolite structures are observed and at place filled with cherty material.
	(iv)	<i>A discussion on the type of the deposit based on the style of mineralisation and minerals under investigation. Suggested exploration plan with spacing of the sampling points and depth of exploration commensurate with the stage of exploration</i> The deposit is bedded, stratiform and tabular type limestone deposit of regular habit. Diamond Core drilling with NX core size (55mm) was carried out by Vol-90 machines using standard double tube core barrel. Core drilling by vertical boreholes was carried out and 36 boreholes on 400m x 400m grid interval up to a maximum depth of 100m (BH-12) were drilled in the block. The spacing of boreholes and distribution is based on part I and II of the schedule and is sufficient to establish the degree of geological and grade continuity

		appropriate for the Limestone Mineral Resource estimation procedure(s) and classifications applied.
	(v)	<i>The extent and variability of the mineralisation expressed as length (in meter) (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.</i> Core drilling by vertical boreholes was carried out and 36 boreholes on 400m x 400m grid interval up to a maximum depth of 100m (BH-12) were drilled in the block. The surface area of limestone in the block is about 655 Ha. For estimation of ore reserves, cross sectional and polygon methods have been adopted.
8.		Previous Exploration
	(i)	<i>Name and address of prospecting agency or permit holder or licensee involved in the exploration of the area with year and period of exploration (if more than one agency is involved details to be given separately for each agency)</i> Nil
	(ii)	<i>Brief details of the exploration carried out (to be given separately for each agency)</i> NA
	(iii)	<i>Reserves or resources estimated, if any, during the previous exploration campaign with quantity and grade under various categories.</i> NA
9.		Aerial or ground geophysical or geochemical data
		<i>Details of aerial, ground geophysical and geochemical survey taken up and their results.</i> No aerial / ground geophysical / geochemical surveys were carried out as limestone is well known in the area.
10.		Exploration undertaken during current investigation
	(i)	<i>Details of pitting, trenching, drilling, etc., with spacing and distribution of the sample points along with geographical co-ordinates.</i> Pitting and trenching were not carried out as this is a known limestone area. Core drilling by vertical boreholes was carried out and 36 boreholes on 400m x 400m grid interval up to a maximum depth of 100m (BH-12) were drilled in the block. The spacing of boreholes and distribution is based on part I and II of the schedule and is sufficient to establish the degree of geological and grade continuity appropriate for the Limestone Mineral Resource estimation procedure(s) and classifications applied.
	(ii)	<i>Data spacing for reporting of exploration results: Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the mineral resource estimation procedure(s) and classifications applied.</i> Core drilling by vertical boreholes was carried out and 36 boreholes on 400m x 400m grid interval up to a maximum depth of 100m (BH-12) were drilled in the block. The spacing of boreholes and distribution is based on part I and II of the schedule and is sufficient to establish the degree of geological and grade continuity appropriate for the Limestone Mineral Resource estimation procedure(s) and classifications applied. The surface area of limestone in the block is about 655 Ha. For estimation of ore reserves, cross sectional and polygon methods have been adopted.

11.		Location of data point
	(i)	<i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys, azimuth, inclination, coordinates of bore holes etc), trenches, mine workings and other locations used in mineral resource estimation.</i> DGPS (spectra make) and Leica Total Station (TS 06 Plus model) and also Garmin make, Oregon 550 GPS which are accurate were used in locating drill holes and other locations used in Mineral Resource Estimation. Reduced level of borehole collars was deduced from DGPS survey and coordinates of all the boreholes in the block were calculated with reference to the standard bench mark fixed by survey of India that is carried to the Madinapadu limestone block. Four ground control points TD-9, TD-10, TD-11 and TD-12 were established in Madinapadu limestone block and X, Y coordinates were fixed using DGPS. One known bench mark BM 95.49m from Nadikude Junction (Railway), in Survey of India Toposheet No. 56 P/10 (Fig. 2.1) is taken as reference point and the elevation (Z) is calibrated to ground control points TD-9, TD-10, TD-11 and TD-12 established in Madinapadu limestone block by DGPS. Coordinates from ground control points TD-9, TD-10, TD-11 and TD-12 were transferred to other base station points established in Madinapadu limestone block. Based on these coordinates, block boundary points and borehole locations at 400m x 400m grid interval provided by MERIT were ground fixed in Madinapadu limestone block.
	(ii)	<i>Quality and adequacy of topographic control.</i> Detailed survey and surface topographical mapping has been carried out with the help of Total Station and surface topographic maps on 1:5000 and 1:1000 scale with 2 m contour interval incorporating borehole locations and cadastral data were prepared (PLATE Nos. II, III and V).
12.		Sampling technique
		<i>Nature and quality of sampling (eg. cut channels, random chips, etc.) and measures taken to ensure sample representation.</i> Limestone drill core of every 1 meter is sampled and processed for chemical analysis. The core is split longitudinally into two equal halves with the help of motorized core splitter. One half is preserved for future reference in the core box. The other half of the split core of every meter is crushed with jaw crusher into 6.5 mm size pieces. After coning and quartering, half of this is preserved as representative sample with proper labeling and the remaining material is powdered to -100 mesh by pulveriser for chemical analysis.
13.		Drilling technique and drill sampling employed
	(i)	<i>Drill type (eg. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (eg. core diameter, triple or standard tube).</i> Core drilling with NX core size (55 mm) was carried out by Vol-90 machines using standard double tube core barrel. Details like collar RL, inclination coordinates etc. of boreholes drilled are given in Table 3.1.
	(ii)	<i>Whether core and chip sample recoveries have been properly recorded and results assessed.</i> Details of core samples were properly recorded in litholog sheets.
	(iii)	<i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>

		Precaution was taken to maximize core recovery. Measures taken include using right core bit, proper cleaning of tubes, core case and spring, applying of right pressure and rotation speed, choosing of cutting fluids etc.
	(iv)	<i>Whether a relationship exists between sample recovery and grade and whether sample bias could have occurred due to preferential loss or gain of fine or coarse material</i> It is observed that no relationship exists between sample recovery and grade.
	(v)	<i>Logging: -Whether core and chip samples have been logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</i> Detailed logging of core was done and minor details also recorded to support appropriate Mineral Resource estimation and for further studies.
	(vi)	<i>Discussion on the analysis results of handheld X-ray fluorescence (XRF), if used in the investigation.</i> No handheld X-ray fluorescence (XRF) was used.
14.		Sub-sampling techniques and sample preparation
	(i)	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i> Limestone core is sampled for every 1 meter and processed for chemical analysis. One longitudinal half of the core of every meter is crushed with jaw crusher into 6.5 mm size pieces. After coning and quartering, half of this is preserved as representative sample with proper labeling and the remaining material is powdered to -100 mesh by pulveriser. The powdered core sample is homogenised after coning and quartering. 250gm of homogenized powder sample is considered for chemical analysis and out of which 20gm is taken for analysis. Duplicate sample is labeled and preserved for future reference.
	(ii)	<i>(a) If non-core, whether riffled, tube sampled, rotary split, etc., and whether sampled wet or dry.</i> No non-core drilling was done. <i>(b) For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i> Core of every 1 meter is collected and the entire column of limestone is represented appropriately.
	(iii)	<i>Quality control procedures adopted for all sub-sampling stages to maximize representation of samples.</i> QC procedure followed: Representative sample of every 1m core is collected. Then crushed, and by coning & quartering procedure 250 grams of representative sample collected and duplicate sample/pulp was preserved for future reference for chemical analysis. 10% check samples were also analysed for quality control.
	(iv)	<i>Measures taken to ensure that the sampling is representative of the in-situ material collected.</i> Representative sample of every 1m core is collected. Then crushed and by coning & quartering procedure 250 grams of representative sample collected and duplicate sample/ pulp was preserved for future reference for chemical analysis. 10% check samples were also analysed for quality control.

	(v)	Whether sample sizes are appropriate to the grain size of the material being sampled. A total of 2357 samples including 2129 representative drill core samples of limestone at 1m interval and 228 check samples (about 10%) were analyzed. The sample size is appropriate. Powdered core sample is homogenized after coning and quartering and 250 gm is considered for chemical analysis. Out of which 20 gm of sample is taken for analysis.												
15.		Quality of assay data and laboratory tests (a) The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. All the core samples were analyzed by NABL accredited chemical laboratories of M/s RCA Laboratories, Kolkata. with standard procedures as given below. <table><tr><td>Parameter</td><td>Procedure followed</td></tr><tr><td>Loss of Ignition</td><td>IS: 1760 (Part 1), 1991</td></tr><tr><td>Determination of Silica</td><td>ISO: 12677: 2011</td></tr><tr><td>Determination of Iron oxide, Alumina, Calcium oxide and Magnesia</td><td>ISO: 12677: 2011</td></tr><tr><td>Sulphur as SO3</td><td>ISO: 12677: 2011</td></tr><tr><td>Phosphorous as P2O5</td><td>ISO: 12677: 2011</td></tr></table> (b) Natural of quality control procedures adopted (eg. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie. lack of bias) and precision have been established. A total of 2357 samples including 2129 representative drill core samples of limestone at 1m interval and 228 check samples (about 10%) were analysed in NABL accredited chemical laboratories with acceptable levels of accuracy and precision. Certificate of NABL accreditation of M/s RCA Laboratories, Kolkata is enclosed. As a NABL accredited laboratory, M/s RCA Laboratories, Kolkata are maintaining QA/QC as per QAP & IQC plan which is complying necessary requirements of ISO/IEC 17025:2017. QA/QC protocol followed is as given below. 1. Calibration of the XRF by CRM & SRM using the following CRM & SRM for calibration purpose: a) BCS CRM No 393 b) SX 35-15 c) NCS DC 73375 d) NML 71.1 e) BCS CRM No 782-1 f) NCS DC 14020a g) NCS DC 11003 2. Checking the accuracy by using CRM at a regular interval of 25 to 40 samples. 3. Cross checking by wet chemical method - cross checking random samples by wet chemical method also.	Parameter	Procedure followed	Loss of Ignition	IS: 1760 (Part 1), 1991	Determination of Silica	ISO: 12677: 2011	Determination of Iron oxide, Alumina, Calcium oxide and Magnesia	ISO: 12677: 2011	Sulphur as SO3	ISO: 12677: 2011	Phosphorous as P2O5	ISO: 12677: 2011
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Sulphur as SO3	ISO: 12677: 2011													
Phosphorous as P2O5	ISO: 12677: 2011													

		(c) Check analysis of at least 10% of samples should be analyzed from third party National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited or Department of Science and Technology (DST) or Bureau of Indian Standards (BIS) recognized laboratories or government laboratories for assessing the acceptable levels of accuracy. About 10% i.e. 228 check samples of limestone were analyzed in NABL accredited chemical laboratories. The check samples were selected, labeled and sent for analysis by M/s Geosolutions (member of the consortium) so that these samples are distributed from all the boreholes considered for ore resource estimation. Separate numbers were also given for these check samples selected for analysis. The analytical data of 228 check samples is similar to the original samples and shown as histograms in Figure 4.2. (d) Security and chain of control of samples should be clearly mentioned. For security and control of samples, M/s Geosolutions (member of the consortium) selected the check samples, labeled and sent for analysis so that these samples are distributed from all the boreholes considered for ore resource estimation. Separate numbers were also given for these check samples selected for analysis.
16.		Moisture <i>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</i> Tonnages are estimated on a dry basis.
17.		Bulk Density <i>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</i> The tonnage is arrived by taking the specific gravity of limestone as 2.5. Bulk density of six (6) borehole core samples of limestone from Madinapadu limestone block is measured after the removal of moisture by placing the samples in an electric oven at $\sim 80^{\circ}$ C for one hour and dried at the room temperature. The diameter and length of each core sample is measured using digital calipers thrice and averaged for computing the bulk volume. The weight (mass) of each dried core sample is measured using an electronic balance. The bulk density is calculated using the equation: $\rho \text{ (g /cm}^3\text{)} = \text{mass of sample / volume of sample}$. The average value of bulk density obtained is 2.67 g/cm³. However, limestone in this area is siliceous and is associated with minor intercalated shale (Sp. Gr. 2.2 to 2.6). Hence Sp. Gr. of 2.5 is taken for computing the tonnage.
18.		Beneficiation studies as may be required <i>Details of beneficiation studies carried out at laboratory scale of bench scale involving bulk sampling tests to understand and suggest technological factors for optimum recovery of explored mineral commodity, any additional by-products or co-products that may be available in the ore which is recoverable should also be discussed. The detailed flow sheet with yield recovery factors and to be discussed.</i> No beneficiation studies were carried out.
19.		Resource estimation techniques
	(i)	<i>Discussion on sufficient data density to assure continuity of mineralisation and synthesis adequate data base for estimation procedure used.</i>

		Data was generated based on topographic survey and detailed geological mapping on 1:1000 and 1:5000 scale with a contour interval of 2m and all the proposed boreholes of MERIT were plotted. Core samples of every 1m interval were systematically taken and processed and 2357 samples analysed for different oxides and LOI. This wholesomely produced sufficient data base for estimation procedure used and facilitated interpretation of subsurface continuity of limestone.
	(ii)	<i>Whether previous exploration data has been used and integrated with the current exploration data for assessment of the updated resources.</i> No previous data is available.
	(iii)	<i>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters, maximum distance of extrapolation from data points</i> The resources of limestone have been estimated by cross sectional method as well as by polygon method. In sectional method A total of 12 dip cross sections are generated in AutoCAD, based on the data of 36 boreholes falling in the section lines and with various lithologies encountered (Fig. 5.3 and Plate No. VIII A and B). The 12 dip cross sections are designated as L-L', M-M', N-N', O-O', P-P', Q-Q', R-R', S-S', T-T', U-U', V-V' and W-W'. Ore resource estimation has been carried out in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO as per the latest Notification of IBM dated 25.4.2018, indicating a threshold value of 34% CaO for limestone. The breakup of the limestone resource into above four categories is estimated by incorporating the zones with colour notation in the 12 dip sections prepared for limestone resource estimation. Brief particulars and aspects considered for Ore Resource calculation by cross sectional method are given below: 1. A total of 12 dip cross sections (L-L' to W-W') are generated in AutoCAD, based on the data of 36 boreholes falling in the section lines. 2. The limestone resource in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO is estimated by incorporating the grade zones with colour notation in the dip sections, prepared for limestone resource estimation. 3. The cross sectional area of limestone is worked out with grade-wise thickness of the limestone and the lateral extension on either side of the borehole. 4. In most of the boreholes the lateral correlation of grade is present and it is integrated as continuous polygon considering the vertical shift of the grade. Wherever the change in grade is encountered with no lateral continuity, the same is shown as petering out, to estimate the sectional area. 5. The block boundary of the Madinapadu Limestone Block intersects the dip section lines at various distances from the last drilled borehole. The area of limestone in the section is taken up to the intersection point of the section line with the block boundary. 6. The resources calculated up to the influence limit of 200m from the last drilled boreholes are categorized as Indicated. It is observed that the western and eastern boundaries of the block are falling mostly beyond the 200m influence limit of boreholes in the section. The resources calculated beyond the influence limit of 200m from the last boreholes up to the block boundary

are categorized as Inferred.

7. The volume of the limestone is arrived by taking into consideration the sectional area and influence of 200m on either side of the section i.e. between 342m to 386m.

8. The tonnage is arrived by taking the specific gravity of limestone as 2.5. Bulk density of 6 borehole core samples of limestone from Madinapadu Limestone Block is measured after the removal of moisture by placing the samples in an electric oven at $\sim 800^{\circ}\text{C}$ for one hour and dried at the room temperature. The diameter and length of each core sample is measured using digital calipers thrice and averaged for computing the bulk volume. The weight (mass) of each dried core sample is measured using an electronic balance. The bulk density is calculated using the equation: $\rho \text{ (g /cm}^3\text{)} = \text{mass of sample / volume of sample}$. The average value of bulk density obtained is 2.67 g/cm³. However, limestone in this area is siliceous and is associated with minor intercalated shale (Sp. Gr. 2.2 to 2.6). Hence Sp. Gr. of 2.5 is taken for computing the tonnage.

9. A deduction of 10% from gross in-situ resource has been made to arrive at net in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc.

10. There are three types of surface constraints (Figure 5.5) including a canal, a road and a high tension power line which are crisscrossing in the Madinapadu Limestone Block. A width of 45m on either side from the center of the surface constraints like canal/ power line / road is considered as barrier. The volume of the limestone in the barrier area is arrived by taking into consideration the grade-wise thickness of limestone of boreholes falling nearby the surface constraints and the width of barrier as mentioned above. The tonnage is arrived by taking the specific gravity of limestone as 2.5 for both indicated and inferred area as per the presence of the surface constraints/features.

11. The soil thickness in limestone area varies from 1.00m (BH-14) to 12.00m (BH-21) over the massive limestone in the ore resource block. In order to estimate the overburden, the sectional area of the overlying soil cover is calculated from the 12 dip sections drawn for estimation of limestone resources. The volume of overburden is arrived by taking into consideration the sectional area and influence of 200m on either side of the section. The additional area beyond the 200m section line influence from the last borehole is arrived from Auto CAD and the volume is estimated by taking the soil thickness data of the nearby borehole. A specific gravity of 2.0 is taken for soil for tonnage calculation.

12. Similar method has been used for calculating the ore resource of the upper part of limestone analyzing <34% CaO which is considered as overburden in the sections and taking the specific gravity as 2.5.

The limestone resources in Madinapadu block have also been estimated by polygon method. In this method of ore reserve estimation, polygons are constructed on plan by drawing perpendicular bisectors connecting the sample points i.e. boreholes. Polygons are developed around each sampling point with half the distance between two boreholes, in an equidistant manner, thus forming an area of influence. The thickness of mineralisation is taken from the borehole data, to assess the volume for reserve estimation.

Brief particulars and the aspects considered for ore resource calculation in Madinapadu Limestone Block by polygon method are given below:

	1. The boreholes are falling in a regular grid pattern with an equal distance in between them. 2. The block boundary of Madinapadu Limestone Block intersects the dip section lines at various distances from the last drilled borehole. 3. As the block is in elongated rectangle shape, the polygon boundaries thus arrived does form as regular near square shape but for the block boundary abetting polygons. 4. The area of influence of grade of limestone thickness as encountered in borehole inside the polygon is considered for resource estimation. 5. The resource in the influence area from the borehole on either side is considered as Indicated resource. 6. The resource in the remaining area up to the block boundary is considered as Inferred resource. 7. The area of the polygons is deduced from AutoCAD drawing. 8. The gradewise limestone thickness is taken from the borehole in the centre of the polygon based on analysis to assess the volume for reserve estimation. 9. The limestone resource is estimated in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO by incorporating the grade zones from the borehole in the centre of the polygon. 10. Specific gravity of 2.5 is taken to compute the tonnage of various grades of limestone within the polygon. 11. A deduction of 10% from gross in-situ resource has been made to arrive at net in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc. Based on the chemical data obtained from NABL accredited laboratories of M/s. RCA laboratories, Kolkata, interpretation was carried out. There is no extrapolation of data as the area is limited to the boundaries given by MERIT.
(iv)	<i>The basis for the classification of the mineral resources into varying confidence classes.</i> The limestone resources estimated in Madinapadu limestone block by cross-sectional as well as polygon methods. The difference of resources estimated in both the methods 1.01% which is well within tolerance limit. The limestone of Madinapadu block is of stratiform and tabular type and hence the ore resources estimated by cross-sectional method are considered. A total of 810.08 Million Tonnes (MT) net in-situ limestone resource has been estimated, by cross sectional method, in Madinapadu Limestone Block with 677.23 MT as indicated resource and 132.85 MT as inferred resource in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO (Table 5.1 and Table 5.2). The limestone considered for ore resource estimation comprising of all the four grade-wise categories in Madinapadu limestone block, on an average analyzed 43.04% CaO, 0.37% MgO, 20.32% SiO₂, 1.05% Al₂O₃, 0.75% Fe₂O₃, 33.40% LOI, 0.04% SO₃ and 0.092% P₂O₅. The average silica content in the ore grade categories of 40-45% CaO and 34-40% CaO in general is higher varying from 22.29 to 29.42% SiO₂ with an average of 25.25% SiO₂. As per UNFC classification, the exploration in the Madinapadu Limestone

		Block falls under category-I i.e. Stratiform, strata bound and tabular deposits of regular habit. The G2 or general exploration with core drilling at 400m x 400m grid interval, sampling of every 1m of core and chemical analysis has established the main geological features, size, shape and grade of the Madinapadu Limestone Block. As per the UNFC classification, out of the total net in-situ resource of 810.08 Million Tonnes (MT) of limestone estimated in Madinapadu Limestone Block, a resource of 677.23 MT can be categorized as Indicated Mineral Resource (332) and a resource of 132.85 MT can be categorized as Inferred Mineral Resource (333).
	(v)	<i>The assumptions made regarding recovery of by-products.</i> As it is a bedded and stratiform limestone deposit, no byproducts could be identified during the course of G-2 exploration. Hence, no assumptions were made.
	(vi)	<i>Detailed description of the method used and the assumptions made to estimate tonnages and grades (section, polygon, inverse distance, geostatistical, or other method).</i> The resources of limestone have been estimated by cross sectional method as well as by polygon method. In sectional method A total of 12 dip cross sections are generated in AutoCAD, based on the data of 36 boreholes falling in the section lines and with various lithologies encountered (Fig. 5.3 and Plate No. VIII A and B). The 12 dip cross sections are designated as L-L', M-M', N-N', O-O', P-P', Q-Q', R-R', S-S', T-T', U-U', V-V' and W-W'. Ore resource estimation has been carried out in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO as per the latest Notification of IBM dated 25.4.2018, indicating a threshold value of 34% CaO for limestone. The breakup of the limestone resource into above four categories is estimated by incorporating the zones with colour notation in the 12 dip sections prepared for limestone resource estimation. Brief particulars and aspects considered for Ore Resource calculation by cross sectional method are given below: 1. A total of 12 dip cross sections (L-L' to W-W') are generated in AutoCAD, based on the data of 36 boreholes falling in the section lines. 2. The limestone resource in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO is estimated by incorporating the grade zones with colour notation in the dip sections, prepared for limestone resource estimation. 3. The cross sectional area of limestone is worked out with grade-wise thickness of the limestone and the lateral extension on either side of the borehole. 4. In most of the boreholes the lateral correlation of grade is present and it is integrated as continuous polygon considering the vertical shift of the grade. Wherever the change in grade is encountered with no lateral continuity, the same is shown as petering out, to estimate the sectional area. 5. The block boundary of the Madinapadu Limestone Block intersects the dip section lines at various distances from the last drilled borehole. The area of limestone in the section is taken up to the intersection point of the section line with the block boundary. 6. The resources calculated up to the influence limit of 200m from the last drilled boreholes are categorized as Indicated. It is observed that the western

	and eastern boundaries of the block are falling mostly beyond the 200m influence limit of boreholes in the section. The resources calculated beyond the influence limit of 200m from the last boreholes up to the block boundary are categorized as Inferred. 7. The volume of the limestone is arrived by taking into consideration the sectional area and influence of 200m on either side of the section i.e. between 342m to 386m. 8. The tonnage is arrived by taking the specific gravity of limestone as 2.5. Bulk density of 6 borehole core samples of limestone from Madinapadu Limestone Block is measured after the removal of moisture by placing the samples in an electric oven at ~800°C for one hour and dried at the room temperature. The diameter and length of each core sample is measured using digital calipers thrice and averaged for computing the bulk volume. The weight (mass) of each dried core sample is measured using an electronic balance. The bulk density is calculated using the equation: $\rho \text{ (g /cm}^3\text{)} = \text{mass of sample} / \text{volume of sample}$. The average value of bulk density obtained is 2.67 g/cm³. However, limestone in this area is siliceous and is associated with minor intercalated shale (Sp. Gr. 2.2 to 2.6). Hence Sp. Gr. of 2.5 is taken for computing the tonnage. 9. A deduction of 10% from gross in-situ resource has been made to arrive at net in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc. 10. There are three types of surface constraints (Figure 5.5) including a canal, a road and a high tension power line which are crisscrossing in the Madinapadu Limestone Block. A width of 45m on either side from the center of the surface constraints like canal/ power line / road is considered as barrier. The volume of the limestone in the barrier area is arrived by taking into consideration the grade-wise thickness of limestone of boreholes falling nearby the surface constraints and the width of barrier as mentioned above. The tonnage is arrived by taking the specific gravity of limestone as 2.5 for both indicated and inferred area as per the presence of the surface constraints/features. 11. The soil thickness in limestone area varies from 1.00m (BH-14) to 12.00m (BH-21) over the massive limestone in the ore resource block. In order to estimate the overburden, the sectional area of the overlying soil cover is calculated from the 12 dip sections drawn for estimation of limestone resources. The volume of overburden is arrived by taking into consideration the sectional area and influence of 200m on either side of the section. The additional area beyond the 200m section line influence from the last borehole is arrived from Auto CAD and the volume is estimated by taking the soil thickness data of the nearby borehole. A specific gravity of 2.0 is taken for soil for tonnage calculation. 12. Similar method has been used for calculating the ore resource of the upper part of limestone analyzing <34% CaO which is considered as overburden in the sections and taking the specific gravity as 2.5. The limestone resources in Madinapadu block have also been estimated by polygon method. In this method of ore reserve estimation, polygons are constructed on plan by drawing perpendicular bisectors connecting the sample points i.e. boreholes. Polygons are developed around each sampling point with half the distance between two boreholes, in an equidistant manner, thus forming an area of influence. The thickness of mineralisation is taken from the borehole data, to assess the volume for reserve estimation.

		Brief particulars and the aspects considered for ore resource calculation in Madinapadu Limestone Block by polygon method are given below: 1. The boreholes are falling in a regular grid pattern with an equal distance in between them. 2. The block boundary of Madinapadu Limestone Block intersects the dip section lines at various distances from the last drilled borehole. 3. As the block is in elongated rectangle shape, the polygon boundaries thus arrived does form as regular near square shape but for the block boundary abetting polygons. 4. The area of influence of grade of limestone thickness as encountered in borehole inside the polygon is considered for resource estimation. 5. The resource in the influence area from the borehole on either side is considered as Indicated resource. 6. The resource in the remaining area up to the block boundary is considered as Inferred resource. 7. The area of the polygons is deduced from AutoCAD drawing. 8. The gradewise limestone thickness is taken from the borehole in the centre of the polygon based on analysis to assess the volume for reserve estimation. 9. The limestone resource is estimated in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO by incorporating the grade zones from the borehole in the centre of the polygon. 10. Specific gravity of 2.5 is taken to compute the tonnage of various grades of limestone within the polygon. 11. A deduction of 10% from gross in-situ resource has been made to arrive at net in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc. Based on the chemical data obtained from NABL accredited laboratories of M/s. RCA laboratories, Kolkata, interpretation was carried out. There is no extrapolation of data as the area is limited to the boundaries given by MERIT.
	(vii)	<i>Description of how the geological interpretation was used to control the resource estimates.</i> Data generated based on topographic survey and detailed geological mapping on 1:1000 and 1:5000 scale with a contour interval of 2m; geological observations such as nature of occurrence, structure and petrographic characters of limestone; 2328m of core drilling in 36 boreholes at 400m x 400m interval; litho-logging; systematic collection of every 1m core samples and chemical analysis of 2129 samples produced adequate data base for estimation of resource.
	(viii)	<i>Discussion of basis for using or not using grade cutting or capping. If any computer software was used for estimation of resources then name of the software with the version and method chosen, description of programmes and parameters used.</i> Computer software like AutoCAD and Excell were used.
	(ix)	<i>Geostatistical methods are extremely varied and should be described in detail. The method chosen should be justified. The geostatistical parameters, including the variogram, and their compatibility with the geological interpretation should be discussed. Experience gained in applying geo-statistics to similar deposits should be taken into account.</i> Geostatistical methods were not adopted due to limited boreholes available.

	(x)	Data verification or validation procedures used, including peer review report. All the data was systematically verified and about 655 Ha. of limestone area was established. Borehole logging indicated subsurface information. The core was methodically sampled, analyzed for various chemical parameters and the data was critically examined. Chemical data was validated with about 10% check samples analysis.
20.		Reporting of resources Basis of reporting of resources into various classes. The criteria and methods used for the classification to be specified. The quantities with grades, for each class are to be specified. The average grade under each class is to be specified. Grade wise classification should also be reported under suitable cases. In case of metallic deposits such as gold, precious metals and base metals the metal content is to be specified and resources should be estimated at various cut off grades. Factor, if any, applied to take care of the confidence level from the actual estimates should also be specified. The inferred, indicated and measured resources should be highlighted in a table. Ore resource estimation by cross-sectional method A total net in-situ limestone resource of 810.08 Million Tonnes (MT) in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO has been estimated, by cross sectional method, in Madinapadu Limestone Block after deduction of 10% from gross in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc. This includes 677.23 MT as indicated resource and 132.85 MT as inferred resource (Table 5.1 and Table 5.2). The net in-situ indicated resource of 677.23 Million Tonnes (MT) includes 84.52 MT of >48% CaO, 183.32 MT of 45-48% CaO, 238.94 MT of 40-45% CaO and 170.45 MT of 34-40% CaO. The inferred resource of 132.85 MT comprises of 24.33 MT of >48% CaO, 28.76 MT of 45-48% CaO, 51.47 MT of 40-45% CaO and 28.29 MT of 34-40% CaO. Ore resource estimation by Polygon method A net in-situ limestone resource of 820.77 Million Tonnes (MT) has been estimated, in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO, by polygon method, in Madinapadu Limestone Block after deduction of 10% from gross in-situ resource for unforeseen geological factors like fracture zones, solution cavities etc. This includes 676.99 MT as indicated resource and 143.78 MT as inferred resource (Table 5.3). The net in-situ indicated resource of 676.99 MT of limestone consists of 80.77 MT of >48% CaO, 186.52 MT of 45-48% CaO, 240.32 MT of 40-45% CaO and 169.38 MT of 34-40% CaO. The net in-situ inferred resource of 143.78 MT comprises of 22.49 MT of >48% CaO, 34.61 MT of 45-48% CaO, 54.94 MT of 40-45% CaO and 31.74 MT of 34-40% CaO. Ore resource locked up under surface barriers A total of 87.30 Million Tonnes (MT) of net in-situ limestone resource is locked up under the identified barrier area of one canal, one road and one high tension power line including 72.34 MT in indicated category and 14.96 MT in the inferred category. The details of barrier-wise ore resource estimation are given in Table 5.4. A total of 810.08 MT net in-situ limestone resource has been estimated, by cross sectional method, in Madinapadu Block (Table 5.1 and Table 5.2). After excluding the resource locked up under the surface barriers of one canal, one road and one high tension power line, the total net

	in-situ limestone resource of Madinapadu Limestone Block is 722.78 MT. Estimation of soil and low grade limestone overburden A total of 100.29 million tonnes of surface soil overburden and low grade limestone and inter-bedded waste is calculated for the entire Madinapadu Limestone Block with 85.05 MT in the indicated resource area and 15.24 MT in the inferred resource area (Table 5.5). The calculated stripping ratio of limestone ore to overburden in Madinapadu Limestone Block is 1: 0.12 in the resource area. Summary of ore resources A total of 810.08 Million Tonnes (MT) net in-situ limestone resource has been estimated, by cross sectional method and a total of 820.77 MT is estimated by polygon method in Madinapadu Limestone Block. The difference of resources estimated in both the methods is 1.01% which is well within tolerance limit. The limestone of Madinapadu block is of stratiform and tabular type and hence the ore resources estimated by cross-sectional method are considered. A total of 810.08 Million Tonnes (MT) net in-situ limestone resource has been estimated, by cross sectional method, in Madinapadu Limestone Block with 677.23 MT as indicated resource and 132.85 MT as inferred resource in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO (Table 5.1 and Table 5.2). The net in-situ indicated resource of 677.23 MT consists of 84.52 MT of >48% CaO, 183.32 MT of 45-48% CaO, 238.94 MT of 40-45% CaO and 170.45 MT of 34-40% CaO. The inferred resource of 132.85 MT comprises of 24.33 MT of >48% CaO, 28.76 MT of 45-48% CaO, 51.47 MT of 40-45% CaO and 28.29 MT of 34-40% CaO. A total of 87.30 MT net in-situ limestone resource is estimated as locked up resource under surface barrier areas of one canal, one road and one high tension line in the Madinapadu ore block (Table 5.4). After excluding the resource locked up under the surface barriers of one canal, one road and one high tension line, the total limestone resource of Madinapadu Limestone Block is 722.78 MT (Table 5.6). The net in-situ limestone resource of 810.08 Million Tonnes (MT) estimated in Madinapadu Limestone Block consists of 108.85 MT of >48% CaO grade analysing 48.87% CaO and 9.68% SiO₂; 212.08 MT of 45 - 48% CaO grade analyzing 46.55% CaO and 14.33% SiO₂; 290.41 MT of 40 - 45% CaO grade analyzing 42.16% CaO and 22.29% SiO₂ and 198.74 MT of 34 - 40% CaO grade analyzing 37.53% CaO and 29.42% SiO₂ (Table 5.7). As per the latest IBM notification dated 25.4.2018, a threshold value of 34% CaO indicated for limestone. Considering the IBM's cut off of 34% CaO, a total net in-situ resource of 810.08 MT has been estimated in four grade wise categories which has analysed on an average 43.04% CaO, 0.37% MgO, 20.32% SiO₂, 1.05% Al₂O₃, 0.75% Fe₂O₃, 33.40% LOI, 0.04% SO₃ and 0.092% P₂O₅ (Table 5.7). By considering 40% CaO and above i.e. 40-45% CaO, 45-48% CaO and >48% CaO grade categories, the total resource estimated is 611.34 MT constituting 75.47% of the total resource estimated which has analysed on an average 44.88% CaO, 0.39% MgO, 17.28% SiO₂, 0.87% Al₂O₃, 0.62% Fe₂O₃, 34.94% LOI, 0.04% SO₃ and 0.089% P₂O₅ (Table 5.7) indicating that

		it is suitable for cement industry. The remaining 198.74 MT (24.53%) of the resource belongs to 34-40% CaO grade category which analysed on an average 37.53% CaO, 0.28% MgO, 29.42% SiO₂, 1.59% Al₂O₃, 1.15% Fe₂O₃, 28.79% LOI, 0.05% SO₃ and 0.101% P₂O₅ (Table 5.7). This type of ore requires blending/beneficiation during the mining stage. UNFC Classification As per UNFC classification, the exploration in the Madinapadu Limestone Block falls under category-I i.e. Stratiform, strata bound and tabular deposits of regular habit. The G2 or general exploration with core drilling at 400m x 400m grid interval, sampling of every 1m of core and chemical analysis has established the main geological features, size, shape and grade of the Madinapadu Limestone Block. As per the UNFC classification, out of the total net in-situ resource of 810.08 Million Tonnes (MT) of limestone estimated in Madinapadu Limestone Block, a resource of 677.23 MT can be categorized as Indicated Mineral Resource (332) and a resource of 132.85 MT can be categorized as Inferred Mineral Resource (333).
21.		Summary and recommendations
	(i)	<i>(a) A discussion on the outcome of the exploration work detailing the nature of the deposit, the dimension of the deposit, general structural trend, depth of occurrence and depth up to which exploration has been done, possibility of continuity of mineralisation beyond the depth of exploration and future exploration requirements, if any.</i> A total of 810.08 Million Tonnes (MT) net in-situ limestone resource has been estimated, by cross sectional method, in Madinapadu Limestone Block with 677.23 MT as indicated resource and 132.85 MT as inferred resource in four grade wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO (Table 5.1 and Table 5.2). The net in-situ indicated resource of 677.23 MT consists of 84.52 MT of >48% CaO, 183.32 MT of 45-48% CaO, 238.94 MT of 40-45% CaO and 170.45 MT of 34-40% CaO. The inferred resource of 132.85 MT comprises of 24.33 MT of >48% CaO, 28.76 MT of 45-48% CaO, 51.47 MT of 40-45% CaO and 28.29 MT of 34-40% CaO. <i>(b) The resources estimated under various classes with grade.</i> The net in-situ indicated resource of 677.23 MT consists of 84.52 MT of >48% CaO, 183.32 MT of 45-48% CaO, 238.94 MT of 40-45% CaO and 170.45 MT of 34-40% CaO. The inferred resource of 132.85 MT comprises of 24.33 MT of >48% CaO, 28.76 MT of 45-48% CaO, 51.47 MT of 40-45% CaO and 28.29 MT of 34-40% CaO. As per the latest IBM notification dated 25.4.2018, a threshold value of 34% CaO indicated for limestone. Considering the IBM's cut off of 34% CaO, a total net in-situ resource of 810.08 MT has been estimated in four grade wise categories which has analysed on an average 43.04% CaO, 0.37% MgO, 20.32% SiO₂, 1.05% Al₂O₃, 0.75% Fe₂O₃, 33.40% LOI, 0.04% SO₃ and 0.092% P₂O₅ (Table 5.7). By considering 40% CaO and above i.e. 40-45% CaO, 45-48% CaO and >48% CaO grade categories, the total resource estimated is 611.34 MT constituting 75.47% of the total resource estimated which has analysed on an average 44.88% CaO, 0.39% MgO, 17.28% SiO₂, 0.87% Al₂O₃, 0.62%

		Fe₂O₃, 34.94% LOI, 0.04% SO₃ and 0.089% P₂O₅ (Table 5.7) indicating that it is suitable for cement industry. The remaining 198.74 MT (24.53%) of the resource belongs to 34-40% CaO grade category which analysed on an average 37.53% CaO, 0.28% MgO, 29.42% SiO₂, 1.59% Al₂O₃, 1.15% Fe₂O₃, 28.79% LOI, 0.05% SO₃ and 0.101% P₂O₅ (Table 5.7). This type of ore requires blending/beneficiation during the mining stage. <i>(c) The possibility of economic extraction based on present technological, environmental, social and market conditions.</i> The resource estimated is sizeable and warrants taking up Prefeasibility Study and Detailed Exploration. <i>(d) Hindrances, if any, anticipated in the economic extraction of the deposit.</i> No hindrances are anticipated in the economic extraction of the deposit.
	(ii)	<i>Discussion on the suggested future plan or strategy for the deposit for further exploration and mining.</i> By considering 40% CaO and above i.e. 40-45% CaO, 45-48% CaO and >48% CaO grade categories, the total resource estimated is 611.34 MT constituting 75.47% of the total resource estimated which has analysed on an average 44.88% CaO, 0.39% MgO, 17.28% SiO₂, 0.87% Al₂O₃, 0.62% Fe₂O₃, 34.94% LOI, 0.04% SO₃ and 0.089% P₂O₅ (Table 5.7) indicating that it is suitable for cement industry. The remaining 198.74 MT (24.53%) of the resource belongs to 34-40% CaO grade category which analysed on an average 37.53% CaO, 0.28% MgO, 29.42% SiO₂, 1.59% Al₂O₃, 1.15% Fe₂O₃, 28.79% LOI, 0.05% SO₃ and 0.101% P₂O₅ (Table 5.7). This type of ore requires blending/beneficiation during the mining stage.
22.		Plates and maps
	(i)	<i>Location plan of the area on 1:50000 showing various topographic and physiographic features nearby the project site.</i> Location/Key plan of the area is given as PLATE No. I A Google location map of Madinapadu Limestone Block given as PLATE No. I B
	(ii)	<i>Topographic Map / Cadastral plan on 1:4000, if available.</i> Borehole location plan on cadastral map is given as PLATE No. II Borehole location plan on Topography is given as PLATE No. III
	(iii)	<i>A physiography or surface topography plan showing various topographical and physiographical features.</i> Surface topography contour map on 2m contour interval on 1:5000 scale is given as PLATE No. V.
	(iv)	<i>Surface geological plan on appropriate scale showing reliable geological map of appropriate scale with Differential Global Positioning System (DGPS) - global coordinates of the corner points showing major lithological units, structural and tectonic features; extent of surface mineralisation, structure, location of boreholes, pits, trenches, old workings, etc. If the area or part of it has been covered under exploration earlier then the same with the location details</i>

		<i>should be shown in a map in appropriate scale.</i>
		Geological map on 1:5000 scale is given as PLATE No. IV.
	(v)	<i>Cross sections at suitable intervals showing vertical projections of litho-units and mineralisation.</i> Geological cross sections along drilled boreholes is given as PLATE No. VI
	(vi)	<i>Level plan or slice plan at suitable intervals showing horizontal projections of mineralisation, if necessary.</i> These were not prepared as they were not required.
23.		Annexures or enclosures to the report
	(i)	<i>The report shall include all relevant data including maps, sections, logs, analysis reports, photographs, etc., in support of the estimates made.</i> ANNEXURES ANNEXURE - I Expertise and team of M/s Geosolutions ANNEXURE - II Cadastral data of Madinapadu limestone block ANNEXURE - III Photographs of drilled borehole pillars in Madinapadu limestone block ANNEXURE - IV Photographs of core boxes of drilled boreholes in Madinapadu limestone block ANNEXURE - V Detailed borehole litholog sheets with chemical analysis and grade classification ANNEXURE - VI Chemical analysis results of 2129 drill core samples and 228 check samples ANNEXURE - VII Chemical analysis reports of 2129 drill core samples and 228 check samples PLATES 1. PLATE No. I A Location/Key plan of the area 2. PLATE No. I B Google location map of Madinapadu Limestone Block 3. PLATE No. II Borehole location plan on cadastral map 4. PLATE No. III Borehole location plan on Topography 5. PLATE No. IV Geological map on 1:5000 scale 6. PLATE No. V Surface topography contour map on 2m contour interval on 1:5000 scale 7. PLATE No. VI Geological cross sections along drilled boreholes 8. PLATE No. VII A, VII B, VII C VII D, VII E and VII F Graphical lithologs of the drilled boreholes on 1:1000 scale 9. PLATE No. VIII A Ore Resource calculation map VIII B Dip sections for Ore Resource calculation
	(ii)	<i>In case of a Prospecting Licences or Reconnaissance Permit, all relevant orders of grant, execution of licence, permissions to carry out exploration from forest department, Letter of Intent, etc., shall also form part of the report.</i> NA
24.		Any other information
		<i>Any other information as may be available or required by any authority as prescribed.</i> NIL

25.	Certificate from the qualified person with name, date and signature. I, Dr.P.V.Ramesh Babu, do hereby certify that: 1. I am a Professional Geoscientist and former Additional Director, Atomic Minerals Directorate for Exploration and Research (AMD), Dept. of Atomic Energy (DAE), Hyderabad with 45 years of experience in mineral exploration and with the following academic qualifications: a. M.Sc. in Geology, Osmania University, Hyderabad (1974) b. Ph.D in Geology, Osmania University, Hyderabad (1991) 2. I am the Managing Partner of M/s Geosolutions, a Professional & Scientific Consultants for Mineral Exploration, Hyderabad since 2013. Several exploration projects on Beach sands, Lithium minerals, Iron ore, Barite, Mica, Limestone, Quartz, laterite etc. were completed for APMDC; DMG, AP; Intermin, Chennai and other private mine owners. 3. I am a Life Member of a. Geological Society of India. b. Indian Society of Applied Geochemistry. 4. I was also a member of National Working Group of International Geological Correlation Programme (IGCP) 510 on "A Type granite" (2006-2010) 5. I have Initiated research projects under Board of Research in Nuclear Sciences (BRNS) in AMD in the newly formed Theme Sub-Committee, TSC-5 for BRNS projects on 'Uranium Exploration and Mining' and 51 AMD-BRNS projects were formulated in 7 Regions of AMD spread all over India. 6. As member-secretary of the Theme Sub-Committee, TSC No.5, NRFCC for 'Uranium Exploration and Mining' regular monitoring of the progress of ongoing BRNS projects is ensured by arranging TPDMs. 7. I visited several Foreign Countries as briefed below: a. Visited Mongolia as part of a working group from DAE for discussion with Nuclear Energy Agency (NEA), Government of Mongolia, on various areas of co-operation in exploration for uranium, rare metals and rare earths. b. Visited South Africa as part of fact finding team to study the possibility of sourcing rare earth ore from M/s Frontier Rare Earths (FRE) limited, South Africa. c. As an expert visited African countries like Mali, Zimbabwe and Namibia for Exploration for Li, Nb and Ta in these countries. d. Visited Mauritania for evaluation of Fe-ore deposits. 8. Over 75 Scientific papers / presentations were given in National and International seminars/ symposia, key note addresses and Invited talks in Geological Society of India, Bangalore, Osmania University, Hyderabad, Kakatiya University, Warangal etc. The current Geological Report on the G-2 level exploration work in Madinapadu Limestone Block in Guntur District, A.P. is prepared by me as per the exploration (G2) activities of this report which followed the norms of Part

	II & Part III of the MEMC Rules 2021 and report preparation as per Part IV A & Part V to the best of my knowledge, information and belief in terms of Limestone Mineralisation and establishing mineral resources under the Indicated (332) and Inferred (333) categories. Signature Date: 25.10.2021 Dr.P.V.RAMESH BABU Managing Partner M/s Geosolutions Plot No. 36, Vimaladevi Nagar, Malkajgiri, Hyderabad-50004 Mobile: +91 9490419035 e-Mail: geosolutionsc@gmail.com

PART-V

MEMC RULES-2015 AND AMENDED MEMC RULES-2021

CONTENTS OF PRE-FEASIBILITY AND FEASIBILITY REPORT

Contents of a Prefeasibility or Feasibility Report for Estimation and Reporting of Mineral Reserves (the Criteria listed in the geological study report shall also constitute an integral part of this template).

1. Mineral Resource estimate for conversion to Mineral Reserve:

1.1 Description of Mineral Resource estimate used as a basis for the conversion to a Mineral reserve:

Only G2 stage mineral resources are estimated in Madinapadu Limestone Block in accordance with the MEMC Rules-2015 and Amended MEMC Rules-2021. Bore hole spacing was kept at 400m x 400m grid interval and sampling was done for every one meter in the mineralized zones of the block.

Ore resource estimation has been carried out in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO as per the latest Notification of IBM dated 25.4.2018, indicating a threshold value of 34% CaO for limestone.

1.2 Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Mineral Reserves:

The mineral resources reported are estimated in the present G2 stage mineral exploration carried out in Madinapadu Limestone Block

1.3 The type and level of study undertaken to enable Mineral Resources to be converted to Mineral Reserves i.e. Prefeasibility/Feasibility level.

The classification of the Mineral Resources is based on the G2 stage of investigations comprising data generated based on topographic survey and detailed geological mapping on 1:1000 and 1:5000 scale with a contour interval of 2m, core drilling at 400m x 400m grid interval. Core samples of every 1m interval were systematically taken and processed and 2357 samples (including check samples) analysed for different oxides and LOI. This wholesomely produced sufficient data base for estimation of limestone Madinapadu Block in accordance with the MEMC Rules-2015 and Amended MEMC Rules-2021.

2. Cut-off grade or quality parameters:

2.1 The basis of the adopted cut-off grade(s) or quality parameters applied, including the basis, if appropriate, of equivalent metal formulae & the threshold values prescribed.

Ore resource estimation has been carried out in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO as per the latest Notification of IBM dated 25.4.2018, indicating a threshold value of 34% CaO for limestone.

3. Mining factors or assumptions.

3.1 The method and assumptions used to convert the Mineral Resource to a Mineral Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design supported with Conceptual plan for mining).

Only G2 stage mineral resources are estimated in Madinapadu Limestone Block in accordance with the MEMC Rules-2015 and Amended MEMC Rules-2021.

3.2 Anticipated Ore to OB ratio, mine recoveries, dilutions etc. for both open cast and U/G workings.

These parameters may be estimated in the next stage exploration (G1) in the target areas.

3.3 The choice of, the nature and the appropriateness of the selected mining method(s), the size of the selected mining unit (length, width, height) and other mining parameters including associated design issues such as pre-strip, access, etc.

These parameters may be planned in the next stage exploration (G1) in the target areas.

3.4 The assumptions made regarding geotechnical parameters (eg. pit slopes, stope sizes, etc.), grade control and pre-production drilling.

These parameters may be estimated in the next stage exploration (G1) in the target areas.

3.5 The major assumptions made and Mineral Resource model used for pit optimisation (if appropriate).

Ore resource estimation has been carried out in four grade-wise categories of 34-40%, 40-45%, 45-48% and > 48% CaO as per the latest Notification of IBM dated 25.4.2018, indicating a threshold value of 34% CaO for limestone. Pit optimization studies require the next stage exploration (G1) in the target areas.

3.6 The mining dilution factors, mining recovery factors, and minimum mining widths used.

These parameters may be estimated in the next stage exploration (G1) in the target areas.

3.7 The infrastructure requirements of the selected mining methods. Where available, the historic reliability of the performance parameters.

These parameters may be planned in the next stage G1 exploration in the target areas.

4. Metallurgical factors or assumptions:

4.1 The metallurgical process proposed and the appropriateness of that process to the type of deposit.

The current G2 level mineral investigation has not covered these studies. Detailed studies needs to be taken up during focused G1 exploration studies.

4.2 The nature, amount and representativeness of metallurgical test work undertaken and the metallurgical recovery factors applied.

The current G2 level mineral investigation has not covered these studies. Detailed studies needs to be taken up during focused G1 exploration studies.

4.3 Any assumptions or allowances made for deleterious elements.

The current G2 level mineral investigation has not covered these studies. Detailed studies needs to be taken up during focused G1 exploration studies.

4.4 The existence of any bulk sample or pilot scale test work and the degree to which such samples are representative of the ore body as a whole.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

4.5 The tonnages and grades reported for Mineral Reserves should state clearly whether these are in respect of material to the plant or after recovery. Comment on existing plant and equipment, including an indication of replacement and salvage value.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

5. Cost and revenue factors

5.1 The derivation of, or assumptions made, regarding projected capital and operating costs.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

5.2 The assumptions made regarding revenue including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, etc.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

5.3 The allowances made for royalties payable, both Government and private. - Basic cash flow inputs for a stated period.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

5.4 Yearly planned production, Net Present Value (NPV) and Internal Rate of Return (IRR) of the deposit, intrinsic value of the deposit based on annual projected production.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

6. Market assessment :

6.1 The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

6.2 A customer and competitor analysis along with the identification of likely market windows for the product.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

6.3 Price and volume forecasts and the basis for these forecasts.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

6.4 For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

7. Other modifying factors :

7.1 The effect, if any, of natural risk, infrastructure, environmental, legal, marketing, social or governmental factors on the likely viability of a project and/or on the estimation and classification of the Mineral Reserves.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

7.2 The status of titles and approvals critical to the viability of the project, such as mining leases, discharge permits, government and statutory approvals.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

7.3 Environmental descriptions of anticipated liabilities. Location plans of mineral rights and titles.

The current G2 level mineral investigation has not covered these studies. Detailed studies need to be taken up during G1 exploration studies.

8. Classification:

8.1 The basis for the classification of the Mineral Reserves into varying confidence categories.

As per UNFC classification, the exploration in the Madinapadu Limestone Block falls under category-I i.e. Stratiform, strata bound and tabular deposits of regular habit. The G2 or general exploration with core drilling at 400m x 400m grid interval, sampling of every 1m of core and chemical analysis has established the main geological features, size, shape and grade of the Madinapadu Limestone Block. As per the UNFC classification, out of the total net in-situ resource of 810.08 Million Tonnes (MT) of limestone estimated in Madinapadu Limestone Block, a resource of 677.23 MT can be categorized as Indicated Mineral Resource (332) and a resource of 132.85 MT can be categorized as Inferred Mineral Resource (333).

8.2 Finalization of estimates of grade wise mineable quantities in contemplation with proposed preliminary mine design/conceptual plan subject to all necessary approvals/contracts have been confirmed or there are reasonable expectations that all such approvals/contracts will be obtained within a reasonable timeframe and with certification that that Economic viability is not affected by short-term adverse market conditions provided that longer-term forecasts remain positive.

The current G2 level mineral investigation has not covered mine design & economic aspects. Detailed studies need to be taken up during G1 exploration studies.

9. Certificate:

Certificate from the qualified person with name, date and signature

I, Dr.P.V.Ramesh Babu, do hereby certify that:

1. I am a Professional Geoscientist and former Additional Director, Atomic Minerals Directorate for Exploration and Research (AMD), Dept. of Atomic Energy (DAE), Hyderabad with 45 years of experience in mineral exploration and with the following academic qualifications:

- a. M.Sc. in Geology, Osmania University, Hyderabad (1974)
- b. Ph.D in Geology, Osmania University, Hyderabad (1991)

2. I am the Managing Partner of M/s Geosolutions, a Professional & Scientific Consultants for Mineral Exploration, Hyderabad since 2013. Several exploration projects on Beach sands, Lithium minerals, Iron ore, Barite, Mica, Limestone, Quartz, laterite etc. were completed for APMDC; DMG, AP; Intermin, Chennai and other private mine owners.

3 I am a Life Member of

- a. Geological Society of India.
- b. Indian Society of Applied Geochemistry.

4. I was also a member of National Working Group of International Geological Correlation Programme (IGCP) 510 on “A Type granite” (2006-2010)

5. Initiated research projects under Board of Research in Nuclear Sciences (BRNS) in AMD in the newly formed Theme Sub-Committee, TSC-5 for BRNS projects on ‘Uranium Exploration and Mining’ and 51 AMD-BRNS projects were formulated in 7 Regions of AMD spread all over India.

6. As member-secretary of the Theme Sub-Committee, TSC No.5, NRFCC for ‘Uranium Exploration and Mining’ regular monitoring of the progress of ongoing BRNS projects is ensured by arranging TPDMs.

7. I visited several Foreign Countries as briefed below:

- a. Visited Mongolia as part of a working group from DAE for discussion with Nuclear Energy Agency (NEA), Government of Mongolia, on various areas of co-operation in exploration for uranium, rare metals and rare earths.
- b. Visited South Africa as part of fact finding team to study the possibility of sourcing rare earth ore from M/s Frontier Rare Earths (FRE) limited, South Africa.
- c. As an expert visited African countries like Mali, Zimbabwe and Namibia for Exploration for Li, Nb and Ta in these countries.
- d. Visited Mauritania for evaluation of Fe-ore deposits.

8. Over 75 Scientific papers / presentations were given in National and International seminars/ symposia, key note addresses and Invited talks in Geological Society of India, Bangalore, Osmania University, Hyderabad, Kakatiya University, Warangal etc.

The current Geological Report on the G-2 level exploration work in Madinapadu Limestone Block in Guntur District, A.P. is prepared by me as per the exploration (G2) activities of this report which followed the norms of Part II & Part III of the MEMC Rules 2021 and report preparation as per Part IV A & Part V to the best of my knowledge, information and belief in terms of Limestone Mineralisation and establishing mineral resources under the Indicated **(332)** and Inferred **(333)** categories.

Signature

Date: 25.10.2021

Dr.P.V.RAMESH BABU
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Valid Until: 20/07/2021

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Signed for and on behalf of NABL



N. Venkateswaran
Chief Executive Officer

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REPORT ON G2 EXPLORATION OF MADINAPADU LIMESTONE BLOCK, GUNTUR DISTRICT, ANDHRA PRADESH

FOR
MINERAL EXPLORATION RESEARCH AND INNOVATION TRUST (MERIT),
DEPARTMENT OF MINES AND GEOLOGY
GOVT. OF ANDHRA PRADESH, IBRAHIMPATNAM, A.P.

ANNEXURES
ANNEXURE - I Expertise and team of M/s Geosolutions
ANNEXURE - II A Cadastral data Madinapadu limestone block
ANNEXURE - II B Cadastral data of Madinapadu limestone block
ANNEXURE - III Photographs of drilled borehole pillars in Madinapadu Limestone Block
ANNEXURE - IV Photographs of core boxes of drilled boreholes in Madinapadu Limestone Block
ANNEXURE – V Detailed borehole litholog sheets with chemical analysis and grade classification of Madinapadu limestone block
ANNEXURE - VI Chemical analysis results of 2129 core samples and 228 check samples and Na ₂ O, K ₂ O results of 208 samples
ANNEXURE - VII Chemical Analysis Reports

CONSORTIUM OF
JP KORDRILLING - LEAD MEMBER
GEO SOLUTIONS - MEMBER



REPORT PREPARED BY GEOSOLUTIONS
PROFESSIONAL AND SCIENTIFIC CONSULTANTS
PLOT NO.36, VIMALADEVI NAGAR, MALKAJGIRI,
HYDERABAD
October, 2021



GEOSOLUTIONS

Professional and Scientific Consultants for Mineral Exploration, Geotechnical, Remote sensing and GIS, Hydrogeological and other Geoscientific Projects
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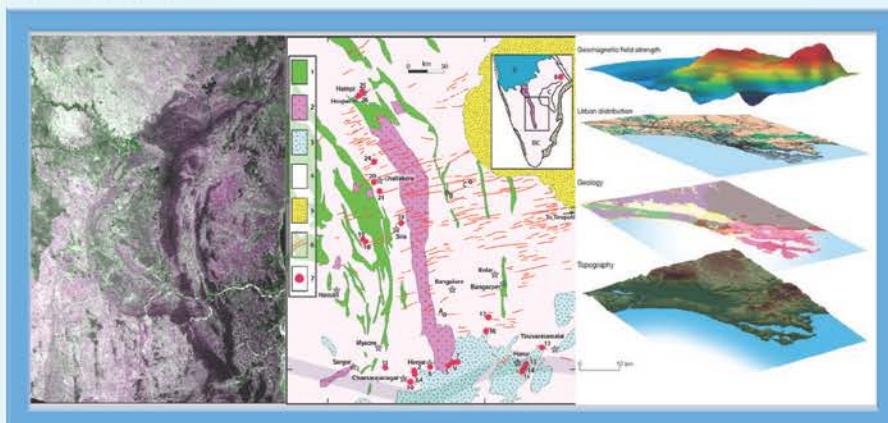
Aiming for new heights in exploration and evaluation of Mineral Deposits..

ABOUT US

"GEOSOLUTIONS" is a professional and scientific consultant agency established by a team of experienced professional and geoscientific personnel with an ambition to provide quality solutions in the field of Mineral Exploration and evaluation needs of the Mining industry and also in the field of Geotechnical, Remote Sensing & GIS, Hydro-geological and related fields.

Our team of multidisciplinary experts are experienced in Geological and Geophysical Exploration, Mining and Environmental issues and provides services to the best satisfaction of the utilitarian clients. The members of the team have worked for long years in Governmental organisations, Universities and Public Sector Companies in key positions like Directors, Professors, Chief Mining Geologists, General Managers etc. who have successfully executed various geological exploration, mining and environmental projects. State-of-the-art techniques and technology are practiced to ensure assured and exclusive outputs. They are specialized professionals with a blend of concept oriented academic acumen and technical excellence required to execute the work.

"GEOSOLUTIONS" is capable of providing services and real time solutions and aims at being a premier organisation for execution of projects in the field of geoscientific evaluation.



*"The wealth of the country is embedded in its Mineral resource and the mining industry;
The power of the State comes out of the Potential Mineral Resources"*

- Acharya Kautilya (Arthashastra)

CAPABILITY OF M/s. GEOSOLUTIONS

The broad spectrum of projects that are being taken up by M/s. Geosolutions include:

1. Geo-exploration, mineral assessment and Mine Plan formulation.
2. Core drilling, logging and preparation of geological sections.
3. Mineral resource evaluation and UNFC categorization of ore reserves.
4. Exploration and evaluation of beach sand heavy minerals.
5. Exploration for Rare Metals in pegmatites and other geological environments.
6. Techno-economic and feasibility studies for mineral industries.
7. Mineralogical, chemical and particulate characterization of ores and minerals.
8. Textural and quality assessment of black and coloured granite Dimension stones.
9. Remote Sensing (RS) and Geographic Information System (GIS) studies.
10. Environmental studies and preparation of EIA and EMP.
11. Hydrogeological investigations - Geological and Geophysical.
12. Geotechnical investigations related to engineering and irrigation projects.
13. Assessment of geological potentialities of different metalliferous, non-metalliferous and industrial mineral deposits.
14. Prioritizing and recommending the areas for detailed exploration and evaluation.



PROFESSIONAL AND SCIENTIFIC TEAM OF GEOSCIENTISTS

Managing Partners

1. Dr. R. Pavanaguru



Dr. R. Pavanaguru, Ph.D, is a former Emeritus Professor, Geology Dept. Osmania University with 35 years of experience in teaching and exploration of mineral deposits with specialisation in mining geology, ore genesis, environmental geology and mineral evaluation. He was associated with assessment of iron ores of North Goa sector, Bandalamottu Lead deposit, Agnigundala, AP., Bhima limestone and Godavari valley coal projects on environment and ecosystem and environmental degradation.

2. Dr. P. V. Ramesh Babu



Dr. P. V. Ramesh Babu, Ph.D, is a former Additional Director, Atomic Minerals Directorate for Exploration and Research (AMD), Dept. of Atomic Energy (DAE), Govt. of India. He has 38 years of experience in various capacities in planning and guiding Uranium, Rare Metal (Li, Be, Nb, Ta) and Rare Earth (Y, REE) mineral exploration in several geological domains in India. He has visited Mongolia and South Africa as part of DAE delegations. He initiated and monitored 45 R & D projects, spread all over India, under Board of Research in Nuclear Sciences (BRNS) in AMD. He has also visited Zimbabwe, Namibia and Mali for Exploring the Rare Metal Pegmatites in these countries.

Consultant Geoscientists

3. M. S. Murthy

M.S. Murthy is a former Chief Mining Geologist, Indian Bureau of Mines (IBM), Ministry of steel and Mines, Govt. of India. He has vast experience in planning for coal mining, metal mining and industrial minerals. He is an expert for analysing reconnaissance permits and large area prospecting licenses, processes and operation of mining units.

4. G. S. Ravi

G.S. Ravi is a former Associate Director, BARC and Ex. Incharge, Beach Sand Investigations A.P. and Orissa, AMD, with 20 years experience in exploration, drilling, sampling, analysis and evaluation of Beach Sands and related environmental studies.

5. Dr. D. Roop Kumar

Dr. D. Roop Kumar, M.Sc, Ph.D from Osmania University is a former Superintending Geologist, Geological Survey of India. He has 33 years of experience in geological mapping, Petrology, mineral exploration mainly for gold and coal. He has been conferred with 'National Mineral Award' in the year 2000 for discovery of gold deposit in Jonnagiri area, Kurnool district, AP. He was also the guest faculty for GSI Training Institute.

6. L. Premchander

L. Premchander is former Addl. General Manager (Geology) in Singareni Collieries Co. Ltd. He has 35 years of experience in Coal exploration works in Godavari Valley Coalfield. He is Well Conversant with Resource Estimation procedures and preparing relevant plans with AutoCAD and Surfer

7. Dr. D. Vidyasagarachary

Dr. D. Vidyasagarachary is an RQP involved in mineral exploration, ground water investigations, geophysical investigations with knowledge of remote sensing and GIS. He has vast experience in preparation of mining plans, Environmental Impact Assessment (EIA) studies and Environmental Management Planning (EMP) for mining and industry.

8. Y. S. B. Rao

Y.S.B. Rao is a former General Manager (Exploration), SCCL, with 35 yrs experience in coal exploration and presently is a consultant in coal exploration. He was associated with Commonwealth Scientific

Industrial & Research Organisation (CSIRO), Brisbane, in adopting advanced coal exploration techniques. He was involved in evaluation of coal concession blocks in East Kalimantan, Indonesia.

Chief Geologist

9. Dr. G. Nagendra Babu

Dr. G. Nagendra Babu is the Chief Geologist who was formerly with Geological Survey of India (GSI) and Atomic Minerals Directorate for Exploration and Research (AMD), Dept. of Atomic Energy (DAE), Govt. of India. He has 26 years of experience in exploration for Uranium, Rare Metal and Rare Earth minerals in India. He has experience in mineral beneficiation techniques and also recovery of rare metal and rare earth minerals on pilot scale.

Dedicated Geologists

10. Dr. Ch. Ravi

Dr. Ch. Ravi, Ph.D, is a young Geologist with skills for development of petrochemical models and use of Auto Cad and GIS. He worked on Limestone deposits in Bhima basin. He was involved in mapping of Pegmatites in Karnataka State, Laterite of Vikarabad and Quartz deposits of Prakasham, Kurnool and Nizamabad districts.

11. Dr. T. Brahmaiah

Dr. T. Brahmaiah, Ph.D, is a RQP from Department of Mines and Geology, Govt. of Andhra Pradesh. He is involved in various projects of mineral exploration, Geological mapping, Remote sensing and GIS, application of Auto Cad in preparation of detailed geological maps, and development of geological cross sections for the estimation of reserves.

12. V. Suresh

V. Suresh is a Post Graduate in Geology. He is a young and energetic Geologist with skills of Auto Cad and GIS. He has also experience in Hydrogeological Investigations.

Hydrogeologists

13. Krishna Rao

Krishna Rao is former Deputy Director, State Ground Water Department of Andhra Pradesh. He has vast experience in Exploration and Exploitation of Ground water resources in various geological formations. He has also worked as a Consultant Hydrogeologist in Ministry of Hydraulics, Govt. of Algeria for four years under Indo-Algeria Protocol.

14. Dr. K. Venugopal Reddy

Dr. K. Venugopal Reddy is former Professor, Osmania University and professional hydro-geologist with 35 yrs of experience in ground water geophysics particularly on open wells and tube wells. He has guided number of projects of electrical resistivity studies for groundwater exploration and water shed management in hard rock terrain and watershed development in hard rocks in different river water sub-basins.

Remote Sensing and GIS

15. Dr. N. Srinivasa Rao

Dr. N. Srinivasa Rao, Ph.D (Satellite Remote Sensing) from Institute of Science and Technology, JNTU, Hyderabad is specialised in spatial technology in geoinformatics and allied fields with 12 years experience in Geospatial applications.

16. Dr. D. Kaval Kumar

Dr. D. Kaval Kumar is experienced in remote sensing, land use and land cover planning, urban GIS applications, environmental, geological, geophysical, natural disasters and hydrogeological studies. He is well versed with web based GIS projects with a focus on multi-task operations.



Exploration Geophysics

17. R.L.Narasimha Rao

R.L.Narasimha Rao is formerly, Incharge of the Exploration Geophysics Group in AMD with 34 years experience in different aspects of geophysical investigations comprising magnetic, gravity, electrical resistivity, induced polarization (I.P.) and electromagnetic techniques throughout India.

18. M. C. Prasada Rayudu

M.C.Prasada Rayudu has 30 years of professional experience in geophysical, geotechnical and groundwater exploration in India (GSI), Botswana, Zambia and Vietnam. He participated in 51 geophysical investigations for gold, ruby, diamonds, base metals, granite, black galaxy, chromite, PGE and ground water. He has experience in interpretation of regional gravity and airborne magnetic and radiometric maps.

Geotechnical

19. M. Sambasiva Rao

M. Sambasiva Rao is M.Tech (Geo.Tech.Engg.), JNTU, Hyderabad Specialized in Design of Earth and Rockfill Dams, Canal structures and monitoring the Geo-Technical aspects of dams and Q.C. He has vast experience as Geotechnical expert and served as Dy. Executive Engineer and Dy. GM (Designs) in SEW.

Mining Engineer

20. Lolla Sudhakar

Lolla Sudhakar is an RQP, M.Tech (Longwall mining) and Gold medalist (Mining) and holder of first class mine manager's certificate of competency. He has 21 yrs experience in mining projects planning, evaluation, implementation, monitoring etc. He has also vast experience in preparation of FRs, Mine plans, DPRs, EMPs for projects in SCCL and various private mines.

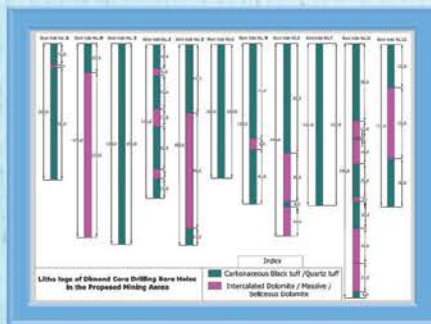
SOME OF THE GEOSCIENTIFIC PROJECTS COMPLETED

- ❑ Exploration and Evaluation of Heavy Mineral Beach Sand deposits of APMDC in Srikakulam district, AP.
- ❑ Exploration by Diamond Core Drilling and logging of boreholes APMDC in Mangampeta, Kadapa district, AP.
- ❑ Core sampling and major oxide analysis in Mangampeta, Kadapa district, AP, for APMDC.
- ❑ Core Drilling for Iron ore in Kurnool district, AP.
- ❑ Geological exploration and non-core drilling for Barite in Cuddapah district, AP.
- ❑ Exploration, detailed mapping and sampling for Rare Metal mineralization in pegmatites of Karnataka.
- ❑ Geological Assessment of quartz deposits in Prakasam district, AP.
- ❑ Exploration of Quartz deposits in Nizamabad district, Telangana.
- ❑ Geological appraisal of Quartzite mining lease areas in Kurnool district, AP.
- ❑ Geological study of Laterite in Vikarabad district, Telangana.
- ❑ Evaluation of Galaxy granites of Chimakurty area, Prakasam district, AP.
- ❑ Exploration for Quartz in Medak district, Telangana.
- ❑ Hydrogeological studies in parts of Hyderabad.
- ❑ Assessment of environment in Industrial area in Medak district, Telangana.
- ❑ Studies on low grade iron ore and ferruginous laterite.
- ❑ Image Processing and satellite imagery Studies on Robo Sand in Ranga Reddy district, Telangana.

FIELD INVESTIGATIONS



Core drilling in Mangampeta



Litho logs of Boreholes in Mangampeta



Non-core drilling in Kadapa district



DGPS Survey in Beach Sands of Srikakulam coast



Auger Drilling



Dormer Drilling



Quartz deposit in Prakasam District



Laterite deposit in Vikarabad District



Quartzite deposit in Kurnool District



Geological Mapping by Total Station



Pegmatites of Karnataka



Quartz deposit in Nizamabad District

LABORATORY STUDIES



Bromoform separation of Heavy minerals



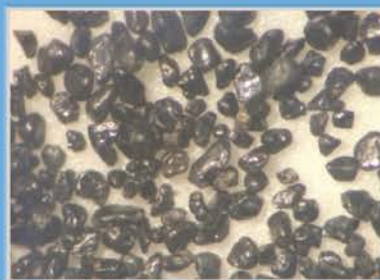
Drying of samples using IR lamps



Electro-Magnetic Separation of Minerals



Grain counting under microscope



Ilmenite separated from beach sand



Garnet separated from beach sand



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Cadastral data of Madinapadu Limestone Block

Name of Village	Area in Acres			Area in Hectares			Total %		
	Private	Govt.	Total	Private	Govt.	Total	Private %	Govt. %	Total %
Madinapadu	1489.08	12.78	1501.86	602.61	5.17	607.78	91.30	0.78	92.09
Tangeda	66.72	2.18	68.9	27.00	0.88	27.88	4.09	0.13	4.22
Dachepalli	23.17	-	23.17	9.38	-	9.38	1.42	-	1.42
Gamalapadu	36.96	-	36.96	14.96	-	14.96	2.27	-	2.27
Total	1615.93	14.96	1630.89	653.95	6.05	660.00	99.08	0.92	100.00

Status of Land use in Madinapadu Limestone Block

S.No	Sy No.	Area	Farmer name	Status
Madinapadu				
1	10	7.22	Pagidipally Ramakoteswara Rao	Private
2	13-1A	0.2	Sheikh Chinjanugrandi	Private
3	13-A3A	0.53	Government land	Government land
4	13-A3B	1.49	Venkateswara Reddy of Kasara	Private
5	13-B2B	1.64	Venkateswara Reddy of Kasara	Private
6	13-C2	4.14	Kacharla Chandra Reddy	Private
7	14-2A	0.04	PWD Calva	Government land
8	14-2B1	8.56	Tummalapalli poor Venkateshwar	Private
9	14-2B1A	1.24	Burri Saidamma	Private
10	14-2B2	0.13	Government land	Government land
11	14-2B3	0.12	Sheikh Nazimun	Private
12	15-1A	0.48	Sheikh Saida	Private
13	15-1A1	0.24	Palvai Vishnu Kumar Reddy	Private
14	15-1C	0.12	Government land	Government land
15	15-2A	0.62	Dairy Janikiramayya	Private
16	15-2B	0.6	Government land	Government land
17	15-2C2	0.57	Tummalapalli poor Venkateshwar	Private
18	16-A1	2.7	Kandula Peramma	Private
19	16-A1A	0.15	Sampathi Venkateshwarlu	Private
20	16-A2	0.34	Government land	Government land
21	16-A3	0.59	Sampathi Venkateshwarlu	Private
22	16-B2	2.43	Syanampudi Subbareddy	Private
23	16-B2A	0.92	Shanampudi Narasimhareddy	Private
24	17-2A	1	Allu Venkata Aruna	Private
25	17-2B	1	Sheikh Saida	Private
26	17-2C	0.02	Shanampudi Narasimhareddy	Private
27	173	3.15	Kotra Janues	Private
28	18-A1	0.13	Government land	Government land
29	18-A2	2.94	Pagidipally Ramakoteswara Rao	Private
30	18-B1	2.6	Pulipati Venkatereddy	Private
31	19	1.47	Government land	Government land
32	1-A	3	Sheikh Alli Saheb	Private
33	1-B	3.27	Anumula Venkatereddy	Private
34	2	4.72	Sheikh John Mia	Private
35	20	3.67	Mukkarala Lakshmi	Private
36	21-A1	0.17	Government land	Government land
37	21-A2	5.35	Sankuratri Kittayya	Private

38	21-B1	3.91	Makkena Babu Rao	Private
39	21-B2	5.14	Yadlapally Krishnamurthy	Private
40	22-1A	0.24	Lame	Lame
41	22-1B	0.29	Others	Private
42	22-1C	0.29	Shika Venkayya	Private
43	22-1D	0.64	Macherla Mariamma	Private
44	22-1E	0.71	Macherla Marthamma	Private
45	22-1F	0.06	Kotra Kotayya	Private
46	22-1F1	0.84	Kandula Janesh	Private
47	22-1G	0.33	Kotra Annamma	Private
48	22-1H	0.41	Kotra Jacob	Private
49	22-1I	0.13	Others	Private
50	22-2A	0.62	Lame	Lame
51	22-2B	0.42	Kandula Danamma	Private
52	22-2D	0.3	So Venkateshwar	Private
53	22-2E	0.69	Macherla Mariamma	Private
54	22-2F	0.37	Macherla Marthamma	Private
55	22-2G	0.06	Kotra Kotayya	Private
56	22-2G1	0.65	Kandula Janesh	Private
57	22-2H	0.2	Kotra Annamma	Private
58	22-2I	0.12	Kotra Jacob	Private
59	22-2J	0.22	Yadlapally Mangayya	Private
60	22-2K	1.74	Kotra Jacob	Private
61	22-2L	1.76	Kotra poor Asayya	Private
62	22-2N	0.42	Lame	Lame
63	23	1.72	Yadlapally Mangayya	Private
64	24-1A	0.03	Government land	Government land
65	24-1B	2.36	Yadlapally Srinivasa Rao	Private
66	24-1B1	0.35	Yadlapally Srinivasa Rao	Private
67	25-2A	1.38	Burri Nageswararao	Private
68	26-1A	0.4	Badugula Lakshamma	Private
69	26-1B	0.23	Government land	Government land
70	26-1C	1.44	Battula Narayana Reddy	Private
71	26-1C1	0.12	Burri Nageswararao	Private
72	26-1C2	0.5	Badugula Saidus	Private
73	26-2A	0.19	Badugula Lakshamma	Private
74	26-2C	0.14	Shanampudi Ankki Reddy	Private
75	271/1	0.89	Others	Private
76	271/2	1.97	Sadineni Rama Rao	Private
77	28	0.95	Bandidari	Government land
78	283-A1	0.28	Government land	Government land
79	283-A2	1.76	Battula Chandrareddy	Private
80	283-A2A	1.78	Yaddanapudi Sambayya	Private
81	283-B2	2.3	Yadlapalli Apparavu	Private
82	283-B2A	0.98	Rallabandi Seethalakshmi	Private
83	284-A	1.23	Cat Lingamma	Private
84	284-A1	1.01	Yaddanapudi Sambayya	Private
85	284-A2	0.46	Irla Koteswara Rao	Private
86	284-A3	0.33	Bolla Pramila	Private
87	284-B	0.34	Poluri Apparao	Private
88	284-B1	0.6	Yaddanapudi Sambayya	Private
89	284-B2	0.87	Irla Koteswara Rao	Private
90	284-B3	0.96	Bolla Pramila	Private
91	285	1.64	Vadlamudi Pichayya	Private
92	286-1	3.96	Patakamuri Venkatravamma	Private
93	286-1A	1.02	Sadhineni Naga Sandeep	Private
94	286-1B	1.56	Battula Narasimha Rao	Private

95	286-2	0.18	Government land	Government land
96	287-1a	0.71	Tatiparthi Chinna Venkatereddy	Private
97	287-1a1	1.45	Dondeti Venkataramireddy	Private
98	287-1a2	0.75	Potakamuri Mangayya	Private
99	287-2	0.16	Government land	Government land
100	288-1A	0.05	Potakamuri Mangayya	Private
101	288-1A1	0.06	Dondeti Venkataramireddy	Private
102	288-1B	0.01	Government land	Government land
103	289-1	2.54	Dondeti Ishwara Reddy	Private
104	289-1A	1.27	Dondeti Virareddy	Private
105	289-1B	1.28	Dondeti Roshireddy	Private
106	290-1A1	0.39	Government land	Government land
107	290-1-A-2	6.57	Dondeti Sarojini	Private
108	290-1-A-2A	0.3	Dondeti Krishnareddy	Private
109	290-1B	0.15	Government land	Government land
110	290-2A	0.74	Dondeti Sarojini	Private
111	290-2A1	0.75	Dondeti Krishnareddy	Private
112	291-1A1	3.03	Butter Govinda Reddy	Private
113	291-1B	0.21	Government land	Government land
114	291-2A	2.75	Irla Narasimha Rao	Private
115	291-3A	0.72	Pasham is a small Sambhasivarao	Private
116	292-1	0.06	Government land	Government land
117	292-2	0.74	Irla Guravaya	Private
118	293-1	0.05	Government land	Government land
119	293-2	0.82	Irla Guravaya	Private
120	294	1.02	Bandidari	Government land
121	295-1-A	1.32	Privacy of Jammigumpu	Private
122	295-1-A1	0.8	Ardhala Venkateshwar	Private
123	295-2	0.06	Government land	Government land
124	296-1a	3.25	Dondeti Papi Reddy	Private
125	296-1B	0.14	Government land	Government land
126	296-1C	0.17	Dondeti Papi Reddy	Private
127	296-2A	1.08	Privacy of Jammigumpu	Private
128	297	2.39	Government land	Government land
129	29-A1	0.44	Fort Venkamma	Private
130	29-A2	0.46	Government land	Government land
131	29-A3	0.41	Sampathi Kotayya	Private
132	29-B1	0.37	Yadlapally Srinuvasa Rao	Private
133	29-B2	0.47	Government land	Government land
134	29-B3	0.69	Sampathi Venkateshwarlu	Private
135	301/1	1.47	Eggplant Venkata Ramanayya	Private
136	301 / 2-1	10.1	Jammigumpula Srinivasa Rao	Private
137	301 / 2-1A	0.3	Lakshmi of Jammigumpula	Private
138	301 / 2-2A	6.01	Anumula Venkayamma	Private
139	301 / 2-2B	0.2	Government land	Government land
140	301/2-C	0.49	Anumula Venkayamma	Private
141	302/1-1	0.64	Tumati Kotaiah	Private
142	302/1-2	0.06	Government land	Government land
143	302/2	0.52	Tumati Kotaiah	Private
144	303-1	0.47	Bathula MangiReddy	Private
145	303-2	0.93	Sadineni Venkateshwarlu	Private
146	303-2A	0.92	Mulagondla Lakshmi	private
147	30-3A	3.07	Shanapudi Aademma	Private
148	30-3A	3.07	Bachelor	Private
149	30-3B	0.03	Government land	Government land
150	313/2	1.22	Others	Private

151	318-1	1.41	Venna Ramireddy	Private
152	318-2	0.01	Government land	Government land
153	319-1	3.035	Kaniboddula Pereddy	Private
154	319-1A	1.035	Eyebrows Srinivasa Reddy	Private
155	319-2	0.16	Government land	Government land
156	319-3	0.25	Kaniboddula Pereddy	Private
157	3-1A	0.89	Chimata Chin Saidus	Private
158	32-2	7.42	Arikatla Venkateswara Reddy	Private
159	322-1	0.09	Others	Private
160	322-2	0.1	Government land	Government land
161	322-3	4.57	Kota Kamalamma	Private
162	32-2A	1.67	Sadineni Ashok	Private
163	323	0.15	Canal	Canal
164	324-2	1.12	Butter Erakalareddy	Private
165	325-1A	0.98	Nigidonda Subbayya	Private
166	325-1B	0.86	I Lapuram Venkata Narasimha Rao	Private
167	325-2A	0.02	Tummalapalli Ramarao	Private
168	326 / 1-2	2.79	Nigidonda Subbayya	Private
169	326 / 2-1	0.19	Vennavenkatareddi	Private
170	326 / 2-2	0.22	Pasham Muthialamma	Private
171	326 / 2-3	2.33	Vennavenkatareddi	Private
172	327-1C	1.3	Butter Nagendram	Private
173	327-2	1.11	Butter Nagendram	Private
174	328	0.9	Batula Mastanamma	Private
175	329	7.36	Lakshamma of Kasara	Private
176	33	1.08	Sheikh Saida Wali	Private
177	330	6.25	Palavai Srinivasa Reddy	Private
178	331	2.76	Jammigumpula Krishnavenamma	Private
179	331-1A	1.38	Sayyid of the Jammu and Kashmir	Private
180	331-1B	1.6	Pammi Shourie Reddy	Private
181	331-2	0.01	Tummalapalli poor Venkateshwar	Private
182	331-2A	1.39	Tummalapalli Jaggaravu	Private
183	331-2B	2.19	Tummalapalli Ramarao	Private
184	332	3.59	Butter Erakalareddy	Private
186	332-2	3.48	Dachepalli Ramakotamma	Private
187	332-2-2	0.03	Pulses are happy	Private
188	332-2-3	0.02	Tummalapalli Jaggaravu	Private
189	332-2A	0.82	Chalamakuru Rajeshwari	Private
190	333	2.4	Dachepalli Ramakotamma	Private
191	334	1.4	Bandidari	Government land
192	335	4.48	Patakamuri Saidayya	Private
193	336-1	2.94	Yadlapally Venkata Narsamma	Private
194	336-1A	0.76	Yadlapally Saidamma	Private
195	336-2	0.5	Tomati Venkateshwarlu	Private
196	337-A	1.08	Venna Perireddy	Private
197	337-B	1.03	Battula Adinarayana Reddy	Private
198	338	1.56	Chandavarapu Devabhishekam	Private
199	339-2	4.97	Butter Pereddy	Private
200	340-1	2.4	Battula Venugopal Reddy	Private
201	340-1A	1.2	Battula Narendra Reddy	Private
202	340-2A	1.05	Eelaprolu Venkateswara Rao	Private
203	340-2A1B	0.19	Palwai Rajasekhara Reddy	Private
204	340-2B	0.9	Eelaprolu Venkateswara Rao	Private
205	340-2B1	1.01	Palwai Rajasekhara Reddy	Private
206	340-3	1.82	Eelaprolu Venkateswara Rao	Private
207	340-3A	2.02	Palwai Rajasekhara Reddy	Private
208	341-A	3.29	Kurapati Thulishamma	Private

209	341-B	2.01	Kurapati Maruti	Private
210	343-A	4.24	Kurapati Maruti	Private
211	343-B	2.47	Srinivasa Rao	Private
212	343-B1	2.47	Horned Venkateshwar	Private
213	344-A	1.26	Batula Padma	Private
214	344-A1A	2	Battula Mahesh Reddy and Keshavareddy	Private
215	344-A1B	1	Bundala Lingabhaskara Rao	Private
216	344-B	0.94	Battula Narayana Reddy	Private
217	345	4.74	Kaniboddula Pereddy	Private
218	346	2.97	Tomati Venkateshwarlu	Private
219	347 / B	4.88	Batula Mastanamma	Private
220	347-A	0.97	Batula Mastanamma	Private
221	348	2.18	Batula Padma	Private
222	349-A	0.79	Kommineni Venkatanarasamma	Private
223	349-A1	3	Kurapati Sivanandareddy	Private
224	349-B	1.78	Battula Venkata Ramana Reddy	Private
225	349-c	1.27	Stomach Anjaneyas	Private
226	34-A	2.84	Yadlapalli Apparavu	Private
227	34-B	0.42	Fort Venkamma	Private
228	34-C	0.23	Yadlapally Srinuvasa Rao	Private
229	350	2.71	Chalagundla Rama Rao	Private
230	351	6.375	Chalagundla Rama Rao	Private
231	35-1	0.06	Government land	Government land
232	35-2	2.79	Yadlapally Venkateshwarlu	Private
233	352-1	1.67	Patakamuri Sambayya	Private
234	352-2	1.1	Pothakamuri Srinivasa Rao	Private
235	353	0.78	Kommineni Saidamma	Private
236	353-1	0.77	Nadendla Janardhana Rao	Private
237	354	3.86	Potla Srinivasa Rao	Private
238	355	6.6	Patakamuri Hanumayya	Private
239	356-A	3.31	Palvai Ananthalakshmi	Private
240	356-B	1.19	Palvai Narasimhareddy	Private
241	357-A	1	Tummalapalli Hanumantrao	Private
242	357-A1	2.17	Tummalapalli Jaggaravu	Private
243	357-B	3.05	Potla Srinivasa Rao	Private
244	357-C	3.06	Narendra of Jammu and Kashmir	Private
245	358	4.28	Tummalapalli Hanumantrao	Private
246	359	4.18	Tummalapalli Chinna Venkateshwarlu	Private
247	36	7.37	Kota Janu	Private
248	360-A	3.92	Butter Srinivasareddy	Private
249	360-A	3.92	Butter Ramireddy	Private
250	360-B	1.14	Battula Ramakrishnareddy	Private
251	360-B1	1.18	Battula Parvathamma	Private
252	361	2.6	Eggplant Balakrishna	Private
253	362	4.28	Chalagundla Govindamma	Private
254	363-1	5.26	Chalagundla Govindamma	Private
255	363-2	1.83	Amara Sitaramamma	Private
256	363-3	1.83	Anumula Venkayamma	Private
257	364	3.9	Mogili Alivelamma	Private
258	365	3	Butter Govinda Reddy	Private
259	366	2.9	Butter Govinda Reddy	Private
260	367-2	1.83	Battula Venkata Reddy	Private
261	368	5.86	Dondeti Venkatereddy	Private
262	369	1.36	Chirimamilla Pramila	Private
263	370	3.075	Potla Venkateshwar	Private
264	371	4.52	Kommineni Saidamma	Private
265	371-1	1.06	Potakamuri Vimala	Private

266	372-1	0.95	Patakamuri Sambayya	Private
267	372-2	1.07	Sadineni Venkateshwarlu	Private
268	372-2A	1.08	Mulagondla Lakshmi	Private
269	372-3	4.55	Pothakamuri Srinivasa Rao	Private
270	373-1	1.48	Battula Punnareddy	Private
271	373-2A	7.38	Tumati Kotayya	Private
272	374-1	1.01	Others	Private
273	374-A	2.53	Yadlapally Krishnamurthy	Private
274	374-B	3.14	Vadlamudi Kashayya	Private
275	375-2	1.34	Dondeti Venkatereddy	Private
276	376-1	1.89	Narasimha Rao of Jammu and Kashmir	Private
277	376-1A	0.92	Privacy of Jammigumpu	Private
278	376-1B	0.37	Vijaya Bhaskar of Jammu and Kashmir	Private
279	376-2	1.24	Privacy of Jammigumpu	Private
280	376-2A	0.1	Vijaya Bhaskar of Jammu and Kashmir	Private
281	377-1A	0.76	Narasimha Rao of Jammu and Kashmir	Private
282	377-1A1	0.15	Vijaya Bhaskar of Jammu and Kashmir	Private
283	377-2A	2.37	Narasimha Rao of Jammu and Kashmir	Private
284	377-2A1	0.37	Vijaya Bhaskar of Jammu and Kashmir	Private
285	377-A	0.92	Venkateshwar of Jimmy groups	Private
286	378	1.43	Bandidari	Government land
287	379-2	4.06	Battula Nagireddy	Private
288	379-2A	1.61	Kasarala Sharada	Private
289	380-1	3.84	Shanampudi Subbareddy	Private
290	380-1A	2.02	Pasham is a small Sambhasivarao	Private
291	381-1A	2.33	Dondeti Sarojini	Private
292	381-1A1	2.39	Dondeti Krishnareddy	Private
293	382-B1	1	Kata Lakshmi	Private
294	382-B2	1.4	Others	Private
295	382-c	1.14	Bairu Chandraya	Private
296	382-c1	0.38	Bair Kashamma	Private
297	383-1-2	3.1	Amara Lakshmi Narayana	Private
298	383-2	2.95	Amara Lakshmi Narayana	Private
299	384-1	1.04	Kurapati Roshamma	Private
300	384-3	3.77	Kurapati Roshamma	Private
301	385-1	0.97	Kurapati Roshamma	Private
302	385-3	3.96	Lingireddy Venkatereddy	Private
303	386	1.13	Bandidari	Government land
304	387	5.98	Amara Ramalingeswara Rao	Private
305	388	0.31	Dondeti Varalakshmi	Private
306	389	7.4	Golla Lakshamma	Private
307	390	2.01	Sadineni Nageswara Rao	Private
308	391	3.97	Sadineni Hanumantrao	Private
309	392-1	5	Others	Private
310	392-1A	2.68	Sadineni Ramakotayya	Private
311	392-2	5.12	Tumati Kotayya	Private
312	393	3.54	Tumati Kotayya	Private
313	394	3.18	Vadlamudi Pichayya	Private
314	395-A	2.12	Vadlamudi Srinuvasuravu	Private
315	395-B	5.11	Kommineni Subbarao	Private
316	396	4.11	Sadineni Mallya	Private
317	397	5.08	Nara Ravamma	Private
318	398-A	3.7	Nallabirudu Nageswararao	Private
319	398-B	3.48	Black title Venkateshwar	Private
320	399-1	0.23	Government land	Government land
321	399-2	1.07	Kurapati Sivanandareddy	Private
322	400-1	0.23	Government land	Government land

323	400-2	4.67	Kurapati Sivanandareddy	Private
324	401	2.15	The ducks are silent	Private
325	402-1	4.7	Butter Appireddy	Private
326	402-1A	1.31	Battula Parvathamma	Private
327	403-1	0.23	Government land	Government land
328	403-2	0.72	Battula Ramakrishnareddy	Private
329	403-2A	0.73	Battula Parvathamma	Private
330	404	2	Battula Guravamma	Private
331	405	4.4	Patakamuri Srinivasa Rao	Private
332	406	0.42	Yadlapally Govindaya	Private
333	407-2	2.33	Bachelor	Private
334	407-A	2.33	Patakamuri Hanumayya	Private
335	407-B	2.15	Byru Chinna Narayana	Private
336	407-B1	1.07	Sheikh Dudekula Fatimabi	Private
337	408	6.92	Sadineni Govindayya	Private
338	409	2.16	Others	Private
339	410	3.63	Potakamuri Srinuvasuravu	Private
340	411	3.5	Sadineni Nageswara Rao	Private
341	412	3	Bolla Pramila	Private
342	413	3.24	Patakamuri Pitcheshwara Rao	Private
343	414	7.45	Yadlapally Ramakotayya	Private
344	415	5.93	Padma of Jammu and Kashmir	Private
345	416	3.16	Jammigumpula Krishnavenamma	Private
346	417	1.3	Pammi Ramireddy	Private
347	418	7.37	Battula Ramakrishnareddy	Private
348	419	3.06	Sadineni Nageswara Rao	Private
349	42	1.14	Bandidari	Government land
350	420-2	4.19	Patakamuri Jayamma	Private
351	421	1.3	Sadineni Kishore	Private
352	422-1	10.295	Kotra Pullamma	Private
353	422-1A	1.225	Pammi Ramireddy	Private
354	422-1B	0.165	MALLAPURI KOTESHAM	Private
355	422-1C	1.225	Pammi Ramireddy	Private
356	422-2	0.82	Patakamuri Poorna Chandra Rao	Private
357	423-1	13.07	Gude Venkayamma	Private
358	424-A	5.64	Dondeti Papakumari	Private
359	424-B1	2.16	Baram Tirupatamma	Private
360	425-1	2.08	Vadlamudi Saidamma	Private
361	425-2A	6.02	Arikatla Haimwati	Private
362	425-2c	5.04	Marri Gopireddy	Private
363	426	2.33	Marri Gopireddy	Private
364	427	3.12	Kasarla Veera Reddy	Private
365	428	7.16	Kasarla Veera Reddy	Private
366	428	7.16	Sadineni Naga Ashok Kumar	Private
367	429	2.52	Sadineni Naga Ashok Kumar	Private
368	429	2.52	Sadineni Prasad	Private
369	430-A3	0.05	Baram Tirupatamma	Private
370	430-B2a	0.93	Venna Govindareddy	Private
371	430-b2c1	0.265	Dondeti Pavani	Private
372	430-b2c2	0.265	The poem of Dondeti	Private
373	430-C	0.53	Dondeti Papakumari	Private
374	431	0.68	Sadineni Ramayana	Private
375	432	0.92	Sadineni Venkateshwarlu	Private
376	433	1.13	Patakamuri Hanumayya	Private
377	434	6.65	Yadlapally Govindaya	Private
378	435	1.99	Palvai Narasimhareddy	Private
379	436	1.98	Battula Padmavati	Private

380	437	8.24	Paluvai Virareddy	Private
381	438	3.86	Sadineni Naga Ashok Kumar	Private
382	439-A	2.18	Sadineni Apparavu	Private
383	439-B	5.62	Tummalapalli Narasimha Rao	Private
384	4-3A	6.63	Venkateswara Reddy of Kasara	Private
385	4-3B	0.12	Government land	Government land
386	440	11.39	Chalagundla Govindamma	Private
387	441	3.07	Nandyala Narsireddy	Private
388	44-1	4.79	Paluvai Pakira Reddy	Private
389	44-2	0.08	Government land	Government land
390	442-1	3.01	Venna Govindareddy	Private
391	442-2	3.82	Venna Govindareddy	Private
392	442-2c	2.17	Dondeti Venkata Reddy	Private
393	442-2c1	0.815	Dondeti Pavani	Private
394	442-2c2	0.815	The poem of Dondeti	Private
395	443	0.7	Vadlamudi Naga Narasimha Rao	Private
396	444	1.32	North	Government land
397	445-A	1.42	Nandyala Koti Reddy	Private
398	445-B	2.6	Nandyala Koti Reddy	Private
399	446	3.76	Nandyala Koti Reddy	Private
400	447	2.11	North	Government land
401	448	2.51	Butter Ramireddy	Private
402	449	4.46	Palvai Venkatereddy	Private
403	45	4.53	Kancharla Sangeetha Rao	Private
404	450	4.84	Ambepalli Chadrayya	Private
405	451	1.18	Pammi Shourie Reddy	Private
406	452	0.94	Sadineni Prasadaravu	Private
407	453	1.21	Sadineni Verakayamma	Private
408	454-A	1.98	The Anjaneyas of the carts	Private
409	454-B	2.98	The Anjaneyas of the carts	Private
410	455-1	3.85	Sadineni Venkateshwarlu	Private
411	455-2	4.05	Tummalapalli Sivakumari	Private
412	456-2	6.8	Jammigumpula Mangayya	Private
413	457	6.25	Ambepalli Nagendram	Private
414	458	4.52	Nandyala Virareddy	Private
415	459-1	0.55	Nandyala Govindamma	Private
416	459-2	6.57	Nandyala Ramana Reddy	Private
417	460-1A	1.55	Nandyala Govindamma	Private
418	460-1C	0.3	Yadlapally Srinuvasa Rao	Private
419	460-2	1.37	Nandyala Govindamma	Private
420	46-1	4.08	Yadlapally Venkateshwarlu	Private
421	461-1	0.18	Sadineni Narasimha Rao	Private
422	461-3	7.52	Butter Pereddy	Private
423	46-1A	2.27	Palvai Vishnu Kumar Reddy	Private
424	46-2	2.8	Sheikh Saida	Private
425	462-1	1.75	Nandyala Koti Reddy	Private
426	462-3	5.29	Dondeti Venkata Reddy	Private
427	462-3A	0.5	The poem of Dondeti	Private
428	463	2.23	Potla Saidayya	Private
429	464	1.13	Yadlapalli Ramaiah	Private
430	465-A	3.62	Battula Ravindra Reddy	Private
431	465-B	4.55	Anumula Vijaya Lakshmi	Private
432	466	2.63	Venna Saidareddy	Private
433	467-1	0.23	Nandyala Govindamma	Private
434	467-1C	0.18	Venna Saidareddy	Private
435	467-2A	0.81	Gurram Narasimhareddy	Private
436	467-2c	2.2	Rampati Achamma	Private

437	469-1	0.17	Yadlapalli Ramaiah	Private
438	469-3	5.5	Milestone Fort	Private
439	469-3A1A	0.56	Poluri Venkateshwarlu	Private
440	469-3A1B	0.065	Nakka Venkatanarasamma	Private
441	469-3A2A	0.575	Poluri Venkateshwarlu	Private
442	469-3A2B	0.05	Velpula Nagalakshmi	Private
443	47	8.55	Synampudi Krishna Reddy	Private
444	470-1C	0.25	Jammigumpula Ankaravu	Private
445	470-2	2.11	Gude Shitamma	Private
446	470-A1	2.47	Gude Shitamma	Private
447	470-A1A	1.84	Sayyid of the Jammu and Kashmir	Private
448	471-1	0.84	Jammigumpula Narsayya	Private
449	471-3	1.06	Venkatravamma of Jammu and Kashmir	Private
450	472-1	2.05	Komimammaneni Mahalakshamma	Private
451	472-2A	3.07	Jammigumpula Narsayya	Private
452	472-2A1	2.19	Sayyid of the Jammu and Kashmir	Private
453	473-3	0.9	Narendra of Jammu and Kashmir	Private
454	473-3A	0.89	Nageshwaramma of Jammigumpula	Private
455	474	7.19	Dondeti Chandra Reddy	Private
456	475	7.17	The Anjaneyas of the carts	Private
457	476	10.31	Dachepalli Ramakotamma	Private
458	477	0.9	Venna Thulishamma	Private
459	478-1-1	0.6	The Anjaneyas of the carts	Private
460	478-1-2	0.12	Dondeti Ramakrishna	Private
461	478-2	0.46	Dondeti Kotamma	Private
462	479-1	4.24	Garela Koteswara Rao	Private
463	479-2	1.8	Kotayya of glasses	Private
464	48	0.9	Sheikh John	Private
465	480	3.22	Glasses Hanumayamma	Private
466	481-1	5.37	Bajla Ajaneyulu	Private
467	481-2	5.37	The Anjaneyas of the carts	Private
468	482	3.79	Nidigonda Kothilingamma	Private
469	483-2	0.69	Nakka Venkatanarasamma	Private
470	483-2A	0.69	Velpula Nagalakshmi	Private
471	483-2B	1.38	Nakka Mary	Private
472	484-2	0.155	Nakka Venkatanarasamma	Private
473	484-2A	0.15	Velpula Nagalakshmi	Private
474	484-2B	0.305	Nakka Mary	Private
475	485 / 2-2A	2.92	Sadineni Koteswara Rao	Private
476	485 / 2-2B	0.13	Sadineni Lakshminarayana	Private
477	485-1-1	4.38	Sadineni Anjaneyas	Private
478	485-2-1	1.81	Sadineni Lakshminarayana	Private
479	486-2-1	1.36	Dondeti Roshireddy	Private
480	487	0.37	Chalagundla Govindamma	Private
481			Others	Private
482	488-1	10.86	Chalagundla Govindamma	Private
483	489-1	0.92	Rajavarapu Srinivasa Rao	Private
484	490-1	2.39	Yadlapally Govindaya	Private
485	490-2	1.06	Yadlapally Basavayya	Private
486	490-2B	1.05	Yadlapalli poor Narasimha Rao	Private
487	491	2.08	Sadineni Satyavati	Private
488	49-1	0.05	Government land	Government land
489	49-2	3.72	Chimata Chin Saidus	Private
490	492-1	1.77	Empire of Dondeti	Private
491	492-3A	2.35	Singampally Sivakumari	Private
492	492-3A1	0.42	Chittiprolu Sulochana	Private
493	492-3A2	0.58	Dondeti Papakumari	Private

494	493-1	1.26	Anjaneyas of glass	Private
495	493-1	1.26	Gajala Chinna Mannem Palli	Private
496	493-1A	0.44	Chittiprolu Sulochana	Private
497	493-1B	2.28	Yadlapally Poornayya	Private
498	493-2	0.18	Government land	Government land
499	494-2	7.25	Chalagundla Rama Rao	Private
500	495-1	2.17	Palavai Srinivasa Reddy	Private
501	495-3B	0.23	Yadlapally Narasimha Rao	Private
502	496-1A	0.13	Tummalapalli Jaggaravu	Private
503	496-1C1	0.15	Patakamuri Srinivasa Rao	Private
504	496-1C3	1.28	Palavai Srinivasa Reddy	Private
505	496-3B	0.72	Badugula kasulu	Private
506	497-1	0.76	Horned Venkateshwar	Private
507	497-1A	0.05	Yadlapally Srinivasa Rao	Private
508	497-3	1.83	Yadlapally Krishnamurthy	Private
509	497-3A	1.83	Kommineni Bharathi Lakshmi	Private
510	498-2	4.65	Chalagundla Rama Rao	Private
511	499-A	1.18	Chabros are full moons	Private
512	499-B1	1.89	Kodirekkala Rajeshwari	Private
513	499-B-1	1.89	Kodirekkala Rajeshwari	Private
514	499-B2	0.46	Sadineni Nageswara Rao	Private
515	50	6.74	Anumula Chinna Seshireddy	Private
516	500-2	0.5	Syanampudi Subbareddy	Private
517	500-2A	0.38	Shanampudi Narasimhareddy	Private
518	501	0.5	Battula Mangireddy	Private
519	502	1.9	Kotra Venkayya	Private
520	503	4.82	Horned Venkateshwar	Private
521	504-2	7.51	Chalagundla Rama Rao	Private
522	505 / 1-3	1.52	Sadineni Srinivasa Rao	Private
523	505 / 1-3B	0.08	YEDLAPALLI SRINIVAS	Private
524	505-1-1	0.02	Others	Private
525	505-1-1A	0.04	YEDLAPALLI SRINIVAS	Private
526	505-1B	2.65	Yadlapally Venkayya	Private
527	505-2	2.5	Isharajula Venkateshwarlu	Private
528	505-2A	0.74	Parvataneni Narendra Kumar	Private
529	505-3-1	0.07	PWD Calva	Government land
530	505-ZB2	3.5	Telagapalli Kollayya	Private
531	506	3.99	Butter Mangireddy	Private
532	507-1	1.43	Butter Mangireddy	Private
533	507-2-1	1.8	Yadlapally Chandraya	Private
534	507-2-2	0.66	PWD Calva	Government land
535	507-2-3	2.09	Tumati Kotamma	Private
536	508-1A	0.19	PWD Calva	Government land
537	508-1B	11.79	Ilapuram Krishnamurthy	Private
538	508-1B1	1.64	Bapanapally Nagmani	Private
539	508-1B2	1.32	Battula Lakshmi Rajita	Private
540	508-1B3	0.61	Rajavarapu Upendra	Private
541	508-1B5	0.63	PATHAN PATHIMA	Private
542	508-2	3.08	Ilapuram Krishnamurthy	Private
543	508-2B	0.12	PATHAN PATHIMA	Private
544	508-3	0.6	Nigidonda Subbayya	Private
545	508-3A	0.8	Battula Parvathamma	Private
546	511-1	8.53	I Lapuram Narasimha Rao	Private
547	511-2	0.91	Yadlapalli Pulla Rao	Private
548	512-1	2.39	Tatipatti Sujatha	Private
549	512-11	0.26	Kotra Samiel	Private
550	512-12	0.5	Lame	Lame

551	512-13	0.08	Dondeti Kotamma	Private
552	512-4	0.25	Macherla Peraiya	Private
553	512-6	0.25	Bogiri Musalayya	Private
554	512-7	0.25	Chandavarapu Devadanam	Private
555	512-9	0.31	Kotra Isaiah	Private
556	513	3.76	Arikatla Anki Reddy	Private
557	514	3.13	Dareddy Sujatha	Private
558	515	6.12	Sadineni Venkateshwarlu	Private
559	517-1-2	2.72	Glasses Hanumayamma	Private
560	517-1-2A	0.38	Parvataneni Narendra Kumar	Private
561	517-1-2B	0.63	Eggplant Hanumantrao	Private
562	517-2-1	0.06	PWD Calva	Government land
563	517-2-2	3.17	Yadlapally Saidayya	Private
564	517-2-3	0.05	PWD Calva	Government land
565	518-1	4.16	Battula Mangireddy	Private
566	518-1A	1.37	Yadlapalli poor Narasimha Rao	Private
567	518-1B	0.28	Saidus of the Isarajas	Private
568	519-1-A	0.06	PWD Calva	Government land
569	519-1B	1	Dandeti Ishwarreddy	Private
570	519-1B1	2	Battula Srinu	Private
571	519-1B2	3.9	Muthyam Ramakrishna Reddy	Private
572	519-2	0.08	PWD Calva	Government land
573	52	9.27	Duggireddy Sudha	Private
574	520-1	0.05	PWD Calva	Government land
575	520-2	6.71	Rajapushpa Cements Limited	Private
576	521-2	3.86	Venna Ramakotireddy	Private
577			Vennavenkatareddi	Private
578	522	1.94	Sadineni Venkateshwarlu	Private
579	523	4.42	Byru Chinna Narayana	Private
580	524	0.64	North	Government land
581	525-1	0.14	PWD Calva	Government land
582	525-2	3.81	Dondeti Ishwara Reddy	Private
583	525-2A	0.985	Dondeti Virareddy	Private
584	525-2B	0.985	Dondeti Ramakrishna	Private
585	526	4.06	Bairu Narasaya	Government Degree
586	527	5.19	Bairu Narasaya	Private
587	528	3.3	Anumula Venkateswara Reddy	Private
588	529-1	5.58	Shanampudi Pedakotireddy	Private
589	529-2	0.12	PWD Calva	Government land
590	529-3	0.43	Chintapalli Ayyambotla Sastri	Private
591	530	1.29	Chintapalli Ayyambotla Sastri	Private
592	531-1A	4.12	Pulipati Anantaravamma	Private
593	531-1B	8.33	Rajapushpa Cements Limited	Private
594	531-1C	2.09	Swathi Cotton Limited Ganapavaram	Private
595	531-2A	0.06	Rajapushpa Cements Limited	Private
596	531-2B	2.89	Swathi Cotton Limited Ganapavaram	Private
597	531-3	2.98	Rajapushpa Cements Limited	Private
598	531-4	10.48	Swathi Cotton Limited Ganapavaram	Private
599	531-6	5.9	Rajapushpa Cements Limited	Private
600	531-7	6.86	Swathi Cotton Limited Ganapavaram	Private
601	531-8	8.66	Swathi Cotton Limited Ganapavaram	Private
602	531-9A	1	Swathi Cotton Limited Ganapavaram	Private
603	531-9B	0.5	Rajapushpa Cements Limited	Private
604	531-9C1	0.25	Sangenaboina Saibabu	Private
605	531-9C2	0.25	Sangenaboina Sai Bhaskar Rao	Private

606	531-9C3	0.25	Sangenaboina Ganga	Private
607	531-9C4	0.25	Sangenaboina Sai Bhaskar Rao	Private
608	531-9D	2	Swathi Cotton Limited Ganapavaram	Private
609	532-1	3.64	Rajapushpa Cements Limited	Private
610	532-1A1	0.97	Fragments	Private
611	532-1A2	0.98	Boddapati Satyanarayana	Private
612	532-2	0.13	PWD Calva	Government land
613	533-1	1.3	Sheikh Saeed Hussein	Private
614	533-2A	0.4	Sangenaboina Saibabu	Private
615	533-2B	0.4	Sangenaboina Sai Bhaskar Rao	Private
616	533-2C	0.4	Sangenaboina Ganga	Private
617	533-2D	0.4	Sangenaboina Sai Bhaskar Rao	Private
618	533-3	2.88	Rajapushpa Cements Limited	Private
619	534	1.42	Beesam Annapurna	Private
620	535-1	4.67	Sheikh Saeed Hussein	Private
621	535-2	4.09	Sheikh Kadarbi	Private
622	537	2.99	Arilakatla Dhanalakshmi	Private
623	538-1	0.78	Christian of Jammigumpu	Private
624	538-2	1.57	Christian of Jammigumpu	Private
625	539-1	2.45	Rajapushpa Cements Limited	Private
626	5391/2	0.61	Pathan Janu language	Private
627	5391/3	0.62	Others	Private
628	539-2	2.56	Cow Ramalingayya	Private
629	540	7.28	Telagapalli Kollayya	Private
630	541	1	Yadlapally Anil Kumar	Private
631	542	0.65	Pammi Shourie Reddy	Private
632	543	6.53	Guravaya of glasses	Private
633	544	6.88	Swathi Cotton Limited Ganapavaram	Private
634	545	7.82	Rajapushpa Cements Limited	Private
635	546	2.46	Poluri Apparao	Private
636	547	3.23	Rajapushpa Cements Limited	Private
637	548	2.69	Poluri Apparao	Private
638	549	9.44	Horse Ravindra Reddy	Private
639	550	1.55	Tummuri Anusha	Private
640	551	7.08	Potla Saidayya	Private
641	552	10.2	Dondeti Venkata Reddy	Private
642	553	7.04	Eggplant Satyanarayana	Private
643	554	3.25	Rajapushpa Cements Limited	Private
644	555	5.27	Eggplant Satyanarayana	Private
645	556	1.92	Bandidari	Government land
646	557	5.21	Vadlamudi Naga Narasimha Rao	Private
647	558	4.19	Vadlamudi Hanumayamma	Private
648	559	5.02	Sadineni Savitri	Private
649	560	3.26	Vadlamudi Naga Narasimha Rao	Private
650	561-1	8.24	Chintapalli Prasad Rao	Private
651	561-1A	1.6	Saidus of the Isarajas	Private
652	561-2	0.22	PWD Calva	Government land
653	561-3	2.25	Chintapalli Prasad Rao	Private
654	562-1	0.11	PWD Calva	Government land
655	562-2	3.63	Bachchu Kavamma	Private
656	563-1A1	0.42	Anumula Venkateswara Reddy	Private
657	563-1A2	0.49	PWD Calva	Government land
658	563-1A3D	1.54	Anumula Venkataravamma	Private
659	563-1B-2D	2.03	Bachelor	Private
660	563-2	0.88	Others	Private
661	564-A1	0.7	Yammidishetti Satyanarayana	Private

662	564-A3	0.5	Sankuratri Venkayya	Private
663	564-A3A	1.16	Chintamalla Narayanamma	Private
664	564-A3B1	0.5	Sankuratri Srinuvasa Rao	Private
665	564-A3B2A	0.5	Sankuratri Rama Rao	Private
666	564-A3B2B	0.5	Sankuratri Chinsais	Private
667	564-B1A	3	Anumula Venkaayamma	Private
668	564-B3A	0.05	PWD Calva	Government land
669	564-B3B	0.55	Yarrabelli bad cheeks	Private
670	565-1	2.07	Galla Pullamma	Private
671	565-2	0.73	PWD Calva	Government land
672	565-3A1	1.66	Sheikh John	Private
673	565-3c3	0.95	Mangalapally Kotayya	Private
674	566-1	4.59	Anumula Chinna Seshireddy	Private
675	567-1	5.11	Chintamalla Venkamma	Private
676	574	2.18	Anumula Srinivasa Reddy	Private
677	575-1	0.36	Immadishetti Nageswaramma	Private
678	575-3	4.41	Yimmadishetti Lakshminarayana	Private
679	576-A1	4.4	Poor digits of the fins	Private
680	576-B1	1.81	Sheikh Allabhi	Private
681	576-B1A	0.7	Sheikh John Mia	Private
682	577-1	2.21	Cows Krishnavenamma	Private
683	578-1	1.23	Anumula Venkataravamma	Private
684	578-3B	3.78	Bachchu Kavamma	Private
685	579-1	2.15	Kandula Lukayya	Private
686	579-1A	0.5	Kandula Ramesh	Private
687	579-3B	1.42	Bachchu Kavamma	Private
688	580-3B	1.42	Others	Private
689	580-a	2.26	Sheikh Johnny Language	Private
690	580-B1	2.87	Medi Gopayya	Private
691	580-c2b	0.21	Medi Gopayya	Private
692	581-1	4	Sampathi Venkateshwarlu	Private
693	581-2	7.87	Sampathi Saidus	Private
694	582	7.6	Sankuratri Musalayya	Private
695	584-3	2.63	Annapureddy Shiva Reddy	Private
696	598	8.96	Anumula Srinivasa Reddy	Private
697	599-A	3.97	Pulipati Rangareddy	Private
698	599-B	4.13	Pulipati Rangareddy	Private
699	7	1.58	Sanampudi Chinna Kotireddy	Private
700	70-1	0.09	Government land	Government land
701	70-2A	4.7	Kasarla Veera Reddy	Private
702	70-2B	0.11	Government land	Government land
703	72 / 1-1	0.01	Government land	Government land
704	72 / 1-2	0.07	Others	Private
705	72 / 2-1	5.85	Dondeti Achchamma	Private
706	72 / 2-1A	1.55	Dondeti Roshireddy	Private
707	72 / 2-2	0.5	Government land	Government land
708	72 / 2-3	1.02	Dondeti Venkata Reddy	Private
709	73-1A	0.03	Government land	Government land
710	73-1B	0.94	Tummalapalli Jaggaravu	Private
711	73-2	0.46	Government land	Government land
712	73-3-A	2.33	Sadineni Lakshamma	Private
713	73-3B	0.04	Government land	Government land
714	74-1	1.05	Yadlapally Saidamma	Private
715	74-1A	0.56	Butter Venkata Reddy	Private
716	75-A1	0.3	Government land	Government land
717	75-A2B	3.76	Batula Saidamma	Private

718	75-B1	3.17	Chalagundla Rama Rao	Private
719	75-B2	0.3	Government land	Government land
720	75-B3	0.48	Yadlapalli Apparavu	Private
721	76-1	0.01	Government land	Government land
722	76-2	2.47	Sadineni Satyavati	Private
723	77/2	0.47	Yadlapally Basavayya	Private
724	77-1B	1.26	Yadlapally Ramakotayya	Private
725	78	0.17	Chalagundla Govindamma	Private
726	79	8.78	Tummati Krishna Murthy	Private
727	80 / 1-1A	0.72	Yadlapally Ramakotayya	Private
728	80 / 1-1B	0.39	Government land	Government land
729	80 / 1-1C	0.96	Yadlapally Govindaya	Private
730	80 / 1-2C	1.53	Yadlapally Ramakotayya	Private
731	80 / 2-1	0.03	Government land	Government land
732	80 / 2-2	3.63	Anumula Venkatereddy	Private
733	81-1	2.92	Eggplant Gopala Krishna Murthy	Private
734	81-1A	1.6	Sadineni Ashok	Private
735	81-1B	0.98	Tanguturi Ramesh Babu	Private
736	81-2	0.39	Government land	Government land
737	81-3	0.78	Eggplant Gopala Krishna Murthy	Private
738	82-1	0.17	Government land	Government land
739	82-2	7.57	Eggplant angina	Private
740	83-1	3.55	Orchu Narasimha Rao	Private
741	83-2	0.25	Government land	Government land
742	84-1A	1.2	Eggplant Satyanarayana	Private
743	84-1A1	1.55	Eelaprolu Venkateswara Rao	Private
744	84-1B	0.4	Government land	Government land
745	84-2B	1.87	Eggplant Satyanarayana	Private
746	84-2B1	0.3	Eelaprolu Venkateswara Rao	Private
747	85	6.81	Dondeti Roshireddy	Private
748	86-1A	0.88	Horse Ramakrishnareddy	Private
749	86-1B	0.28	Government land	Government land
750	86-1C	0.46	Horse Ramakrishnareddy	Private
751	86-2B	3.08	Dondeti Lakshmi Kotamma	Private
752	87	4.51	Venna Govindareddy	Private
753	9	8.3	Thalla Subbaiah	Private
754	95-1	1.72	Pearl Narapareddy	Private
755	95-1A	1.23	Battula Narasimha Reddy	Private
756	95-3	1.17	Pearl Narapareddy	Private
Tangeda				
758	9661/2	0.08	PWD Calva	Government land
759	966-1-3	1.84	Emami Cement Limited	Private
760	9662/2	0.1	PWD Calva	Government land
761	966-2-1	3.95	Emami Cement Limited	Private
762	966-2-1A	1.14	Pallapati Rama Rao	Private
763	966-2-3	4.95	Sampathi Koteswara Rao	Private
764	9663/2	0.07	PWD Calva	Government land
765	966-3-1	3.16	Sheikh Bandisaheb Gary Shabbir	Private
766	966-3-1A	2.2	Sheikh Akbar Salim	Private
767	9664/1	0.1	PWD Calva	Government land
768	966-4-2	2.54	Pulipati Chinna Antamma	Private
769	967-1	0.05	PWD Calva	Government land
770	967-2	2.2	Others	Private
771	968 / A2	0.06	PWD Calva	Government land
772	968-A1	4.32	Errabelli Sambulu	Private

773	968-A2	0.06	PWD Calva	Government land
774	968-B1	2.58	Sampathi Kotayya	Private
775	968-B1A	1	Pulipati Nageswara Rao	Private
776	968-B2	0.02	PWD Calva	Government land
777	968-C1	2.14	Others	Private
778	969-1	15.94	Kandula Koteswara Rao	Private
779	969-1A	2.5	Sampathi Venkateswarlu	Private
780	969-2	0.32	PWD Calva	Government land
781	970	8.06	Sampathi Kotayya	Private
782	971-1	5.08	Anumula Venkateswarareddy	Private
783	971-2	0.12	PWD Calva	Government land
784	972-A	2.91	Pulipati Rangareddy	Private
785	972-B1	2.61	Pulipati Rangareddy	Private
786	973-1	0.1	PWD Calva	Government land
787	973-2	4.03	Others	Private
788	974-1	0.07	PWD Calva	Government land
789	974-2	5.45	Dairy poor Saydayya	Private
790	975-1	0.34	PWD Calva	Government land
791	975-1B3B	0.78	Bachchu Sitaramayya	Private
792	975-24c1	0.03	PWD Calva	Government land
793	975-2B1A	0.32	Dairy Saidus	Private
794	975-2B1C2	3.44	Kandula Koteswara Rao	Private
795	975-2b2	0.09	PWD Calva	Government land
796	975-2B3	1.72	Kandula Koteswara Rao	Private
797	975-2B3A	1.5	Dairy Venkateswar	Private
798	976-1A	0.13	PWD Calva	Government land
799	976-1B1	4.28	Nukala Punnamma	Private
800	976-1B3A	0.17	PWD Calva	Government land
801	976-1B3B	1.73	Nukala Punnamma	Private
802	976-2	0.21	Others	Private
803	976-3a	0.04	PWD Calva	Government land
804	976-3B	0.77	Pallapati Virayya	Private
805	976-4	0.32	Dairy Venkateswar	Private
806	977-1A	2.76	Dairy Lakshamma	Private
807	977-1b	0.12	PWD Calva	Government land
808	977-1C	1.24	Pallapati Srinu	Private
809	977-2A	0.81	Isarajula Gangamma	Private
810	977-2B	0.11	PWD Calva	Government land
811	977-2C	2.83	Isarajula Gangamma	Private
Gamalapadu				
812	612-1A	4.42	Potakamuri Hanumayya	Private
813	612-3B	1.03	Narasimha Rao of Jammu and Kashmir	Private
814	613	1.47	Others	Private
815	614-1	1.15	Kolluri Mangamma	Private
816	614-3	7.11	Pothakamuri Venkateswarlu	Private
817	615-1	0.04	Others	Private
818	615-1A	1.2	Shanampudi Vijaya Bharathi	Private
819	615-3	5.07	Black title Radhakrishnamurthy	Private
820	616-A1	1.45	Irla Anasuryamma	Private
821	616-B1	1.72	Kanneganti Lingachari	Private
822	616-B3	0.65	Kanneganti Lingachari	Private
823	616-C1	1.18	Tomati Narasimha Rao	Private
824	616-C3	0.9	Tomati Narasimha Rao	Private
825	616-D3	0.92	Tomati Narasimha Rao	Private
826	1 A-616-c	4	Anumula Nagireddy	Private

827	617	2	Potakamuri Vimala	Private
Dachepalli				
828	1	6.38	Arikatla Venkaayamma	Private
829	10-3A	0.04	Others	Private
830	7	14.94	Arikatla Haimawati	Private
831	3	4	Dondeti Venkata Narsi Reddy	Private
832	12 / 1A	1.11	Potakamuri Rama Rao	Private
833	11-2C	2.09	Ganganapalli Pandurangaravu	Private
834	11-2C1	0.5	Sheikh Shahida Minor Guardian of Nagurbhi	Private

PHOTOGRAPHS OF BOREHOLE PILLARS OF DRILLED BOREHOLES IN
MADINAPADU LIMESTONE BLOCK



















PHOTOGRAPHS OF CORE BOXES OF DRILLED BOREHOLES IN MADINAPADU LIMESTONE BLOCK

BH-1





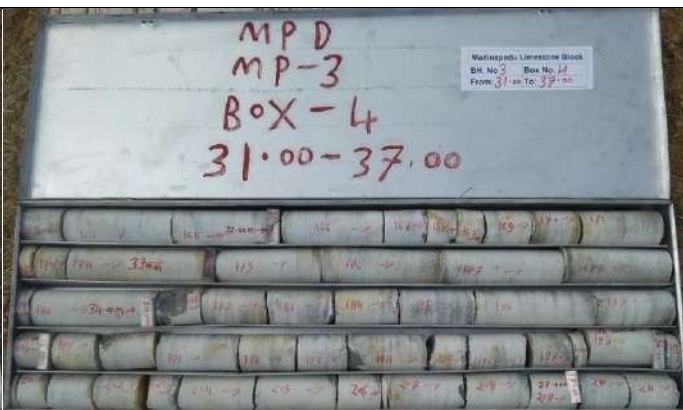
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BH-3





BH-4





BH-5



BH-6





BH-7





BH-8



BH-9







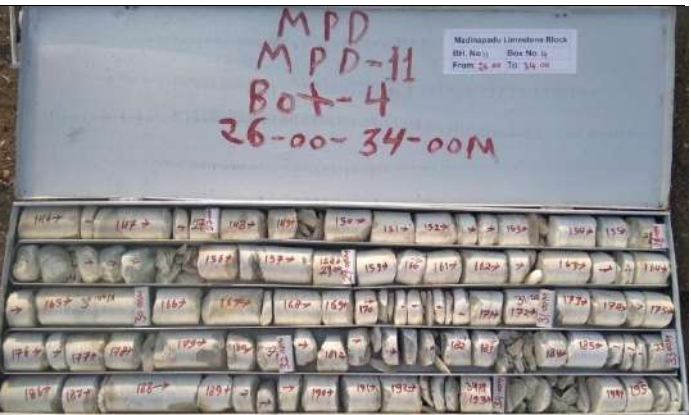
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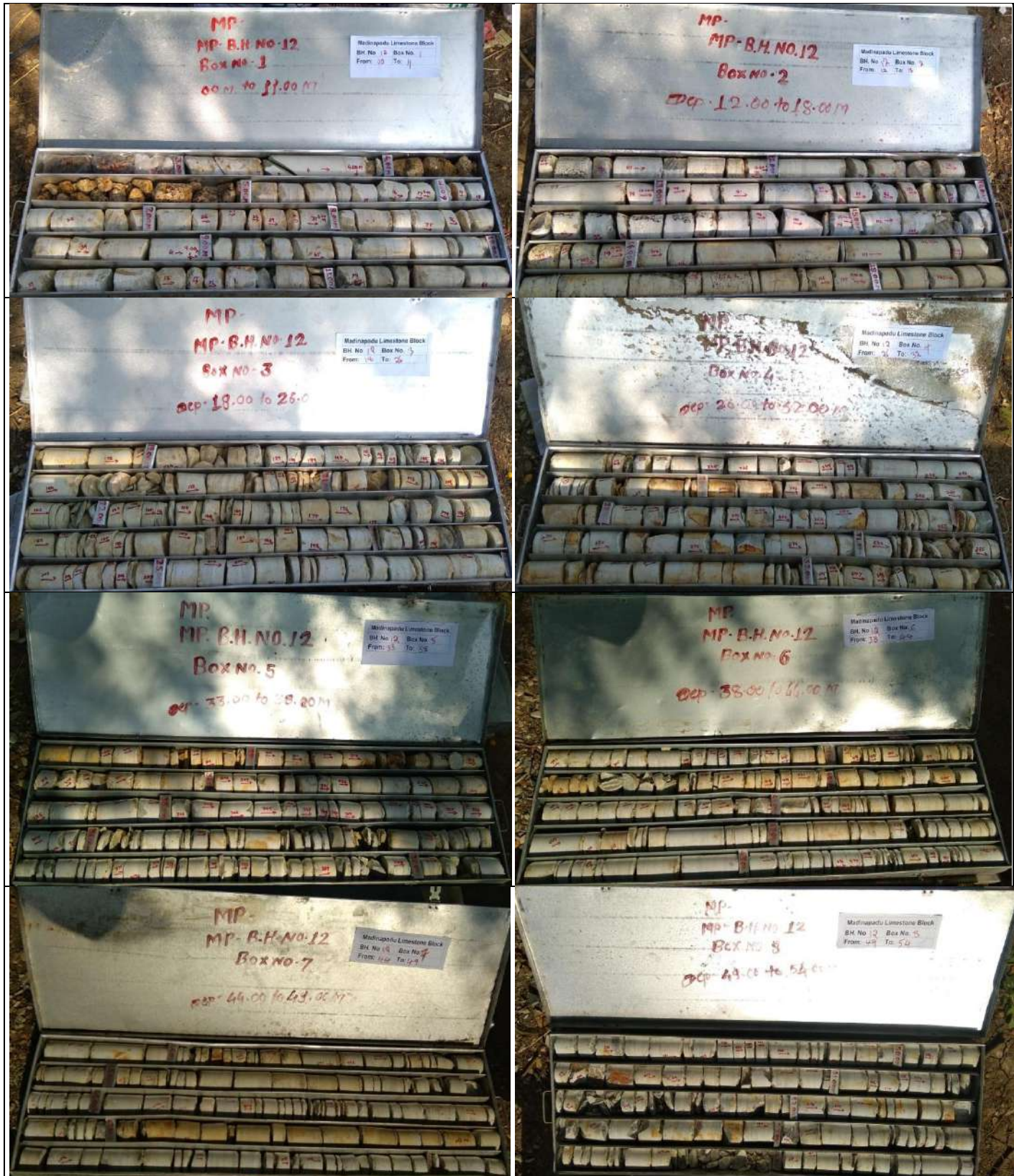


BH-11





BH-12





BH-13



BH-14





BH-15





BH-16





BH-17



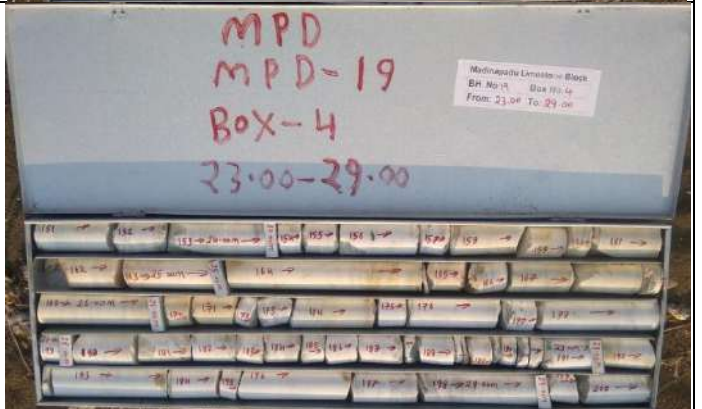


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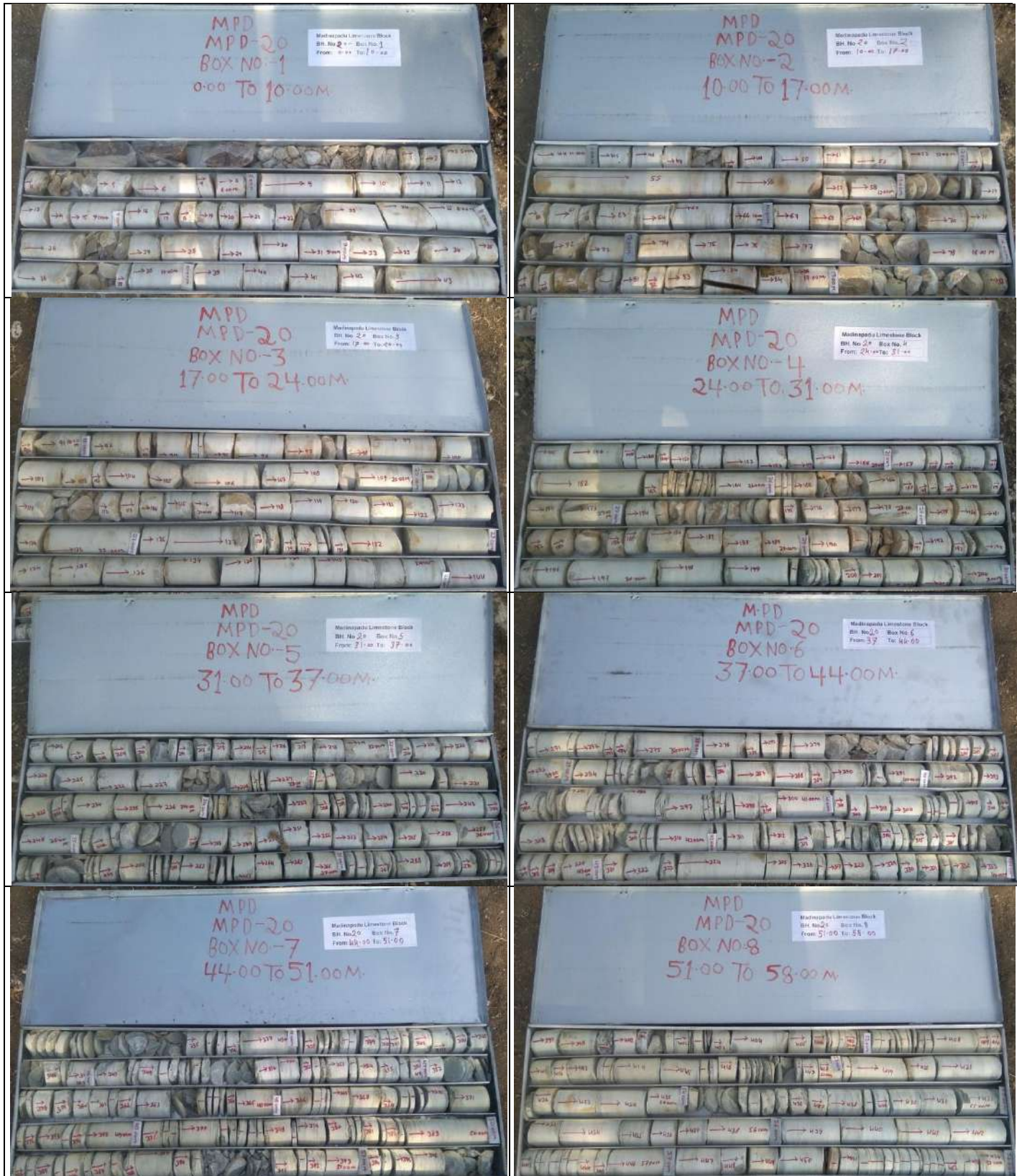


BH-19





BH-20





BH-21





BH-22





BH-23





BH-24





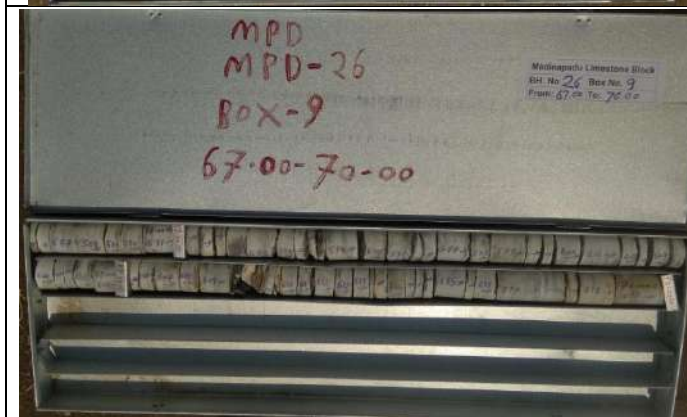
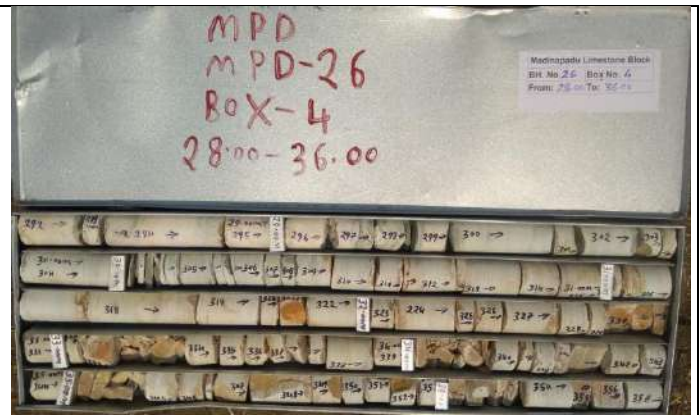
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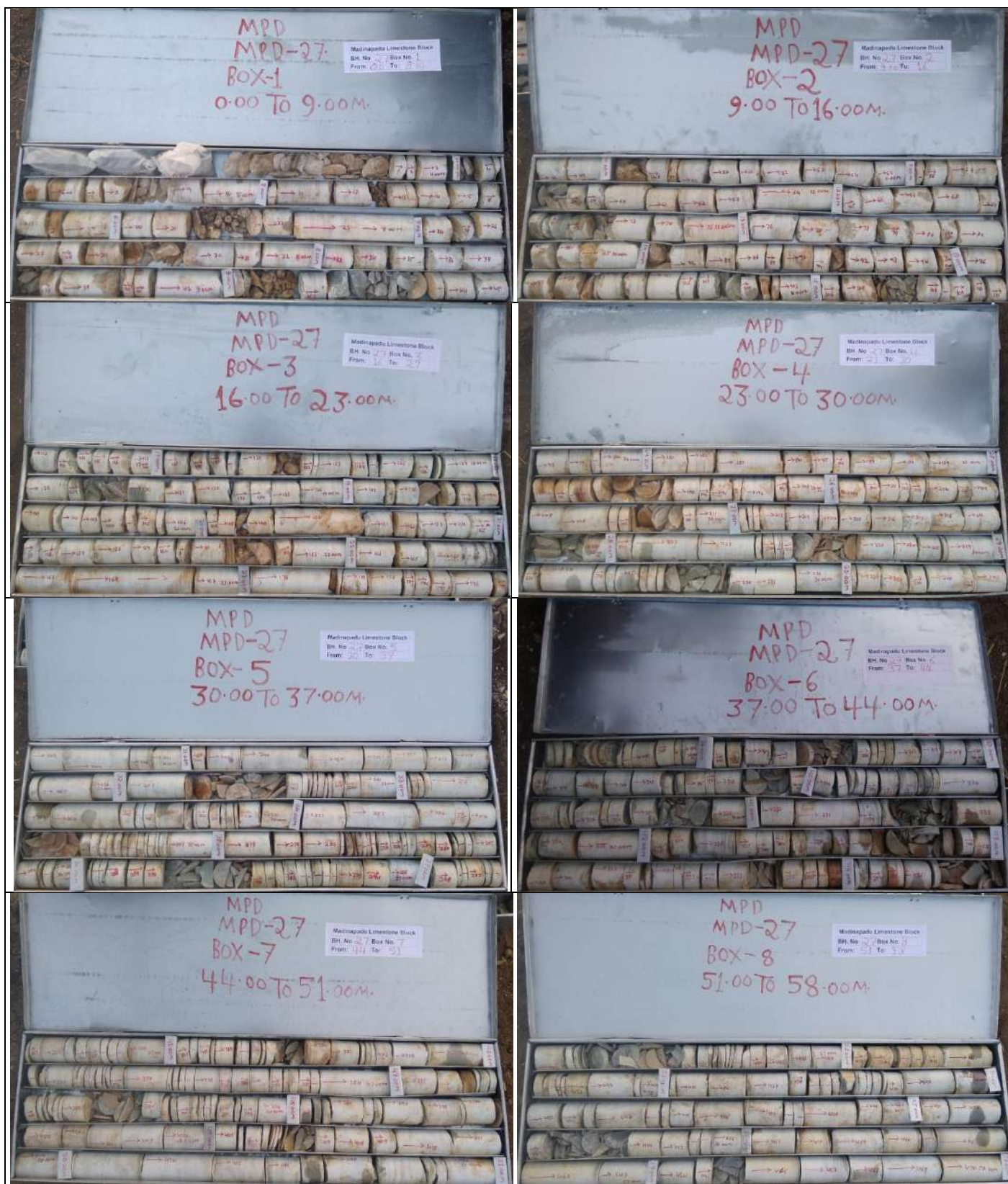


BH-26





BH-27





BH-28





BH-29





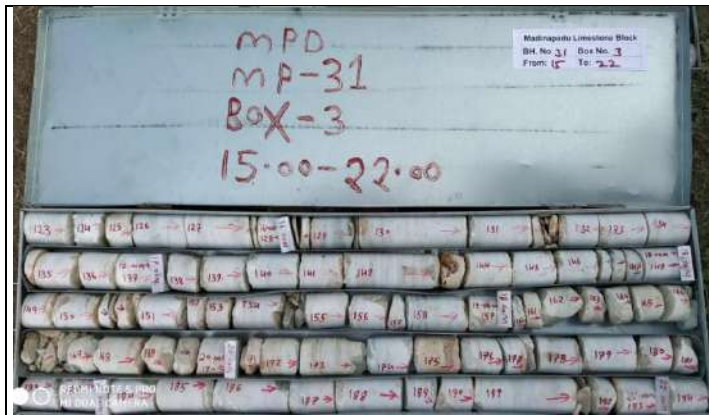
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BH-31

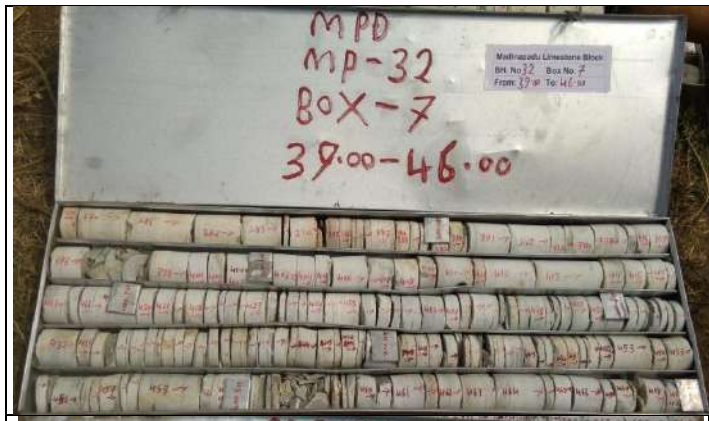






BH-32









BH-34





BH-35





BH-36





**REPORT ON G2 EXPLORATION OF MADINAPADU
LIMESTONE BLOCK, GUNTUR DISTRICT,
ANDHRA PRADESH**

**FOR
MINERAL EXPLORATION RESEARCH AND INNOVATION TRUST (MERIT),
DEPARTMENT OF MINES AND GEOLOGY
GOVT. OF ANDHRA PRADESH, IBRAHIMPATNAM, A.P.**

ANNEXURE – V

Detailed borehole litholog sheets with chemical
analysis and grade classification

**CONSORTIUM OF
JP KORDRILLING - LEAD MEMBER
GEOSOLUTIONS - MEMBER**



**REPORT PREPARED BY GEOSOLUTIONS
PROFESSIONAL AND SCIENTIFIC CONSULTANTS
PLOT NO.36, VIMALADEVI NAGAR, MALKAJGIRI,
HYDERABAD
October, 2021**

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/1
Azimuth	NA
Inclination	VERTICAL
RL-Collar	94.093m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 53.685" E
Longitude	16° 39' 36.797" N
Date of Commencement	11.05.2020
Date of Completion	13.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index %	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									overburden	
2	1.00	2.00	1.00		1.00				BRS	Brown soil	NX	1	2		1.00	2.00	1.00									overburden	
3	2.00	3.00	1.00		1.00				BRS	Brown soil	NX	1	3		2.00	3.00	1.00									overburden	
4	3.00	4.00	1.00		1.00				BRS	Brown soil	NX	1	4		3.00	4.00	1.00									overburden	
5	4.00	5.00	1.00	0.30	1.00	30	0	V. poor	LST	Grey limestone	NX	1	5	MP/1/5	4.00	5.00	1.00	39.43	0.44	25.90	1.14	0.95	30.80	0.023	0.089	Broken core	
6	5.00	6.00	1.00	0.30	1.00	30	0	V. poor	LST	Grey limestone	NX	1	6	MP/1/6	5.00	6.00	1.00	38.92	0.27	27.80	0.85	0.55	30.35	0.018	0.073	Broken core	
7	6.00	7.00	1.00	0.30	1.00	30	0	V. poor	LST	Grey limestone	NX	1	7	MP/1/7	6.00	7.00	1.00	34.80	0.41	33.98	1.49	0.98	26.83	0.019	0.115	Broken core	
8	7.00	8.00	1.00	0.30	1.00	30	0	V. poor	LST	Grey limestone	NX	1	8	MP/1/8	7.00	8.00	1.00	38.13	0.39	28.52	1.19	0.93	29.48	0.017	0.099	Broken core	
9	8.00	9.00	1.00	0.35	1.00	35	0	V.	LST	Grey limestone	NX	1	9	MP/1/9	8.00	9.00	1.00	32.37	0.53	37.37	1.86	1.46	24.77	0.017	0.156	Broken core	
10	9.00	10.00	1.00	0.36	1.00	36	0	V.poor	LST	Grey limestone	NX	1	10	MP/1/10	9.00	10.00	1.00	36.21	0.27	32.89	1.04	0.69	27.56	0.019	0.121	Broken core	
11	10.00	11.00	1.00	0.55	1.00	55	0	V.poor	LST	Grey limestone	NX	1	11	MP/1/11	10.00	11.00	1.00	37.40	0.37	29.95	1.22	0.88	28.39	0.024	0.119	Broken core	
12	11.00	12.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	1	12	MP/1/12	11.00	12.00	1.00	29.98	0.66	40.21	2.29	1.92	23.14	0.023	0.144	Broken core	
13	12.00	13.00	1.00	0.55	1.00	55	0	Poor	LST	Grey limestone	NX	1	13	MP/1/13	12.00	13.00	1.00	35.62	0.38	32.19	1.51	1.11	27.66	0.019	0.108	Broken core	
14	13.00	14.00	1.00	0.50	1.00	50	0	Poor	LST	Grey limestone	NX	1	14	MP/1/14	13.00	14.00	1.00	32.84	0.46	36.84	1.58	1.20	25.55	0.019	0.119	Broken core	
15	14.00	15.00	1.00	0.50	1.00	50	0	V.poor	LST	Grey limestone	NX	1	15	MP/1/15	14.00	15.00	1.00	35.91	0.29	32.66	1.23	0.81	27.73	0.021	0.094	Broken core	
16	15.00	16.00	1.00	0.60	1.00	60	0	V.poor	LST	Grey limestone	NX	1	16	MP/1/16	15.00	16.00	1.00	34.17	0.57	35.07	1.82	1.24	25.48	0.024	0.131	Broken core	
17	16.00	17.00	1.00	0.70	1.00	70	0	V.poor	LST	Grey limestone	NX	2	17	MP/1/17	16.00	17.00	1.00	34.59	0.22	35.88	0.99	0.58	26.07	0.017	0.096	Broken core	
18	17.00	18.00	1.00	0.50	1.00	50	10	V.poor	LST	Grey limestone	NX	2	18	MP/1/18	17.00	18.00	1.00	36.97	0.29	31.40	1.27	0.66	27.88	0.019	0.117	Broken core	
19	18.00	19.00	1.00	0.75	1.00	75	0	V.poor	LST	Grey limestone	NX	2	19	MP/1/19	18.00	19.00	1.00	37.98	0.50	28.93	1.55	1.07	28.43	0.021	0.128	Broken core	
20	19.00	20.00	1.00	0.82	1.00	82	0	V.poor	LST	Grey limestone	NX	2	20	MP/1/20	19.00	20.00	1.00	37.22	0.27	30.99	1.17	0.66	28.10	0.019	0.119		
21	20.00	21.00	1.00	0.65	1.00	65	20	V.Poor	LST	Grey limestone	NX	2	21	MP/1/21	20.00	21.00	1.00	37.81	0.32	29.83	1.14	0.90	28.40	0.014	0.154		
22	21.00	22.00	1.00	0.81	1.00	81	37	Poor	MLST	Grey massive limestone	NX	2	22	MP/1/22	21.00	22.00	1.00	40.90	0.31	24.87	0.86	0.55	31.20	0.016	0.099		
23	22.00	23.00	1.00	0.87	1.00	87	19	V.Poor	LST	Grey limestone	NX	2	23	MP/1/23	22.00	23.00	1.00	39.85	0.31	26.35	1.10	0.56	30.17	0.016	0.131		
24	23.00	24.00	1.00	0.80	1.00	80	0	V.Poor	LST	Grey limestone	NX	3	24	MP/1/24	23.00	24.00	1.00	39.28	0.24	27.38	0.88	0.50	29.79	0.015	0.105		
25	24.00	25.00	1.00	0.82	1.00	82	0	V.Poor	MLST	Grey massive limestone	NX	3	25	MP/1/25	24.00	25.00	1.00	42.61	0.25	21.96	0.79	0.49	32.62	0.014	0.115		
26	25.00	26.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	3	26	MP/1/26	25.00	26.00	1.00	40.14	0.24	26.51	0.80	0.47	30.54	0.014	0.112		
27	26.00	27.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	3	27	MP/1/27	26.00	27.00	1.00	43.35	0.41	19.99	0.82	0.58	33.58	0.013	0.103		
28	27.00	28.00	1.00	0.63	1.00	63	0	V.Poor	MLST	Grey massive limestone	NX	3	28	MP/1/28	27.00	28.00	1.00	41.52	0.25	23.81	0.87	0.50	31.74	0.015	0.112		
29	28.00	29.00	1.00	0.48	1.00	48	0	V.Poor	MLST	Grey massive limestone	NX	3	29	MP/1/29	28.00	29.00	1.00	42.06	0.30	22.76	0.93	0.54	32.08	0.011	0.112	Pyrite	
30	29.00	30.00	1.00	0.71	1.00	71	10	V.Poor	MLST	Grey massive limestone	NX	3	30	MP/1/30	29.00	30.00	1.00	43.66	0.26	20.19	0.66	0.46	33.54	0.016	0.099		
31	30.00	31.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	4	31	MP/1/31	30.00	31.00	1.00	44.86	0.29	17.81	0.82	0.50	34.44	0.010	0.099		
32	31.00	32.00	1.00	0.45	1.00	45	0	V.Poor	MLST	Grey massive limestone	NX	4	32	MP/1/32	31.00	32.00	1.00	42.71	0.24	21.83	0.73	0.40	32.83	0.011	0.094	Water loss	
33	32.00	33.00	1.00	0.48	1.00	48	0	V.Poor	MLST	Grey massive limestone	NX	4	33	MP/1/33	32.00	33.00	1.00	45.23	0.25	17.39	0.65	0.40	34.89	0.010	0.094		
34	33.00	34.00	1.00	0.40	1.00	40	0	V.Poor	MLST	Grey massive limestone	NX	4	34	MP/1/34	33.00	34.00	1.00	45.73	0.27	16.40	0.58	0.35	35.48	0.009	0.092		
35	34.00	35.00	1.00	0.55	1.00	55	17	V.Poor	MLST	Grey massive limestone	NX	4	35	MP/1/35	34.00	35.00	1.00	46.74	0.26	15.20	0.54	0.37	35.80	0.007	0.094	Broken core	
36	35.00	36.00	1.00	0.50	1.00	50	14	V.Poor	MLST	Grey massive limestone	NX	4	36	MP/1/36	35.00	36.00	1.00	44.17	0.36	18.86	0.55	0.34	34.39	0.006	0.082	Broken core	
37	36.00	37.00	1.00	0.60	1.00	60	11	V.Poor	MLST	Grey massive limestone	NX	4	37	MP/1/37	36.00	37.00	1.00	46.68	0.43	14.68	0.54						

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/2
Azimuth	NA
Inclination	VERTICAL
RL-Collar	97.116m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 40.045" E
longitude	16° 39' 10.935" N
Date of Commencement	03.05.2020
Date of Completion	09.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00		1.00				BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00									Overburden	
5	4.00	5.00	1.00		1.00				BCS	Black cotton soil	NX	1	5		4.00	5.00	1.00									Overburden	
6	5.00	6.00	1.00	0.43	1.00	43	0	V.Poor	KNK	Kankar	NX	1	6	MP/2/6	5.00	6.00	1.00	27.17	0.12	20.68	5.92	18.29	26.22	0.011	0.101	with LST pieces	
7	6.00	7.00	1.00	0.53	1.00	53	0	V.Poor	LST	Grey limestone	NX	1	7	MP/2/7	6.00	7.00	1.00	28.59	0.11	22.06	5.23	16.87	25.73	0.007	0.135	weathered	
8	7.00	8.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/2/8	7.00	8.00	1.00	41.11	0.19	25.20	0.81	0.54	30.92	0.004	0.119	Broken core	
9	8.00	9.00	1.00	0.72	1.00	72	0	V.Poor	LST	Grey limestone	NX	1	9	MP/2/9	8.00	9.00	1.00	39.92	0.11	27.14	0.83	0.50	30.28	0.004	0.112	Broken core	
10	9.00	10.00	1.00	0.75	1.00	75	10	V.Poor	MLST	Grey massive limestone	NX	1	10	MP/2/10	9.00	10.00	1.00	40.31	0.18	26.31	0.92	0.57	30.39	0.003	0.121		
11	10.00	11.00	1.00	0.70	1.00	70	27	Poor	MLST	Grey massive limestone	NX	1	11	MP/2/11	10.00	11.00	1.00	40.39	0.16	26.48	0.81	0.49	30.46	0.004	0.105		
12	11.00	12.00	1.00	0.71	1.00	71	21	V.Poor	LST	Grey limestone	NX	2	12	MP/2/12	11.00	12.00	1.00	39.17	0.21	27.86	1.40	0.75	29.07	0.002	0.197		
13	12.00	13.00	1.00	0.68	1.00	68	27	Poor	MLST	Grey massive limestone	NX	2	13	MP/2/13	12.00	13.00	1.00	41.65	0.26	23.13	0.81	0.60	32.33	0.003	0.121		
14	13.00	14.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	2	14	MP/2/14	13.00	14.00	1.00	39.05	0.17	27.25	1.19	1.52	29.48	0.002	0.105		
15	14.00	15.00	1.00	0.70	1.00	70	13	V.Poor	LST	Grey limestone	NX	2	15	MP/2/15	14.00	15.00	1.00	39.66	0.23	27.47	0.90	0.58	29.88	0.005	0.121		
16	15.00	16.00	1.00	0.78	1.00	78	0	V.Poor	MLST	Grey massive limestone	NX	2	16	MP/2/16	15.00	16.00	1.00	41.27	0.25	25.52	0.80	0.52	30.39	0.019	0.112		
17	16.00	17.00	1.00	0.70	1.00	70	39	Poor	LST	Grey limestone	NX	2	17	MP/2/17	16.00	17.00	1.00	38.33	0.21	29.49	0.99	0.61	29.02	0.004	0.133	water loss	
18	17.00	18.00	1.00	0.70	1.00	70	10	V.Poor	LST	Grey limestone	NX	2	18	MP/2/18	17.00	18.00	1.00	38.59	0.26	28.40	1.07	0.66	29.65	0.002	0.131		
19	18.00	19.00	1.00	0.81	1.00	81	25	Poor	MLST	Grey massive limestone	NX	3	19	MP/2/19	18.00	19.00	1.00	42.61	0.23	21.16	1.09	0.72	32.37	0.009	0.156		
20	19.00	20.00	1.00	0.75	1.00	75	22	V.poor	MLST	Grey massive limestone	NX	3	20	MP/2/20	19.00	20.00	1.00	42.06	0.19	23.47	0.86	0.55	31.60	0.003	0.126		
21	20.00	21.00	1.00	0.60	1.00	60	0	V.poor	MLST	Grey massive limestone	NX	3	21	MP/2/21	20.00	21.00	1.00	42.01	0.24	23.36	0.91	0.62	31.61	0.003	0.128		
22	21.00	22.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	3	22	MP/2/22	21.00	22.00	1.00	39.91	0.16	24.34	1.37	1.91	30.86	0.015	0.140		
23	22.00	23.00	1.00	0.60	1.00	60	14	V.Poor	MLST	Grey massive limestone	NX	3	23	MP/2/23	22.00	23.00	1.00	42.68	0.26	21.50	0.81	0.55	32.99	0.002	0.131		
24	23.00	24.00	1.00	0.58	1.00	58	12	V.Poor	MLST	Grey massive limestone	NX	3	24	MP/2/24	23.00	24.00	1.00	42.48	0.30	21.57	0.86	0.57	32.97	0.003	0.115	Broken core	
25	24.00	25.00	1.00	0.72	1.00	72	10	V.Poor	MLST	Grey massive limestone	NX	3	25	MP/2/25	24.00	25.00	1.00	41.72	0.22	22.85	0.92	0.65	32.34	0.010	0.142		
26	25.00	26.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	3	26	MP/2/26	25.00	26.00	1.00	41.67	0.25	22.68	0.88	0.92	32.03	0.094	0.121		
27	26.00	27.00	1.00	0.75	1.00	75	43	Poor	MLST	Grey massive limestone	NX	4	27	MP/2/27	26.00	27.00	1.00	41.73	0.25	23.36	0.76	0.52	32.19	0.011	0.115		
28	27.00	28.00	1.00	0.75	1.00	75	33	Poor	MLST	Grey massive limestone	NX	4	28	MP/2/28	27.00	28.00	1.00	43.07	0.28	20.13	1.07	0.63	33.36	0.016	0.172		
29	28.00	29.00	1.00	0.58	1.00	58	0	V.Poor	MLST	Grey massive limestone	NX	4	29	MP/2/29	28.00	29.00	1.00	42.79	0.27	21.22	0.72	0.55	33.24	0.010	0.110		
30	29.00	30.00	1.00	0.75	1.00	75	0	V.Poor	MLST	Grey massive limestone	NX	4	30	MP/2/30	29.00	30.00	1.00	41.32	0.26	23.79	0.95	0.64	31.70	0.012	0.110		
31	30.00	31.00	1.00	0.75	1.00	75	10	V.Poor	MLST	Grey massive limestone	NX	4	31	MP/2/31	30.00	31.00	1.00	41.16	0.26	23.94	0.90	0.51	31.96	0.012	0.110		
32	31.00	32.00	1.00	0.60	1.00	60	10	V.Poor	MLST	Grey massive limestone	NX	4	32	MP/2/32	31.00	32.00	1.00	40.03	0.25	25.94	1.09	0.84	30.32	0.053	0.089		
33	32.00	33.00	1.00	0.70	1.00	70	26	Poor	MLST	Grey massive limestone	NX	4	33	MP/2/33	32.00	33.00	1.00	41.29	0.28	24.65	0.85	0.59	31.08	0.009	0.110		
34	33.00	34.00	1.00	0.75	1.00	75	0	Poor	MLST	Grey massive limestone	NX	4	34	MP/2/34	33.00	34.00	1.00	41.63	0.24	23.77	0.81	0.52	31.78	0.009	0.115		
35	34.00	35.00	1.00	0.60	1.00	60	0	Poor	MLST	Grey massive limestone	NX	5	35	MP/2/35	34.00	35.00	1.00	42.25	0.23	23.12	0.70	0.49	32.01	0.010	0.101		
36	35.00	36.00	1.00	0.75	1.00	75	50	Fair	MLST	Grey massive limestone	NX	5	36	MP/2/36	35.00	36.00	1.00	40.75	0.24	25.62	0.75	0.47	30.94	0.013	0.103		
37	36.00	37.00	1.00	0.80	1.00	80	28	poor	MLST	Grey massive limestone	NX	5	37	MP/2/37	36.00	37.00	1.00	41.47	0.22	24.18	0.70	0.56	31.68	0.009	0.099		
38	37.00	38.00	1.00	0.70	1.00	70	34	poor	MLST	Grey massive limestone	NX	5	38	MP/2/38	37.00	38.00	1.00	41.18	0.22	24.44	0.80	0.54	31.59	0.005	0.105		
39	38.00	39.00	1.00	0.65	1.00	65	22	Poor	LST	Grey limestone	NX	5	39	MP/2/39	38.00	39.00	1.00	39.89	0.20	25.78	0.85	1.04	30.85	0.043	0.103	Broken core	
40	39.00	40.00	1.00	0.75	1.00	75	15	Poor	MLST	Grey massive limestone	NX	5	40	MP/2/40	39.00	40.00	1.00	42.70	0.27	21.16	0.96	0.59	33.02	0.010	0.119		
41	40.00	41.00	1.00	0.74	1.00	74	10	Poor	MLST	Grey massive limestone	NX	5	41	MP/2/41	40.00	41.00	1.00	42.70	0.26	21.9.							

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/3
Azimuth	NA
Inclination	VERTICAL
RL-Collar	103.57
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 12.857" E
longitude	16° 38' 45.151" N
Date of Commencement	03.12.2019
Date of Completion	17.12.2019

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									overburden	
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00									overburden	
4	3.00	4.00	1.00		1.00				BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00									overburden	
5	4.00	5.00	1.00		1.00				BRS	Brown soil	NX	1	5		4.00	5.00	1.00									overburden	
6	5.00	6.00	1.00		1.00				BRS	Brown soil	NX	1	6		5.00	6.00	1.00									overburden	
7	6.00	7.00	1.00		1.00				BRS	Brown soil	NX	1	7		6.00	7.00	1.00									overburden	
8	7.00	8.00	1.00		1.00				BRS	Brown soil	NX	1	8		7.00	8.00	1.00									overburden	
9	8.00	9.00	1.00		1.00				BRS	Brown soil	NX	1	9		8.00	9.00	1.00									overburden	
10	9.00	10.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	1	10	MP/3/10	9.00	10.00	1.00	36.83	0.48	29.73	1.63	1.13	28.64	0.102	0.101	Broken core	
11	10.00	11.00	1.00	0.40	1.00	40	0	V.Poor	LST	Grey limestone	NX	1	11	MP/3/11	10.00	11.00	1.00	39.06	0.27	27.42	1.04	0.61	30.20	0.083	0.071	Broken core	
12	11.00	12.00	1.00	0.64	1.00	64	0	V.Poor	LST	Grey limestone	NX	1	12	MP/3/12	11.00	12.00	1.00	35.16	0.44	33.38	1.50	1.02	26.91	0.117	0.101	Broken core	
13	12.00	13.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	1	13	MP/3/13	12.00	13.00	1.00	36.25	0.33	32.61	1.22	0.86	27.19	0.100	0.124	Broken core	
14	13.00	14.00	1.00	0.74	1.00	74	0	V.Poor	LST	Grey limestone	NX	1	14	MP/3/14	13.00	14.00	1.00	32.63	0.22	35.41	2.50	1.33	25.55	0.296	0.119	pyrite	
15	14.00	15.00	1.00	0.66	1.00	66	0	V.Poor	LST	Grey limestone	NX	1	15	MP/3/15	14.00	15.00	1.00	37.39	0.21	30.69	1.09	0.50	28.58	0.119	0.108		
16	15.00	16.00	1.00	0.71	1.00	71	0	V.Poor	LST	Grey limestone	NX	1	16	MP/3/16	15.00	16.00	1.00	38.21	0.21	29.21	0.96	0.55	29.44	0.097	0.101		
17	16.00	17.00	1.00	0.54	1.00	54	10	V.Poor	LST	Grey limestone	NX	1	17	MP/3/17	16.00	17.00	1.00	38.95	0.20	27.42	1.17	0.60	30.12	0.108	0.124	Broken core	
18	17.00	18.00	1.00	0.53	1.00	53	33	Poor	LST	Grey limestone	NX	1	18	MP/3/18	17.00	18.00	1.00	36.72	0.21	32.03	1.04	0.49	28.05	0.140	0.105	pyrite	
19	18.00	19.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	2	19	MP/3/19	18.00	19.00	1.00	39.78	0.28	25.65	1.10	0.58	31.03	0.224	0.105	Broken core	
20	19.00	20.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	2	20	MP/3/20	19.00	20.00	1.00	39.93	0.23	25.95	1.02	0.61	30.80	0.102	0.110	Broken core	
21	20.00	21.00	1.00	0.76	1.00	76	52	Fair	MLST	Grey massive limestone	NX	2	21	MP/3/21	20.00	21.00	1.00	40.53	0.30	24.72	1.06	0.61	31.28	0.116	0.124		
22	21.00	22.00	1.00	0.81	1.00	81	59	Fair	MLST	Grey massive limestone	NX	2	22	MP/3/22	21.00	22.00	1.00	41.25	0.26	23.88	0.88	0.60	31.77	0.094	0.121		
23	22.00	23.00	1.00	0.80	1.00	80	43	Poor	MLST	Grey massive limestone	NX	2	23	MP/3/23	22.00	23.00	1.00	40.45	0.24	25.67	0.80	0.54	30.93	0.112	0.112		
24	23.00	24.00	1.00	0.71	1.00	71	60	Fair	LST	Grey limestone	NX	2	24	MP/3/24	23.00	24.00	1.00	38.53	0.42	22.45	2.22	0.60	33.77	0.516	0.108	Broken core	
25	24.00	25.00	1.00	0.50	1.00	50	30	Poor	LST	Grey limestone	NX	2	25	MP/3/25	24.00	25.00	1.00	37.89	0.41	25.77	1.88	0.56	31.33	0.557	0.119	water loss	
26	25.00	26.00	1.00	0.56	1.00	56	69	Fair	MLST	Grey massive limestone	NX	2	26	MP/3/26	25.00	26.00	1.00	41.63	0.40	21.50	1.72	0.99	32.05	0.027	0.181	water loss	
27	26.00	27.00	1.00	0.87	1.00	87	55	Fair	MLST	Grey massive limestone	NX	3	27	MP/3/27	26.00	27.00	1.00	41.53	0.25	23.83	0.85	0.52	31.63	0.020	0.121		
28	27.00	28.00	1.00	0.91	1.00	91	38	Poor	MLST	Grey massive limestone	NX	3	28	MP/3/28	27.00	28.00	1.00	42.96	0.25	20.47	1.04	0.65	33.40	0.021	0.105		
29	28.00	29.00	1.00	0.90	1.00	90	27	Poor	MLST	Grey massive limestone	NX	3	29	MP/3/29	28.00	29.00	1.00	44.76	0.25	17.86	0.76	0.46	34.60	0.008	0.101		
30	29.00	30.00	1.00	0.90	1.00	90	55	Fair	MLST	Grey massive limestone	NX	3	30	MP/3/30	29.00	30.00	1.00	45.09	0.25	17.30	0.71	0.43	35.02	0.012	0.094		
31	30.00	31.00	1.00	0.92	1.00	92	53	Fair	MLST	Grey massive limestone	NX	3	31	MP/3/31	30.00	31.00	1.00	45.68	0.25	15.79	0.76	0.41	35.92	0.012	0.112		
32	31.00	32.00	1.00	0.90	1.00	90	71	Fair	MLST	Grey massive limestone	NX	4	32	MP/3/32	31.00	32.00	1.00	46.35	0.22	14.60	0.71	0.38	36.54	0.005	0.094		
33	32.00	33.00	1.00	0.90	1.00	90	50	Fair	MLST	Grey massive limestone	NX	4	33	MP/3/33	32.00	33.00	1.00	47.12	0.29	13.64	0.66	0.44	36.67	0.015	0.103		
34	33.00	34.00	1.00	0.85	1.00	85	86	Good	MLST	Grey massive limestone	NX	4	34	MP/3/34	33.00	34.00	1.00	45.97	0.30	15.85	0.61	0.36	35.79	0.017	0.092		
35	34.00	35.00	1.00	0.92	1.00	92	71	Fair	MLST	Grey massive limestone	NX	4	35	MP/3/35	34.00	35.00	1.00	46.55	0.31	14.32	0.72	0.44	36.41	0.023	0.099		
36	35.00	36.00	1.00	0.87	1.00	87	35	Poor	MLST	Grey massive limestone	NX	4	36	MP/3/36	35.00	36.00	1.00	47.41	0.30	12.78	0.68	0.41	37.20	0.026	0.087		
37	36.00	37.00	1.00	0.80	1.00	80	44	Poor	MLST	Grey massive limestone	NX	4	37	MP/3/37	36.00	37.00	1.00	46.02	0.28	15.78	0.61	0.38	35.74	0.018	0.094		
38	37.00	38.00	1.00	0.93	1.00	93	20	V.Poor	MLST	Grey massive limestone	NX	5	38	MP/3/38	37.00	38.00	1.00	45.20	0.26	16.90	0.67	0.38	35.38	0.016	0.099		
39	38.00	39.00	1.00	0.92	1.00	92	0	V.Poor	MLST	Grey massive limestone	NX	5	39	MP/3/39	38.00	39.00	1.00	46.50	0.30	14.44	0.71	0.44	36.34	0.030	0.110		
40	39.00	40.00	1.00	0.80	1.00	80	60	Fair	MLST	Grey massive limestone	NX	5	40	MP/3/40	39.00	40.00	1.00	40.47	0.20	25.51	1.04	0.55	30.81	0.049	0.112		
41	40.00	41.00	1.00	0.77	1.00	77	23	V.Poor	LST	Grey limestone	NX	5	41	MP/3/41	40.00	41.00	1.00	38									

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD /BH /4
Azimuth	NA
Inclination	VERTICAL
RL-Collar	97.213m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 40.018" E
Longitude	16° 38' 45.126" N
Date of Commencement	05.05.2020
Date of Completion	09.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				YCS	Yellow clayey soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00		1.00				YCS	Yellow clayey soil	NX	1	4		3.00	4.00	1.00									Overburden	
5	4.00	5.00	1.00		1.00				SS	Sandy soil	NX	1	5		4.00	5.00	1.00									Overburden	
6	5.00	6.00	1.00		1.00				SS	Sandy soil	NX	1	6		5.00	6.00	1.00									Overburden	
7	6.00	7.00	1.00		1.00				SS	Sandy soil	NX	1	7		6.00	7.00	1.00									Overburden	
8	7.00	8.00	1.00		1.00				SS	Sandy soil	NX	1	8		7.00	8.00	1.00									Overburden	
9	8.00	9.00	1.00		1.00				SS	Sandy soil	NX	1	9		8.00	9.00	1.00									Overburden	
10	9.00	10.00	1.00	0.30	1.00	30	0	V.Poor	MLST	Grey massive limestone	NX	1	10	MP/4/10	9.00	10.00	1.00	44.42	0.19	15.70	1.58	3.00	33.71	0.015	0.121	Broken core	
11	10.00	11.00	1.00	0.55	1.00	55	13	V.Poor	MLST	Grey massive limestone	NX	1	11	MP/4/11	10.00	11.00	1.00	48.81	0.33	11.76	0.54	0.41	37.01	0.010	0.089	Broken core	
12	11.00	12.00	1.00	0.55	1.00	55	22	V.Poor	MLST	Grey massive limestone	NX	1	12	MP/4/12	11.00	12.00	1.00	48.18	0.35	12.51	0.53	0.43	36.90	0.007	0.078	Broken core	
13	12.00	13.00	1.00	0.78	1.00	78	10	V.Poor	MLST	Grey massive limestone	NX	1	13	MP/4/13	12.00	13.00	1.00	48.47	0.36	12.02	0.88	0.59	36.43	0.010	0.099	Broken core	
14	13.00	14.00	1.00	0.85	1.00	85	11	V.Poor	MLST	Grey massive limestone	NX	1	14	MP/4/14	13.00	14.00	1.00	47.39	0.38	14.01	0.60	0.50	35.96	0.007	0.082	Broken core	
15	14.00	15.00	1.00	0.78	1.00	78	12	V.Poor	MLST	Grey massive limestone	NX	1	15	MP/4/15	14.00	15.00	1.00	47.61	0.34	12.79	0.59	0.52	36.99	0.010	0.064		
16	15.00	16.00	1.00	0.70	1.00	70	25	Poor	MLST	Grey massive limestone	NX	2	16	MP/4/16	15.00	16.00	1.00	45.00	0.33	17.75	0.86	0.59	34.24	0.010	0.069		
17	16.00	17.00	1.00	0.75	1.00	75	14	V.Poor	MLST	Grey massive limestone	NX	2	17	MP/4/17	16.00	17.00	1.00	46.17	0.30	16.23	0.68	0.48	34.96	0.020	0.066		
18	17.00	18.00	1.00	0.75	1.00	75	11	V.Poor	MLST	Grey massive limestone	NX	2	18	MP/4/18	17.00	18.00	1.00	42.42	0.33	21.00	1.24	0.75	32.80	0.010	0.108	Water loss	
19	18.00	19.00	1.00	0.61	1.00	61	10	V.Poor	MLST	Grey massive limestone	NX	2	19	MP/4/19	18.00	19.00	1.00	43.30	0.30	20.13	0.78	0.54	33.69	0.010	0.071		
20	19.00	20.00	1.00	0.75	1.00	75	0	V.Poor	LST	Grey limestone	NX	2	20	MP/4/20	19.00	20.00	1.00	39.03	0.24	26.03	1.92	0.94	29.95	0.010	0.160		
21	20.00	21.00	1.00	0.63	1.00	63	0	V.Poor	MLST	Grey massive limestone	NX	2	21	MP/4/21	20.00	21.00	1.00	41.78	0.25	22.34	1.15	0.70	32.39	0.010	0.099		
22	21.00	22.00	1.00	0.68	1.00	68	0	V.Poor	LST	Grey limestone	NX	2	22	MP/4/22	21.00	22.00	1.00	33.79	0.44	34.58	2.07	1.52	25.91	0.007	0.172		
23	22.00	23.00	1.00	0.70	1.00	70	13	V.Poor	LST	Grey limestone	NX	2	23	MP/4/23	22.00	23.00	1.00	34.17	0.49	33.74	1.97	1.63	26.36	0.010	0.142		
24	23.00	24.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	3	24	MP/4/24	23.00	24.00	1.00	38.90	0.30	27.04	1.39	1.10	29.98	0.012	0.085		
25	24.00	25.00	1.00	0.80	1.00	80	0	V.Poor	LST	Grey limestone	NX	3	25	MP/4/25	24.00	25.00	1.00	32.32	0.27	37.49	2.15	1.15	24.78	0.010	0.156	Water loss	
26	25.00	26.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	3	26	MP/4/26	25.00	26.00	1.00	21.69	0.08	51.72	4.54	1.72	17.68	0.007	0.089	Water loss	
27	26.00	27.00	1.00	0.58	1.00	58	0	V.Poor	LST	Grey limestone	NX	3	27	MP/4/27	26.00	27.00	1.00	38.59	0.19	29.39	0.41	0.68	29.75	0.007	0.030		
28	27.00	28.00	1.00	0.75	1.00	75	0	V.Poor	MLST	Grey massive limestone	NX	3	28	MP/4/28	27.00	28.00	1.00	43.37	0.18	20.70	0.80	0.59	33.19	0.005	0.057	Broken core	
29	28.00	29.00	1.00	0.53	1.00	53	0	V.Poor	MLST	Grey massive limestone	NX	3	29	MP/4/29	28.00	29.00	1.00	41.54	0.18	24.16	0.93	0.43	31.47	0.005	0.048	Broken core	
30	29.00	30.00	1.00	0.58	1.00	58	0	V.Poor	MLST	Grey massive limestone	NX	3	30	MP/4/30	29.00	30.00	1.00	40.39	0.15	25.47	1.12	0.78	30.70	0.010	0.053	Broken core	
31	30.00	31.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	3	31	MP/4/31	30.00	31.00	1.00	39.35	0.19	27.82	0.88	0.45	30.04	0.010	0.044		
32	31.00	32.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	4	32	MP/4/32	31.00	32.00	1.00	44.36	0.16	20.48	0.74	0.37	32.69	0.007	0.057		
33	32.00	33.00	1.00	0.67	1.00	67	0	V.Poor	MLST	Grey massive limestone	NX	4	33	MP/4/33	32.00	33.00	1.00	45.53	0.20	17.11	0.64	0.37	35.02	0.010	0.060		
34	33.00	34.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	4	34	MP/4/34	33.00	34.00	1.00	44.93	0.27	18.57	0.79	0.52	33.74	0.005	0.069	pyrite vein	
35	34.00	35.00	1.00	0.81	1.00	81	22	V.Poor	MLST	Grey massive limestone	NX	4	35	MP/4/35	34.00	35.00	1.00	44.89	0.23	17.90	0.68	0.49	34.59	0.017	0.069		
36	35.00	36.00	1.00	0.90	1.00	90	15	V.Poor	MLST	Grey massive limestone	NX	4	36	MP/4/36	35.00	36.00	1.00	45.04	0.22	17.80	0.67	0.45	34.67	0.005	0.066		
37	36.00	37.00	1.00	0.65	1.00	65	16	V.Poor	MLST	Grey massive limestone	NX	4	37	MP/4/37	36.00	37.00	1.00	42.62	0.23	21.39	0.97	0.61	32.87	0.005	0.094	broken core	
38	37.00	38.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	4	38	MP/4/38	37.00	38.00	1.00	43.72	0.22	20.30	0.93	0.57	33.01	0.010	0.078		
39	38.00	39.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	5	39	MP/4/39	38.00	39.00	1.00	40.08	0.20	25.04	1.03	0.55	30.75	0.005	0.087		
40	39.00	40.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	5	40	MP/4/40	39.00	40.00	1.00	42.37	0.19	22.49	0.85	0.57	32.25	0.010	0.073		
41	40.00	41.00	1.00	0.72	1.00	72	0	V.Poor	MLST	Grey massive limestone	NX	5	41														

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/5
Azimuth	NA
Inclination	VERTICAL
RL-Collar	104.451m
Total depth of BH	34 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 45' 45.576" E
longitude	16° 38' 19.391" N
Date of Commencement	26.04.2020
Date of Completion	02.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				YCS	Yellow clayey soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00		1.00				BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00									Overburden	
5	4.00	5.00	1.00		1.00				BCS	Black cotton soil	NX	1	5		4.00	5.00	1.00									Overburden	
6	5.00	6.00	1.00	0.30	1.00	30	0	V.Poor	LST	Grey limestone	NX	1	6	MP/5/6	5.00	6.00	1.00	37.29	0.09	20.68	2.40	8.04	30.16	0.012	0.101	Weathered	
7	6	7	1	0.95	1	95	0	V.Poor	MLST	Grey massive limestone	NX	1	7	MP/5/7	6.00	7.00	1.00	42.94	0.24	21.85	0.75	0.46	32.54	0.010	0.094		
8	7.00	8.00	1.00	0.75	1.00	75	22	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/5/8	7.00	8.00	1.00	46.91	0.27	14.58	0.64	0.46	35.99	0.010	0.096		
9	8.00	9.00	1.00	0.76	1.00	76	0	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/5/9	8.00	9.00	1.00	47.40	0.29	13.95	0.60	0.40	36.23	0.010	0.094		
10	9.00	10.00	1.00	0.72	1.00	72	10	V.Poor	MLST	Grey massive limestone	NX	1	10	MP/5/10	9.00	10.00	1.00	46.49	0.27	15.33	0.79	0.45	35.48	0.010	0.108		
11	10.00	11.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	2	11	MP/5/11	10.00	11.00	1.00	46.35	0.35	14.53	0.79	0.75	35.98	0.020	0.115		
12	11.00	12.00	1.00	0.75	1.00	75	12	V.Poor	MLST	Grey massive limestone	NX	2	12	MP/5/12	11.00	12.00	1.00	42.73	0.22	21.45	0.88	0.55	32.96	0.012	0.094		
13	12.00	13.00	1.00	0.82	1.00	82	35	Poor	MLST	Grey massive limestone	NX	2	13	MP/5/13	12.00	13.00	1.00	45.59	0.23	16.88	0.91	0.43	34.76	0.010	0.094		
14	13.00	14.00	1.00	0.80	1.00	80	46	Poor	MLST	Grey massive limestone	NX	2	14	MP/5/14	13.00	14.00	1.00	46.01	0.44	15.57	0.90	0.53	35.26	0.012	0.124		
15	14.00	15.00	1.00	0.75	1.00	75	12	V.Poor	MLST	Grey massive limestone	NX	2	15	MP/5/15	14.00	15.00	1.00	44.80	0.27	18.79	0.59	0.37	34.01	0.012	0.087		
16	15.00	16.00	1.00	0.75	1.00	75	29	Poor	MLST	Grey massive limestone	NX	2	16	MP/5/16	15.00	16.00	1.00	47.35	0.32	14.71	0.64	0.51	35.30	0.012	0.101		
17	16.00	17.00	1.00	0.78	1.00	78	34	Poor	MLST	Grey massive limestone	NX	2	17	MP/5/17	16.00	17.00	1.00	46.83	0.36	14.08	0.62	0.40	36.55	0.017	0.094		
18	17.00	18.00	1.00	0.72	1.00	72	56	Fair	MLST	Grey massive limestone	NX	3	18	MP/5/18	17.00	18.00	1.00	47.22	0.35	13.72	0.58	0.41	36.59	0.012	0.085		
19	18.00	19.00	1.00	0.90	1.00	90	50	Fair	MLST	Grey massive limestone	NX	4	19	MP/5/19	18.00	19.00	1.00	47.15	0.33	14.29	0.65	0.47	35.96	0.012	0.105		
20	19.00	20.00	1.00	0.78	1.00	78	35	Poor	MLST	Grey massive limestone	NX	4	20	MP/5/20	19.00	20.00	1.00	44.73	0.45	18.35	0.69	0.43	34.17	0.007	0.099	Pyrite vein	
21	20.00	21.00	1.00	0.72	1.00	72	31	Poor	MLST	Grey massive limestone	NX	4	21	MP/5/21	20.00	21.00	1.00	47.24	0.52	13.04	0.62	0.45	36.96	0.010	0.103		
22	21.00	22.00	1.00	0.91	1.00	91	67	Fair	MLST	Grey massive limestone	NX	4	22	MP/5/22	21.00	22.00	1.00	47.63	0.55	12.03	0.69	0.55	37.38	0.010	0.078		
23	22.00	23.00	1.00	0.90	1.00	90	60	Fair	MLST	Grey massive limestone	NX	4	23	MP/5/23	22.00	23.00	1.00	47.96	1.14	10.40	0.47	0.55	38.37	0.012	0.050		
24	23.00	24.00	1.00	0.85	1.00	85	77	Good	MLST	Grey massive limestone	NX	4	24	MP/5/24	23.00	24.00	1.00	47.98	1.45	9.57	0.58	0.60	38.69	0.015	0.050		
25	24.00	25.00	1.00	0.93	1.00	93	86	Good	MLST	Grey massive limestone	NX	5	25	MP/5/25	24.00	25.00	1.00	46.59	2.02	9.39	1.25	1.00	38.39	0.015	0.078		
26	25.00	26.00	1.00	0.90	1.00	90	70	Fair	MLST	Grey massive limestone	NX	5	26	MP/5/26	25.00	26.00	1.00	47.39	1.67	9.33	0.67	0.69	39.10	0.022	0.057		
27	26.00	27.00	1.00	0.81	1.00	81	77	Good	MLST	Grey massive limestone	NX	5	27	MP/5/27	26.00	27.00	1.00	49.73	1.13	6.49	0.53	0.59	40.32	0.020	0.053		
28	27.00	28.00	1.00	0.94	1.00	94	69	Fair	MLST	Grey massive limestone	NX	5	28	MP/5/28	27.00	28.00	1.00	49.27	1.34	6.68	0.69	0.70	40.10	0.015	0.069		
29	28.00	29.00	1.00	0.90	1.00	90	74	Fair	MLST	Grey massive limestone	NX	5	29	MP/5/29	28.00	29.00	1.00	49.53	1.23	6.56	0.62	0.71	40.16	0.020	0.064		
30	29.00	30.00	1.00	0.88	1.00	88	86	Good	MLST	Grey massive limestone	NX	5	30	MP/5/30	29.00	30.00	1.00	49.59	0.94	7.24	0.53	0.56	40.04	0.003	0.053		
31	30.00	31.00	1.00	0.95	1.00	95	66	Fair	MLST	Grey massive limestone	NX	6	31	MP/5/31	30.00	31.00	1.00	49.62	0.68	8.03	0.70	0.60	39.69	0.003	0.048		
32	31.00	32.00	1.00	0.94	1.00	94	39	Poor	MLST	Grey massive limestone	NX	6	32	MP/5/32	31.00	32.00	1.00	49.06	0.47	9.36	0.71	0.57	38.60	0.004	0.048		
33	32.00	33.00	1.00	0.91	1.00	91	36	Poor	MLST	Grey massive limestone	NX	6	33	MP/5/33	32.00	33.00	1.00	49.12	0.36	8.53	0.83	1.07	38.81	0.004	0.048		
34	33.00	34.00	1.00	0.95	1.00	95	35	Poor	MLST	Grey massive limestone	NX	6	34	MP/5/34	33.00	34.00	1.00	49.42	0.46	8.11	0.82	0.62	39.29	0.005	0.048		

ZONE	CaO%
I	34-40
II	40-45
III	45-48
IV	48+

RQD INDEX (%)	
≤25	Very Poor
≥25-50	Poor
≥50-75	Fair
≥75-90	Good
≥90-100	Excellent

Signature
Name of the Geologist : **Dr. G.Nagendra Babu**

Block	MADINAPADU LIMESTONE BLOCK
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/ 6
Azimuth	NA
Inclination	VERTICAL
RL-Collar	104.243m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 12.779" E
Longitude	16° 38' 19.339" N
Date of Commencement	17.04.2020
Date of Completion	22.04.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				YCS	Yellow clayey soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00		1.00				YCS	Yellow clayey soil	NX	1	4		3.00	4.00	1.00									Overburden	
5	4.00	5.00	1.00	0.32	1.00	32	0	V.Poor	LSTK	Limestone and Kankar	NX	1	5	MP/6/5	4.00	5.00	1.00	39.64	0.08	21.88	3.10	3.17	31.07	0.015	0.053	Core loss	
6	5.00	6.00	1.00	0.29	1.00	29	0	V.Poor	LSTK	Limestone and Kankar	NX	1	6	MP/6/6	5.00	6.00	1.00	39.26	0.06	21.68	3.19	3.10	31.50	0.028	0.050	Core loss	
7	6.00	7.00	1.00	0.37	1.00	37	0	V.Poor	LSTK	Limestone and Kankar	NX	1	7	MP/6/7	6.00	7.00	1.00	41.06	0.07	19.37	3.08	2.83	32.40	0.028	0.055	Broken core	
8	7	8	1	0.55	1	55	14	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/6/8	7	8	1	45.29	0.29	15.55	1.26	0.58	35.88	0.020	0.096	Broken core	
9	8	9	1	0.72	1	72	31	Poor	MLST	Grey massive limestone	NX	1	9	MP/6/9	8	9	1	45.97	0.49	15.41	0.76	0.55	35.60	0.022	0.096	Broken core	
10	9	10	1	0.8	1	80	27	Poor	MLST	Grey massive limestone	NX	1	10	MP/6/10	9	10	1	46.94	0.42	14.11	0.69	0.49	36.20	0.026	0.085		
11	10	11	1	0.82	1	82	38	Poor	MLST	Grey massive limestone	NX	1	11	MP/6/11	10	11	1	46.63	0.41	13.71	0.78	0.76	36.50	0.024	0.085		
12	11	12	1	0.86	1	86	38	Poor	MLST	Grey massive limestone	NX	2	12	MP/6/12	11	12	1	45.80	0.19	16.11	1.25	0.50	35.02	0.023	0.064		
13	12.00	13.00	1.00	0.82	1.00	82	13	Poor	MLST	Grey massive limestone	NX	2	13	MP/6/13	12.00	13.00	1.00	44.71	0.40	17.54	0.90	0.63	34.60	0.026	0.082		
14	13.00	14.00	1.00	0.80	1.00	80	13	V.Poor	LST	Grey limestone	NX	2	14	MP/6/14	13.00	14.00	1.00	39.52	0.34	26.71	1.45	0.75	29.68	0.029	0.140	Pyrite vein	
15	14.00	15.00	1.00	0.72	1.00	72	0	V.Poor	LST	Grey limestone	NX	2	15	MP/6/15	14.00	15.00	1.00	35.58	0.50	31.59	2.04	1.29	27.31	0.030	0.121	Pyrite vein	
16	15.00	16.00	1.00	0.61	1.00	61	12	V.Poor	MLST	Grey massive limestone	NX	2	16	MP/6/16	15.00	16.00	1.00	40.82	0.25	23.74	1.46	0.97	31.25	0.025	0.085	Pyrite vein	
17	16.00	17.00	1.00	0.85	1.00	85	43	Poor	MLST	Grey massive limestone	NX	2	17	MP/6/17	16.00	17.00	1.00	41.95	0.28	23.51	0.85	0.48	31.66	0.024	0.053	Pyrite vein	
18	17.00	18.00	1.00	0.68	1.00	68	42	Poor	MLST	Grey massive limestone	NX	2	18	MP/6/18	17.00	18.00	1.00	41.50	0.23	20.90	1.06	2.31	32.76	0.021	0.073	Pyrite vein	
19	18.00	19.00	1.00	0.67	1.00	67	21	V.Poor	MLST	Grey massive limestone	NX	3	19	MP/6/19	18.00	19.00	1.00	42.66	0.25	20.09	0.96	0.91	33.92	0.028	0.078	Caving of hole	
20	19.00	20.00	1.00	0.84	1.00	84	22	V.Poor	MLST	Grey massive limestone	NX	3	20	MP/6/20	19.00	20.00	1.00	42.96	0.22	20.38	1.07	0.64	33.48	0.023	0.082		
21	20.00	21.00	1.00	0.68	1.00	68	12	V.Poor	MLST	Grey massive limestone	NX	3	21	MP/6/21	20.00	21.00	1.00	42.66	0.27	21.01	0.84	0.52	33.49	0.023	0.064		
22	21.00	22.00	1.00	0.68	1.00	68	0	V.Poor	MLST	Grey massive limestone	NX	3	22	MP/6/22	21.00	22.00	1.00	40.40	0.21	25.45	1.08	0.64	30.93	0.018	0.085		
23	22.00	23.00	1.00	0.80	1.00	80	29	Poor	MLST	Grey massive limestone	NX	3	23	MP/6/23	22.00	23.00	1.00	41.87	0.21	23.78	0.90	0.47	31.54	0.020	0.073		
24	23.00	24.00	1.00	0.85	1.00	85	0	V.Poor	MLST	Grey massive limestone	NX	3	24	MP/6/24	23.00	24.00	1.00	42.06	0.19	22.16	1.08	0.54	32.74	0.017	0.076	Broken core	
25	24.00	25.00	1.00	0.75	1.00	75	11	V.Poor	LST	Grey limestone	NX	3	25	MP/6/25	24.00	25.00	1.00	39.75	0.19	27.20	1.02	0.53	30.09	0.017	0.073	Broken core	
26	25.00	26.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	4	26	MP/6/26	25.00	26.00	1.00	38.97	0.36	27.26	1.30	0.94	29.84	0.017	0.080	Broken core	
27	26.00	27.00	1.00	0.73	1.00	73	0	V.Poor	LST	Grey limestone	NX	4	27	MP/6/27	26.00	27.00	1.00	34.95	0.45	33.15	1.68	1.45	26.65	0.063	0.103	Broken core	
28	27.00	28.00	1.00	0.80	1.00	80	0	V.Poor	LST	Grey limestone	NX	4	28	MP/6/28	27.00	28.00	1.00	35.30	0.29	32.76	1.81	1.20	27.13	0.023	0.087	Broken core	
29	28.00	29.00	1.00	0.75	1.00	75	0	V.Poor	LST	Grey limestone	NX	4	29	MP/6/29	28.00	29.00	1.00	32.42	0.55	37.73	1.85	1.50	24.45	0.018	0.128	Broken core	
30	29.00	30.00	1.00	0.75	1.00	75	0	V.Poor	LST	Grey limestone	NX	4	30	MP/6/30	29.00	30.00	1.00	34.01	0.49	34.65	1.83	1.21	26.29	0.019	0.151	Broken core	
31	30.00	31.00	1.00	0.76	1.00	76	0	V.Poor	LST	Grey limestone	NX	4	31	MP/6/31	30.00	31.00	1.00	38.18	0.21	29.86	0.99	0.49	28.98	0.018	0.092		
32	31.00	32.00	1.00	0.82	1.00	82	0	V.Poor	LST	Grey limestone	NX	4	32	MP/6/32	31.00	32.00	1.00	33.97	0.15	35.05	2.30	0.92	25.86	0.018	0.110		
33	32.00	33.00	1.00	0.83	1.00	83	0	V.Poor	LST	Grey limestone	NX	5	33	MP/6/33	32.00	33.00	1.00	36.94	0.18	30.71	1.27	0.60	28.93	0.019	0.099		
34	33.00	34.00	1.00	0.88	1.00	88	0	V.Poor	LST	Grey limestone	NX	5	34	MP/6/34	33.00	34.00	1.00	35.20	0.19	34.01	1.45	0.60	27.08	0.021	0.126		
35	34.00	35.00	1.00	0.75	1.00	75	0	V.Poor	LST	Grey limestone	NX	5	35	MP/6/35	34.00	35.00	1.00	37.20	0.39	29.11	1.68	1.12	28.94	0.016	0.160		
36	35.00	36.00	1.00	0.85	1.00	85	0	V.Poor	LST	Grey limestone	NX	5	36	MP/6/36	35.00	36.00	1.00	36.33	0.31	31.92	1.36	0.85	27.76	0.018	0.142		
37	36.00	37.00	1.00	0.86	1.00	86	0	V.Poor	LST	Grey limestone	NX	5	37	MP/6/37	36.00	37.00	1.00	35.65	0.27	33.12	1.58	0.82	26.98	0.023	0.131		
38	37.00	38.00	1.00	0.65	1.00	65	0	V.Poor	LST	Grey limestone	NX	5	38	MP/6/38	37.00	38.00	1.00	38.35	0.21	29.34	0.93	0.45	29.47	0.016	0.108	Broken core	
39	38.00	39.00	1.00	0.75	1.00	75	0	V.Poor	LST	Grey limestone	NX																

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/7
Azimuth	NA
Inclination	VERTICAL
RL-Collar	96.844m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 39.939" E
longitude	16° 38' 19.313" N
Date of Commencement	18.04.2020
Date of Completion	27.04.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				BRS	Brown soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00	0.40	1.00	40	0	V.poor	MLST	Grey massive limestone	NX	1	4	MP/7/4	3.00	4.00	1.00	41.61	0.08	12.78	2.48	9.31	32.69	0.011	0.082	Broken core	
5	4.00	5.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	1	5	MP/7/5	4.00	5.00	1.00	46.41	0.44	14.27	0.61	0.52	36.58	0.010	0.133	Broken core	
6	5.00	6.00	1.00	0.55	1.00	55	21	V.Poor	MLST	Grey massive limestone	NX	1	6	MP/7/6	5.00	6.00	1.00	46.35	0.43	15.24	0.50	0.43	35.97	0.011	0.092	Broken core	
7	6.00	7.00	1.00	0.70	1.00	70	13	V.Poor	MLST	Grey massive limestone	NX	1	7	MP/7/7	6.00	7.00	1.00	47.34	0.29	13.96	0.44	0.37	36.55	0.010	0.092		
8	7.00	8.00	1.00	0.80	1.00	80	53	Fair	MLST	Grey massive limestone	NX	1	8	MP/7/8	7.00	8.00	1.00	47.31	0.30	14.00	0.55	0.36	36.43	0.009	0.082		
9	8.00	9.00	1.00	0.81	1.00	81	10	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/7/9	8.00	9.00	1.00	47.28	0.30	14.26	0.53	0.37	36.17	0.010	0.099		
10	9.00	10.00	1.00	0.65	1.00	65	33	.Poor	MLST	Grey massive limestone	NX	1	10	MP/7/10	9.00	10.00	1.00	46.98	0.35	14.01	0.57	0.43	36.53	0.015	0.101	Water loss	
11	10.00	11.00	1.00	0.68	1.00	68	12	V.Poor	MLST	Grey massive limestone	NX	1	11	MP/7/11	10.00	11.00	1.00	47.02	0.33	14.29	0.50	0.37	36.40	0.010	0.085		
12	11.00	12.00	1.00	0.86	1.00	86	42	Poor	MLST	Grey massive limestone	NX	2	12	MP/7/12	11.00	12.00	1.00	45.97	0.37	16.09	0.62	0.52	35.35	0.012	0.082		
13	12.00	13.00	1.00	0.80	1.00	80	38	Poor	MLST	Grey massive limestone	NX	2	13	MP/7/13	12.00	13.00	1.00	45.48	0.52	15.86	0.81	0.72	35.48	0.012	0.099		
14	13.00	14.00	1.00	0.85	1.00	85	63	Fair	MLST	Grey massive limestone	NX	2	14	MP/7/14	13.00	14.00	1.00	49.03	0.34	10.62	0.47	0.41	38.13	0.012	0.062		
15	14.00	15.00	1.00	0.90	1.00	90	70	Fair	MLST	Grey massive limestone	NX	2	15	MP/7/15	14.00	15.00	1.00	47.37	0.28	13.69	0.66	0.47	36.46	0.010	0.087		
16	15.00	16.00	1.00	0.88	1.00	88	53	Fair	MLST	Grey massive limestone	NX	2	16	MP/7/16	15.00	16.00	1.00	46.36	0.46	13.24	0.81	1.31	36.69	0.010	0.099		
17	16.00	17.00	1.00	0.81	1.00	81	23	V.Poor	MLST	Grey massive limestone	NX	2	17	MP/7/17	16.00	17.00	1.00	45.91	0.38	15.01	1.19	0.66	35.51	0.015	0.101		
18	17.00	18.00	1.00	0.65	1.00	65	11	V.Poor	MLST	Grey massive limestone	NX	3	18	MP/7/18	17.00	18.00	1.00	46.35	0.39	13.61	0.78	0.58	37.12	0.011	0.082		
19	18.00	19.00	1.00	0.80	1.00	80	38	Poor	MLST	Grey massive limestone	NX	3	19	MP/7/19	18.00	19.00	1.00	47.11	0.39	12.82	0.70	0.54	37.29	0.011	0.073		
20	19.00	20.00	1.00	0.68	1.00	68	0	V.Poor	MLST	Grey massive limestone	NX	3	20	MP/7/20	19.00	20.00	1.00	45.92	0.25	14.97	0.64	0.40	36.71	0.018	0.060		
21	20.00	21.00	1.00	0.88	1.00	88	10	V.Poor	MLST	Grey massive limestone	NX	3	21	MP/7/21	20.00	21.00	1.00	46.64	0.28	13.24	0.81	0.50	37.31	0.012	0.066		
22	21.00	22.00	1.00	0.95	1.00	95	48	Poor	MLST	Grey massive limestone	NX	3	22	MP/7/22	21.00	22.00	1.00	46.17	0.27	14.56	0.52	0.35	37.05	0.013	0.053		
23	22.00	23.00	1.00	0.92	1.00	92	46	Poor	MLST	Grey massive limestone	NX	3	23	MP/7/23	22.00	23.00	1.00	45.57	0.30	15.61	0.64	0.44	36.30	0.013	0.057		
24	23.00	24.00	1.00	0.81	1.00	81	20	Poor	MLST	Grey massive limestone	NX	3	24	MP/7/24	23.00	24.00	1.00	46.22	0.24	15.09	0.58	0.49	36.29	0.013	0.060		
25	24.00	25.00	1.00	0.78	1.00	78	0	Poor	MLST	Grey massive limestone	NX	4	25	MP/7/25	24.00	25.00	1.00	46.31	0.26	15.58	0.53	0.41	35.85	0.009	0.055		
26	25.00	26.00	1.00	0.75	1.00	75	21	Poor	MLST	Grey massive limestone	NX	4	26	MP/7/26	25.00	26.00	1.00	45.10	0.25	16.72	0.74	0.58	35.48	0.010	0.076		
27	26.00	27.00	1.00	0.75	1.00	75	10	V.Poor	MLST	Grey massive limestone	NX	4	27	MP/7/27	26.00	27.00	1.00	43.73	0.36	18.52	1.28	0.78	33.86	0.010	0.115		
28	27.00	28.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	4	28	MP/7/28	27.00	28.00	1.00	46.05	0.29	15.75	0.61	0.48	35.73	0.008	0.062		
29	28.00	29.00	1.00	0.72	1.00	72	0	V.poor	MLST	Grey massive limestone	NX	4	29	MP/7/29	28.00	29.00	1.00	42.39	0.32	21.49	0.89	0.62	33.02	0.008	0.101		
30	29.00	30.00	1.00	0.70	1.00	70	0	V.poor	MLST	Grey massive limestone	NX	4	30	MP/7/30	29.00	30.00	1.00	41.56	0.41	22.07	1.27	0.94	32.35	0.009	0.133		
31	30.00	31.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	4	31	MP/7/31	30.00	31.00	1.00	38.93	0.40	25.64	2.00	1.14	30.18	0.010	0.144		
32	31.00	32.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	5	32	MP/7/32	31.00	32.00	1.00	40.87	0.32	23.39	1.40	0.87	31.77	0.012	0.099		
33	32.00	33.00	1.00	0.62	1.00	62	0	V.Poor	LST	Grey limestone	NX	5	33	MP/7/33	32.00	33.00	1.00	39.48	0.34	26.20	1.48	0.96	29.98	0.017	0.117	Broken core	
34	33.00	34.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	5	34	MP/7/34	33.00	34.00	1.00	39.15	0.33	26.76	1.62	0.93	29.54	0.014	0.112	Broken core	
35	34.00	35.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	5	35	MP/7/35	34.00	35.00	1.00	39.22	0.35	25.90	1.80	1.06	29.54	0.105	0.135	Broken core	
36	35.00	36.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	5	36	MP/7/36	35.00	36.00	1.00	26.45	0.36	46.08	3.41	1.65	19.57	0.017	0.202	Broken core	
37	36.00	37.00	1.00	0.76	1.00	76	0	V.Poor	LST	Grey limestone	NX	5	37	MP/7/37	36.00	37.00	1.00	32.68	0.35	36.13	2.32	1.34	25.14	0.033	0.160	Broken core	
38	37.00	38.00	1.00	0.71	1.00	71	0	V.Poor	LST	Grey limestone	NX	5	38	MP/7/38	37.00	38.00	1.00	29.94	0.60	38.58	2.79	2.79	22.55	0.19			

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD /BH /8
Azimuth	NA
Inclination	VERTICAL
RL-Collar	101.289m
Total depth of BH	38 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 45' 18.394" E
longitude	16° 37' 53.537" N
Date of Commencement	14.05.2020
Date of Completion	17.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				BRS	Brown soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00		1.00				BRS	Brown soil	NX	1	4		3.00	4.00	1.00									Overburden	
5	4.00	5.00	1.00		1.00				BRS	Brown soil	NX	1	5		4.00	5.00	1.00									Overburden	
6	5.00	6.00	1.00		1.00				BRS	Brown soil	NX	1	6		5.00	6.00	1.00									Overburden	
7	6.00	7.00	1.00	0.40	1.00	40	0	V.Poor	LST	Grey limestone	NX	1	7	MP/8/7	6.00	7.00	1.00	36.98	0.25	31.60	1.13	0.70	28.00	0.009	0.087	Siliceous	
8	7.00	8.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	1	8	MP/8/8	7.00	8.00	1.00	36.24	0.19	33.09	1.17	0.57	27.34	0.009	0.108	Siliceous	
9	8.00	9.00	1.00	0.40	1.00	40	10	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/8/9	8.00	9.00	1.00	40.63	0.24	25.04	0.94	0.53	31.32	0.008	0.103		
10	9.00	10.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	1	10	MP/8/10	9.00	10.00	1.00	38.15	0.22	29.46	1.18	0.70	28.92	0.007	0.115		
11	10.00	11.00	1.00	0.70	1.00	70	13	V.Poor	MLST	Grey massive limestone	NX	1	11	MP/8/11	10.00	11.00	1.00	40.28	0.20	26.22	1.02	0.61	30.33	0.010	0.110		
12	11.00	12.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	1	12	MP/8/12	11.00	12.00	1.00	36.51	0.14	31.82	1.30	0.66	28.13	0.015	0.128	Siliceous	
13	12.00	13.00	1.00	0.70	1.00	70	30	Poor	MLST	Grey massive limestone	NX	1	13	MP/8/13	12.00	13.00	1.00	40.08	0.19	26.70	0.74	0.47	30.59	0.009	0.103		
14	13.00	14.00	1.00	0.78	1.00	78	24	Poor	MLST	Grey massive limestone	NX	2	14	MP/8/14	13.00	14.00	1.00	42.01	0.28	22.28	1.03	0.57	32.45	0.026	0.140		
15	14.00	15.00	1.00	0.70	1.00	70	13	V.Poor	LST	Grey limestone	NX	2	15	MP/8/15	14.00	15.00	1.00	39.66	0.23	27.51	0.86	0.49	29.96	0.024	0.105	Siliceous	
16	15.00	16.00	1.00	0.71	1.00	71	0	V.Poor	MLST	Grey massive limestone	NX	2	16	MP/8/16	15.00	16.00	1.00	41.69	0.27	23.62	0.81	0.51	31.83	0.021	0.105	Broken core	
17	16.00	17.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	2	17	MP/8/17	16.00	17.00	1.00	42.49	0.29	21.78	0.96	0.61	32.50	0.020	0.128	Broken core	
18	17.00	18.00	1.00	0.75	1.00	75	64	Fair	MLST	Grey massive limestone	NX	2	18	MP/8/18	17.00	18.00	1.00	41.34	0.27	24.35	0.81	0.57	31.40	0.022	0.103	Broken core	
19	18.00	19.00	1.00	0.60	1.00	60	30	Poor	MLST	Grey massive limestone	NX	2	19	MP/8/19	18.00	19.00	1.00	42.64	0.15	21.37	1.23	0.65	32.48	0.024	0.133	Broken core	
20	19.00	20.00	1.00	0.86	1.00	86	26	V.Poor	MLST	Grey massive limestone	NX	3	20	MP/8/20	19.00	20.00	1.00	40.77	0.26	25.34	0.74	0.45	31.18	0.024	0.105	Broken core	
21	20.00	21.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	3	21	MP/8/21	20.00	21.00	1.00	41.49	0.24	24.08	1.00	0.55	31.25	0.022	0.128	Broken core	
22	21.00	22.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	3	22	MP/8/22	21.00	22.00	1.00	42.18	0.19	22.76	1.09	0.63	31.69	0.022	0.133	Broken core	
23	22.00	23.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	3	23	MP/8/23	22.00	23.00	1.00	42.27	0.14	23.01	0.74	0.83	31.76	0.020	0.108	Broken core	
24	23.00	24.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	3	24	MP/8/24	23.00	24.00	1.00	42.70	0.24	22.27	0.68	0.48	32.38	0.022	0.096	Broken core	
25	24.00	25.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	3	25	MP/8/25	24.00	25.00	1.00	43.77	0.30	19.49	0.79	0.58	33.82	0.021	0.105	Broken core	
26	25.00	26.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	3	26	MP/8/26	25.00	26.00	1.00	46.20	0.29	15.54	0.59	0.46	35.72	0.024	0.101		
27	26.00	27.00	1.00	0.81	1.00	81	0	V.Poor	MLST	Grey massive limestone	NX	3	27	MP/8/27	26.00	27.00	1.00	47.32	0.32	13.68	0.76	0.49	36.17	0.008	0.108		
28	27.00	28.00	1.00	0.86	1.00	86	0	V.Poor	MLST	Grey massive limestone	NX	4	28	MP/8/28	27.00	28.00	1.00	47.29	0.18	13.56	0.62	0.40	36.76	0.007	0.096		
29	28.00	29.00	1.00	0.85	1.00	85	0	V.Poor	MLST	Grey massive limestone	NX	4	29	MP/8/29	28.00	29.00	1.00	47.10	0.25	14.33	0.65	0.41	36.04	0.017	0.085		
30	29.00	30.00	1.00	0.81	1.00	81	0	V.Poor	MLST	Grey massive limestone	NX	4	30	MP/8/30	29.00	30.00	1.00	46.55	0.16	15.03	0.64	0.62	35.76	0.018	0.101		
31	30.00	31.00	1.00	0.48	1.00	48	0	V.Poor	MLST	Grey massive limestone	NX	4	31	MP/8/31	30.00	31.00	1.00	47.65	0.22	12.16	0.62	1.01	37.15	0.021	0.101		
32	31.00	32.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	4	32	MP/8/32	31.00	32.00	1.00	45.83	0.30	16.28	0.72	0.42	35.20	0.018	0.105		
33	32.00	33.00	1.00	0.62	1.00	62	0	V.Poor	MLST	Grey massive limestone	NX	4	33	MP/8/33	32.00	33.00	1.00	47.63	0.30	12.65	0.68	0.44	37.12	0.014	0.066		
34	33.00	34.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	4	34	MP/8/34	33.00	34.00	1.00	48.29	0.40	11.18	0.64	0.74	37.49	0.015	0.053	Broken core	
35	34.00	35.00	1.00	0.65	1.00	65	23	V.Poor	MLST	Grey massive limestone	NX	5	35	MP/8/35	34.00	35.00	1.00	47.98	0.59	10.21	0.58	0.53	38.96	0.019	0.050		
36	35.00	36.00	1.00	0.60	1.00	60	42	Poor	MLST	Grey massive limestone	NX	5	36	MP/8/36	35.00	36.00	1.00	48.19	1.34	8.53	0.52	0.61	39.70	0.016	0.050	Broken core	
37	36.00	37.00	1.00	0.60	1.00	60	32	Poor	MLST	Grey massive limestone	NX		37	MP/8/37	36.00	37.00	1.00	45.04	0.96	14.64	1.04	0.96	35.98	0.018	0.101		
38	37.00	38.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	5	38	MP/8/38	37.00	38.00	1.00	44.48	0.79	16.30	1.16	0.98	34.81	0.014	0.117		

ZONE	CaO%
I	34-40
II	40-45
III	45-48
IV	48+

RQD INDEX (%)	
≤25	Very Poor
≥25-50	Poor
≥50-75	Fair
≥75-90	Good
>90-100	Excellent

Signature
Name of the Geologist : Dr. G.Nagendra Babu

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/9
Azimuth	NA
Inclination	VERTICAL
RL-Collar	107.41m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 45' 45.552" E
longitude	16° 37' 53.514" N
Date of Commencement	11.04.2020
Date of Completion	26.04.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %								
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00									Overburden
4	3.00	4.00	1.00		1.00				BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00									Overburden
5	4.00	5.00	1.00	0.40	1.00	40	0	V.Poor	LST	Grey limestone	NX	1	5	MP/9/5	4.00	5.00	1.00	37.69	0.19	29.25	1.23	1.25	29.19	0.014	0.069	Weathered
6	5.00	6.00	1.00	0.48	1.00	48	0	V.Poor	MLST	Grey massive limestone	NX	1	6	MP/9/6	5.00	6.00	1.00	42.34	0.21	22.64	0.75	0.45	32.50	0.014	0.069	Broken core
7	6.00	7.00	1.00	0.49	1.00	49	0	V.Poor	LST	Grey limestone	NX	1	7	MP/9/7	6.00	7.00	1.00	38.47	0.34	28.48	1.05	0.91	29.61	0.015	0.062	Broken core
8	7.00	8.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/9/8	7.00	8.00	1.00	41.06	0.37	24.11	1.33	0.99	30.84	0.015	0.080	
9	8.00	9.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	1	9	MP/9/9	8.00	9.00	1.00	37.20	0.35	31.54	1.16	0.81	27.70	0.014	0.099	siliceous
10	9.00	10.00	1.00	0.58	1.00	58	0	V.Poor	LST	Grey limestone	NX	1	10	MP/9/10	9.00	10.00	1.00	35.48	0.20	34.58	1.26	0.64	26.52	0.011	0.099	siliceous
11	10.00	11.00	1.00	0.62	1.00	62	0	V.Poor	LST	Grey limestone	NX	1	11	MP/9/11	10.00	11.00	1.00	38.98	0.31	27.91	1.35	0.96	29.16	0.008	0.135	siliceous
12	11.00	12.00	1.00	0.55	1.00	55	13	V.Poor	LST	Grey limestone	NX	1	12	MP/9/12	11.00	12.00	1.00	36.37	0.46	31.06	2.00	1.25	27.24	0.014	0.165	siliceous
13	12.00	13.00	1.00	0.70	1.00	70	26	Poor	MLST	Grey massive limestone	NX	2	13	MP/9/13	12.00	13.00	1.00	40.13	0.21	26.58	0.94	0.53	30.36	0.025	0.105	
14	13.00	14.00	1.00	0.65	1.00	65	0	V.Poor	LST	Grey limestone	NX	2	14	MP/9/14	13.00	14.00	1.00	38.10	0.21	30.27	0.90	0.55	28.77	0.015	0.110	Broken core
15	14.00	15.00	1.00	0.72	1.00	72	0	V.Poor	MLST	Grey massive limestone	NX	2	15	MP/9/15	14.00	15.00	1.00	40.16	0.21	26.43	0.99	0.55	30.48	0.016	0.110	
16	15.00	16.00	1.00	0.60	1.00	60	10	V.Poor	MLST	Grey massive limestone	NX	2	16	MP/9/16	15.00	16.00	1.00	41.69	0.28	23.10	1.23	0.80	31.54	0.012	0.176	Water loss
17	16.00	17.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	2	17	MP/9/17	16.00	17.00	1.00	42.92	0.31	20.93	1.11	0.70	32.79	0.011	0.160	
18	17.00	18.00	1.00	0.81	1.00	81	0	V.Poor	MLST	Grey massive limestone	NX	2	18	MP/9/18	17.00	18.00	1.00	42.12	0.30	22.57	0.91	0.62	32.31	0.014	0.121	
19	18.00	19.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	2	19	MP/9/19	18.00	19.00	1.00	42.99	0.23	21.79	0.76	0.54	32.56	0.013	0.112	
20	19.00	20.00	1.00	0.81	1.00	81	0	V.Poor	MLST	Grey massive limestone	NX	3	20	MP/9/20	19.00	20.00	1.00	42.60	0.24	21.72	0.89	0.67	32.72	0.013	0.108	
21	20.00	21.00	1.00	0.75	1.00	75	20	V.Poor	MLST	Grey massive limestone	NX	3	21	MP/9/21	20.00	21.00	1.00	42.88	0.24	21.89	0.72	0.48	32.70	0.009	0.108	
22	21.00	22.00	1.00	0.81	1.00	81	0	V.Poor	MLST	Grey massive limestone	NX	3	22	MP/9/22	21.00	22.00	1.00	41.52	0.24	23.92	0.83	0.54	31.84	0.008	0.108	
23	22.00	23.00	1.00	0.78	1.00	78	0	V.Poor	MLST	Grey massive limestone	NX	3	23	MP/9/23	22.00	23.00	1.00	43.16	0.26	21.46	0.77	0.64	32.60	0.008	0.103	
24	23.00	24.00	1.00	0.60	1.00	60	15	V.Poor	MLST	Grey massive limestone	NX	3	24	MP/9/24	23.00	24.00	1.00	46.61	0.28	14.81	0.58	0.44	36.24	0.019	0.089	Broken core
25	24.00	25.00	1.00	0.82	1.00	82	0	V.Poor	MLST	Grey massive limestone	NX	3	25	MP/9/25	24.00	25.00	1.00	45.93	0.30	15.97	0.72	0.49	35.46	0.022	0.094	Broken core
26	25.00	26.00	1.00	0.68	1.00	68	14	V.Poor	MLST	Grey massive limestone	NX	3	26	MP/9/26	25.00	26.00	1.00	47.89	0.26	12.90	0.64	0.41	36.84	0.011	0.096	Broken core
27	26.00	27.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	4	27	MP/9/27	26.00	27.00	1.00	46.96	0.21	15.15	0.72	0.47	35.43	0.009	0.080	Broken core
28	27.00	28.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	4	28	MP/9/28	27.00	28.00	1.00	46.23	0.31	16.03	0.73	0.40	35.18	0.022	0.103	Broken core
29	28.00	29.00	1.00	0.71	1.00	71	10	V.Poor	MLST	Grey massive limestone	NX	4	29	MP/9/29	28.00	29.00	1.00	48.09	0.44	12.31	0.62	0.39	37.08	0.020	0.085	
30	29.00	30.00	1.00	0.85	1.00	85	50	Fair	MLST	Grey massive limestone	NX	4	30	MP/9/30	29.00	30.00	1.00	48.38	0.92	10.06	0.56	0.47	38.55	0.023	0.062	
31	30.00	31.00	1.00	0.88	1.00	88	54	Fair	MLST	Grey massive limestone	NX	4	31	MP/9/31	30.00	31.00	1.00	49.64	1.09	7.08	0.64	0.62	39.80	0.040	0.050	
32	31.00	32.00	1.00	0.82	1.00	82	57	Fair	MLST	Grey massive limestone	NX	4	32	MP/9/32	31.00	32.00	1.00	48.98	0.84	9.01	0.73	0.58	38.81	0.027	0.055	
33	32.00	33.00	1.00	0.88	1.00	88	37	Poor	MLST	Grey massive limestone	NX	5	33	MP/9/33	32.00	33.00	1.00	49.24	0.72	8.44	0.56	0.49	39.52	0.022	0.048	
34	33.00	34.00	1.00	0.60	1.00	60	0	Poor	MLST	Grey massive limestone	NX	5	34	MP/9/34	33.00	34.00	1.00	48.48	1.42	7.98	0.50	0.64	39.94	0.026	0.048	Broken core
35	34.00	35.00	1.00	0.60	1.00	60	14	Poor	MLST	Grey massive limestone	NX	5	35	MP/9/35	34.00	35.00	1.00	49.26	1.27	7.82	0.52	0.62	39.59	0.019	0.050	Broken core
36	35.00	36.00	1.00	0.86	1.00	86	31	Poor	MLST	Grey massive limestone	NX	5	36	MP/9/36	35.00	36.00	1.00	48.65	1.24	8.54	0.58	0.60	39.39	0.027	0.053	
37	36.00	37.00	1.00	0.75	1.00	75	0	Poor	MLST	Grey massive limestone	NX	5	37	MP/9/37	36.00	37.00	1.00	48.24	0.80	10.82	0.69	0.58	37.80	0.023	0.048	
38	37.00	38.00	1.00	0.50	1.00	50	0	Poor	MLST	Grey massive limestone	NX	5	38	MP/9/38	37.00	38.00	1.00	48.61	0.42	9.41	0.80	0.65	38.87	0.035	0.048	
39	38.00	39.00	1.00	0.57	1.00	57	0	Poor	MLST	Grey massive limestone	NX	5	39	MP/9/39	38.00	39.00	1.00	48.92								

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/10
Azimuth	NA
Inclination	VERTICAL
RL-Collar	104.162m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 12.806" E
Longitude	16° 37' 53.486" N
Date of Commencement	09.04.2020
Date of Completion	19.04.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BRS	Brown soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				RS	Red soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00	0.15	1.00	15	0	V.Poor	LSTK	Limestone and Kankar	NX	1	4	MP/10/4	3.00	4.00	1.00	31.86	0.14	22.56	4.15	14.09	26.76	0.032	0.110	Highly weathered	
5	4.00	5.00	1.00	0.40	1.00	40	0	V.Poor	LSTK	Limestone and Kankar	NX	1	5	MP/10/5	4.00	5.00	1.00	31.93	0.11	32.28	4.53	4.37	25.94	0.028	0.128	Highly weathered	
6	5.00	6.00	1.00	0.25	1.00	25	0	V.Poor	LSTK	Limestone and Kankar	NX	1	6	MP/10/6	5.00	6.00	1.00	31.40	0.15	32.21	4.51	5.05	25.68	0.027	0.144	Highly weathered	
7	6.00	7.00	1.00	0.60	1.00	60	10	V.Poor	MLST	Grey massive limestone	NX	1	7	MP/10/7	6.00	7.00	1.00	45.37	0.35	17.21	0.57	0.47	34.85	0.020	0.087		
8	7.00	8.00	1.00	0.61	1.00	61	10	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/10/8	7.00	8.00	1.00	46.26	0.37	14.69	1.07	0.61	35.58	0.021	0.124		
9	8.00	9.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/10/9	8.00	9.00	1.00	46.43	0.37	14.34	0.79	0.57	36.32	0.022	0.099		
10	9.00	10.00	1.00	0.75	1.00	75	0	V.Poor	MLST	Grey massive limestone	NX	1	10	MP/10/10	9.00	10.00	1.00	45.37	0.47	16.12	0.83	0.62	35.37	0.026	0.112		
11	10.00	11.00	1.00	0.52	1.00	52	10	V.Poor	MLST	Grey massive limestone	NX	1	11	MP/10/11	10.00	11.00	1.00	47.25	0.40	13.00	0.68	0.55	36.93	0.026	0.076		
12	11.00	12.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	2	12	MP/10/12	11.00	12.00	1.00	42.58	0.14	17.81	1.74	2.06	34.35	0.028	0.062		
13	12.00	13.00	1.00	0.92	1.00	92	33	Poor	MLST	Grey massive limestone	NX	2	13	MP/10/13	12.00	13.00	1.00	45.44	0.21	14.24	1.34	1.58	35.89	0.025	0.064		
14	13.00	14.00	1.00	0.62	1.00	62	13	V.Poor	MLST	Grey massive limestone	NX	2	14	MP/10/14	13.00	14.00	1.00	47.64	0.38	12.68	0.57	0.51	37.04	0.023	0.069		
15	14.00	15.00	1.00	0.68	1.00	68	0	V.Poor	MLST	Grey massive limestone	NX	2	15	MP/10/15	14.00	15.00	1.00	46.80	0.40	13.67	0.71	0.57	36.68	0.019	0.080	Pyrite cubes	
16	15.00	16.00	1.00	0.60	1.00	60	10	V.Poor	MLST	Grey massive limestone	NX	2	16	MP/10/16	15.00	16.00	1.00	47.58	0.39	12.77	0.51	0.49	37.08	0.026	0.076		
17	16.00	17.00	1.00	0.78	1.00	78	27	Poor	MLST	Grey massive limestone	NX	2	17	MP/10/17	16.00	17.00	1.00	46.22	0.40	15.18	0.58	0.48	35.96	0.029	0.071		
18	17.00	18.00	1.00	0.70	1.00	70	11	V.Poor	MLST	Grey massive limestone	NX	2	18	MP/10/18	17.00	18.00	1.00	47.17	0.40	13.15	0.59	0.57	36.92	0.026	0.071		
19	18.00	19.00	1.00	0.81	1.00	81	10	V.Poor	MLST	Grey massive limestone	NX	3	19	MP/10/19	18.00	19.00	1.00	47.02	0.24	14.47	0.60	0.48	36.00	0.021	0.055		
20	19.00	20.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	3	20	MP/10/20	19.00	20.00	1.00	46.51	0.27	15.95	0.56	0.41	35.08	0.025	0.066		
21	20.00	21.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	3	21	MP/10/21	20.00	21.00	1.00	44.43	0.31	19.01	0.62	0.52	33.91	0.023	0.069		
22	21.00	22.00	1.00	0.85	1.00	85	0	V.Poor	MLST	Grey massive limestone	NX	3	22	MP/10/22	21.00	22.00	1.00	46.99	0.32	14.42	0.61	0.49	35.95	0.023	0.062		
23	22.00	23.00	1.00	0.85	1.00	85	0	V.Poor	MLST	Grey massive limestone	NX	3	23	MP/10/23	22.00	23.00	1.00	44.88	0.33	17.40	0.92	0.70	34.42	0.023	0.092		
24	23.00	24.00	1.00	0.72	1.00	72	0	V.Poor	LST	Grey limestone	NX	3	24	MP/10/24	23.00	24.00	1.00	39.87	0.47	24.74	1.64	1.09	30.49	0.025	0.135		
25	24.00	25.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	3	25	MP/10/25	24.00	25.00	1.00	44.11	0.33	19.01	0.81	0.63	33.81	0.026	0.066		
26	25.00	26.00	1.00	0.93	1.00	93	0	V.Poor	MLST	Grey massive limestone	NX	4	26	MP/10/26	25.00	26.00	1.00	43.17	0.25	21.42	0.74	0.52	32.63	0.019	0.071		
27	26.00	27.00	1.00	0.75	1.00	75	0	V.Poor	LST	Grey limestone	NX	4	27	MP/10/27	26.00	27.00	1.00	38.04	0.18	27.78	2.08	1.05	28.94	0.020	0.147	Siliceous	
28	27.00	28.00	1.00	0.65	1.00	65	0	V.Poor	LST	Grey limestone	NX	4	28	MP/10/28	27.00	28.00	1.00	37.78	0.34	28.42	1.75	1.10	28.91	0.021	0.137	Siliceous	
29	28.00	29.00	1.00	0.75	1.00	75	10	V.Poor	LST	Grey limestone	NX	4	29	MP/10/29	28.00	29.00	1.00	39.66	0.35	27.39	0.60	0.78	30.11	0.021	0.055	Siliceous	
30	29.00	30.00	1.00	0.65	1.00	65	10	V.Poor	MLST	Grey massive limestone	NX	4	30	MP/10/30	29.00	30.00	1.00	41.34	0.23	23.58	0.91	0.57	32.00	0.027	0.073		
31	30.00	31.00	1.00	0.88	1.00	88	22	V.Poor	MLST	Grey massive limestone	NX	4	31	MP/10/31	30.00	31.00	1.00	41.00	0.25	24.67	0.73	0.43	31.62	0.029	0.060		
32	31.00	32.00	1.00	0.50	1.00	50	10	V.Poor	LST	Grey limestone	NX	4	32	MP/10/32	31.00	32.00	1.00	38.31	0.23	29.85	0.89	0.74	28.73	0.016	0.078		
33	32.00	33.00	1.00	0.75	1.00	75	0	V.Poor	MLST	Grey massive limestone	NX	5	33	MP/10/33	32.00	33.00	1.00	43.03	0.26	20.49	1.03	0.67	33.13	0.020	0.092		
34	33.00	34.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	5	34	MP/10/34	33.00	34.00	1.00	42.95	0.31	21.05	1.09	0.72	32.48	0.016	0.096		
35	34.00	35.00	1.00	0.62	1.00	62	0	V.Poor	MLST	Grey massive limestone	NX	5	35	MP/10/35	34.00	35.00	1.00	42.41	0.24	22.23	0.79	0.51	32.58	0.016	0.071		
36	35.00	36.00	1.00	0.68	1.00	68	0	V.Poor	MLST	Grey massive limestone	NX	5	36	MP/10/36	35.00	36.00	1.00	40.42	0.25	25.74	1.12	0.78	30.28	0.019	0.103		
37	36.00	37.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	5	37	MP/10/37	36.00	37.00	1.00	40.99	0.20	25.16	0.83	0.53	30.97	0.028	0.073		
38	37.00	38.00	1.00	0.58	1.00	58	0	V.Poor	LST	Grey limestone	NX	5	38	MP/10/38	37.00	38.00	1.00	39.35	0.28	27.80	1.02	0.75	29.49	0.022	0.080	Siliceous	
39	38.00	39.00	1.00	0.81	1.00	81	0	V.Poor	LST	Grey limestone	NX	5	39	MP/10/39	38.00	39.00	1.00	35.83	0.43	32.58	1.50	1.24	26.94	0.019	0.112	Siliceous	
40	39.00	40.00	1.00	0.70	1.00	7																					

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/11
Azimuth	NA
Inclination	VERTICAL
RL-Collar	100.453m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 26.333" E
longitude	16° 37' 53.474" N
Date of Commencement	4/11/2020
Date of Completion	4/19/2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				YCS	Yellow clayey soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00	0.65	1.00	65	11	V.Poor	MLST	Grey massive limestone	NX	1	4	MP/11/4	3.00	4.00	1.00	47.75	0.42	11.66	0.71	0.87	37.24	0.041	0.124		
5	4.00	5.00	1.00	0.40	1.00	40	0	V.Poor	MLST	Grey massive limestone	NX	1	5	MP/11/5	4.00	5.00	1.00	42.87	0.25	15.41	1.98	3.26	34.73	0.022	0.089		
6	5.00	6.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	1	6	MP/11/6	5.00	6.00	1.00	47.25	0.40	13.41	0.52	0.45	36.83	0.019	0.080		
7	6.00	7.00	1.00		1.00				SS	Sandy soil	NX	1	7		6.00	7.00	1.00										
8	7.00	8.00	1.00	0.70	1.00	70	18	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/11/8	7.00	8.00	1.00	46.49	0.41	14.59	0.65	0.38	36.21	0.021	0.105		
9	8.00	9.00	1.00	0.75	1.00	75	29	Poor	MLST	Grey massive limestone	NX	1	9	MP/11/9	8.00	9.00	1.00	48.42	0.37	11.21	0.46	0.36	38.10	0.016	0.096		
10	9.00	10.00	1.00	0.66	1.00	66	27	Poor	MLST	Grey massive limestone	NX	1	10	MP/11/10	9.00	10.00	1.00	48.03	0.35	11.45	0.57	0.32	38.08	0.019	0.108		
11	10.00	11.00	1.00	0.60	1.00	60	26	Poor	MLST	Grey massive limestone	NX	1	11	MP/11/11	10.00	11.00	1.00	48.41	0.39	10.88	0.36	0.35	38.49	0.025	0.085		
12	11.00	12.00	1.00	0.70	1.00	70	33	Poor	MLST	Grey massive limestone	NX	2	12	MP/11/12	11.00	12.00	1.00	47.94	0.34	11.81	0.50	0.37	37.87	0.016	0.110		
13	12.00	13.00	1.00	0.81	1.00	81	21	V.Poor	MLST	Grey massive limestone	NX	2	13	MP/11/13	12.00	13.00	1.00	47.84	0.33	11.16	0.92	0.46	37.86	0.017	0.170		
14	13.00	14.00	1.00	0.76	1.00	76	16	V.Poor	MLST	Grey massive limestone	NX	2	14	MP/11/14	13.00	14.00	1.00	49.49	0.29	9.59	0.36	0.32	38.89	0.013	0.080		
15	14.00	15.00	1.00	0.66	1.00	66	21	V.Poor	MLST	Grey massive limestone	NX	2	15	MP/11/15	14.00	15.00	1.00	47.03	0.62	12.48	1.15	0.77	36.53	0.013	0.167		
16	15.00	16.00	1.00	0.65	1.00	65	20	V.Poor	MLST	Grey massive limestone	NX	2	16	MP/11/16	15.00	16.00	1.00	46.61	0.29	14.42	0.55	0.36	36.64	0.012	0.103		
17	16.00	17.00	1.00	0.76	1.00	76	20	V.Poor	MLST	Grey massive limestone	NX	2	17	MP/11/17	16.00	17.00	1.00	49.47	0.31	9.34	0.40	0.31	39.11	0.013	0.087		
18	17.00	18.00	1.00	0.75	1.00	75	0	V.Poor	MLST	Grey massive limestone	NX	2	18	MP/11/18	17.00	18.00	1.00	47.17	0.32	13.98	0.47	0.40	36.51	0.023	0.082		
19	18.00	19.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	3	19	MP/11/19	18.00	19.00	1.00	48.25	0.30	11.71	0.64	0.36	37.48	0.021	0.101		
20	19.00	20.00	1.00	0.76	1.00	76	60	Fair	MLST	Grey massive limestone	NX	3	20	MP/11/20	19.00	20.00	1.00	47.86	0.42	12.60	0.38	0.41	37.16	0.032	0.066		
21	20.00	21.00	1.00	0.80	1.00	80	52	Fair	MLST	Grey massive limestone	NX	3	21	MP/11/21	20.00	21.00	1.00	46.82	0.61	13.66	0.43	0.44	36.92	0.019	0.076		
22	21.00	22.00	1.00	0.80	1.00	80	42	Poor	MLST	Grey massive limestone	NX	3	22	MP/11/22	21.00	22.00	1.00	45.79	1.19	13.62	0.66	0.78	36.70	0.020	0.117		
23	22.00	23.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	3	23	MP/11/23	22.00	23.00	1.00	48.13	0.32	12.18	0.55	0.39	37.25	0.021	0.080		
24	23.00	24.00	1.00	0.61	1.00	61	0	V.Poor	MLST	Grey massive limestone	NX	3	24	MP/11/24	23.00	24.00	1.00	47.92	0.49	12.36	0.60	0.47	36.97	0.015	0.101		
25	24.00	25.00	1.00	0.71	1.00	71	13	V.Poor	MLST	Grey massive limestone	NX	3	25	MP/11/25	24.00	25.00	1.00	47.64	0.29	13.56	0.55	0.39	36.38	0.016	0.119		
26	25.00	26.00	1.00	0.66	1.00	66	39	Poor	MLST	Grey massive limestone	NX	3	26	MP/11/26	25.00	26.00	1.00	47.40	0.59	12.26	0.53	0.47	37.61	0.014	0.101	Caving	
27	26.00	27.00	1.00	0.71	1.00	71	31	Poor	MLST	Grey massive limestone	NX	4	27	MP/11/27	26.00	27.00	1.00	48.40	0.38	11.17	0.43	0.35	38.20	0.012	0.089		
28	27.00	28.00	1.00	0.76	1.00	76	0	V.Poor	MLST	Grey massive limestone	NX	4	28	MP/11/28	27.00	28.00	1.00	47.48	0.30	12.41	0.55	0.63	37.23	0.062	0.110		
29	28.00	29.00	1.00	0.60	1.00	60	12	V.Poor	MLST	Grey massive limestone	NX	4	29	MP/11/29	28.00	29.00	1.00	46.66	0.38	12.47	0.55	1.62	36.66	0.180	0.094		
30	29.00	30.00	1.00	0.76	1.00	76	17	V.Poor	MLST	Grey massive limestone	NX	4	30	MP/11/30	29.00	30.00	1.00	44.53	0.55	17.01	0.88	0.60	35.07	0.023	0.142		
31	30.00	31.00	1.00	0.70	1.00	70	10	V.Poor	MLST	Grey massive limestone	NX	4	31	MP/11/31	30.00	31.00	1.00	47.15	0.38	12.82	0.61	0.47	37.40	0.013	0.105		
32	31.00	32.00	1.00	0.65	1.00	65	10	V.Poor	MLST	Grey massive limestone	NX	4	32	MP/11/32	31.00	32.00	1.00	47.20	0.40	13.82	0.54	0.42	36.44	0.009	0.103		
33	32.00	33.00	1.00	0.61	1.00	61	0	V.Poor	MLST	Grey massive limestone	NX	4	33	MP/11/33	32.00	33.00	1.00	47.53	0.30	12.89	0.64	0.41	37.05	0.009	0.105		
34	33.00	34.00	1.00	0.76	1.00	76	23	V.Poor	MLST	Grey massive limestone	NX	4	34	MP/11/34	33.00	34.00	1.00	45.78	0.62	14.97	0.82	0.65	35.90	0.012	0.144	Pyrite	
35	34.00	35.00	1.00	0.75	1.00	75	0	V.Poor	MLST	Grey massive limestone	NX	5	35	MP/11/35	34.00	35.00	1.00	46.22	0.33	15.44	0.71	0.47	35.63	0.011	0.101		
36	35.00	36.00	1.00	0.61	1.00	61	0	V.Poor	MLST	Grey massive limestone	NX	5	36	MP/11/36	35.00	36.00	1.00	47.28	0.37	13.41	0.70	0.48	36.51	0.018	0.147		
37	36.00	37.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	5	37	MP/11/37	36.00	37.00	1.00	47.81	0.27	13.53	0.54	0.35	36.34	0.015	0.089		
38	37.00	38.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	5	38	MP/11/38	37.00	38.00	1.00	45.03	0.38	17.38	0.99	0.56	34.26	0.020	0.115		
39	38.00	39.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	5	39	MP/11/39	38.00	39.00	1.00	46.37	0.44	14.74	0.82	0.61	35.72	0.020	0.108		
40	39.00	40.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	5	40	MP/11/40	39.00	40.00	1.00	47.19	0.37	14.08	0.69	0.49	35.98	0.016	0.092		
41	40.00	41.00	1.00	0.50	1.00																						

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/12
Azimuth	NA
Inclination	VERTICAL
RL-Collar	107.139m
Total depth of BH	100 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 45' 59.141" E
Longitude	16° 37' 53.5" N
Date of Commencement	30.05.2019
Date of Completion	17.06.2019

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details			Analysis details (Major Radicals) in %										Remarks
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅		
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00										
4	3.00	4.00	1.00	0.46	1.00	46	22	V.Poor	MLST	Grey massive limestone	NX	1	4	MP/12/4	3.00	4.00	1.00	42.13	0.35	20.91	1.14	0.93	33.78	0.140	0.092	Broken core	
5	4.00	5.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	1	5	MP/12/5	4.00	5.00	1.00	41.92	0.36	21.03	1.27	0.96	33.65	0.120	0.096	Broken core	
6	5.00	6.00	1.00	0.40	1.00	40	0	V.Poor	MLST	Grey massive limestone	NX	1	6	MP/12/6	5.00	6.00	1.00	42.13	0.35	20.97	1.16	0.93	33.71	0.138	0.092	Broken core	
7	6.00	7.00	1.00	0.37	1.00	37	10	V.Poor	MLST	Grey massive limestone	NX	1	7	MP/12/7	6.00	7.00	1.00	41.83	0.35	21.34	1.16	0.94	33.63	0.090	0.094	Broken core	
8	7.00	8.00	1.00	0.38	1.00	38	0	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/12/8	7.00	8.00	1.00	42.19	0.34	21.02	1.12	1.01	33.56	0.120	0.094	Broken core	
9	8.00	9.00	1.00	0.68	1.00	68	10	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/12/9	8.00	9.00	1.00	42.10	0.35	21.27	1.14	0.98	33.39	0.118	0.092	Broken core	
10	9.00	10.00	1.00	0.64	1.00	64	11	V.Poor	MLST	Grey massive limestone	NX	1	10	MP/12/10	9.00	10.00	1.00	41.78	0.35	21.27	1.17	1.03	33.64	0.100	0.094	Broken core	
11	10.00	11.00	1.00	0.59	1.00	59	10	V.Poor	MLST	Grey massive limestone	NX	1	11	MP/12/11	10.00	11.00	1.00	42.11	0.35	21.06	1.16	0.97	33.60	0.110	0.094	Broken core	
12	11.00	12.00	1.00	0.87	1.00	87	20	V.Poor	MLST	Grey massive limestone	NX	2	12	MP/12/12	11.00	12.00	1.00	42.04	0.35	21.15	1.13	0.98	33.60	0.123	0.096	Broken core	
13	12.00	13.00	1.00	0.66	1.00	66	33	V.Poor	MLST	Grey massive limestone	NX	2	13	MP/12/13	12.00	13.00	1.00	41.97	0.34	21.18	1.16	0.97	33.63	0.103	0.092	Broken core	
14	13.00	14.00	1.00	0.70	1.00	70	11	V.Poor	MLST	Grey massive limestone	NX	2	14	MP/12/14	13.00	14.00	1.00	42.21	0.36	20.97	1.13	0.87	33.72	0.098	0.092	Broken core	
15	14.00	15.00	1.00	0.69	1.00	69	0	V.Poor	MLST	Grey massive limestone	NX	2	15	MP/12/15	14.00	15.00	1.00	41.89	0.39	21.22	1.29	0.92	33.51	0.143	0.094	Broken core	
16	15.00	16.00	1.00	0.49	1.00	49	0	V.Poor	MLST	Grey massive limestone	NX	2	16	MP/12/16	15.00	16.00	1.00	42.29	0.33	20.86	1.13	0.93	33.73	0.083	0.094	Broken core	
17	16.00	17.00	1.00	0.74	1.00	74	31	V.Poor	MLST	Grey massive limestone	NX	2	17	MP/12/17	16.00	17.00	1.00	42.28	0.36	20.89	1.13	0.90	33.71	0.093	0.094	Broken core	
18	17.00	18.00	1.00	0.70	1.00	70	34	V.Poor	MLST	Grey massive limestone	NX	2	18	MP/12/18	17.00	18.00	1.00	42.35	0.35	20.89	1.13	0.96	33.57	0.083	0.094	Broken core	
19	18.00	19.00	1.00	0.52	1.00	52	0	V.Poor	MLST	Grey massive limestone	NX	3	19	MP/12/19	18.00	19.00	1.00	42.23	0.33	21.10	1.10	0.98	33.51	0.088	0.096	Broken core	
20	19.00	20.00	1.00	0.73	1.00	73	0	V.Poor	MLST	Grey massive limestone	NX	3	20	MP/12/20	19.00	20.00	1.00	41.89	0.33	21.32	1.14	0.94	33.61	0.088	0.099	Broken core	
21	20.00	21.00	1.00	0.65	1.00	65	10	V.Poor	MLST	Grey massive limestone	NX	3	21	MP/12/21	20.00	21.00	1.00	41.99	0.33	21.21	1.14	0.99	33.58	0.073	0.092	Broken core	
22	21.00	22.00	1.00	0.48	1.00	48	0	V.Poor	MLST	Grey massive limestone	NX	3	22	MP/12/22	21.00	22.00	1.00	42.37	0.34	21.01	1.10	0.96	33.48	0.078	0.096	Broken core	
23	22.00	23.00	1.00	0.82	1.00	82	0	V.Poor	MLST	Grey massive limestone	NX	3	23	MP/12/23	22.00	23.00	1.00	42.34	0.32	21.01	1.09	0.88	33.62	0.053	0.092	Broken core	
24	23.00	24.00	1.00	0.71	1.00	71	0	V.Poor	MLST	Grey massive limestone	NX	3	24	MP/12/24	23.00	24.00	1.00	41.79	0.42	21.20	1.27	0.94	33.60	0.168	0.094	Broken core	
25	24.00	25.00	1.00	0.74	1.00	74	0	V.Poor	MLST	Grey massive limestone	NX	3	25	MP/12/25	24.00	25.00	1.00	41.40	0.40	21.59	1.31	0.92	33.59	0.168	0.096	Broken core	
26	25.00	26.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	3	26	MP/12/26	25.00	26.00	1.00	41.60	0.41	21.43	1.30	0.89	33.60	0.173	0.096	Broken core	
27	26.00	27.00	1.00	0.71	1.00	71	13	V.Poor	MLST	Grey massive limestone	NX	4	27	MP/12/27	26.00	27.00	1.00	41.55	0.40	21.24	1.35	0.94	33.72	0.195	0.101	Broken core	
28	27.00	28.00	1.00	0.62	1.00	62	20	V.Poor	MLST	Grey massive limestone	NX	4	28	MP/12/28	27.00	28.00	1.00	41.84	0.39	21.24	1.25	0.94	33.56	0.180	0.094	Broken core	
29	28.00	29.00	1.00	0.76	1.00	76	0	V.Poor	MLST	Grey massive limestone	NX	4	29	MP/12/29	28.00	29.00	1.00	41.85	0.39	21.09	1.26	1.00	33.64	0.170	0.096	Broken core	
30	29.00	30.00	1.00	0.74	1.00	74	0	V.Poor	MLST	Grey massive limestone	NX	4	30	MP/12/30	29.00	30.00	1.00	41.74	0.37	21.45	1.34	0.97	33.36	0.198	0.094	Broken core	
31	30.00	31.00	1.00	0.79	1.00	79	0	V.Poor	MLST	Grey massive limestone	NX	4	31	MP/12/31	30.00	31.00	1.00	41.69	0.41	21.21	1.29	0.93	33.69	0.213	0.094	Broken core	
32	31.00	32.00	1.00	0.86	1.00	86	10	V.Poor	MLST	Grey massive limestone	NX	4	32	MP/12/32	31.00	32.00	1.00	41.41	0.42	21.56	1.36	0.99	33.46	0.230	0.092	Broken core	
33	32.00	33.00	1.00	0.88	1.00	88	0	V.Poor	MLST	Grey massive limestone	NX	5	33	MP/12/33	32.00	33.00	1.00	42.21	0.39	20.83	1.22	0.81	33.77	0.173	0.094		
34	33.00	34.00	1.00	0.85	1.00	85	0	V.Poor	MLST	Grey massive limestone	NX	5	34	MP/12/34	33.00	34.00	1.00	41.99	0.39	21.03	1.26	0.92	33.66	0.138	0.092		
35	34.00	35.00	1.00	0.87	1.00	87	0	V.Poor	MLST	Grey massive limestone	NX	5	35	MP/12/35	34.00	35.00	1.00	42.53	0.42	20.32	1.30	0.99	33.61	0.193	0.101		
36	35.00	36.00	1.00	0.83	1.00	83	0	V.Poor	MLST	Grey massive limestone	NX	5	36	MP/12/36	35.00	36.00	1.00	41.53	0.41	21.36	1.37	0.90	33.65	0.185	0.096		
37	36.00	37.00	1.00	0.84	1.00	84	0	V.Poor	MLST	Grey massive limestone	NX	5	37	MP/12/37	36.00	37.00	1.00	41.10	0.38	21.82	1.36	0.94	33.60	0.168	0.099		
38	37.00	38.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	5	38	MP/12/38	37.00	38.00	1.00	41.17	0.42	21.60	1.37	0.91	33.76	0.153	0.101		
39	38.00	39.00	1.00	0.81	1.00	81	0	V.Poor	LST	Grey limestone	NX	6	39	MP/12/39	38.00	39.00	1.00	37.51	0.29	29.39	1.38	0.83	29.75	0.085	0.133	Siliceous	
40	39.00	40.0																									

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/13
Azimuth	NA
Inclination	VERTICAL
RL-Collar	104.747m
Total depth of BH	41 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 45' 32.017" E
longitude	16° 37' 53.524" N
Date of Commencement	18.05.2019
Date of Completion	15.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details			Sample Details				Analysis details (Major Radicals) in %										
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No	S. No	Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks		
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00										Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00										Overburden	
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00										Overburden	
4	3.00	4.00	1.00		1.00				BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00										Overburden	
5	4.00	5.00	1.00	0.40	1.00	40	16	V.Poor	MLST	Grey massive limestone	NX	1	5	MP/13/5	4.00	5.00	1.00	40.79	0.32	23.51	1.01	0.56	32.76	0.085	0.110		Broken core	
6	5.00	6.00	1.00	0.70	1.00	70	23	V.Poor	MLST	Grey massive limestone	NX	1	6	MP/13/6	5.00	6.00	1.00	40.95	0.34	23.16	0.99	0.57	32.95	0.085	0.115		Broken core	
7	6.00	7.00	1.00	0.90	1.00	90	36	Poor	MLST	Grey massive limestone	NX	1	7	MP/13/7	6.00	7.00	1.00	41.37	0.45	22.11	0.98	0.58	33.49	0.088	0.110			
8	7.00	8.00	1.00	0.95	1.00	95	59	Fair	MLST	Grey massive limestone	NX	2	8	MP/13/8	7.00	8.00	1.00	40.81	0.28	23.80	0.96	0.56	32.57	0.070	0.115			
9	8.00	9.00	1.00	0.95	1.00	95	50	Fair	MLST	Grey massive limestone	NX	2	9	MP/13/9	8.00	9.00	1.00	40.95	0.32	23.52	0.99	0.56	32.61	0.083	0.112			
10	9.00	10.00	1.00	0.98	1.00	98	50	Fair	MLST	Grey massive limestone	NX	2	10	MP/13/10	9.00	10.00	1.00	41.10	0.38	22.88	0.99	0.55	33.06	0.068	0.112			
11	10.00	11.00	1.00	0.97	1.00	97	69	Fair	MLST	Grey massive limestone	NX	2	11	MP/13/11	10.00	11.00	1.00	40.47	0.28	24.11	1.00	0.55	32.17	0.103	0.119			
12	11.00	12.00	1.00	0.96	1.00	96	51	Fair	MLST	Grey massive limestone	NX	2	12	MP/13/12	11.00	12.00	1.00	41.51	0.41	22.98	1.02	0.56	32.89	0.083	0.115			
13	12.00	13.00	1.00	0.90	1.00	90	63	Fair	MLST	Grey massive limestone	NX	3	13	MP/13/13	12.00	13.00	1.00	41.20	0.40	22.79	0.95	0.55	33.09	0.075	0.112			
14	13.00	14.00	1.00	0.90	1.00	90	72	Fair	MLST	Grey massive limestone	NX	3	14	MP/13/14	13.00	14.00	1.00	41.69	0.47	21.86	0.96	0.56	33.43	0.080	0.105			
15	14.00	15.00	1.00	0.95	1.00	95	89	Good	MLST	Grey massive limestone	NX	3	15	MP/13/15	14.00	15.00	1.00	41.79	0.48	21.65	0.94	0.58	33.54	0.080	0.105			
16	15.00	16.00	1.00	0.95	1.00	95	70	Fair	MLST	Grey massive limestone	NX	3	16	MP/13/16	15.00	16.00	1.00	40.74	0.30	23.82	0.96	0.58	32.57	0.053	0.110			
17	16.00	17.00	1.00	0.98	1.00	98	57	Fair	MLST	Grey massive limestone	NX	3	17	MP/13/17	16.00	17.00	1.00	42.22	0.61	20.35	0.98	0.64	34.16	0.130	0.108			
18	17.00	18.00	1.00	0.98	1.00	98	13	V.Poor	MLST	Grey massive limestone	NX	3	18	MP/13/18	17.00	18.00	1.00	41.28	0.42	22.45	0.99	0.63	33.19	0.078	0.110			
19	18.00	19.00	1.00	0.96	1.00	96	53	Fair	MLST	Grey massive limestone	NX	4	19	MP/13/19	18.00	19.00	1.00	41.40	0.45	22.09	1.02	0.60	33.41	0.088	0.110			
20	19.00	20.00	1.00	0.96	1.00	96	30	Poor	MLST	Grey massive limestone	NX	4	20	MP/13/20	19.00	20.00	1.00	41.68	0.49	21.66	0.96	0.56	33.64	0.063	0.105			
21	20.00	21.00	1.00	0.98	1.00	98	76	Good	MLST	Grey massive limestone	NX	4	21	MP/13/21	20.00	21.00	1.00	40.67	0.31	23.89	1.03	0.55	32.54	0.060	0.112			
22	21.00	22.00	1.00	0.92	1.00	92	54	Fair	MLST	Grey massive limestone	NX	4	22	MP/13/22	21.00	22.00	1.00	41.09	0.34	23.08	0.94	0.59	32.94	0.048	0.119			
23	22.00	23.00	1.00	0.93	1.00	93	96	Good	MLST	Grey massive limestone	NX	4	23	MP/13/23	22.00	23.00	1.00	42.11	0.45	21.59	0.88	0.57	33.37	0.045	0.112			
24	23.00	24.00	1.00	0.93	1.00	93	45	Poor	MLST	Grey massive limestone	NX	5	24	MP/13/24	23.00	24.00	1.00	41.18	0.43	22.79	1.00	0.56	33.02	0.040	0.112			
25	24.00	25.00	1.00	0.92	1.00	92	65	Fair	MLST	Grey massive limestone	NX	5	25	MP/13/25	24.00	25.00	1.00	40.72	0.36	23.66	1.00	0.57	32.68	0.033	0.117			
26	25.00	26.00	1.00	0.95	1.00	95	77	Fair	MLST	Grey massive limestone	NX	5	26	MP/13/26	25.00	26.00	1.00	41.51	0.44	22.26	0.93	0.59	33.25	0.035	0.110			
27	26.00	27.00	1.00	0.95	1.00	95	65	Fair	MLST	Grey massive limestone	NX	5	27	MP/13/27	26.00	27.00	1.00	40.61	0.34	23.65	1.04	0.56	32.78	0.043	0.115			
28	27.00	28.00	1.00	0.95	1.00	95	30	Poor	MLST	Grey massive limestone	NX	5	28	MP/13/28	27.00	28.00	1.00	41.18	0.40	22.76	0.97	0.56	33.10	0.038	0.115			
29	28.00	29.00	1.00	0.98	1.00	98	65	Fair	MLST	Grey massive limestone	NX	6	29	MP/13/29	28.00	29.00	1.00	42.36	0.65	20.35	0.98	0.59	34.04	0.085	0.103			
30	29.00	30.00	1.00	0.99	1.00	99	60	Fair	MLST	Grey massive limestone	NX	6	30	MP/13/30	29.00	30.00	1.00	40.93	0.31	23.56	0.97	0.59	32.61	0.058	0.115			
31	30.00	31.00	1.00	0.99	1.00	99	55	Fair	MLST	Grey massive limestone	NX	6	31	MP/13/31	30.00	31.00	1.00	41.50	0.44	22.07	0.97	0.58	33.38	0.113	0.110			
32	31.00	32.00	1.00	0.91	1.00	91	69	Fair	MLST	Grey massive limestone	NX	6	32	MP/13/32	31.00	32.00	1.00	40.55	0.29	24.04	0.97	0.54	32.57	0.095	0.110			
33	32.00	33.00	1.00	0.93	1.00	93	87	Good	MLST	Grey massive limestone	NX	6	33	MP/13/33	32.00	33.00	1.00	40.97	0.37	22.93	0.95	0.56	33.18	0.100	0.108			
34	33.00	34.00	1.00	0.95	1.00	95	96	Good	MLST	Grey massive limestone	NX	7	34	MP/13/34	33.00	34.00	1.00	41.15	0.48	22.16	1.10	0.61	33.42	0.163	0.117			
35	34.00	35.00	1.00	0.90	1.00	90	98	Good	MLST	Grey massive limestone	NX	7	35	MP/13/35	34.00	35.00	1.00	40.99	0.49	22.28	1.12	0.59	33.45	0.170	0.110			
36	35.00	36.00	1.00	0.90	1.00	90	78	Good	MLST	Grey massive limestone	NX	7	36	MP/13/36	35.00	36.00	1.00	40.80	0.43	22.74	1.07	0.60	33.29	0.175	0.112			
37	36.00	37.00	1.00	0.55	1.00	55	20	V.Poor	MLST	Grey massive limestone	NX	7	37	MP/13/37	36.00	37.00	1.00	40.57	0.36	23.61	1.10	0.58	32.71	0.135	0.108		Broken core	
38	37.00	38.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	7	38	MP/13/38	37.00	38.00	1.00	40.68	0.34	23.56	1.02	0.57	32.79	0.100	0.119		Broken core	
39	38.00	39.00	1.00	0.35	1.00	35	0	V.Poor	MLST	Grey massive limestone	NX	7	39	MP/13/39	38.00	39.00	1.00	40.65	0.31	23.83	1.04	0.61	32.52	0.078	0.117		Broken core	
40	39.00	40.00	1.00	0.50	1.00	50	20	V.Poor	MLST	Grey massive limestone	NX	7	40	MP/13/40	39.00	40.00	1.00	40.75	0.28	23.88	1.04	0.56	32.45	0.078	0.115		Broken core	
41	40.00	41.00	1.00	0.60	1.00	60	10	V.Poor	QTZ	Quartz vein	NX	7	41	MP/13/41	40.00	41.00	1.00	Not Analysed										

ZONE	CaO%
I	34-40
II	40-45
III	45-48
IV	48+

RQD INDEX (%)	
≤25	Very Poor
≥25-50	Poor
≥50-75	Fair
≥75-90	Good
≥90-100	Excellent

Signature
Name of the Geologist : Dr. G.Nagendra Babu

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/14
Azimuth	NA
Inclination	VERTICAL
RL-Collar	103.427m
Total depth of BH	49 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 45' 25.194" E
longitude	16° 38' 6.462" N
Date of Commencement	27.04.2019
Date of Completion	06.05.2019

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %								
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden
2	1.00	2.00	1.00	0.74	1.00	74	73	Fair	MLST	Grey massive limestone	NX	1	2	MP/14/2	1.00	2.00	1.00	48.73	0.87	9.10	1.23	0.78	38.75	0.068	0.057	
3	2.00	3.00	1.00	0.80	1.00	80	58	Fair	MLST	Grey massive limestone	NX	1	3	MP/14/3	2.00	3.00	1.00	48.45	0.84	9.24	1.34	0.81	38.75	0.080	0.046	
4	3.00	4.00	1.00	0.80	1.00	80	47	Poor	MLST	Grey massive limestone	NX	1	4	MP/14/4	3.00	4.00	1.00	48.61	0.85	9.17	1.28	0.80	38.73	0.083	0.046	
5	4.00	5.00	1.00	0.80	1.00	80	60	Fair	MLST	Grey massive limestone	NX	1	5	MP/14/5	4.00	5.00	1.00	48.58	0.88	9.15	1.28	0.76	38.82	0.080	0.050	
6	5.00	6.00	1.00	0.84	1.00	84	31	Poor	MLST	Grey massive limestone	NX	1	6	MP/14/6	5.00	6.00	1.00	48.79	0.89	8.98	1.26	0.78	38.77	0.075	0.060	
7	6.00	7.00	1.00	0.85	1.00	85	12	V.Poor	MLST	Grey massive limestone	NX	1	7	MP/14/7	6.00	7.00	1.00	48.84	0.86	8.98	1.21	0.83	38.75	0.078	0.050	
8	7.00	8.00	1.00	0.77	1.00	77	27	V.Poor	MLST	Grey massive limestone	NX	2	8	MP/14/8	7.00	8.00	1.00	48.01	0.55	10.08	1.56	0.94	37.93	0.245	0.048	
9	8.00	9.00	1.00	0.87	1.00	87	51	Fair	MLST	Grey massive limestone	NX	2	9	MP/14/9	8.00	9.00	1.00	48.18	0.54	10.00	1.52	0.92	37.93	0.215	0.044	
10	9.00	10.00	1.00	0.83	1.00	83	31	Poor	MLST	Grey massive limestone	NX	2	10	MP/14/10	9.00	10.00	1.00	48.26	0.54	9.94	1.50	0.93	37.89	0.283	0.044	
11	10.00	11.00	1.00	0.85	1.00	85	0	V.Poor	MLST	Grey massive limestone	NX	2	11	MP/14/11	10.00	11.00	1.00	48.27	0.53	9.92	1.47	0.95	37.91	0.305	0.050	
12	11.00	12.00	1.00	0.91	1.00	91	0	V.Poor	MLST	Grey massive limestone	NX	2	12	MP/14/12	11.00	12.00	1.00	48.21	0.52	9.96	1.51	0.93	37.92	0.275	0.041	
13	12.00	13.00	1.00	0.77	1.00	77	0	V.Poor	MLST	Grey massive limestone	NX	2	13	MP/14/13	12.00	13.00	1.00	47.94	0.53	10.08	1.56	0.99	37.93	0.355	0.050	
14	13.00	14.00	1.00	0.84	1.00	84	13	V.Poor	MLST	Grey massive limestone	NX	3	14	MP/14/14	13.00	14.00	1.00	48.09	0.52	9.98	1.52	0.93	38.03	0.265	0.044	
15	14.00	15.00	1.00	0.82	1.00	82	12	V.Poor	MLST	Grey massive limestone	NX	3	15	MP/14/15	14.00	15.00	1.00	48.85	0.54	9.42	0.80	0.57	39.26	0.100	0.053	
16	15.00	16.00	1.00	0.92	1.00	92	0	V.Poor	MLST	Grey massive limestone	NX	3	16	MP/14/16	15.00	16.00	1.00	49.24	0.52	9.02	0.84	0.58	39.23	0.090	0.055	
17	16.00	17.00	1.00	0.93	1.00	93	11	V.Poor	MLST	Grey massive limestone	NX	3	17	MP/14/17	16.00	17.00	1.00	49.16	0.52	9.05	0.85	0.58	39.25	0.085	0.053	
18	17.00	18.00	1.00	0.86	1.00	86	0	V.Poor	MLST	Grey massive limestone	NX	3	18	MP/14/18	17.00	18.00	1.00	49.23	0.52	9.02	0.94	0.54	39.20	0.065	0.060	
19	18.00	19.00	1.00	0.87	1.00	87	0	V.Poor	MLST	Grey massive limestone	NX	4	19	MP/14/19	18.00	19.00	1.00	49.40	0.51	8.95	0.76	0.54	39.29	0.060	0.050	
20	19.00	20.00	1.00	0.77	1.00	77	0	V.Poor	MLST	Grey massive limestone	NX	4	20	MP/14/20	19.00	20.00	1.00	49.39	0.50	9.01	0.77	0.55	39.23	0.068	0.055	
21	20.00	21.00	1.00	0.79	1.00	79	0	V.Poor	MLST	Grey massive limestone	NX	4	21	MP/14/21	20.00	21.00	1.00	49.33	0.50	8.94	0.77	0.63	39.27	0.060	0.053	
22	21.00	22.00	1.00	0.79	1.00	79	11	V.Poor	MLST	Grey massive limestone	NX	4	22	MP/14/22	21.00	22.00	1.00	49.49	0.47	8.27	1.19	0.60	39.29	0.090	0.057	
23	22.00	23.00	1.00	0.89	1.00	89	21	V.Poor	MLST	Grey massive limestone	NX	4	23	MP/14/23	22.00	23.00	1.00	49.62	0.45	8.25	1.12	0.60	39.27	0.083	0.046	
24	23.00	24.00	1.00	0.67	1.00	67	0	V.Poor	MLST	Grey massive limestone	NX	4	24	MP/14/24	23.00	24.00	1.00	48.41	0.34	9.69	1.50	0.88	38.39	0.198	0.050	Broken core
25	24.00	25.00	1.00	0.61	1.00	61	0	V.Poor	MLST	Grey massive limestone	NX	5	25	MP/14/25	24.00	25.00	1.00	48.48	0.34	9.59	1.48	0.83	38.50	0.145	0.050	Broken core
26	25.00	26.00	1.00	0.85	1.00	85	11	V.Poor	LST	Grey limestone	NX	5	26	MP/14/26	25.00	26.00	1.00	35.64	0.68	25.29	4.92	3.55	28.17	0.093	0.014	
27	26.00	27.00	1.00	0.91	1.00	91	10	V.Poor	LST	Grey limestone	NX	5	27	MP/14/27	26.00	27.00	1.00	35.56	0.66	25.37	4.90	3.56	28.19	0.093	0.002	
28	27.00	28.00	1.00	0.88	1.00	88	0	V.Poor	LST	Grey limestone	NX	5	28	MP/14/28	27.00	28.00	1.00	35.28	0.66	25.65	4.95	3.58	28.11	0.085	0.009	
29	28.00	29.00	1.00	0.83	1.00	83	0	V.Poor	LST	Grey limestone	NX	5	29	MP/14/29	28.00	29.00	1.00	35.41	0.67	25.40	4.95	3.56	28.26	0.085	0.007	
30	29.00	30.00	1.00	0.90	1.00	90	0	V.Poor	LST	Grey limestone	NX	5	30	MP/14/30	29.00	30.00	1.00	34.29	0.67	26.25	5.05	3.69	28.26	0.078	0.002	
31	30.00	31.00	1.00	0.92	1.00	92	0	V.Poor	LST	Grey limestone	NX	6	31	MP/14/31	30.00	31.00	1.00	34.72	0.68	26.12	5.08	3.66	27.94	0.085	0.009	
32	31.00	32.00	1.00	0.84	1.00	84	16	V.Poor	LST	Grey limestone	NX	6	32	MP/14/32	31.00	32.00	1.00	34.13	0.72	25.69	5.74	4.24	27.43	0.080	0.007	
33	32.00	33.00	1.00	0.85	1.00	85	0	V.Poor	LST	Grey limestone	NX	6	33	MP/14/33	32.00	33.00	1.00	34.07	0.70	25.61	5.65	4.18	27.75	0.053	0.002	
34	33.00	34.00	1.00	0.79	1.00	79	0	V.Poor	LST	Grey limestone	NX	6	34	MP/14/34	33.00	34.00	1.00	34.08	0.70	25.72	5.72	4.22	27.53	0.048	0.011	
35	34.00	35.00	1.00	0.90	1.00	90	0	V.Poor	LST	Grey limestone	NX	6	35	MP/14/35	34.00	35.00	1.00	34.14	0.69	25.71	5.66	4.19	27.58	0.055	0.007	
36	35.00	36.00	1.00	0.99	1.00	99	0	V.Poor	LST	Grey limestone	NX	6	36	MP/14/36	35.00	36.00	1.00	34.15	0.70	25.74	5.73	4.26	27.38	0.050	0.005	
37	36.00	37.00	1.00	0.84	1.00	84	0	V.Poor	LST	Grey limestone	NX	7	37	MP/14/37	36.00	37.00	1.00	34.16	0.70	25.68	5.70	4.24	27.49	0.040	0.007	
38	37.00	38.00	1.00	0.94	1.00	94	43	Poor	ILS	ntercalated limestone and sha	NX	7	38	MP/14/38	37.00	38.00	1.00	29.17	0.77	31.12	7.40	5.38	23.65	0.048	BDL	
39	38.00	39.00	1.00	0.81	1.00	81	38	Poor	ILS	ntercalated limestone and sha	NX	7	39	MP/14/39	38.00	39.00	1.00	29.30	0.77	30.93	7.38	5.35	23.79	0.043	BDL	
40	39.00	40.00	1.00	0.87	1.00	87	10	V.Poor	ILS	ntercalated limestone and sha	NX	7	40	MP/14/40	39.00	40.00	1.00	29.20	0.77	31.00	7.39	5.35	23.81	0.048	BDL	
41	40.00	41.00	1.00	0.87	1.00	87	24	V.Poor	ILS	ntercalated limestone and sha	NX	7	41	MP/14/41	40.00	41.00	1.00	29.27	0.84	31.09	7.43	5.36	23.62	0.033	BDL	
42	41.00	42.00	1.00	0.62	1.00	62	0	V.Poor	ILS	ntercalated limestone and sha	NX	8	42	MP/14/42	41.00	42.00	1.00	10.13	0.99	49.00	14.86	11.98	9.32	0.028	BDL	Broken core
43	42.00	43.00	1.00	0.58	1.00	58	11	V.Poor	ILS	ntercalated limestone and sha	NX	8	43	MP/14/43	42.00	43.00	1.00	9.34	0.98	49.69	15.49	11.91	9.03	0.028	BDL	Broken core
44	43.00	44.00	1.00	0.74	1.00	74	0	V.Poor	ILS	ntercalated limestone and sha	NX	8	44	MP/14/44	43.00	44.00	1.00	9.60	0.96	49.60	15.59	11.63	9.21	0.015	BDL	Broken core
45	44.00	45.00	1.00	0.70	1.00	70	0	V.Poor	ILS	ntercalated limestone and sha	NX	8	45	MP/14/45	44.00	45.00	1.00	9.89	0.95	49.50	15.27	11.60	9.38	0.015	BDL	Broken core
46	45.00	46.00	1.00	0.49	1.00	49	14	V.Poor	ILS	ntercalated limestone and sha	NX	8	46	MP/14/46	45.00	46.00	1.00	9.23	0.97	49.69	15.40	11.96	9.20	0.010	BDL	Broken core
47	46.00	47.00	1.00	0.39	1.00	39	0	V.Poor	ILS	ntercalated limestone and sha	NX	8	47	MP/14/47	46.00	47.00	1.00	9.54	0.99	49.32	15.36	11.99	9.22	0.015	BDL	Broken core
48	47.00	48.00	1.00	0.72	1.00	72	37	Poor	ILS	ntercalated limestone and sha	NX	8	48	MP/14/48	47.00	48.00	1.00	9.03	0.93	50.11	15.55	11.64	9.39	0.005	BDL	Broken core
49	48.00	49.00	1.00	0.53	1.00	53	10	V.Poor	ISQ	ntercalated shale and quartzit	NX	8	49	MP/14/49	48.00	49.00	1.00	4.98	0.59	73.53	7.59	7.24	4.21	BDL	BDL	Broken core

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/15
Azimuth	NA
Inclination	VERTICAL
RL-Collar	107.179m
Total depth of BH	55 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 45' 38.822" E
longitude	16° 38' 6.45" N
Date of Commencement	03.05.2019
Date of Completion	28.05.2019

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00	0.65	1.00	65	0	V.Poor	LST	Grey limestone	NX	1	4	MP/15/4	3.00	4.00	1.00	36.38	0.26	28.98	2.46	1.78	29.25	0.103	0.027	Broken core	
5	4.00	5.00	1.00	0.49	1.00	49	11	V.Poor	LST	Grey limestone	NX	1	5	MP/15/5	4.00	5.00	1.00	34.91	0.23	30.64	2.42	1.85	29.06	0.130	0.018	Broken core	
6	5.00	6.00	1.00	0.48	1.00	48	35	Poor	LST	Grey limestone	NX	1	6	MP/15/6	5.00	6.00	1.00	36.15	0.24	29.94	2.39	1.80	28.62	0.115	0.030	Broken core	
7	6.00	7.00	1.00	0.54	1.00	54	20	V.Poor	LST	Grey limestone	NX	1	7	MP/15/7	6.00	7.00	1.00	35.80	0.22	30.05	2.44	1.82	28.77	0.113	0.025	Broken core	
8	7.00	8.00	1.00	0.41	1.00	41	20	V.Poor	LST	Grey limestone	NX	1	8	MP/15/8	7.00	8.00	1.00	35.97	0.21	30.08	2.37	1.74	28.77	0.110	0.021	Broken core	
9	8.00	9.00	1.00	0.40	1.00	40	13	V.Poor	LST	Grey limestone	NX	1	9	MP/15/9	8.00	9.00	1.00	36.37	0.24	29.33	2.38	1.65	29.24	0.098	0.030	Broken core	
10	9.00	10.00	1.00	0.57	1.00	57	0	V.Poor	LST	Grey limestone	NX	1	10	MP/15/10	9.00	10.00	1.00	37.56	0.24	28.27	2.14	1.65	29.31	0.108	0.027	Broken core	
11	10.00	11.00	1.00	0.38	1.00	38	0	V.Poor	LST	Grey limestone	NX	1	11	MP/15/11	10.00	11.00	1.00	36.85	0.21	29.07	2.21	1.68	29.13	0.103	0.021	Broken core	
12	11.00	12.00	1.00	0.59	1.00	59	44	Poor	LST	Grey limestone	NX	1	12	MP/15/12	11.00	12.00	1.00	35.89	0.23	30.06	2.38	1.78	28.82	0.085	0.027	Broken core	
13	12.00	13.00	1.00	0.52	1.00	52	11	V.Poor	LST	Grey limestone	NX	2	13	MP/15/13	12.00	13.00	1.00	36.11	0.23	29.99	2.35	1.75	28.74	0.085	0.021	Broken core	
14	13.00	14.00	1.00	0.80	1.00	80	0	V.Poor	LST	Grey limestone	NX	2	14	MP/15/14	13.00	14.00	1.00	36.32	0.22	29.78	2.30	1.80	28.74	0.065	0.027	Broken core	
15	14.00	15.00	1.00	0.33	1.00	33	0	V.Poor	LST	Grey limestone	NX	2	15	MP/15/15	14.00	15.00	1.00	36.95	0.22	28.75	2.23	1.72	29.29	0.073	0.030	Broken core	
16	15.00	16.00	1.00	0.67	1.00	67	24	V.Poor	LST	Grey limestone	NX	2	16	MP/15/16	15.00	16.00	1.00	36.26	0.21	29.59	2.22	1.63	29.28	0.068	0.027	Broken core	
17	16.00	17.00	1.00	0.57	1.00	57	11	V.Poor	LST	Grey limestone	NX	2	17	MP/15/17	16.00	17.00	1.00	36.44	0.21	29.59	2.21	1.64	29.10	0.070	0.025	Broken core	
18	17.00	18.00	1.00	0.59	1.00	59	10	V.Poor	LST	Grey limestone	NX	2	18	MP/15/18	17.00	18.00	1.00	36.80	0.23	28.98	2.28	1.53	29.36	0.053	0.048	Broken core	
19	18.00	19.00	1.00	0.38	1.00	38	0	V.Poor	LST	Grey limestone	NX	2	19	MP/15/19	18.00	19.00	1.00	35.92	0.21	30.14	2.35	1.72	28.84	0.053	0.034	Broken core	
20	19.00	20.00	1.00	0.40	1.00	40	28	Poor	LST	Grey limestone	NX	2	20	MP/15/20	19.00	20.00	1.00	35.98	0.20	30.12	2.33	1.80	28.75	0.048	0.034	Broken core	
21	20.00	21.00	1.00	0.54	1.00	54	12	V.Poor	LST	Grey limestone	NX	2	21	MP/15/21	20.00	21.00	1.00	36.75	0.21	29.33	2.18	1.67	29.07	0.033	0.025	Broken core	
22	21.00	22.00	1.00	0.66	1.00	66	24	V.Poor	LST	Grey limestone	NX	3	22	MP/15/22	21.00	22.00	1.00	36.27	0.21	29.72	2.26	1.67	29.06	0.043	0.034	Broken core	
23	22.00	23.00	1.00	0.53	1.00	53	11	V.Poor	LST	Grey limestone	NX	3	23	MP/15/23	22.00	23.00	1.00	37.61	0.21	28.42	2.22	1.74	28.96	0.038	0.016	Broken core	
24	23.00	24.00	1.00	0.54	1.00	54	30	Poor	LST	Grey limestone	NX	3	24	MP/15/24	23.00	24.00	1.00	36.59	0.20	29.55	2.32	1.82	28.65	0.048	0.025	Broken core	
25	24.00	25.00	1.00	0.55	1.00	55	11	V.Poor	LST	Grey limestone	NX	3	25	MP/15/25	24.00	25.00	1.00	36.60	0.21	29.62	2.25	1.75	28.75	0.023	0.046	Broken core	
26	25.00	26.00	1.00	0.50	1.00	50	10	V.Poor	LST	Grey limestone	NX	3	26	MP/15/26	25.00	26.00	1.00	36.62	0.22	29.52	2.27	1.71	28.82	0.023	0.048	Broken core	
27	26.00	27.00	1.00	0.52	1.00	52	22	V.Poor	LST	Grey limestone	NX	3	27	MP/15/27	26.00	27.00	1.00	36.07	0.20	30.13	2.29	1.78	28.71	0.018	0.046	Broken core	
28	27.00	28.00	1.00	0.84	1.00	84	42	Poor	LST	Grey limestone	NX	3	28	MP/15/28	27.00	28.00	1.00	35.89	0.22	30.02	2.38	1.76	28.89	0.035	0.046	Broken core	
29	28.00	29.00	1.00	0.59	1.00	59	13	V.Poor	LST	Grey limestone	NX	3	29	MP/15/29	28.00	29.00	1.00	36.48	0.21	29.25	2.25	1.65	29.33	0.028	0.048	Broken core	
30	29.00	30.00	1.00	0.94	1.00	94	73	Fair	LST	Grey limestone	NX	4	30	MP/15/30	29.00	30.00	1.00	37.08	0.19	28.62	2.10	1.58	29.62	0.028	0.050	Broken core	
31	30.00	31.00	1.00	0.88	1.00	88	38	Poor	LST	Grey limestone	NX	4	31	MP/15/31	30.00	31.00	1.00	36.30	0.22	29.59	2.19	1.59	29.31	0.033	0.016	Broken core	
32	31.00	32.00	1.00	0.88	1.00	88	21	V.Poor	LST	Grey limestone	NX	4	32	MP/15/32	31.00	32.00	1.00	37.39	0.21	28.19	2.05	1.51	29.88	0.035	0.023	Broken core	
33	32.00	33.00	1.00	0.97	1.00	97	60	Fair	LST	Grey limestone	NX	4	33	MP/15/33	32.00	33.00	1.00	36.75	0.20	29.04	2.11	1.59	29.52	0.033	0.027	Broken core	
34	33.00	34.00	1.00		1.00				RS	Red soil	NX	4	34	MP/15/34	33.00	34.00	1.00	5.05	0.16	69.88	6.77	10.09	6.68	0.020	BDL		
35	34.00	35.00	1.00		1.00				RS	Red soil	NX	4	35	MP/15/35	34.00	35.00	1.00	8.14	0.29	63.91	8.13	7.79	10.10	0.038	BDL		
36	35.00	36.00	1.00	0.83	1.00	83	23	V.Poor	LST	Grey limestone	NX	4	36	MP/15/36	35.00	36.00	1.00	36.60	0.21	29.36	2.27	1.63	29.11	0.033	0.023		
37	36.00	37.00	1.00	0.95	1.00	95	25	Poor	MLST	Grey massive limestone	NX	5	37	MP/15/37	36.00	37.00	1.00	49.31	0.57	8.63	0.82	0.63	39.48	0.063	0.046		
38	37.00	38.00	1.00	0.91	1.00	91	37	Poor	MLST	Grey massive limestone	NX	5	38	MP/15/38	37.00	38.00	1.00	49.66	0.58	8.17	0.79	0.63	39.61	0.075	0.048		
39	38.00	39.00	1.00	0.91	1.00</																						

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/16
Azimuth	NA
Inclination	VERTICAL
RL-Collar	108.758m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 45' 52.365" E
longitude	16° 38' 6.438" N
Date of Commencement	21.05.2019
Date of Completion	17.04.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00		1.00				BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00									Overburden	
5	4.00	5.00	1.00		1.00				BCS	Black cotton soil	NX	1	5		4.00	5.00	1.00										
6	5.00	6.00	1.00	0.34	1.00	34	0	V.Poor	LSTK	Limestone and Kankar	NX	1	6	MP/16/6	5.00	6.00	1.00	37.57	0.13	24.61	3.63	2.71	30.34	0.062	0.087	Broken core	
7	6.00	7.00	1.00	0.60	1.00	60	28	Poor	MLST	Grey massive limestone	NX	1	7	MP/16/7	6.00	7.00	1.00	40.21	0.25	25.28	0.93	0.73	31.46	0.100	0.092	Broken core	
8	7.00	8.00	1.00	0.90	1.00	90	37	Poor	LST	Grey limestone	NX	1	8	MP/16/8	7.00	8.00	1.00	39.88	0.26	25.62	1.02	0.72	31.35	0.110	0.094		
9	8.00	9.00	1.00	0.51	1.00	51	37	Poor	MLST	Grey massive limestone	NX	1	9	MP/16/9	8.00	9.00	1.00	40.09	0.22	25.45	0.96	0.70	31.44	0.072	0.094	Broken core	
10	9.00	10.00	1.00	0.61	1.00	61	44	Poor	MLST	Grey massive limestone	NX	1	10	MP/16/10	9.00	10.00	1.00	41.22	0.25	23.36	0.87	0.69	32.45	0.080	0.096	Broken core	
11	10.00	11.00	1.00	0.8	1.00	80	37	Poor	MLST	Grey massive limestone	NX	1	11	MP/16/11	10.00	11.00	1.00	40.39	0.22	25.15	0.93	0.74	31.53	0.100	0.099		
12	11.00	12.00	1.00	0.63	1.00	63	37	Poor	MLST	Grey massive limestone	NX	1	12	MP/16/12	11.00	12.00	1.00	40.51	0.22	25.01	0.91	0.72	31.60	0.035	0.096		
13	12.00	13.00	1.00	0.55	1.00	55	68	Fair	LST	Grey limestone	NX	2	13	MP/16/13	12.00	13.00	1.00	39.87	0.22	25.35	1.06	0.73	31.71	0.120	0.094	Broken core	
14	13.00	14.00	1.00	0.91	1.00	91	90	Fair	MLST	Grey massive limestone	NX	2	14	MP/16/14	13.00	14.00	1.00	40.05	0.20	25.32	1.04	0.75	31.58	0.122	0.099	Pyrite	
15	14.00	15.00	1.00	0.83	1.00	83	72	Fair	MLST	Grey massive limestone	NX	2	15	MP/16/15	14.00	15.00	1.00	40.01	0.23	25.52	0.92	0.80	31.45	0.095	0.094		
16	15.00	16.00	1.00	0.87	1.00	87	22	V.Poor	LST	Grey limestone	NX	2	16	MP/16/16	15.00	16.00	1.00	39.85	0.23	25.61	1.02	0.79	31.43	0.135	0.094		
17	16.00	17.00	1.00	0.80	1.00	80	45	Poor	LST	Grey limestone	NX	2	17	MP/16/17	16.00	17.00	1.00	39.36	0.21	26.56	0.96	0.82	31.02	0.195	0.089		
18	17.00	18.00	1.00	0.86	1.00	86	51	Fair	LST	Grey limestone	NX	2	18	MP/16/18	17.00	18.00	1.00	39.57	0.20	25.66	1.02	1.08	31.42	0.085	0.096	Broken core	
19	18.00	19.00	1.00	0.71	1.00	71	40	Poor	LST	Grey limestone	NX	3	19	MP/16/19	18.00	19.00	1.00	39.66	0.23	25.57	0.93	1.24	31.33	0.105	0.094		
20	19.00	20.00	1.00	0.60	1.00	60	47	Poor	LST	Grey limestone	NX	3	20	MP/16/20	19.00	20.00	1.00	39.85	0.20	25.88	0.99	0.73	31.30	0.057	0.089	Water loss	
21	20.00	21.00	1.00	0.70	1.00	70	20	V.Poor	LST	Grey limestone	NX	3	21	MP/16/21	20.00	21.00	1.00	39.97	0.23	25.45	0.93	0.74	31.64	0.102	0.094	Broken coe	
22	21.00	22.00	1.00	0.65	1.00	65	22	V.Poor	LST	Grey limestone	NX	3	22	MP/16/22	21.00	22.00	1.00	39.84	0.19	25.52	1.03	0.72	31.64	0.102	0.094	Broken coe	
23	22.00	23.00	1.00	0.83	1.00	83	37	Poor	MLST	Grey massive limestone	NX	3	23	MP/16/23	22.00	23.00	1.00	40.16	0.24	24.94	0.97	1.01	31.61	0.107	0.094		
24	23.00	24.00	1.00	0.70	1.00	70	20	V.Poor	MLST	Grey massive limestone	NX	3	24	MP/16/24	23.00	24.00	1.00	40.77	0.20	24.08	0.96	0.79	32.16	0.120	0.094		
25	24.00	25.00	1.00	0.83	1.00	83	49	Poor	MLST	Grey massive limestone	NX	3	25	MP/16/25	24.00	25.00	1.00	40.29	0.21	24.83	0.94	0.72	31.97	0.065	0.094	Pyrite	
26	25.00	26.00	1.00	0.51	1.00	51	22	V.Poor	LST	Grey limestone	NX	4	26	MP/16/26	25.00	26.00	1.00	39.72	0.21	25.63	1.08	0.77	31.51	0.112	0.092	Water loss	
27	26.00	27.00	1.00	0.78	1.00	78	24	V.Poor	LST	Grey limestone	NX	4	27	MP/16/27	26.00	27.00	1.00	39.61	0.20	26.28	0.96	0.77	31.11	0.095	0.092	Broken core	
28	27.00	28.00	1.00	0.87	1.00	87	40	Poor	MLST	Grey massive limestone	NX	4	28	MP/16/28	27.00	28.00	1.00	40.11	0.22	25.48	0.93	0.74	31.48	0.092	0.094		
29	28.00	29.00	1.00	0.90	1.00	90	22	V.Poor	MLST	Grey massive limestone	NX	4	29	MP/16/29	28.00	29.00	1.00	40.30	0.20	25.08	0.95	0.73	31.69	0.090	0.094		
30	29.00	30.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	4	30	MP/16/30	29.00	30.00	1.00	40.36	0.24	24.97	0.93	0.75	31.71	0.082	0.089	Broken core	
31	30.00	31.00	1.00	0.50	1.00	50	10	V.Poor	LST	Grey limestone	NX	4	31	MP/16/31	30.00	31.00	1.00	39.93	0.22	25.71	0.99	0.74	31.35	0.092	0.096	Broken core	
32	31.00	32.00	1.00	0.81	1.00	81	20	V.Poor	LST	Grey limestone	NX	4	32	MP/16/32	31.00	32.00	1.00	39.77	0.22	25.82	0.95	0.73	31.44	0.080	0.094		
33	32.00	33.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	5	33	MP/16/33	32.00	33.00	1.00	39.96	0.17	25.71	1.01	0.76	31.33	0.100	0.094	Broken core	
34	33.00	34.00	1.00	0.91	1.00	91	20	V.Poor	LST	Grey limestone	NX	5	34	MP/16/34	33.00	34.00	1.00	39.55	0.19	26.45	1.02	0.75	30.98	0.080	0.092		
35	34.00	35.00	1.00	0.86	1.00	86	10	V.Poor	LST	Grey limestone	NX	5	35	MP/16/35	34.00	35.00	1.00	39.54	0.16	26.01	1.06	0.82	31.35	0.157	0.099		
36	35.00	36.00	1.00	0.83	1.00	83	24	V.Poor	LST	Grey limestone	NX	5	36	MP/16/36	35.00	36.00	1.00	39.58	0.16	26.13	1.05	0.80	31.22	0.135	0.096		
37	36.00	37.00	1.00	0.91	1.00	91	72	Fair	LST	Grey limestone	NX	5	37	MP/16/37	36.00	37.00	1.00	39.88	0.20	25.18	1.10	0.78	31.80	0.122	0.096		
38	37.00	38.00	1.00	0.72	1.00	72	15	V.Poor	LST	Grey limestone	NX	5	38	MP/16/38	37.00	38.00	1.00	39.56	0.18	25.98	1.04	0.78	31.38	0.117	0.099		
39	38.00	39.00	1.00	0.87	1.00	87	65	Good	MLST	Grey massive limestone	NX	6	39	MP/16/39	38.00	39.00	1.00	46.52	0.56	13.51	0.61	0.52	37.39	0.082	0.076		
40	39.00	40.00	1.00	0.70	1.00	70	37	Poor	MLST	Grey massive limestone	NX	6	40	MP/16/40	39.00	40.00	1.00	46.23	0.55	13.76	0.62	0.54	37.39	0.075	0.082		
41	40.00																										

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/17
Azimuth	NA
Inclination	VERTICAL
RL-Collar	106.888m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 5.957" E
Longitude	16° 38' 6.426" N
Date of Commencement	22.05.2019
Date of Completion	15.04.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									overburden	
3	2.00	3.00	1.00	0.10	1.00	10	0	V.Poor	KNK	Kankar and limestone	NX	1	3	MP/17/3	2.00	3.00	1.00	38.52	0.17	23.57	2.92	3.27	30.70	0.040	0.048	Loose and poor recovery	
4	3.00	4.00	1.00	0.10	1.00	10	0	V.Poor	KNK	Kankar and limestone	NX	1	4	MP/17/4	3.00	4.00	1.00	38.26	0.13	23.63	2.92	3.28	30.87	0.037	0.050	Loose and poor recovery	
5	4.00	5.00	1.00	0.15	1.00	15	0	V.Poor	KNK	Kankar and limestone	NX	1	5	MP/17/5	4.00	5.00	1.00	31.03	0.21	30.19	4.31	5.69	27.58	0.045	0.046	Loose and poor recovery	
6	5.00	6.00	1.00	0.10	1.00	10	0	V.Poor	KNK	Kankar and limestone	NX	1	6	MP/17/6	5.00	6.00	1.00	31.32	0.11	30.03	4.24	5.74	27.46	0.050	0.050	Loose and poor recovery	
7	6.00	7.00	1.00	0.35	1.00	35	0	V.Poor	MLST	Grey massive limestone	NX	1	7	MP/17/7	6.00	7.00	1.00	42.21	0.17	23.45	0.74	0.50	31.95	0.032	0.071	Broken core	
8	7.00	8.00	1.00	0.35	1.00	35	0	V.Poor	LST	Grey limestone	NX	1	8	MP/17/8	7.00	8.00	1.00	39.80	0.08	26.86	1.25	0.68	30.12	0.017	0.087	Broken core	
9	8.00	9.00	1.00	0.55	1.00	55	13	V.Poor	LST	Grey limestone	NX	1	9	MP/17/9	8.00	9.00	1.00	39.29	0.12	27.69	1.15	0.68	29.92	0.022	0.073	Broken core	
10	9.00	10.00	1.00	0.30	1.00	30	0	V.Poor	LST	Grey limestone	NX	1	10	MP/17/10	9.00	10.00	1.00	39.53	0.16	27.58	1.02	0.66	29.94	0.020	0.069	Broken core	
11	10.00	11.00	1.00	0.45	1.00	45	0	V.Poor	LST	Grey limestone	NX	1	11	MP/17/11	10.00	11.00	1.00	35.37	0.30	33.38	1.64	1.38	26.60	0.012	0.101	Broken core	
12	11.00	12.00	1.00	0.35	1.00	35	0	V.Poor	LST	Grey limestone	NX	1	12	MP/17/12	11.00	12.00	1.00	34.98	0.37	33.81	1.69	1.42	26.35	0.010	0.105	Broken core	
13	12.00	13.00	1.00	0.32	1.00	32	0	V.Poor	LST	Grey limestone	NX	1	13	MP/17/13	12.00	13.00	1.00	35.78	0.27	33.04	1.42	1.23	27.01	0.035	0.103	Broken core	
14	13.00	14.00	1.00	0.41	1.00	41	0	V.Poor	LST	Grey limestone	NX	1	14	MP/17/14	13.00	14.00	1.00	35.54	0.27	33.23	1.43	1.22	27.08	0.032	0.096	Broken core	
15	14.00	15.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	1	15	MP/17/15	14.00	15.00	1.00	37.81	0.11	31.51	0.98	0.73	28.13	0.007	0.069	Broken core	
16	15.00	16.00	1.00	0.40	1.00	40	0	V.Poor	LST	Grey limestone	NX	2	16	MP/17/16	15.00	16.00	1.00	36.67	0.34	31.23	1.44	1.08	28.15	0.007	0.103	Broken core	
17	16.00	17.00	1.00	0.60	1.00	60	38	Poor	LST	Grey limestone	NX	2	17	MP/17/17	16.00	17.00	1.00	36.79	0.36	31.24	1.38	1.05	27.97	0.020	0.092	Broken core	
18	17.00	18.00	1.00	0.55	1.00	55	10	V.Poor	LST	Grey limestone	NX	2	18	MP/17/18	17.00	18.00	1.00	36.46	0.32	32.50	1.22	0.98	27.54	0.007	0.089	Broken core	
19	18.00	19.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	2	19	MP/17/19	18.00	19.00	1.00	33.20	0.49	37.33	1.65	1.50	24.52	0.012	0.117		
20	19.00	20.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	2	20	MP/17/20	19.00	20.00	1.00	37.97	0.26	30.47	0.98	0.85	28.38	0.010	0.105		
21	20.00	21.00	1.00	0.55	1.00	55	0	V.Poor	LST	Grey limestone	NX	2	21	MP/17/21	20.00	21.00	1.00	36.95	0.16	32.30	1.11	0.81	27.55	0.012	0.112		
22	21.00	22.00	1.00	0.58	1.00	58	10	V.Poor	LST	Grey limestone	NX	2	22	MP/17/22	21.00	22.00	1.00	33.13	0.15	38.85	1.38	0.72	24.49	0.010	0.110		
23	22.00	23.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	2	23	MP/17/23	22.00	23.00	1.00	35.52	0.35	34.04	1.32	1.06	26.53	0.007	0.117	Broken core	
24	23.00	24.00	1.00	0.58	1.00	58	10	V.Poor	LST	Grey limestone	NX	2	24	MP/17/24	23.00	24.00	1.00	35.57	0.34	34.23	1.29	1.05	26.33	0.010	0.115	Broken core	
25	24.00	25.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	3	25	MP/17/25	24.00	25.00	1.00	36.76	0.30	32.24	1.17	0.91	27.58	0.007	0.135	Broken core	
26	25.00	26.00	1.00	0.43	1.00	43	0	V.Poor	LST	Grey limestone	NX	3	26	MP/17/26	25.00	26.00	1.00	35.66	0.40	33.07	1.50	1.19	26.93	0.010	0.128	Broken core	
27	26.00	27.00	1.00	0.48	1.00	48	0	V.Poor	LST	Grey limestone	NX	3	27	MP/17/27	26.00	27.00	1.00	35.79	0.42	32.97	1.40	1.19	27.03	0.012	0.133	Broken core	
28	27.00	28.00	1.00	0.30	1.00	30	0	V.Poor	LST	Grey limestone	NX	3	28	MP/17/28	27.00	28.00	1.00	33.38	0.40	37.39	1.59	1.18	24.82	0.047	0.112		
29	28.00	29.00	1.00	0.40	1.00	40	0	V.Poor	LST	Grey limestone	NX	3	29	MP/17/29	28.00	29.00	1.00	33.45	0.41	37.19	1.60	1.15	24.94	0.070	0.112		
30	29.00	30.00	1.00	0.60	1.00	60	12	V.Poor	LST	Grey limestone	NX	3	30	MP/17/30	29.00	30.00	1.00	36.42	0.20	32.79	1.10	0.81	27.56	0.067	0.099	Broken core	
31	30.00	31.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	3	31	MP/17/31	30.00	31.00	1.00	36.68	0.16	33.00	0.99	0.56	27.53	0.062	0.096	Broken core	
32	31.00	32.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	3	32	MP/17/32	31.00	32.00	1.00	37.32	0.20	31.47	1.12	0.66	28.08	0.057	0.110	Broken core	
33	32.00	33.00	1.00	0.62	1.00	62	20	V.Poor	LST	Grey limestone	NX	3	33	MP/17/33	32.00	33.00	1.00	37.23	0.21	31.62	1.20	0.63	27.95	0.050	0.110	Broken core	
34	33.00	34.00	1.00	0.58	1.00	58	0	V.Poor	LST	Grey limestone	NX	3	34	MP/17/34	33.00	34.00	1.00	39.72	0.20	26.60	1.19	0.80	30.30	0.027	0.135	Broken core	
35	34.00	35.00	1.00	0.63	1.00	63	0	V.Poor	LST	Grey limestone	NX	3	35	MP/17/35	34.00	35.00	1.00	36.81	0.22	32.29	1.07	0.61	27.82	0.047	0.103	Broken core	
36	35.00	36.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	4	36	MP/17/36	35.00	36.00	1.00	37.71	0.26	30.35	1.07	0.58	28.95	0.092	0.099	Broken core	
37	36.00	37.00	1.00	0.52																							

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/18
Azimuth	NA
Inclination	VERTICAL
RL-Collar	103.014m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 19.621" E
longitude	16° 38' 6.413" N
Date of Commencement	11.04.2020
Date of Completion	23.04.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %								
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00									
4	3.00	4.00	1.00	0.35	1.00	35	0	V.Poor	KNKL	Kanker and Limestone	NX	1	4	MP/18/4	3.00	4.00	1.00	31.19	0.13	17.63	3.83	17.39	28.26	0.037	0.082	Loose formation
5	4.00	5.00	1.00	0.65	1.00	65	20	V.Poor	MLST	Grey massive limestone	NX	1	5	MP/18/5	4.00	5.00	1.00	48.55	0.37	12.00	0.46	0.34	37.40	0.032	0.078	
6	5.00	6.00	1.00	0.80	1.00	80	47	Poor	MLST	Grey massive limestone	NX	1	6	MP/18/6	5.00	6.00	1.00	49.64	0.35	10.48	0.41	0.40	37.90	0.032	0.071	
7	6.00	7.00	1.00	0.82	1.00	82	34	Poor	MLST	Grey massive limestone	NX	1	7	MP/18/7	6.00	7.00	1.00	49.31	0.26	11.47	0.51	0.34	37.26	0.017	0.076	
8	7.00	8.00	1.00	0.78	1.00	78	0	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/18/8	7.00	8.00	1.00	49.68	0.34	10.24	0.48	0.37	37.77	0.045	0.087	
9	8.00	9.00	1.00	0.78	1.00	78	20	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/18/9	8.00	9.00	1.00	46.57	0.35	15.37	0.83	0.58	35.19	0.045	0.126	
10	9.00	10.00	1.00	0.70	1.00	70	20	V.Poor	MLST	Grey massive limestone	NX	2	10	MP/18/10	9.00	10.00	1.00	47.37	0.40	14.32	0.63	0.44	35.97	0.047	0.089	
11	10.00	11.00	1.00	0.80	1.00	80	20	V.Poor	MLST	Grey massive limestone	NX	2	11	MP/18/11	10.00	11.00	1.00	49.53	0.30	10.97	0.43	0.31	37.64	0.017	0.069	
12	11.00	12.00	1.00	0.88	1.00	88	71	Fair	MLST	Grey massive limestone	NX	2	12	MP/18/12	11.00	12.00	1.00	46.26	0.43	15.05	0.74	0.82	35.72	0.110	0.087	
13	12.00	13.00	1.00	0.80	1.00	80	53	Fair	MLST	Grey massive limestone	NX	2	13	MP/18/13	12.00	13.00	1.00	47.64	0.39	12.69	0.80	0.57	36.92	0.035	0.112	
14	13.00	14.00	1.00	0.91	1.00	91	47	Poor	MLST	Grey massive limestone	NX	2	14	MP/18/14	13.00	14.00	1.00	49.91	0.26	9.57	0.45	0.31	38.71	0.010	0.080	
15	14.00	15.00	1.00	0.75	1.00	75	42	Poor	MLST	Grey massive limestone	NX	2	15	MP/18/15	14.00	15.00	1.00	48.81	0.32	11.12	0.44	0.36	38.12	0.080	0.069	
16	15.00	16.00	1.00	0.95	1.00	95	61	Fair	MLST	Grey massive limestone	NX	3	16	MP/18/16	15.00	16.00	1.00	47.44	0.53	12.90	0.77	0.53	36.81	0.060	0.126	
17	16.00	17.00	1.00	0.80	1.00	80	54	Fair	MLST	Grey massive limestone	NX	3	17	MP/18/17	16.00	17.00	1.00	48.53	0.37	11.62	0.65	0.34	37.64	0.085	0.085	
18	17.00	18.00	1.00	0.87	1.00	87	82	Good	MLST	Grey massive limestone	NX	3	18	MP/18/18	17.00	18.00	1.00	46.62	0.46	14.81	0.61	0.40	36.21	0.115	0.073	
19	18.00	19.00	1.00	0.82	1.00	82	54	Fair	MLST	Grey massive limestone	NX	3	19	MP/18/19	18.00	19.00	1.00	48.92	0.27	11.18	0.51	0.33	37.87	0.115	0.103	
20	19.00	20.00	1.00	0.80	1.00	80	41	Poor	MLST	Grey massive limestone	NX	3	20	MP/18/20	19.00	20.00	1.00	47.27	0.72	13.40	0.56	0.48	36.69	0.130	0.085	
21	20.00	21.00	1.00	0.85	1.00	85	40	Poor	MLST	Grey massive limestone	NX	3	21	MP/18/21	20.00	21.00	1.00	46.87	0.78	12.45	0.87	0.63	37.42	0.272	0.099	
22	21.00	22.00	1.00	0.80	1.00	80	22	V.Poor	MLST	Grey massive limestone	NX	4	22	MP/18/22	21.00	22.00	1.00	49.73	0.30	9.90	0.55	0.40	38.23	0.125	0.089	
23	22.00	23.00	1.00	0.83	1.00	83	74	Fair	MLST	Grey massive limestone	NX	4	23	MP/18/23	22.00	23.00	1.00	47.03	0.54	12.12	0.99	0.49	37.93	0.120	0.089	
24	23.00	24.00	1.00	0.93	1.00	93	59	Fair	MLST	Grey massive limestone	NX	4	24	MP/18/24	23.00	24.00	1.00	47.72	0.64	13.39	0.52	0.52	36.36	0.080	0.092	
25	24.00	25.00	1.00	0.88	1.00	88	58	Fair	MLST	Grey massive limestone	NX	4	25	MP/18/25	24.00	25.00	1.00	48.48	0.35	12.48	0.55	0.49	36.75	0.072	0.108	
26	25.00	26.00	1.00	0.90	1.00	90	62	Fair	MLST	Grey massive limestone	NX	4	26	MP/18/26	25.00	26.00	1.00	46.69	0.69	14.06	0.61	0.60	36.36	0.047	0.117	
27	26.00	27.00	1.00	0.85	1.00	85	54	Fair	MLST	Grey massive limestone	NX	4	27	MP/18/27	26.00	27.00	1.00	47.32	0.36	13.96	0.68	0.47	36.32	0.017	0.108	Pyrites
28	27.00	28.00	1.00	0.85	1.00	85	15	V.Poor	MLST	Grey massive limestone	NX	5	28	MP/18/28	27.00	28.00	1.00	45.30	0.69	15.48	1.00	0.70	35.83	0.115	0.126	
29	28.00	29.00	1.00	0.80	1.00	80	47	Poor	MLST	Grey massive limestone	NX	5	29	MP/18/29	28.00	29.00	1.00	48.68	0.26	12.22	0.46	0.35	37.21	0.047	0.078	
30	29.00	30.00	1.00	0.80	1.00	80	57	Fair	MLST	Grey massive limestone	NX	5	30	MP/18/30	29.00	30.00	1.00	45.62	0.63	15.37	0.80	1.08	35.42	0.120	0.126	
31	30.00	31.00	1.00	0.93	1.00	93	67	Fair	MLST	Grey massive limestone	NX	5	31	MP/18/31	30.00	31.00	1.00	45.59	0.57	16.43	0.75	0.64	35.01	0.070	0.128	
32	31.00	32.00	1.00	0.86	1.00	86	25	Poor	MLST	Grey massive limestone	NX	5	32	MP/18/32	31.00	32.00	1.00	46.70	0.38	14.60	0.67	0.43	36.29	0.062	0.089	
33	32.00	33.00	1.00	0.78	1.00	78	57	Fair	MLST	Grey massive limestone	NX	5	33	MP/18/33	32.00	33.00	1.00	46.51	0.33	14.59	0.79	0.52	36.34	0.070	0.089	
34	33.00	34.00	1.00	0.87	1.00	87	52	Fair	MLST	Grey massive limestone	NX	6	34	MP/18/34	33.00	34.00	1.00	46.54	0.38	15.08	0.77	0.42	35.88	0.072	0.094	
35	34.00	35.00	1.00	0.85	1.00	85	34	Poor	MLST	Grey massive limestone	NX	6	35	MP/18/35	34.00	35.00	1.00	47.14	0.37	13.91	0.74	0.47	36.47	0.047	0.082	
36	35.00	36.00	1.00	0.80	1.00	80	36	Poor	MLST	Grey massive limestone	NX	6	36	MP/18/36	35.00	36.00	1.00	46.59	0.43	15.12	0.83	0.60	35.41	0.035	0.099	
37	36.00	37.00	1.00	0.88	1.00	88	76	Good	MLST	Grey massive limestone	NX	6	37	MP/18/37	36.00	37.00	1.00	46.49	0.36	14.98	0.89	0.53	35.73	0.055	0.089	
38	37.00	38.00	1.00	0.87	1.00	87	53	Fair	MLST	Grey massive limestone	NX	6	38	MP/18/38	37.00	38.00	1.00	48.36	0.41	12.21	0.63					

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD /BH/ 19
Azimuth	NA
Inclination	VERTICAL
RL-Collar	99.239m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 33.148" E
longitude	16° 38' 6.401" N
Date of Commencement	11.04.2020
Date of Completion	16.04.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %								
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									
3	2.00	3.00	1.00	0.50	1.00	50	23	V.Poor	MLST	Grey massive limestone	NX	1	3	MP/19/3	2.00	3.00	1.00	48.32	0.37	12.06	0.62	0.33	37.50	0.010	0.078	Broken core
4	3.00	4.00	1.00	0.58	1.00	58	10	V.Poor	MLST	Grey massive limestone	NX	1	4	MP/19/4	3.00	4.00	1.00	48.09	0.39	12.22	0.73	0.38	37.33	0.007	0.094	Broken core
5	4.00	5.00	1.00	0.45	1.00	45	0	V.Poor	MLST	Grey massive limestone	NX	1	5	MP/19/5	4.00	5.00	1.00	48.59	0.37	11.92	0.64	0.37	37.24	0.007	0.096	Broken core
6	5.00	6.00	1.00	0.70	1.00	70	30	Poor	MLST	Grey massive limestone	NX	1	6	MP/19/6	5.00	6.00	1.00	47.16	0.70	12.78	0.80	0.59	37.01	0.017	0.112	
7	6.00	7.00	1.00	0.50	1.00	50	20	V.Poor	MLST	Grey massive limestone	NX	1	7	MP/19/7	6.00	7.00	1.00	48.53	0.34	11.80	0.48	0.37	37.53	0.005	0.080	Broken core
8	7.00	8.00	1.00	0.58	1.00	58	20	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/19/8	7.00	8.00	1.00	48.52	0.27	11.19	0.91	0.97	37.19	0.007	0.092	Broken core
9	8.00	9.00	1.00	0.71	1.00	71	42	Poor	MLST	Grey massive limestone	NX	1	9	MP/19/9	8.00	9.00	1.00	48.12	0.27	11.04	0.86	0.94	37.85	0.005	0.089	Broken core
10	9.00	10.00	1.00	0.60	1.00	60	42	Poor	MLST	Grey massive limestone	NX	2	10	MP/19/10	9.00	10.00	1.00	48.53	0.27	11.61	0.55	0.36	37.85	0.005	0.076	Broken core
11	10.00	11.00	1.00	0.60	1.00	60	24	Poor	MLST	Grey massive limestone	NX	2	11	MP/19/11	10.00	11.00	1.00	49.14	0.28	10.89	0.50	0.34	38.01	0.007	0.080	Broken core
12	11.00	12.00	1.00	0.88	1.00	88	68	Fair	MLST	Grey massive limestone	NX	2	12	MP/19/12	11.00	12.00	1.00	47.89	0.27	12.06	0.64	1.16	37.14	0.015	0.082	
13	12.00	13.00	1.00	0.84	1.00	84	49	Poor	MLST	Grey massive limestone	NX	2	13	MP/19/13	12.00	13.00	1.00	47.91	0.29	11.90	0.57	1.13	37.38	0.015	0.076	
14	13.00	14.00	1.00	0.72	1.00	72	33	Poor	MLST	Grey massive limestone	NX	2	14	MP/19/14	13.00	14.00	1.00	49.87	0.36	10.18	0.39	0.32	38.08	0.005	0.080	
15	14.00	15.00	1.00	0.74	1.00	74	15	V.Poor	MLST	Grey massive limestone	NX	2	15	MP/19/15	14.00	15.00	1.00	47.95	0.75	11.28	0.53	0.52	38.16	0.007	0.089	
16	15.00	16.00	1.00	0.90	1.00	90	75	Fair	MLST	Grey massive limestone	NX	3	16	MP/19/16	15.00	16.00	1.00	48.04	0.65	11.79	0.51	0.40	37.79	0.005	0.069	
17	16.00	17.00	1.00	0.91	1.00	91	74	Fair	MLST	Grey massive limestone	NX	3	17	MP/19/17	16.00	17.00	1.00	47.85	0.65	11.66	0.51	0.39	38.09	0.005	0.069	
18	17.00	18.00	1.00	0.72	1.00	72	12	V.Poor	MLST	Grey massive limestone	NX	3	18	MP/19/18	17.00	18.00	1.00	47.15	0.52	12.97	0.66	0.45	37.31	0.005	0.103	
19	18.00	19.00	1.00	0.90	1.00	90	55	Fair	MLST	Grey massive limestone	NX	3	19	MP/19/19	18.00	19.00	1.00	47.40	0.52	13.10	0.65	0.45	36.96	0.007	0.103	
20	19.00	20.00	1.00	0.73	1.00	73	35	Poor	MLST	Grey massive limestone	NX	3	20	MP/19/20	19.00	20.00	1.00	44.18	1.74	15.45	0.77	0.79	36.13	0.010	0.124	
21	20.00	21.00	1.00	0.87	1.00	87	35	Poor	MLST	Grey massive limestone	NX	3	21	MP/19/21	20.00	21.00	1.00	46.75	0.69	13.83	0.54	0.52	36.74	0.045	0.080	
22	21.00	22.00	1.00	0.92	1.00	92	57	Fair	MLST	Grey massive limestone	NX	4	22	MP/19/22	21.00	22.00	1.00	47.72	0.54	12.09	0.49	0.40	37.98	0.007	0.085	
23	22.00	23.00	1.00	0.88	1.00	88	62	Fair	MLST	Grey massive limestone	NX	4	23	MP/19/23	22.00	23.00	1.00	47.20	0.80	12.77	0.72	0.56	37.04	0.005	0.110	
24	23.00	24.00	1.00	0.91	1.00	91	70	Fair	MLST	Grey massive limestone	NX	4	24	MP/19/24	23.00	24.00	1.00	46.89	0.81	12.77	0.73	0.55	37.33	0.005	0.108	
25	24.00	25.00	1.00	0.92	1.00	92	66	Fair	MLST	Grey massive limestone	NX	4	25	MP/19/25	24.00	25.00	1.00	45.51	0.73	16.35	0.64	0.45	35.45	0.007	0.094	
26	25.00	26.00	1.00	0.93	1.00	93	74	Fair	MLST	Grey massive limestone	NX	4	26	MP/19/26	25.00	26.00	1.00	45.14	0.69	16.49	0.69	0.45	35.66	0.005	0.092	
27	26.00	27.00	1.00	0.90	1.00	90	50	Fair	MLST	Grey massive limestone	NX	4	27	MP/19/27	26.00	27.00	1.00	45.20	0.95	16.25	0.71	0.60	35.31	0.005	0.117	
28	27.00	28.00	1.00	0.90	1.00	90	21	V.Poor	MLST	Grey massive limestone	NX	5	28	MP/19/28	27.00	28.00	1.00	44.71	0.95	16.11	0.63	0.61	36.04	0.005	0.115	
29	28.00	29.00	1.00	0.88	1.00	88	74	Fair	MLST	Grey massive limestone	NX	5	29	MP/19/29	28.00	29.00	1.00	46.07	0.55	15.04	0.72	0.54	36.14	0.017	0.085	
30	29.00	30.00	1.00	0.92	1.00	92	43	Poor	MLST	Grey massive limestone	NX	5	30	MP/19/30	29.00	30.00	1.00	47.22	0.37	13.07	0.76	0.45	37.09	0.010	0.128	
31	30.00	31.00	1.00	0.91	1.00	91	30	Poor	MLST	Grey massive limestone	NX	5	31	MP/19/31	30.00	31.00	1.00	47.34	0.37	13.26	0.81	0.45	36.78	0.005	0.128	
32	31.00	32.00	1.00	0.94	1.00	94	50	Fair	MLST	Grey massive limestone	NX	5	32	MP/19/32	31.00	32.00	1.00	48.22	0.28	13.23	0.53	0.32	36.54	0.005	0.082	
33	32.00	33.00	1.00	0.90	1.00	90	60	Fair	MLST	Grey massive limestone	NX	5	33	MP/19/33	32.00	33.00	1.00	47.84	0.27	13.14	0.54	0.33	37.06	0.007	0.085	
34	33.00	34.00	1.00	0.92	1.00	92	62	Fair	MLST	Grey massive limestone	NX	6	34	MP/19/34	33.00	34.00	1.00	46.84	0.54	14.34	0.60	0.44	36.35	0.007	0.082	
35	34.00	35.00	1.00	0.88	1.00	88	27	Poor	MLST	Grey massive limestone	NX	6	35	MP/19/35	34.00	35.00	1.00	45.75	0.31	15.45	0.79	0.49	36.17	0.005	0.105	
36	35.00	36.00	1.00	0.93	1.00	93	56	Fair	MLST	Grey massive limestone	NX	6	36	MP/19/36	35.00	36.00	1.00	46.05	0.46	16.02	0.73	0.48	35.32	0.005	0.096	
37	36.00	37.00	1.00	0.88	1.00	88	60	Fair	MLST	Grey massive limestone	NX	6	37	MP/19/37	36.00	37.00	1.00	46.03	0.46	16.00	0.75	0.48	35.32	0.005	0.096	
38	37.00	38.00	1.00	0.94	1.00	94	63	Fair	MLST	Grey massive limestone	NX	6	38	MP/19/38	37.00	38.00	1.00	47.45	0.54	13.09	0.60	0.51	36.95	0.005	0.094	
39	38.00	39.00	1.00	0.92	1.00	92	54	Fair	MLST	Grey massive limestone	NX	6	39	MP/19/39	38.00	39.00	1.00	47.96	0.55	12.81	0.62	0.50	36.69	0.002	0.092	

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD /BH / 20
Azimuth	NA
Inclination	VERTICAL
RL-Collar	100.407m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 26.359" E
longitude	16° 38' 19.326" N
Date of Commencement	14.04.2020
Date of Completion	21.04.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %								
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00									
4	3.00	4.00	1.00		1.00				BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00									
5	4.00	5.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	1	5	MP/20/5	4.00	5.00	1.00	48.92	0.30	11.52	0.47	0.35	37.70	0.005	0.071	Broken core
6	5.00	6.00	1.00	0.52	1.00	52	15	V.Poor	MLST	Grey massive limestone	NX	1	6	MP/20/6	5.00	6.00	1.00	45.70	0.45	16.71	0.71	0.61	34.97	0.005	0.115	Broken core
7	6.00	7.00	1.00	0.75	1.00	75	34	Poor	MLST	Grey massive limestone	NX	1	7	MP/20/7	6.00	7.00	1.00	47.10	0.16	14.55	0.91	0.38	36.11	0.007	0.087	Broken core
8	7.00	8.00	1.00	0.78	1.00	78	39	Poor	MLST	Grey massive limestone	NX	1	8	MP/20/8	7.00	8.00	1.00	48.65	0.45	12.16	0.45	0.37	37.21	0.005	0.096	
9	8.00	9.00	1.00	0.71	1.00	71	35	Poor	MLST	Grey massive limestone	NX	1	9	MP/20/9	8.00	9.00	1.00	49.83	0.36	9.95	0.45	0.38	38.37	0.005	0.073	
10	9.00	10.00	1.00	0.70	1.00	70	36	Poor	MLST	Grey massive limestone	NX	1	10	MP/20/10	9.00	10.00	1.00	50.03	0.32	9.51	0.61	0.37	38.38	0.005	0.087	
11	10.00	11.00	1.00	0.78	1.00	78	68	Fair	MLST	Grey massive limestone	NX	2	11	MP/20/11	10.00	11.00	1.00	47.11	0.33	14.60	0.47	0.45	36.31	0.007	0.071	
12	11.00	12.00	1.00	0.82	1.00	82	38	Poor	MLST	Grey massive limestone	NX	2	12	MP/20/12	11.00	12.00	1.00	47.22	0.34	14.14	0.56	0.47	36.44	0.072	0.076	
13	12.00	13.00	1.00	0.87	1.00	87	73	Fair	MLST	Grey massive limestone	NX	2	13	MP/20/13	12.00	13.00	1.00	47.90	0.34	12.65	0.57	0.47	37.30	0.007	0.085	
14	13.00	14.00	1.00	0.74	1.00	74	13	V.Poor	MLST	Grey massive limestone	NX	2	14	MP/20/14	13.00	14.00	1.00	49.06	0.35	10.97	0.62	0.49	37.62	0.005	0.108	
15	14.00	15.00	1.00	0.73	1.00	73	30	Poor	MLST	Grey massive limestone	NX	2	15	MP/20/15	14.00	15.00	1.00	47.08	0.28	13.99	0.58	0.75	36.38	0.170	0.101	
16	15.00	16.00	1.00	0.80	1.00	80	53	Fair	MLST	Grey massive limestone	NX	2	16	MP/20/16	15.00	16.00	1.00	47.75	0.24	13.73	0.49	0.35	36.68	0.005	0.080	
17	16.00	17.00	1.00	0.70	1.00	70	21	V.Poor	MLST	Grey massive limestone	NX	2	17	MP/20/17	16.00	17.00	1.00	47.31	0.21	14.60	0.48	0.39	36.20	0.005	0.073	
18	17.00	18.00	1.00	0.86	1.00	86	12	V.Poor	MLST	Grey massive limestone	NX	3	18	MP/20/18	17.00	18.00	1.00	46.39	0.45	15.61	0.61	0.60	35.41	0.007	0.112	
19	18.00	19.00	1.00	0.86	1.00	86	25	V.Poor	MLST	Grey massive limestone	NX	3	19	MP/20/19	18.00	19.00	1.00	44.28	0.46	16.08	0.77	2.66	34.23	0.921	0.133	
20	19.00	20.00	1.00	0.82	1.00	82	42	Poor	MLST	Grey massive limestone	NX	3	20	MP/20/20	19.00	20.00	1.00	46.36	0.36	15.44	0.66	0.56	35.73	0.007	0.110	
21	20.00	21.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	3	21	MP/20/21	20.00	21.00	1.00	45.90	0.36	16.21	0.76	0.60	35.20	0.005	0.110	Broken core
22	21.00	22.00	1.00	0.82	1.00	82	32	Poor	MLST	Grey massive limestone	NX	3	22	MP/20/22	21.00	22.00	1.00	48.70	0.32	12.10	0.53	0.42	37.07	0.007	0.089	Broken core
23	22.00	23.00	1.00	0.78	1.00	78	52	Fair	MLST	Grey massive limestone	NX	3	23	MP/20/23	22.00	23.00	1.00	44.64	0.90	17.55	0.83	0.89	34.32	0.010	0.126	
24	23.00	24.00	1.00	0.90	1.00	90	56	Fair	MLST	Grey massive limestone	NX	3	24	MP/20/24	23.00	24.00	1.00	48.85	0.27	11.62	0.49	0.36	37.56	0.005	0.094	
25	24.00	25.00	1.00	0.87	1.00	87	33	Poor	MLST	Grey massive limestone	NX	4	25	MP/20/25	24.00	25.00	1.00	47.45	0.25	14.49	0.65	0.40	35.98	0.005	0.089	
26	25.00	26.00	1.00	0.78	1.00	78	34	Poor	MLST	Grey massive limestone	NX	4	26	MP/20/26	25.00	26.00	1.00	47.43	0.24	14.52	0.44	0.46	36.09	0.007	0.085	
27	26.00	27.00	1.00	0.70	1.00	70	12	V.Poor	MLST	Grey massive limestone	NX	4	27	MP/20/27	26.00	27.00	1.00	45.31	0.36	16.79	1.05	0.63	34.71	0.005	0.181	
28	27.00	28.00	1.00	0.66	1.00	66	13	V.Poor	MLST	Grey massive limestone	NX	4	28	MP/20/28	27.00	28.00	1.00	46.91	0.24	14.89	0.73	0.69	35.43	0.322	0.110	
29	28.00	29.00	1.00	0.75	1.00	75	10	V.Poor	MLST	Grey massive limestone	NX	4	29	MP/20/29	28.00	29.00	1.00	47.57	0.24	14.34	0.58	0.47	36.02	0.005	0.087	
30	29.00	30.00	1.00	0.76	1.00	76	18	V.Poor	MLST	Grey massive limestone	NX	4	30	MP/20/30	29.00	30.00	1.00	48.03	0.29	13.67	0.50	0.40	36.38	0.005	0.076	
31	30.00	31.00	1.00	0.80	1.00	80	37	Poor	MLST	Grey massive limestone	NX	4	31	MP/20/31	30.00	31.00	1.00	45.86	0.35	16.33	0.75	0.59	35.27	0.005	0.089	
32	31.00	32.00	1.00	0.85	1.00	85	11	V.Poor	MLST	Grey massive limestone	NX	5	32	MP/20/32	31.00	32.00	1.00	46.66	0.32	15.06	0.64	0.47	36.00	0.007	0.078	
33	32.00	33.00	1.00	0.82	1.00	82	20	V.Poor	MLST	Grey massive limestone	NX	5	33	MP/20/33	32.00	33.00	1.00	48.75	0.28	11.65	0.54	0.44	37.55	0.032	0.071	
34	33.00	34.00	1.00	0.80	1.00	80	13	V.Poor	MLST	Grey massive limestone	NX	5	34	MP/20/34	33.00	34.00	1.00	47.44	0.37	13.43	0.78	0.54	36.52	0.007	0.117	
35	34.00	35.00	1.00	0.80	1.00	80	22	V.Poor	MLST	Grey massive limestone	NX	5	35	MP/20/35	34.00	35.00	1.00	48.73	0.30	12.03	0.48	0.42	37.32	0.007	0.062	
36	35.00	36.00	1.00	0.88	1.00	88	0	V.Poor	MLST	Grey massive limestone	NX	5	36	MP/20/36	35.00	36.00	1.00	48.50	0.31	12.40	0.47	0.38	37.08	0.007	0.069	
37	36.00	37.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	5	37	MP/20/37	36.00	37.00	1.00	47.89	0.31	12.79	0.67	0.67	36.84	0.010	0.096	
38	37.00	38.00	1.00	0.81	1.00	81	14	V.Poor	MLST	Grey massive limestone	NX	6	38	MP/20/38	37.00	38.00	1.00	48.16	0.30	12.64	0.55	0.52	37.06	0.005	0.060	
39	38.00	39.00	1.00	0.78	1.00	78	0	V.Poor	MLST	Grey massive limestone	NX	6	39	MP/20/39	38.00	39.00	1.00	47.25	0.41	13.75	0.56	0.58	36.66	0.005	0.076	
40	39.00	40.00	1.00	0.75	1.00	75	0	V.Poor	MLST	Grey massive limestone	NX	6	40	MP/20/40	39.00	40.00	1.0									

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/21
Azimuth	NA
Inclination	VERTICAL
RL-Collar	106.596m
Total depth of BH	43 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 45' 59.166" E
longitude	16° 38' 19.351" N
Date of Commencement	21.04.2020
Date of Completion	01.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details			Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No	S. No	Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00										
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00										
3	2.00	3.00	1.00		1.00				BRS	Brown soil	NX	1	3		2.00	3.00	1.00										
4	3.00	4.00	1.00		1.00				BRS	Brown soil	NX	1	4		3.00	4.00	1.00										
5	4.00	5.00	1.00		1.00				BRS	Brown soil	NX	1	5		4.00	5.00	1.00										
6	5.00	6.00	1.00		1.00				SS	Sandy soil	NX	1	6		5.00	6.00	1.00										
7	6.00	7.00	1.00		1.00				SS	Sandy soil	NX	1	7		6.00	7.00	1.00										
8	7.00	8.00	1.00		1.00				SS	Sandy soil	NX	1	8		7.00	8.00	1.00										
9	8.00	9.00	1.00		1.00				SS	Sandy soil	NX	1	9		8.00	9.00	1.00										
10	9.00	10.00	1.00		1.00				SS	Sandy soil	NX	1	10		9.00	10.00	1.00										
11	10.00	11.00	1.00		1.00				SS	Sandy soil	NX	1	11		10.00	11.00	1.00										
12	11.00	12.00	1.00		1.00				SS	Sandy soil	NX	1	12		11.00	12.00	1.00										
13	12.00	13.00	1.00	0.60	1.00	60	0	V.Poor	LSTK	Limestone and Kankar	NX	1	13	MP/21/13	12.00	13.00	1.00	33.80	0.16	21.10	3.67	11.45	28.63	0.040	0.066	Broken core	
14	13.00	14.00	1.00	0.90	1.00	90	0	V.Poor	MLST	Grey massive limestone	NX	1	14	MP/21/14	13.00	14.00	1.00	42.33	0.25	22.20	0.90	0.63	32.27	0.032	0.071		
15	14.00	15.00	1.00	0.76	1.00	76	10	V.Poor	MLST	Grey massive limestone	NX	1	15	MP/21/15	14.00	15.00	1.00	43.89	0.15	20.02	1.01	0.67	33.29	0.015	0.080		
16	15.00	16.00	1.00	0.78	1.00	78	23	V.Poor	LST	Grey limestone	NX	1	16	MP/21/16	15.00	16.00	1.00	36.41	0.18	25.69	2.33	4.51	29.92	0.035	0.060	Broken core	
17	16.00	17.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	1	17	MP/21/17	16.00	17.00	1.00	42.37	0.30	23.10	0.95	0.58	32.07	0.032	0.080	Broken core	
18	17.00	18.00	1.00	0.66	1.00	66	0	V.Poor	LST	Grey limestone	NX	2	18	MP/21/18	17.00	18.00	1.00	37.85	0.18	30.73	1.12	0.78	28.33	0.005	0.087	Broken core	
19	18.00	19.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	2	19	MP/21/19	18.00	19.00	1.00	36.52	0.20	32.13	1.23	1.39	27.46	0.007	0.115	Broken core	
20	19.00	20.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	2	20	MP/21/20	19.00	20.00	1.00	41.33	0.18	24.98	0.81	0.53	31.45	0.005	0.110		
21	20.00	21.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	2	21	MP/21/21	20.00	21.00	1.00	41.02	0.29	24.54	1.30	0.70	30.88	0.042	0.126		
22	21.00	22.00	1.00	0.80	1.00	80	24	V.Poor	MLST	Grey massive limestone	NX	2	22	MP/21/22	21.00	22.00	1.00	41.02	0.32	25.28	0.84	0.54	31.18	0.030	0.096		
23	22.00	23.00	1.00	0.82	1.00	82	22	V.Poor	MLST	Grey massive limestone	NX	2	23	MP/21/23	22.00	23.00	1.00	41.01	0.23	25.06	0.86	0.54	31.29	0.030	0.099		
24	23.00	24.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	2	24	MP/21/24	23.00	24.00	1.00	42.85	0.34	21.47	0.86	0.59	32.88	0.022	0.110		
25	24.00	25.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	3	25	MP/21/25	24.00	25.00	1.00	41.99	0.21	23.20	0.89	0.58	32.11	0.022	0.105	Broken core	
26	25.00	26.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	3	26	MP/21/26	25.00	26.00	1.00	42.06	0.23	23.50	0.76	0.49	31.93	0.010	0.103		
27	26.00	27.00	1.00	0.81	1.00	81	0	V.Poor	MLST	Grey massive limestone	NX	3	27	MP/21/27	26.00	27.00	1.00	41.99	0.18	23.80	0.85	0.56	31.61	0.005	0.115		
28	27.00	28.00	1.00	0.83	1.00	83	24	V.Poor	MLST	Grey massive limestone	NX	3	28	MP/21/28	27.00	28.00	1.00	44.85	0.23	19.14	0.63	0.41	33.80	0.010	0.087		
29	28.00	29.00	1.00	0.87	1.00	87	0	V.Poor	MLST	Grey massive limestone	NX	3	29	MP/21/29	28.00	29.00	1.00	44.95	0.23	18.21	0.66	0.43	34.58	0.005	0.089		
30	29.00	30.00	1.00	0.85	1.00	85	20	V.Poor	MLST	Grey massive limestone	NX	3	30	MP/21/30	29.00	30.00	1.00	44.37	0.22	18.95	0.71	0.53	34.27	0.020	0.089		
31	30.00	31.00	1.00	0.80	1.00	80	26	Poor	MLST	Grey massive limestone	NX	4	31	MP/21/31	30.00	31.00	1.00	44.72	0.24	19.12	0.63	0.42	33.99	0.007	0.082		
32	31.00	32.00	1.00	0.81	1.00	81	23	V.Poor	MLST	Grey massive limestone	NX	4	32	MP/21/32	31.00	32.00	1.00	46.66	0.30	14.77	0.58	0.42	36.34	0.040	0.080		
33	32.00	33.00	1.00	0.86	1.00	86	0	V.Poor	MLST	Grey massive limestone	NX	4	33	MP/21/33	32.00	33.00	1.00	47.31	0.41	13.21	0.62	0.48	36.98	0.052	0.094		
34	33.00	34.00	1.00	0.90	1.00	90	20	V.Poor	MLST	Grey massive limestone	NX	4	34	MP/21/34	33.00	34.00	1.00	46.34	0.26	15.36	0.58	0.37	36.18	0.005	0.078		
35	34.00	35.00	1.00	0.83	1.00	83	36	Poor	MLST	Grey massive limestone	NX	4	35	MP/21/35	34.00	35.00	1.00	48.39	0.41	12.01	0.67	0.45	37.07	0.007	0.105		
36	35.00	36.00	1.00	0.85	1.00	85	0	V.Poor	MLST	Grey massive limestone	NX	4	36	MP/21/36	35.00	36.00	1.00	46.50	0.33	15.67	0.65	0.45	35.41	0.007	0.099		
37	36.00	37.00	1.00	0.86	1.00	86	43	Poor	MLST	Grey massive limestone	NX	5	37	MP/21/37	36.00	37.00	1.00	48.17	0.73	10.98	0.56	0.51	38.07	0.007	0.076		
38	37.00	38.00	1.00	0.87	1.00	87	31	Poor	MLST	Grey massive limestone	NX	5	38	MP/21/38	37.00	38.00	1.00	48.51	1.80	8.21	0.42	0.72	39.46	0.007	0.044		
39	38.00	39.00	1.00	0.88	1.00	88	0	V.Poor	MLST	Grey massive limestone	NX	5	39	MP/21/39	38.00	39.00	1.00	48.64	1.61	8.73	0.51	0.69	38.94	0.007	0.053		
40	39.00	40.00	1.00	0.85	1.00	85	0	V.Poor	MLST	Grey massive limestone	NX	5	40	MP/21/40	39.00	40.00	1.00	48.30	0.88	10.08	0.55	0.60	38.69	0.025	0.053		
41	40.00	41.00	1.00	0.95	1.00	95	0	V.Poor	MLST	Grey massive limestone	NX	5	41	MP/21/41	40.00	41.00	1.00	48.64	1.11	9.72	0.59	0.59	38.46	0.005	0.050		
42	41.00	42.00	1.00	0.90	1.00	90	22	V.Poor	MLST	Grey massive limestone	NX	5	42	MP/21/42	41.00	42.00	1.00	48.98	1.46	8.05	0.60	0.71	39.31	0.030	0.057		
43	42.00	43.00	1.00	0.90	1.00	90	0	V.Poor	MLST	Grey massive limestone	NX	6	43	MP/21/43	42.00	43.00	1.00	49.06	1.53	7.85	0.55	0.74	39.46	0.015	0.050		

Signature

Name of the Geologist : Dr. G.Nagendra Babu

ZONE	CaOo%	RQD INDEX (%)	
I	34-40	≤25	Very Poor
II	40-45	≥25-50	Poor
III	45-48	≥50-75	Fair
IV	48+	≥75-90	Good
		≥90-100	Excellent

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/22
Azimuth	NA
Inclination	VERTICAL
RL-Collar	102.563m
Total depth of BH	46 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 45' 52.389" E
longitude	16° 38' 32.251" N
Date of Commencement	18.12.2019
Date of Completion	26.12.2019

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details					Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks		
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00											
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00											
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00											
4	3.00	4.00	1.00		1.00				BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00											
5	4.00	5.00	1.00		1.00				BRS	Brown soil	NX	1	5		4.00	5.00	1.00											
6	5.00	6.00	1.00		1.00				BRS	Brown soil	NX	1	6		5.00	6.00	1.00											
7	6.00	7.00	1.00		1.00				BRS	Brown soil	NX	1	7		6.00	7.00	1.00											
8	7.00	8.00	1.00	0.60	1.00	60	15	V.Poor	LST	Grey limestone	NX	1	8	MP/22/8	7.00	8.00	1.00	38.08	0.04	26.72	2.44	2.12	28.85	0.007	0.154	Broken core		
9	8.00	9.00	1.00	0.59	1.00	59	10	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/22/9	8.00	9.00	1.00	40.23	0.13	25.53	1.54	0.84	30.28	0.007	0.121	Broken core		
10	9.00	10.00	1.00	0.78	1.00	78	31	Poor	MLST	Grey massive limestone	NX	1	10	MP/22/10	9.00	10.00	1.00	44.01	0.28	18.58	1.29	0.76	33.46	0.006	0.167			
11	10.00	11.00	1.00	0.70	1.00	70	26	Poor	MLST	Grey massive limestone	NX	1	11	MP/22/11	10.00	11.00	1.00	45.78	0.20	15.79	0.99	0.46	35.58	0.012	0.101			
12	11.00	12.00	1.00	0.83	1.00	83	30	Poor	MLST	Grey massive limestone	NX	1	12	MP/22/12	11.00	12.00	1.00	46.72	0.24	14.58	0.85	0.54	35.84	0.004	0.119			
13	12.00	13.00	1.00	0.88	1.00	88	57	Fair	MLST	Grey massive limestone	NX	2	13	MP/22/13	12.00	13.00	1.00	46.25	0.28	15.74	0.59	0.41	35.61	0.003	0.101			
14	13.00	14.00	1.00	0.90	1.00	90	54	Fair	MLST	Grey massive limestone	NX	2	14	MP/22/14	13.00	14.00	1.00	46.52	0.32	13.50	0.83	0.58	36.97	0.059	0.103			
15	14.00	15.00	1.00	0.84	1.00	84	40	Poor	MLST	Grey massive limestone	NX	2	15	MP/22/15	14.00	15.00	1.00	47.12	0.32	12.62	0.90	0.55	37.19	0.056	0.121			
16	15.00	16.00	1.00	0.90	1.00	90	52	Fair	MLST	Grey massive limestone	NX	2	16	MP/22/16	15.00	16.00	1.00	46.24	0.35	14.54	0.78	0.47	36.41	0.010	0.110			
17	16.00	17.00	1.00	0.84	1.00	84	80	Good	MLST	Grey massive limestone	NX	2	17	MP/22/17	16.00	17.00	1.00	46.24	0.33	14.01	0.85	0.39	36.89	0.070	0.103			
18	17.00	18.00	1.00	0.81	1.00	81	61	Fair	MLST	Grey massive limestone	NX	2	18	MP/22/18	17.00	18.00	1.00	46.96	0.33	12.50	0.80	0.48	37.71	0.073	0.099			
19	18.00	19.00	1.00	0.95	1.00	95	64	Fair	MLST	Grey massive limestone	NX	3	19	MP/22/19	18.00	19.00	1.00	45.59	0.28	16.03	0.71	0.41	35.77	0.056	0.108			
20	19.00	20.00	1.00	0.86	1.00	86	50	Fair	MLST	Grey massive limestone	NX	3	20	MP/22/20	19.00	20.00	1.00	46.10	0.31	14.57	0.97	0.43	36.35	0.063	0.096			
21	20.00	21.00	1.00	0.88	1.00	88	68	Fair	MLST	Grey massive limestone	NX	3	21	MP/22/21	20.00	21.00	1.00	45.68	0.27	16.18	0.62	0.38	35.71	0.048	0.089			
22	21.00	22.00	1.00	0.90	1.00	90	56	Fair	MLST	Grey massive limestone	NX	3	22	MP/22/22	21.00	22.00	1.00	47.09	0.27	14.54	0.80	0.43	35.66	0.059	0.092			
23	22.00	23.00	1.00	0.87	1.00	87	42	Poor	MLST	Grey massive limestone	NX	3	23	MP/22/23	22.00	23.00	1.00	46.73	0.31	12.34	1.16	0.54	37.54	0.086	0.121			
24	23.00	24.00	1.00	0.89	1.00	89	79	Good	MLST	Grey massive limestone	NX	4	24	MP/22/24	23.00	24.00	1.00	44.90	0.36	16.77	0.80	0.39	35.48	0.085	0.089			
25	24.00	25.00	1.00	0.94	1.00	94	54	Fair	MLST	Grey massive limestone	NX	4	25	MP/22/25	24.00	25.00	1.00	44.36	0.33	17.93	0.78	0.35	34.96	0.080	0.096			
26	25.00	26.00	1.00	0.90	1.00	90	73	Fair	MLST	Grey massive limestone	NX	4	26	MP/22/26	25.00	26.00	1.00	46.72	0.44	13.06	0.88	0.73	36.76	0.085	0.103			
27	26.00	27.00	1.00	0.90	1.00	90	74	Fair	MLST	Grey massive limestone	NX	4	27	MP/22/27	26.00	27.00	1.00	47.75	0.56	11.22	0.74	0.55	37.85	0.051	0.066			
28	27.00	28.00	1.00	0.91	1.00	91	72	Fair	MLST	Grey massive limestone	NX	4	28	MP/22/28	27.00	28.00	1.00	46.85	0.70	11.30	1.11	0.63	37.99	0.073	0.112			
29	28.00	29.00	1.00	0.92	1.00	92	70	Fair	MLST	Grey massive limestone	NX	4	29	MP/22/29	28.00	29.00	1.00	48.18	1.26	8.87	0.57	0.61	39.46	0.016	0.053			
30	29.00	30.00	1.00	0.88	1.00	88	82	Good	MLST	Grey massive limestone	NX	5	30	MP/22/30	29.00	30.00	1.00	46.43	1.63	11.35	0.63	0.64	38.19	0.072	0.053			
31	30.00	31.00	1.00	0.93	1.00	93	62	Fair	MLST	Grey massive limestone	NX	5	31	MP/22/31	30.00	31.00	1.00	47.57	1.57	9.19	0.75	0.73	38.98	0.060	0.055			
32	31.00	32.00	1.00	0.94	1.00	94	89	Good	MLST	Grey massive limestone	NX	5	32	MP/22/32	31.00	32.00	1.00	48.79	1.31	7.58	0.67	0.67	39.89	0.051	0.050			
33	32.00	33.00	1.00	0.85	1.00	85	55	Fair	MLST	Grey massive limestone	NX	5	33	MP/22/33	32.00	33.00	1.00	48.52	0.71	8.62	0.92	0.66	39.26	0.049	0.050			
34	33.00	34.00	1.00	0.88	1.00	88	53	Fair	MLST	Grey massive limestone	NX	5	34	MP/22/34	33.00	34.00	1.00	48.10	0.63	9.41	1.06	0.77	38.72	0.046	0.048			
35	34.00	35.00	1.00	0.91	1.00	91	78	Good	MLST	Grey massive limestone	NX	6	35	MP/22/35	34.00	35.00	1.00	47.98	0.38	10.03	1.03	0.86	38.23	0.064	0.046			
36	35.00	36.00	1.00	0.90	1.00	90	79	Good	MLST	Grey massive limestone	NX	6	36	MP/22/36	35.00	36.00	1.00	47.41	0.32	10.67	1.16	0.90	38.08	0.062	0.046			
37	36.00	37.00	1.00	0.90	1.00	90	56	Fair	MLST	Grey massive limestone	NX	6	37	MP/22/37	36.00	37.00	1.00	47.42	0.39	10.34	1.30	0.85	38.10	0.084	0.044			
38	37.00	38.00	1.00	0.85	1.00	85	32	Poor	MLST	Grey massive limestone	NX	6	38	MP/22/38	37.00	38.00	1.00	44.82	0.34	13.78	2.01	1.21	35.84	0.134	0.064			
39	38.00	39.00	1.00	0.78	1.00	78	0	V.Poor	MLST	Grey massive limestone	NX	6	39	MP/22/39	38.00	39.00	1.00	42.04	0.40	18.26	2.49	1.92	32.73	0.086	0.078	Broken core		
40	39.00	40.00	1.00	0.85	1.00	85	37	Poor	LST	Grey limestone	NX	6	40	MP/22/40	39.00	40.00	1.00	37.34	0.27	23.72	3.71	3.25	28.76	0.116	0.101			
41	40.00	41.00	1.00	0.83	1.00	83	11	V.Poor	LST	Grey limestone	NX	7	41	MP/22/41	40.00	41.00	1.00	34.24	0.26	27.92	4.17	4.56	25.54	0.117	0.096			
42	41.00	42.00	1.00	0.89	1.00	89	0	V.Poor	LST	Grey limestone	NX	7	42	MP/22/42	41.00	42.00	1.00	34.15	0.19	28.02	4.16	4.40	25.94	0.071	0.094	Broken core		
43	42.00	43.00	1.00	0.80	1.00	80	30	Poor	LST	Grey limestone	NX	7	43	MP/22/43	42.00	43.00	1.00	33.37	0.23	28.79	4.36	4.58	25.44	0.100	0.092			
44	43.00	44.00	1.00	0.86	1.00	86	0	V.Poor	LST	Grey limestone	NX	7	44	MP/22/44	43.00	44.00	1.00	34.49	0.22	27.93	3.98	4.29	26.02	0.093	0.092	Broken core		
45	44.00	45.00	1.00	0.77	1.00	77	11	V.Poor	LST	Grey limestone	NX	7	45	MP/22/45	44.00	45.00	1.00	33.58	0.19	28.62	4.16	4.66	25.69	0.045	0.087			
46	45.00	46.00	1.00	0.89	1.00	89	22	V.Poor	LST	Grey limestone	NX	7	46	MP/22/46	45.00	46.00	1.00	35.36	0.16	26.38	3.82	4.35	27.02	0.058	0.092			

ZONE	CaO%
I	34-40
II	40-45
III	45-48
IV	48+

RQD INDEX (%)	
≤25	Very Poor
≥25-50	Poor
≥50-75	Fair
≥75-90	Good
≥90-100	Excellent

Signature
Name of the Geologist : Dr. G.Nagendra Babu

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/23
Azimuth	NA
Inclination	VERTICAL
RL-Collar	105.421m
Total depth of BH	48 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 5.982" E
longitude	16° 38' 32.239" E
Date of Commencement	21.04.2020
Date of Completion	25.04.2020

S. No	Bore Hole Log Details (Runwise)										Core		Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	S. No	Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1		0.00	1.00	1.00										
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	2		1.00	2.00	1.00										
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	3		2.00	3.00	1.00										
4	3.00	4.00	1.00		1.00				YCS	Yellow clayey soil	NX	4		3.00	4.00	1.00										
5	4.00	5.00	1.00		1.00				YCS	Yellow clayey soil	NX	5		4.00	5.00	1.00										
6	5.00	6.00	1.00		1.00				YCS	Yellow clayey soil	NX	6		5.00	6.00	1.00										
7	6.00	7.00	1.00		1.00				YCS	Yellow clayey soil	NX	7		6.00	7.00	1.00										
8	7.00	8.00	1.00		1.00				YCS	Yellow clayey soil	NX	8		7.00	8.00	1.00										
9	8.00	9.00	1.00		1.00				YCS	Yellow clayey soil	NX	9		8.00	9.00	1.00										
10	9.00	10.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	10	MP/23/10	9.00	10.00	1.00	42.38	0.09	23.39	1.09	0.68	31.64	0.005	0.087	Broken core	
11	10.00	11.00	1.00	0.58	1.00	58	10	V.Poor	LST	Grey limestone	NX	11	MP/23/11	10.00	11.00	1.00	39.41	0.14	28.35	1.00	0.51	29.86	0.005	0.069	Broken core	
12	11.00	12.00	1.00	0.56	1.00	56	0	V.Poor	LST	Grey limestone	NX	12	MP/23/12	11.00	12.00	1.00	39.04	0.34	27.67	1.18	0.98	30.09	0.007	0.080	Broken core	
13	12.00	13.00	1.00	0.56	1.00	56	10	V.Poor	LST	Grey limestone	NX	13	MP/23/13	12.00	13.00	1.00	34.99	0.34	34.43	1.79	1.26	26.17	0.005	0.110	Broken core	
14	13.00	14.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	14	MP/23/14	13.00	14.00	1.00	35.28	0.32	34.49	1.49	1.21	26.38	0.005	0.101	Broken core	
15	14.00	15.00	1.00	0.73	1.00	73	0	V.Poor	LST	Grey limestone	NX	15	MP/23/15	14.00	15.00	1.00	36.34	0.21	33.41	1.34	0.85	27.03	0.005	0.105	Broken core	
16	15.00	16.00	1.00	0.71	1.00	71	10	V.Poor	LST	Grey limestone	NX	16	MP/23/16	15.00	16.00	1.00	38.63	0.15	29.60	1.09	0.51	29.28	0.007	0.096	Broken core	
17	16.00	17.00	1.00	0.68	1.00	68	0	V.Poor	LST	Grey limestone	NX	17	MP/23/17	16.00	17.00	1.00	37.69	0.25	30.97	1.24	0.78	28.27	0.005	0.105	Broken core	
18	17.00	18.00	1.00	0.73	1.00	73	0	V.Poor	LST	Grey limestone	NX	18	MP/23/18	17.00	18.00	1.00	38.44	0.21	30.11	1.13	0.68	28.70	0.007	0.112	Broken core	
19	18.00	19.00	1.00	0.76	1.00	76	0	V.Poor	LST	Grey limestone	NX	19	MP/23/19	18.00	19.00	1.00	39.91	0.16	27.62	0.93	0.49	30.18	0.005	0.099	Broken core	
20	19.00	20.00	1.00	0.76	1.00	76	0	V.Poor	LST	Grey limestone	NX	20	MP/23/20	19.00	20.00	1.00	38.95	0.18	28.08	1.08	0.64	30.32	0.005	0.112	Broken core	
21	20.00	21.00	1.00	0.75	1.00	75	20	V.Poor	LST	Grey limestone	NX	21	MP/23/21	20.00	21.00	1.00	39.07	0.21	28.21	1.05	0.64	30.11	0.007	0.105	Broken core	
22	21.00	22.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	22	MP/23/22	21.00	22.00	1.00	41.80	0.21	24.22	0.91	0.56	31.67	0.007	0.096	Broken core	
23	22.00	23.00	1.00	0.81	1.00	81	0	V.Poor	MLST	Grey massive limestone	NX	23	MP/23/23	22.00	23.00	1.00	41.08	0.18	25.21	0.98	0.58	31.27	0.010	0.112	Broken core	
24	23.00	24.00	1.00	0.80	1.00	80	18	V.Poor	MLST	Grey massive limestone	NX	24	MP/23/24	23.00	24.00	1.00	42.44	0.22	22.60	0.82	0.50	32.79	0.007	0.101	Broken core	
25	24.00	25.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	25	MP/23/25	24.00	25.00	1.00	41.85	0.23	23.42	0.94	0.53	32.29	0.005	0.117	Broken core	
26	25.00	26.00	1.00	0.75	1.00	75	0	V.Poor	MLST	Grey massive limestone	NX	26	MP/23/26	25.00	26.00	1.00	41.84	0.21	23.30	1.00	0.55	32.36	0.007	0.101	Broken core	
27	26.00	27.00	1.00	0.76	1.00	76	0	V.Poor	MLST	Grey massive limestone	NX	27	MP/23/27	26.00	27.00	1.00	41.89	0.23	23.32	0.86	0.49	32.55	0.005	0.103	Broken core	
28	27.00	28.00	1.00	0.81	1.00	81	0	V.Poor	MLST	Grey massive limestone	NX	28	MP/23/28	27.00	28.00	1.00	42.99	0.24	21.37	0.90	0.55	33.32	0.007	0.092		
29	28.00	29.00	1.00	0.83	1.00	83	20	V.Poor	MLST	Grey massive limestone	NX	29	MP/23/29	28.00	29.00	1.00	45.31	0.22	18.08	0.78	0.54	34.49	0.005	0.089	Broken core	
30	29.00	30.00	1.00	0.86	1.00	86	0	V.Poor	MLST	Grey massive limestone	NX	30	MP/23/30	29.00	30.00	1.00	46.19	0.27	15.13	0.87	0.45	36.51	0.112	0.092	Broken core	
31	30.00	31.00	1.00	0.81	1.00	81	0	V.Poor	MLST	Grey massive limestone	NX	31	MP/23/31	30.00	31.00	1.00	44.13	0.26	19.02	0.88	0.45	34.66	0.105	0.080	Broken core	
32	31.00	32.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	32	MP/23/32	31.00	32.00	1.00	45.19	0.27	17.20	1.08	0.51	35.00	0.107	0.117		
33	32.00	33.00	1.00	0.81	1.00	81	15	V.Poor	MLST	Grey massive limestone	NX	33	MP/23/33	32.00	33.00	1.00	45.65	0.28	16.27	0.85	0.44	35.88	0.112	0.080		
34	33.00	34.00	1.00	0.80	1.00	80	11	V.Poor	MLST	Grey massive limestone	NX	34	MP/23/34	33.00	34.00	1.00	45.19	0.28	17.03	0.95	0.55	35.34	0.102	0.101		
35	34.00	35.00	1.00	0.82	1.00	82	33	Poor	MLST	Grey massive limestone	NX	35	MP/23/35	34.00	35.00	1.00	45.17	0.37	16.85	1.07	0.48	35.35	0.095	0.101		
36	35.00	36.00	1.00	0.84	1.00	84	10	V.Poor	MLST	Grey massive limestone	NX	36	MP/23/36	35.00	36.00	1.00	44.80	0.26	17.23	0.94	0.63	35.51	0.097	0.092	Broken core	
37	36.00	37.00	1.00	0.80	1.00	80	10	V.Poor	MLST	Grey massive limestone	NX	37	MP/23/37	36.00	37.00	1.00	45.90	0.29	15.56	0.94	0.51	36.15	0.115	0.094	Broken core	
38	37.00	38.00	1.00	0.80	1.00	80	24	V.Poor	MLST	Grey massive limestone	NX	38	MP/23/38	37.00	38.00	1.00	44.97	0.34	17.44	0.96	0.49	35.09	0.125	0.117		
39	38.00	41.00	1.00	0.30	1.00	30	0	V.Poor	MLST	Grey massive limestone	NX	39	MP/23/39	38.00	39.00	1.00	42.62	0.22	19.76	1.60	1.34	33.64	0.102	0.089	Broken core	
40	41.00	42.00	1.00	0.80	1.00	80	14	V.Poor	MLST	Grey massive limestone	NX	40	MP/23/40	39.00	40.00	1.00	46.72	0.32	14.48	0.79	0.38	36.66	0.115	0.092	Broken core	
41	42.00	43.00	1.00	0.85	1.00	85	34	Poor	MLST	Grey massive limestone	NX	41	MP/23/41	40.00	41.00	1.00	43.93	0.42	19.28	1.12	0.73	33.76	0.185	0.128		
42	43.00	48.00	1.00	0.33	1.00	33	0	V.Poor	MLST	Grey massive limestone	NX	42	MP/23/42	41.00	42.00	1.00	41.92	0.29	23.31	0.98	0.67	32.14	0.165	0.101	Broken core	

ZONE	CaO%
I	34-40
II	40-45
III	45-48
IV	48+

From 38.00m to 41.00 poor core recovery due to caving

From 43.00m to 48.00 poor core recovery due to caving

RQD INDEX (%)	
<25	Very Poor
≥25-50	Poor
>50-75	Fair
≥75-90	Good
≥90-100	Excellent

Signature
Name of the Geologist : Dr. G.Nagendra Babu

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD /BH /24
Azimuth	NA
Inclination	VERTICAL
RL-Collar	101.301m
Total depth of BH	59 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 19.647" E
Longitude	16° 38' 32.226" N
Date of Commencement	24.04.2020
Date of Completion	27.04.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details					Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks		
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00											
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00											
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00											
4	3.00	4.00	1.00		1.00				BRS	Brown soil	NX	1	4		3.00	4.00	1.00											
5	4.00	5.00	1.00	0.32	1.00	32	0	V.Poor	MLST	Grey massive limestone	NX	1	5	MP/24/5	4.00	5.00	1.00	41.69	0.26	19.37	2.21	2.47	33.02	0.120	0.069	Broken core		
6	5.00	6.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	1	6	MP/24/6	5.00	6.00	1.00	41.48	0.18	25.37	0.94	0.47	30.90	0.113	0.071	Broken core		
7	6.00	7.00	1.00	0.28	1.00	28	0	V.Poor	LST	Grey limestone	NX	1	7	MP/24/7	6.00	7.00	1.00	34.07	0.15	32.20	2.20	2.75	27.76	0.008	0.064	Broken core		
8	7.00	8.00	1.00	0.31	1.00	31	0	V.Poor	LST	Grey limestone	NX	1	8	MP/24/8	7.00	8.00	1.00	30.82	0.16	38.19	2.43	2.52	24.88	0.005	0.080	Broken core		
9	8.00	9.00	1.00	0.28	1.00	28	0	V.Poor	LST	Grey limestone	NX	1	9	MP/24/9	8.00	9.00	1.00	37.01	0.16	32.56	1.21	0.88	27.47	0.003	0.085	Broken core		
10	9.00	10.00	1.00	0.50	1.00	50	22	V.Poor	LST	Grey limestone	NX	1	10	MP/24/10	9.00	10.00	1.00	33.63	0.22	34.38	1.97	2.14	26.80	0.015	0.076	Broken core		
11	10.00	11.00	1.00	0.35	1.00	35	0	V.Poor	MLST	Grey massive limestone	NX	1	11	MP/24/11	10.00	11.00	1.00	40.21	0.19	27.20	0.96	0.65	30.15	0.015	0.064	Broken core		
12	11.00	12.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	1	12	MP/24/12	11.00	12.00	1.00	37.92	0.21	30.25	1.27	0.98	28.66	0.013	0.080	Broken core		
13	12.00	13.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	1	13	MP/24/13	12.00	13.00	1.00	35.89	0.20	33.74	1.38	0.92	27.07	0.010	0.092	Broken core		
14	13.00	14.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	1	14	MP/24/14	13.00	14.00	1.00	37.86	0.20	30.51	1.20	0.92	28.56	0.020	0.069	Broken core		
15	14.00	15.00	1.00	0.55	1.00	55	0	V.Poor	LST	Grey limestone	NX	1	15	MP/24/15	14.00	15.00	1.00	33.04	0.18	37.79	1.62	1.27	25.22	0.010	0.108	Broken core		
16	15.00	16.00	1.00	0.65	1.00	65	13	V.Poor	LST	Grey limestone	NX	2	16	MP/24/16	15.00	16.00	1.00	39.69	0.18	27.98	0.95	0.67	29.90	0.025	0.089	Broken core		
17	16.00	17.00	1.00	0.61	1.00	61	0	V.Poor	LST	Grey limestone	NX	2	17	MP/24/17	16.00	17.00	1.00	35.48	0.19	34.68	1.43	0.75	26.62	0.020	0.103	Broken core		
18	17.00	18.00	1.00	0.71	1.00	71	0	V.Poor	LST	Grey limestone	NX	2	18	MP/24/18	17.00	18.00	1.00	35.15	0.11	35.99	1.21	0.61	26.09	0.028	0.112	Broken core		
19	18.00	19.00	1.00	0.66	1.00	66	10	V.Poor	LST	Grey limestone	NX	2	19	MP/24/19	18.00	19.00	1.00	39.39	0.38	27.10	1.61	1.09	29.47	0.030	0.119	Broken core		
20	19.00	20.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	2	20	MP/24/20	19.00	20.00	1.00	34.61	0.29	34.71	1.84	1.38	26.17	0.055	0.144	Broken core		
21	20.00	21.00	1.00	0.56	1.00	56	0	V.Poor	LST	Grey limestone	NX	2	21	MP/24/21	20.00	21.00	1.00	37.55	0.26	30.32	1.55	1.03	28.40	0.085	0.115	Broken core		
22	21.00	22.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	2	22	MP/24/22	21.00	22.00	1.00	38.88	0.17	28.41	1.28	0.69	29.75	0.075	0.108	Broken core		
23	22.00	23.00	1.00	0.52	1.00	52	0	V.Poor	LST	Grey limestone	NX	3	23	MP/24/23	22.00	23.00	1.00	39.11	0.21	28.84	0.97	0.47	29.72	0.065	0.089	Broken core		
24	23.00	24.00	1.00	0.67	1.00	67	0	V.Poor	LST	Grey limestone	NX	3	24	MP/24/24	23.00	24.00	1.00	39.78	0.15	27.52	0.91	0.53	30.41	0.060	0.099	Broken core		
25	24.00	25.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	3	25	MP/24/25	24.00	25.00	1.00	39.74	0.20	27.37	1.07	0.58	30.24	0.083	0.115	Broken core		
26	25.00	26.00	1.00	0.57	1.00	57	15	V.Poor	LST	Grey limestone	NX	3	26	MP/24/26	25.00	26.00	1.00	39.11	0.20	27.81	1.05	0.61	30.46	0.105	0.103			
27	26.00	27.00	1.00	0.80	1.00	80	56	Fair	MLST	Grey massive limestone	NX	3	27	MP/24/27	26.00	27.00	1.00	40.47	0.25	25.65	1.11	0.57	31.19	0.085	0.103			
28	27.00	28.00	1.00	0.70	1.00	70	12	V.Poor	MLST	Grey massive limestone	NX	3	28	MP/24/28	27.00	28.00	1.00	42.83	0.22	22.89	0.84	0.52	32.06	0.065	0.099			
29	28.00	29.00	1.00	0.75	1.00	75	40	Poor	LST	Grey limestone	NX	3	29	MP/24/29	28.00	29.00	1.00	39.40	0.10	28.68	1.00	0.59	29.46	0.073	0.112			
30	29.00	30.00	1.00	0.81	1.00	81	36	Poor	MLST	Grey massive limestone	NX	3	30	MP/24/30	29.00	30.00	1.00	43.53	0.24	20.44	0.93	0.63	33.54	0.073	0.096			
31	30.00	31.00	1.00	0.50	1.00	50	24	V.Poor	MLST	Grey massive limestone	NX	4	31	MP/24/31	30.00	31.00	1.00	45.18	0.27	18.14	0.90	0.59	34.24	0.055	0.094	Broken core		
32	31.00	32.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	4	32	MP/24/32	31.00	32.00	1.00	41.33	0.14	24.51	1.12	0.66	31.44	0.065	0.137	Broken core		
33	32.00	33.00	1.00	0.61	1.00	61	10	V.Poor	MLST	Grey massive limestone	NX	4	33	MP/24/33	32.00	33.00	1.00	41.30	0.15	25.58	0.97	0.60	30.83	0.038	0.108			
34	33.00	34.00	1.00	0.40	1.00	40	0	V.Poor	MLST	Grey massive limestone	NX	4	34	MP/24/34	33.00	34.00	1.00	42.18	0.18	23.79	0.97	0.63	31.62	0.055	0.089	Broken core		
35	34.00	35.00	1.00	0.85	1.00	85	21	V.Poor	MLST	Grey massive limestone	NX	4	35	MP/24/35	34.00	35.00	1.00	41.68	0.12	24.39	0.96	0.61	31.57	0.003	0.105			
36	35.00	36.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	4	36	MP/24/36	35.00	36.00	1.00	43.56	0.11	20.15	0.98	1.17	33.29	0.055	0.112			
37	36.00	37.00	1.00	0.50	1.00	50	35	Poor	MLST	Grey massive limestone	NX	4	37	MP/24/37	36.00	37.00	1.00	41.12	0.17	25.61	0.81	0.48	31.18	0.050	0.096	Broken core		
38	37.00	38.00	1.00	0.20	1.00	20	0	V.Poor	MLST	Grey massive limestone	NX	4	38	MP/24/38	37.00	38.00	1.00	41.32	0.08	24.89	1.18	0.94	30.93	0.030	0.103	Broken core		
39	38.00	39.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	4	39	MP/24/39														

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/25
Azimuth	NA
Inclination	VERTICAL
RL-Collar	98.651m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 33.174" E
Longitude	16° 38' 32.213" N
Date of Commencement	23.04.2020
Date of Completion	02.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %								
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00									
4	3.00	4.00	1.00		1.00				YCS	Yellow clay soil	NX	1	4		3.00	4.00	1.00									
5	4.00	5.00	1.00		1.00				RS	Red soil	NX	1	5		4.00	5.00	1.00									
6	5.00	6.00	1.00		1.00				RS	Red soil	NX	1	6		5.00	6.00	1.00									
7	6.00	7.00	1.00		1.00				RS	Red soil	NX	1	7		6.00	7.00	1.00									
8	7.00	8.00	1.00		1.00				RS	Red soil	NX	1	8		7.00	8.00	1.00									
9	8.00	9.00	1.00		1.00				RS	Red soil	NX	1	9		8.00	9.00	1.00									
10	9.00	10.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	1	10	MP/25/10	9.00	10.00	1.00	46.72	0.34	15.63	0.76	0.46	35.49	0.015	0.096	Broken core
11	10.00	11.00	1.00	0.55	1.00	55	10	V.Poor	MLST	Grey massive limestone	NX	1	11	MP/25/11	10.00	11.00	1.00	44.13	0.39	19.88	0.92	0.56	33.39	0.070	0.115	Broken core
12	11.00	12.00	1.00	0.61	1.00	61	22	V.Poor	MLST	Grey massive limestone	NX	1	12	MP/25/12	11.00	12.00	1.00	47.03	0.24	15.36	0.67	0.42	35.74	0.053	0.080	
13	12.00	13.00	1.00	0.58	1.00	58	31	Poor	MLST	Grey massive limestone	NX	1	13	MP/25/13	12.00	13.00	1.00	46.90	0.24	14.99	0.69	0.34	36.26	0.075	0.078	
14	13.00	14.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	1	14	MP/25/14	13.00	14.00	1.00	45.52	0.33	17.52	0.79	0.45	34.75	0.050	0.103	Broken core
15	14.00	15.00	1.00	0.75	1.00	75	51	Fair	MLST	Grey massive limestone	NX	1	15	MP/25/15	14.00	15.00	1.00	43.22	0.26	21.96	0.73	0.44	32.75	0.065	0.076	
16	15.00	16.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	2	16	MP/25/16	15.00	16.00	1.00	46.15	0.28	16.73	0.85	0.47	34.84	0.040	0.094	
17	16.00	17.00	1.00	0.82	1.00	82	52	Fair	MLST	Grey massive limestone	NX	2	17	MP/25/17	16.00	17.00	1.00	46.95	0.31	14.85	0.97	0.52	35.61	0.053	0.112	
18	17.00	18.00	1.00	0.70	1.00	70	23	V.Poor	MLST	Grey massive limestone	NX	2	18	MP/25/18	17.00	18.00	1.00	47.94	0.25	13.25	0.84	0.41	36.68	0.050	0.080	
19	18.00	19.00	1.00	0.92	1.00	92	70	Fair	MLST	Grey massive limestone	NX	2	19	MP/25/19	18.00	19.00	1.00	47.26	0.32	14.19	0.71	0.43	36.50	0.045	0.080	
20	19.00	20.00	1.00	0.82	1.00	82	34	Poor	MLST	Grey massive limestone	NX	2	20	MP/25/20	19.00	20.00	1.00	47.35	0.33	13.66	0.90	0.53	36.54	0.035	0.101	
21	20.00	21.00	1.00	0.84	1.00	84	41	Poor	MLST	Grey massive limestone	NX	2	21	MP/25/21	20.00	21.00	1.00	46.16	0.34	15.81	0.80	0.50	35.78	0.003	0.076	
22	21.00	22.00	1.00	0.83	1.00	83	64	Fair	MLST	Grey massive limestone	NX	2	22	MP/25/22	21.00	22.00	1.00	47.79	0.28	13.66	0.65	0.40	36.68	0.013	0.076	
23	22.00	23.00	1.00	0.80	1.00	80	23	V.Poor	MLST	Grey massive limestone	NX	3	23	MP/25/23	22.00	23.00	1.00	46.45	0.34	14.81	0.93	0.61	36.13	0.023	0.080	
24	23.00	24.00	1.00	0.80	1.00	80	31	Poor	MLST	Grey massive limestone	NX	3	24	MP/25/24	23.00	24.00	1.00	47.58	0.36	13.35	0.73	0.51	36.88	0.005	0.076	
25	24.00	25.00	1.00	0.80	1.00	80	64	Fair	MLST	Grey massive limestone	NX	3	25	MP/25/25	24.00	25.00	1.00	47.14	0.28	14.76	0.83	0.48	35.86	0.005	0.087	
26	25.00	26.00	1.00	0.82	1.00	82	46	Poor	MLST	Grey massive limestone	NX	3	26	MP/25/26	25.00	26.00	1.00	45.11	0.26	17.74	0.88	0.55	34.81	0.005	0.073	
27	26.00	27.00	1.00	0.80	1.00	80	12	V.Poor	MLST	Grey massive limestone	NX	3	27	MP/25/27	26.00	27.00	1.00	44.23	0.29	19.57	1.14	0.73	33.20	0.013	0.092	
28	27.00	28.00	1.00	0.85	1.00	85	15	V.Poor	LST	Grey limestone	NX	3	28	MP/25/28	27.00	28.00	1.00	39.73	0.30	25.75	1.99	1.07	29.82	0.008	0.124	
29	28.00	29.00	1.00	0.80	1.00	80	13	V.Poor	MLST	Grey massive limestone	NX	4	29	MP/25/29	28.00	29.00	1.00	41.81	0.19	23.61	1.17	0.86	31.34	0.005	0.096	
30	29.00	30.00	1.00	0.81	1.00	81	37	Poor	MLST	Grey massive limestone	NX	4	30	MP/25/30	29.00	30.00	1.00	40.07	0.22	26.40	1.43	0.77	30.11	0.005	0.089	
31	30.00	31.00	1.00	0.80	1.00	80	12	V.Poor	LST	Grey limestone	NX	4	31	MP/25/31	30.00	31.00	1.00	35.75	0.52	32.17	2.07	1.51	26.81	0.015	0.137	
32	31.00	32.00	1.00	0.81	1.00	81	10	V.Poor	LST	Grey limestone	NX	4	32	MP/25/32	31.00	32.00	1.00	29.21	0.55	42.66	2.31	1.74	22.33	0.008	0.115	Broken core
33	32.00	33.00	1.00	0.81	1.00	81	23	V.Poor	LST	Grey limestone	NX	4	33	MP/25/33	32.00	33.00	1.00	33.38	0.28	36.14	2.78	1.36	24.54	0.013	0.192	Broken core
34	33.00	34.00	1.00	0.78	1.00	78	18	V.Poor	MLST	Grey massive limestone	NX	4	34	MP/25/34	33.00	34.00	1.00	43.27	0.19	21.66	1.03	0.52	32.43	0.018	0.064	
35	34.00	35.00	1.00	0.90	1.00	90	20	V.Poor	MLST	Grey massive limestone	NX	4	35	MP/25/35	34.00	35.00	1.00	41.42	0.21	24.49	0.93	0.48	31.80	0.005	0.053	
36	35.00	36.00	1.00	0.75	1.00	75	36	Poor	MLST	Grey massive limestone	NX	5	36	MP/25/36	35.00	36.00	1.00	45.32	0.19	17.62	0.82	0.44	34.99	0.005	0.069	
37	36.00	37.00	1.00	0.81	1.00	81	36	Poor	MLST	Grey massive limestone	NX	5	37	MP/25/37	36.00	37.00	1.00	44.86	0.23	18.82	0.93	0.50	33.66	0.025	0.076	Siliceous
38	37.00	38.00	1.00	0.70	1.00	70	11	V.Poor	MLST	Grey massive limestone	NX	5	38	MP/25/38	37.00	38.00	1.00	43.62	0.21	20.99	0.82	0.45	33.31	0.013	0.060	Siliceous
39	38.00	39.00	1.00	0.91	1.00	91	41	Poor	MLST	Grey massive limestone	NX	5	39	MP/25/39	38.00	39.00	1.00	42.54	0.22	23.09	0.90	0.49	32.13</			

Block	MADINAPADU LIMESTONE BLOCK
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/26
Azimuth	NA
Inclination	VERTICAL
RL-Collar	94.614m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 46.789" E
Longitude	16° 38' 32.197" N
Date of Commencement	28.04.2020
Date of Completion	04.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details					Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks		
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden		
2	1.00	2.00	1.00		1.00				RS	Red soil	NX	1	2		1.00	2.00	1.00									Overburden		
3	2.00	3.00	1.00		1.00				RS	Red soil	NX	1	3		2.00	3.00	1.00									Overburden		
4	3.00	4.00	1.00		1.00				RS	Red soil	NX	1	4		3.00	4.00	1.00									Overburden		
5	4.00	5.00	1.00		1.00				RS	Red soil	NX	1	5		4.00	5.00	1.00									Overburden		
6	5.00	6.00	1.00		1.00				RS	Red soil	NX	1	6		5.00	6.00	1.00									Overburden		
7	6.00	7.00	1.00	0.40	1.00	40	0	V.Poor	LST	Grey limestone	NX	1	7	MP/26/7	6.00	7.00	1.00	34.79	0.20	32.61	2.07	2.83	26.52	0.010	0.089	Broken core		
8	7.00	8.00	1.00	0.40	1.00	40	0	V.Poor	LST	Grey limestone	NX	1	8	MP/26/8	7.00	8.00	1.00	35.28	0.25	33.96	1.48	1.24	26.90	0.115	0.071	Broken core		
9	8.00	9.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/26/9	8.00	9.00	1.00	41.50	0.21	24.94	1.02	0.49	31.37	0.020	0.057	Broken core		
10	9.00	10.00	1.00	0.55	1.00	55	11	V.Poor	MLST	Grey massive limestone	NX	1	10	MP/26/10	9.00	10.00	1.00	43.17	0.20	22.43	0.84	0.38	32.37	0.015	0.064	Broken core		
11	10.00	11.00	1.00	0.64	1.00	64	0	V.Poor	MLST	Grey massive limestone	NX	1	11	MP/26/11	10.00	11.00	1.00	44.32	0.23	19.55	0.97	0.58	33.65	0.015	0.073	Broken core		
12	11.00	12.00	1.00	0.75	1.00	75	45	Poor	MLST	Grey massive limestone	NX	1	12	MP/26/12	11.00	12.00	1.00	44.66	0.26	19.78	0.92	0.49	33.22	0.015	0.066	Broken core		
13	12.00	13.00	1.00	0.78	1.00	78	59	Fair	MLST	Grey massive limestone	NX	1	13	MP/26/13	12.00	13.00	1.00	43.72	0.25	20.89	0.93	0.48	33.07	0.010	0.071			
14	13.00	14.00	1.00	0.75	1.00	75	20	V.Poor	MLST	Grey massive limestone	NX	1	14	MP/26/14	13.00	14.00	1.00	44.61	0.20	19.48	1.06	0.50	33.41	0.013	0.073			
15	14.00	15.00	1.00	0.85	1.00	85	28	V.Poor	MLST	Grey massive limestone	NX	2	15	MP/26/15	14.00	15.00	1.00	42.59	0.23	23.20	1.04	0.50	31.67	0.008	0.080			
16	15.00	16.00	1.00	0.86	1.00	86	68	Fair	MLST	Grey massive limestone	NX	2	16	MP/26/16	15.00	16.00	1.00	42.78	0.20	22.61	0.97	0.44	32.30	0.015	0.071			
17	16.00	17.00	1.00	0.89	1.00	89	33	Poor	MLST	Grey massive limestone	NX	2	17	MP/26/17	16.00	17.00	1.00	42.32	0.26	22.56	1.17	0.65	32.27	0.005	0.094			
18	17.00	18.00	1.00	0.86	1.00	86	31	Poor	MLST	Grey massive limestone	NX	2	18	MP/26/18	17.00	18.00	1.00	44.62	0.22	19.40	0.98	0.50	33.64	0.003	0.066			
19	18.00	19.00	1.00	0.87	1.00	87	37	Poor	MLST	Grey massive limestone	NX	2	19	MP/26/19	18.00	19.00	1.00	41.88	0.23	23.77	0.98	0.49	31.98	0.013	0.071			
20	19.00	20.00	1.00	0.91	1.00	91	37	Poor	MLST	Grey massive limestone	NX	2	20	MP/26/20	19.00	20.00	1.00	42.68	0.25	22.21	1.26	0.67	32.10	0.003	0.092			
21	20.00	21.00	1.00	0.75	1.00	75	10	V.Poor	MLST	Grey massive limestone	NX	3	21	MP/26/21	20.00	21.00	1.00	43.09	0.24	21.89	1.00	0.52	32.58	0.003	0.073	Broken core		
22	21.00	22.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	3	22	MP/26/22	21.00	22.00	1.00	43.03	0.19	21.80	0.89	0.44	33.02	0.003	0.071	Broken core		
23	22.00	23.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	3	23	MP/26/23	22.00	23.00	1.00	42.90	0.20	20.94	1.02	0.87	33.16	0.380	0.071	Broken core		
24	23.00	24.00	1.00	0.66	1.00	66	0	V.Poor	MLST	Grey massive limestone	NX	3	24	MP/26/24	23.00	24.00	1.00	40.54	0.26	25.78	1.04	0.49	31.22	0.005	0.048	Broken core		
25	24.00	25.00	1.00	0.65	1.00	65	0	V.Poor	LST	Grey limestone	NX	3	25	MP/26/25	24.00	25.00	1.00	35.64	0.25	33.31	1.87	0.97	26.85	0.003	0.121	Broken core		
26	25.00	26.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	3	26	MP/26/26	25.00	26.00	1.00	36.17	0.26	32.29	1.96	1.06	27.13	0.005	0.154	Broken core		
27	26.00	27.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	3	27	MP/26/27	26.00	27.00	1.00	46.85	0.21	14.95	0.76	0.59	36.04	0.013	0.066	Broken core		
28	27.00	28.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	3	28	MP/26/28	27.00	28.00	1.00	32.65	0.21	37.48	2.44	1.14	24.72	0.013	0.105	Broken core		
29	28.00	29.00	1.00	0.74	1.00	74	39	Poor	MLST	Grey massive limestone	NX	4	29	MP/26/29	28.00	29.00	1.00	26.99	0.26	46.46	3.04	1.31	20.27	0.013	0.144	Broken core		
30	29.00	30.00	1.00	0.80	1.00	80	43	Poor	MLST	Grey massive limestone	NX	4	30	MP/26/30	29.00	30.00	1.00	40.58	0.22	25.98	1.29	0.64	30.55	0.015	0.078	Broken core		
31	30.00	31.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	4	31	MP/26/31	30.00	31.00	1.00	42.15	0.18	23.28	1.17	0.60	31.85	0.003	0.062			
32	31.00	32.00	1.00	0.70	1.00	70	49	Poor	MLST	Grey massive limestone	NX	4	32	MP/26/32	31.00	32.00	1.00	43.38	0.18	20.93	0.87	0.46	33.56	0.040	0.066			
33	32.00	33.00	1.00	0.70	1.00	70	20	V.Poor	MLST	Grey massive limestone	NX	4	33	MP/26/33	32.00	33.00	1.00	43.53	0.14	21.54	0.93	0.56	32.63	0.013	0.064			
34	33.00	34.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	4	34	MP/26/34	33.00	34.00	1.00	44.09	0.16	20.51	0.95	0.50	33.15	0.013	0.069	Broken core		
35	34.00	35.00	1.00	0.53	1.00	53	10	V.Poor	MLST	Grey massive limestone	NX	4	35	MP/26/35	34.00	35.00	1.00	43.04	0.17	21.85	1.09	0.60	32.52	0.005	0.078	Broken core		
36	35.00	36.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	4	36	MP/26/36	35.00	36.00	1.00	41.91	0.16	24.64	0.88	0.44	31.37	0.020	0.071	Broken core		
37	36.00	37.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	5	37	MP/26/37	36.00	37.00	1.00	42.11	0.22	22.59	0.98	0.58	32.83	0.025	0.066	Broken core		
38	37.00	38.00	1.00	0.68	1.00	68	15	V.Poor	MLST	Grey massive limestone	NX	5	38	MP/26/38	37.00	38.00	1.00	42.17	0.20	23.12	0.88	0.59	32.42	0.013	0.064</			

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/27
Azimuth	NA
Inclination	VERTICAL
RL-Collar	93.751m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 53.613" E
longitude	16° 38' 45.113" N
Date of Commencement	03.05.2020
Date of Completion	10.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				BRS	Brown soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00	0.45	1.00	45	0	V.Poor	MLST	Grey massive limestone	NX	1	4	MP/27/4	3.00	4.00	1.00	46.61	0.26	15.83	0.78	0.46	35.45	0.028	0.078	Broken core	
5	4.00	5.00	1.00	0.60	1.00	60	12	V.Poor	MLST	Grey massive limestone	NX	1	5	MP/27/5	4.00	5.00	1.00	47.40	0.37	14.70	0.81	0.55	35.55	0.025	0.082		
6	5.00	6.00	1.00	0.70	1.00	70	24	V.Poor	MLST	Grey massive limestone	NX	1	6	MP/27/6	5.00	6.00	1.00	46.38	0.42	15.29	0.94	0.65	35.61	0.020	0.105		
7	6.00	7.00	1.00	0.58	1.00	58	26	V.Poor	MLST	Grey massive limestone	NX	1	7	MP/27/7	6.00	7.00	1.00	46.12	0.39	16.28	0.75	0.57	35.30	0.025	0.092		
8	7.00	8.00	1.00	0.80	1.00	80	23	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/27/8	7.00	8.00	1.00	45.48	0.43	16.43	1.02	0.67	35.22	0.020	0.105		
9	8.00	9.00	1.00	0.81	1.00	81	27	Poor	MLST	Grey massive limestone	NX	1	9	MP/27/9	8.00	9.00	1.00	46.01	0.44	15.90	0.70	0.60	35.78	0.028	0.076		
10	9.00	10.00	1.00	0.75	1.00	75	0	V.Poor	MLST	Grey massive limestone	NX	2	10	MP/27/10	9.00	10.00	1.00	48.42	0.38	12.32	0.81	0.56	36.92	0.028	0.073	Broken core	
11	10.00	11.00	1.00	0.85	1.00	85	0	V.Poor	MLST	Grey massive limestone	NX	2	11	MP/27/11	10.00	11.00	1.00	46.98	0.38	14.02	0.75	0.55	36.74	0.030	0.085	Broken core	
12	11.00	12.00	1.00	0.80	1.00	80	40	Poor	MLST	Grey massive limestone	NX	2	12	MP/27/12	11.00	12.00	1.00	46.11	0.37	15.10	0.91	0.58	36.19	0.030	0.080		
13	12.00	13.00	1.00	0.81	1.00	81	24	V.Poor	MLST	Grey massive limestone	NX	2	13	MP/27/13	12.00	13.00	1.00	46.98	0.32	14.16	0.76	0.47	36.59	0.028	0.073		
14	13.00	14.00	1.00	0.85	1.00	85	32	Poor	MLST	Grey massive limestone	NX	2	14	MP/27/14	13.00	14.00	1.00	46.62	0.33	15.69	0.71	0.46	35.59	0.033	0.050		
15	14.00	15.00	1.00	0.83	1.00	83	0	V.Poor	MLST	Grey massive limestone	NX	2	15	MP/27/15	14.00	15.00	1.00	44.63	0.27	19.07	0.92	0.59	33.84	0.025	0.073	Broken core	
16	15.00	16.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	2	16	MP/27/16	15.00	16.00	1.00	41.85	0.26	23.30	1.05	0.83	32.01	0.028	0.078	Broken core	
17	16.00	17.00	1.00	0.71	1.00	71	0	V.Poor	MLST	Grey massive limestone	NX	3	17	MP/27/17	16.00	17.00	1.00	42.62	0.24	21.87	1.23	0.72	32.39	0.028	0.103	Broken core	
18	17.00	18.00	1.00	0.86	1.00	86	12	V.Poor	LST	Grey limestone	NX	3	18	MP/27/18	17.00	18.00	1.00	37.50	0.29	30.27	1.63	1.17	28.20	0.035	0.101		
19	18.00	19.00	1.00	0.70	1.00	70	11	V.Poor	LST	Grey limestone	NX	3	19	MP/27/19	18.00	19.00	1.00	28.97	0.59	43.28	2.42	1.83	21.67	0.035	0.154		
20	19.00	20.00	1.00	0.78	1.00	78	0	V.Poor	LST	Grey limestone	NX	3	20	MP/27/20	19.00	20.00	1.00	33.40	0.49	35.98	2.17	1.64	25.16	0.038	0.170	Broken core	
21	20.00	21.00	1.00	0.78	1.00	78	20	V.Poor	LST	Grey limestone	NX	3	21	MP/27/21	20.00	21.00	1.00	32.25	0.14	41.22	0.87	0.83	24.11	0.023	0.057		
22	21.00	22.00	1.00	0.80	1.00	80	14	V.Poor	MLST	Grey massive limestone	NX	3	22	MP/27/22	21.00	22.00	1.00	40.16	0.20	26.91	1.15	0.56	30.25	0.033	0.046		
23	22.00	23.00	1.00	0.70	1.00	70	59	Fair	MLST	Grey massive limestone	NX	3	23	MP/27/23	22.00	23.00	1.00	40.22	0.25	26.61	1.06	0.59	30.55	0.033	0.046		
24	23.00	24.00	1.00	0.71	1.00	71	38	Poor	LST	Grey limestone	NX	4	24	MP/27/24	23.00	24.00	1.00	38.83	0.25	28.45	1.18	0.59	29.93	0.008	0.055		
25	24.00	25.00	1.00	0.81	1.00	81	45	Poor	LST	Grey limestone	NX	4	25	MP/27/25	24.00	25.00	1.00	39.53	0.20	27.70	0.93	0.50	30.43	0.035	0.060		
26	25.00	26.00	1.00	0.85	1.00	85	11	V.Poor	MLST	Grey massive limestone	NX	4	26	MP/27/26	25.00	26.00	1.00	43.60	0.18	21.14	0.88	0.46	33.08	0.003	0.069		
27	26.00	27.00	1.00	0.81	1.00	81	10	V.Poor	MLST	Grey massive limestone	NX	4	27	MP/27/27	26.00	27.00	1.00	45.78	0.21	17.19	0.82	0.43	34.92	0.008	0.066		
28	27.00	28.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	4	28	MP/27/28	27.00	28.00	1.00	45.20	0.25	17.35	0.89	0.58	35.05	0.065	0.069	Broken core	
29	28.00	29.00	1.00	0.90	1.00	90	39	Poor	MLST	Grey massive limestone	NX	4	29	MP/27/29	28.00	29.00	1.00	41.94	0.27	23.54	1.21	0.73	31.50	0.003	0.096		
30	29.00	30.00	1.00	0.71	1.00	71	36	Poor	MLST	Grey massive limestone	NX	4	30	MP/27/30	29.00	30.00	1.00	41.63	0.24	23.61	1.24	0.75	31.68	0.003	0.094		
31	30.00	31.00	1.00	0.81	1.00	81	14	V.Poor	MLST	Grey massive limestone	NX	5	31	MP/27/31	30.00	31.00	1.00	44.53	0.17	19.00	0.73	0.42	34.56	0.020	0.066		
32	31.00	32.00	1.00	0.90	1.00	90	50	Fair	MLST	Grey massive limestone	NX	5	32	MP/27/32	31.00	32.00	1.00	42.99	0.23	21.80	0.91	0.49	32.88	0.013	0.071		
33	32.00	33.00	1.00	0.65	1.00	65	22	V.Poor	MLST	Grey massive limestone	NX	5	33	MP/27/33	32.00	33.00	1.00	42.07	0.15	22.22	1.53	1.07	31.99	0.088	0.105		
34	33.00	34.00	1.00	0.82	1.00	82	27	Poor	LST	Grey limestone	NX	5	34	MP/27/34	33.00	34.00	1.00	39.84	0.20	27.57	1.03	0.57	30.07	0.003	0.078		
35	34.00	35.00	1.00	0.85	1.00	85	48	Poor	MLST	Grey massive limestone	NX	5	35	MP/27/35	34.00	35.00	1.00	42.77	0.18	22.63	0.83	0.45	32.49	0.005	0.076		
36	35.00	36.00	1.00	0.80	1.00	80	10	V.Poor	LST	Grey limestone	NX	5	36	MP/27/36	35.00	36.00	1.00	38.77	0.23	28.92	1.15	0.77	29.42	0.020	0.078	Broken core	
37	36.00	37.00	1.00	0.80	1.00	80	0	V.Poor	LST	Grey limestone	NX	5	37	MP/27/37	36.00	37.00	1.00	32.70	0.58	37.01	2.00	1.72					

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/28
Azimuth	NA
Inclination	VERTICAL
RL-Collar	99.976m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 26.385" E
longitude	16° 38' 45.138" N
Date of Commencement	27.04.2020
Date of Completion	13.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details					Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks		
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden		
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden		
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00									Overburden		
4	3.00	4.00	1.00		1.00				BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00									Overburden		
5	4.00	5.00	1.00		1.00				BCS	Black cotton soil	NX	1	5		4.00	5.00	1.00									Overburden		
6	5.00	6.00	1.00		1.00				YCS	Yellow clayey soil	NX	1	6		5.00	6.00	1.00									Overburden		
7	6.00	7.00	1.00	0.36	1.00	36	0	V.Poor	LSTK	Limestone and Kankar	NX	1	7	MP/28/7	6.00	7.00	1.00	40.01	0.10	15.34	3.07	7.52	33.19	0.005	0.055	Broken core		
8	7.00	8.00	1.00	0.54	1.00	54	10	V.Poor	LST	Grey limestone	NX	1	8	MP/28/8	7.00	8.00	1.00	39.64	0.19	27.92	1.00	0.60	29.94	0.040	0.103	Broken core		
9	8.00	9.00	1.00	0.62	1.00	62	0	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/28/9	8.00	9.00	1.00	40.90	0.20	26.53	0.86	0.40	30.38	0.033	0.087	Broken core		
10	9.00	10.00	1.00	0.50	1.00	50	10	V.Poor	LST	Grey limestone	NX	1	10	MP/28/10	9.00	10.00	1.00	39.78	0.17	27.40	0.98	0.69	30.23	0.028	0.103	Broken core		
11	10.00	11.00	1.00	0.58	1.00	58	0	V.Poor	MLST	Grey massive limestone	NX	1	11	MP/28/11	10.00	11.00	1.00	40.74	0.23	25.04	1.22	0.66	31.31	0.028	0.112	Broken core		
12	11.00	12.00	1.00	0.45	1.00	45	0	V.Poor	MLST	Grey massive limestone	NX	1	12	MP/28/12	11.00	12.00	1.00	40.71	0.23	24.93	1.12	0.74	31.47	0.045	0.103	Broken core		
13	12.00	13.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	1	13	MP/28/13	12.00	13.00	1.00	40.65	0.20	25.20	1.06	0.53	31.59	0.050	0.108	Broken core		
14	13.00	14.00	1.00	0.75	1.00	75	12	V.Poor	MLST	Grey massive limestone	NX	1	14	MP/28/14	13.00	14.00	1.00	42.57	0.25	21.83	1.27	0.68	32.52	0.030	0.131	Broken core		
15	14.00	15.00	1.00	0.80	1.00	80	74	Fair	MLST	Grey massive limestone	NX	2	15	MP/28/15	14.00	15.00	1.00	42.47	0.24	22.52	1.10	0.58	32.32	0.025	0.117	Broken core		
16	15.00	16.00	1.00	0.82	1.00	82	12	V.Poor	LST	Grey limestone	NX	2	16	MP/28/16	15.00	16.00	1.00	39.89	0.21	27.19	1.01	0.49	30.51	0.020	0.101			
17	16.00	17.00	1.00	0.76	1.00	76	16	V.Poor	MLST	Grey massive limestone	NX	2	17	MP/28/17	16.00	17.00	1.00	41.79	0.28	22.09	1.80	0.97	31.96	0.018	0.234			
18	17.00	18.00	1.00	0.86	1.00	86	45	Poor	MLST	Grey massive limestone	NX	2	18	MP/28/18	17.00	18.00	1.00	41.50	0.26	23.64	0.97	0.49	32.45	0.043	0.096			
19	18.00	19.00	1.00	0.91	1.00	91	34	Poor	MLST	Grey massive limestone	NX	2	19	MP/28/19	18.00	19.00	1.00	43.21	0.27	20.48	1.08	0.66	33.47	0.035	0.117			
20	19.00	20.00	1.00	0.80	1.00	80	31	Poor	MLST	Grey massive limestone	NX	2	20	MP/28/20	19.00	20.00	1.00	41.21	0.25	24.39	0.98	0.50	31.93	0.045	0.099			
21	20.00	21.00	1.00	0.81	1.00	81	10	V.Poor	MLST	Grey massive limestone	NX	3	21	MP/28/21	20.00	21.00	1.00	41.15	0.25	24.59	1.14	0.63	31.45	0.023	0.112	Broken core		
22	21.00	22.00	1.00	0.80	1.00	80	10	V.Poor	MLST	Grey massive limestone	NX	3	22	MP/28/22	21.00	22.00	1.00	40.81	0.26	25.25	1.01	0.54	31.40	0.018	0.105	Broken core		
23	22.00	23.00	1.00	0.81	1.00	81	0	V.Poor	MLST	Grey massive limestone	NX	3	23	MP/28/23	22.00	23.00	1.00	44.03	0.28	18.60	1.28	0.72	34.22	0.015	0.137	Broken core		
24	23.00	24.00	1.00	0.95	1.00	95	44	Poor	MLST	Grey massive limestone	NX	3	24	MP/28/24	23.00	24.00	1.00	40.66	0.24	25.73	1.02	0.55	31.08	0.005	0.110			
25	24.00	25.00	1.00	0.81	1.00	81	47	Poor	MLST	Grey massive limestone	NX	3	25	MP/28/25	24.00	25.00	1.00	41.46	0.23	23.90	1.13	0.56	31.92	0.005	0.135			
26	25.00	26.00	1.00	0.82	1.00	82	21	V.Poor	MLST	Grey massive limestone	NX	3	26	MP/28/26	25.00	26.00	1.00	40.32	0.23	26.51	0.96	0.49	30.78	0.010	0.099			
27	26.00	27.00	1.00	0.91	1.00	91	20	V.Poor	MLST	Grey massive limestone	NX	4	27	MP/28/27	26.00	27.00	1.00	41.96	0.24	23.42	1.12	0.61	31.83	0.005	0.128			
28	27.00	28.00	1.00	0.90	1.00	90	21	V.Poor	MLST	Grey massive limestone	NX	4	28	MP/28/28	27.00	28.00	1.00	42.95	0.26	21.44	0.98	0.51	33.20	0.008	0.103			
29	28.00	29.00	1.00	0.88	1.00	88	32	Poor	MLST	Grey massive limestone	NX	4	29	MP/28/29	28.00	29.00	1.00	42.07	0.23	21.73	1.07	1.11	33.03	0.078	0.101			
30	29.00	30.00	1.00	0.95	1.00	95	35	Poor	MLST	Grey massive limestone	NX	4	30	MP/28/30	29.00	30.00	1.00	40.84	0.19	24.71	0.93	0.88	31.61	0.320	0.108			
31	30.00	31.00	1.00	0.70	1.00	70	36	Poor	MLST	Grey massive limestone	NX	4	31	MP/28/31	30.00	31.00	1.00	42.48	0.24	22.43	0.93	0.45	32.80	0.005	0.099			
32	31.00	32.00	1.00	0.82	1.00	82	46	Poor	MLST	Grey massive limestone	NX	4	32	MP/28/32	31.00	32.00	1.00	41.81	0.22	23.46	0.96	0.55	32.26	0.035	0.094			
33	32.00	33.00	1.00	0.82	1.00	82	0	V.Poor	MLST	Grey massive limestone	NX	5	33	MP/28/33	32.00	33.00	1.00	42.20	0.24	22.70	1.01	0.50	32.64	0.005	0.101	Broken core		
34	33.00	34.00	1.00	0.72	1.00	72	11	V.Poor	MLST	Grey massive limestone	NX	5	34	MP/28/34	33.00	34.00	1.00	42.79	0.27	21.70	1.17	0.63	32.59	0.040	0.124			
35	34.00	35.00	1.00	0.75	1.00	75	41	Poor	MLST	Grey massive limestone	NX	5	35	MP/28/35	34.00	35.00	1.00	43.33	0.25	20.90	0.89	0.45	33.44	0.003	0.099			
36	35.00	36.00	1.00	0.81	1.00	81	22	V.Poor	MLST	Grey massive limestone	NX	5	36	MP/28/36	35.00	36.00	1.00	43.08	0.26	20.36	1.43	0.85	33.01	0.033	0.156			
37	36.00	37.00	1.00	0.80	1.00	80	49	Poor	MLST	Grey massive limestone	NX	5	37	MP/28/37	36.00	37.00	1.00	42.79	0.23	21.84	0.83	0.48	33.17	0.005	0.087			
38	37.00	38.00	1.00	0.91	1.00	91	23	V.Poor	LST	Grey limestone	NX	5	38	MP/28/38	37.00	38.00	1.00	38.92	0.21	29.03	0.91	0.42	29.83	0.015	0.087			
39	38.00	39.00	1.00	0.90	1.00	90	66	Fair	MLST	Grey massive limestone	NX	5	39	MP/28/39	38.00	39.00	1.00	46.39	0.28	15.12	0.85	0.44	36.21	0.020	0.103			
40	39.00	40.00	1.00	0.80	1.00																							

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/29
Azimuth	NA
Inclination	VERTICAL
RL-Collar	101.982m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 19.673" E
longitude	16° 38' 58.062" N
Date of Commencement	09.10.2019
Date of Completion	19.10.2019

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00					BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00								Overburden	
2	1.00	2.00	1.00		1.00					BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00								Overburden	
3	2.00	3.00	1.00		1.00					BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00								Overburden	
4	3.00	4.00	1.00		1.00					RS	Red soil	NX	1	4		3.00	4.00	1.00								Overburden	
5	4.00	5.00	1.00		1.00					RS	Red soil	NX	1	5		4.00	5.00	1.00								Overburden	
6	5.00	6.00	1.00		1.00					RS	Red soil	NX	1	6		5.00	6.00	1.00								Overburden	
7	6.00	7.00	1.00		1.00					KNK	Kankar	NX	1	7		6.00	7.00	1.00								Overburden	
8	7.00	8.00	1.00		1.00					SS	Sandy soil	NX	1	8		7.00	8.00	1.00								Overburden	
9	8.00	9.00	1.00		1.00					SS	Sandy soil	NX	1	9		8.00	9.00	1.00								Overburden	
10	9.00	10.00	1.00		1.00					SS	Sandy soil	NX	1	10		9.00	10.00	1.00								Overburden	
11	10.00	11.00	1.00	0.36	1.00	36	0	V.Poor	LSTK	Limestone and Kankar	NX	1	11	MP/29/11	10.00	11.00	1.00	27.11	0.21	46.88	1.64	1.22	21.87	0.127	0.058	weathered	
12	11.00	12.00	1.00	0.24	1.00	24	0	V.Poor	LSTK	Limestone and Kankar	NX	1	12	MP/29/12	11.00	12.00	1.00	24.33	0.15	31.38	4.10	14.80	23.96	0.200	0.065	weathered	
13	12.00	13.00	1.00	0.32	1.00	32	0	V.Poor	LSTK	Limestone and Kankar	NX	1	13	MP/29/13	12.00	13.00	1.00	24.40	0.10	32.96	4.00	13.35	23.94	0.147	0.063	weathered	
14	13.00	14.00	1.00	0.66	1.00	66	21	V.Poor	LST	Grey limestone	NX	1	14	MP/29/14	13.00	14.00	1.00	37.37	0.19	29.63	1.25	0.51	30.14	0.025	0.080	Broken core	
15	14.00	15.00	1.00	0.68	1.00	68	21	V.Poor	LST	Grey limestone	NX	1	15	MP/29/15	14.00	15.00	1.00	36.37	0.13	31.41	1.38	0.67	28.97	0.025	0.102	Broken core	
16	15.00	16.00	1.00	0.81	1.00	81	11	V.Poor	LST	Grey limestone	NX	1	16	MP/29/16	15.00	16.00	1.00	39.57	0.19	26.28	1.19	0.58	31.24	0.010	0.103		
17	16.00	17.00	1.00	0.70	1.00	70	20	V.Poor	LST	Grey limestone	NX	1	17	MP/29/17	16.00	17.00	1.00	38.40	0.22	28.01	1.17	0.70	30.58	0.010	0.088	Broken core	
18	17.00	18.00	1.00	0.65	1.00	65	0	V.Poor	LST	Grey limestone	NX	2	18	MP/29/18	17.00	18.00	1.00	39.81	0.25	25.78	1.03	0.59	31.69	0.010	0.092	Broken core	
19	18.00	19.00	1.00	0.85	1.00	85	26	Poor	LST	Grey limestone	NX	2	19	MP/29/19	18.00	19.00	1.00	39.72	0.24	25.93	1.00	0.65	31.54	0.064	0.080		
20	19.00	20.00	1.00	0.80	1.00	80	35	Poor	LST	Grey limestone	NX	2	20	MP/29/20	19.00	20.00	1.00	39.79	0.24	25.45	1.21	0.79	31.57	0.024	0.093		
21	20.00	21.00	1.00	0.84	1.00	84	20	V.Poor	LST	Grey limestone	NX	2	21	MP/29/21	20.00	21.00	1.00	39.59	0.17	25.65	1.34	0.58	31.80	0.031	0.088		
22	21.00	22.00	1.00	0.96	1.00	96	68	Fair	MLST	Grey massive limestone	NX	2	22	MP/29/22	21.00	22.00	1.00	41.64	0.29	22.59	0.88	0.61	33.21	0.026	0.080		
23	22.00	23.00	1.00	0.97	1.00	97	71	Fair	MLST	Grey massive limestone	NX	2	23	MP/29/23	22.00	23.00	1.00	40.48	0.22	24.43	1.07	0.78	32.12	0.013	0.082		
24	23.00	24.00	1.00	0.93	1.00	93	76	Fair	LST	Grey limestone	NX	3	24	MP/29/24	23.00	24.00	1.00	39.34	0.22	26.87	0.97	0.55	31.21	0.010	0.080		
25	24.00	25.00	1.00	0.90	1.00	90	59	Fair	MLST	Grey massive limestone	NX	3	25	MP/29/25	24.00	25.00	1.00	40.43	0.21	24.98	0.81	0.52	32.27	0.008	0.075		
26	25.00	26.00	1.00	0.86	1.00	86	56	Fair	MLST	Grey massive limestone	NX	3	26	MP/29/26	25.00	26.00	1.00	40.96	0.23	23.61	0.90	0.47	32.97	0.057	0.073		
27	26.00	27.00	1.00	0.80	1.00	80	64	Fair	MLST	Grey massive limestone	NX	3	27	MP/29/27	26.00	27.00	1.00	40.95	0.26	23.34	1.15	0.63	32.72	0.026	0.095		
28	27.00	28.00	1.00	0.85	1.00	85	61	Fair	MLST	Grey massive limestone	NX	3	28	MP/29/28	27.00	28.00	1.00	41.23	0.27	22.87	1.18	0.66	32.81	0.039	0.098		
29	28.00	29.00	1.00	0.88	1.00	88	87	Good	MLST	Grey massive limestone	NX	4	29	MP/29/29	28.00	29.00	1.00	42.55	0.25	20.87	1.02	0.58	33.88	0.010	0.072		
30	29.00	30.00	1.00	0.88	1.00	88	41	Poor	MLST	Grey massive limestone	NX	4	30	MP/29/30	29.00	30.00	1.00	44.48	0.24	17.71	0.69	0.46	35.68	0.005	0.072		
31	30.00	31.00	1.00	0.89	1.00	89	53	Fair	MLST	Grey massive limestone	NX	4	31	MP/29/31	30.00	31.00	1.00	45.42	0.19	15.52	1.20	0.74	35.94	0.005	0.105		
32	31.00	32.00	1.00	0.89	1.00	89	51	Fair	MLST	Grey massive limestone	NX	4	32	MP/29/32	31.00	32.00	1.00	46.50	0.24	14.27	0.73	0.47	37.01	0.027	0.072		
33	32.00	33.00	1.00	0.84	1.00	84	45	Poor	MLST	Grey massive limestone	NX	4	33	MP/29/33	32.00	33.00	1.00	44.99	0.22	16.78	0.73	0.59	35.82	0.083	0.067		
34	33.00	34.00	1.00	0.89	1.00	89	77	Good	MLST	Grey massive limestone	NX	4	34	MP/29/34	33.00	34.00	1.00	45.08	0.27	15.20	1.28	0.67	36.34	0.158	0.112		
35	34.00	35.00	1.00	0.70	1.00	70	28	Poor	MLST	Grey massive limestone	NX	5	35	MP/29/35	34.00	35.00	1.00	44.60	0.21	17.12	0.94	0.58	35.60	0.080	0.090	Broken core	
36	35.00	36.00	1.00	0.44	1.00	44	33	Poor	MLST	Grey massive limestone	NX	5	36	MP/29/36	35.00	36.00	1.00	43.02	0.13	19.72	1.00	0.72	34.48	0.069	0.073	Broken core	
37	36.00	37.00	1.00	0.60	1.00	60	10	V.Poor	MLST	Grey massive limestone	NX	5	37	MP/29/37	36.00	37.00	1.00	45.63	0.13	15.20	0.93	0.47	36.69	0.117	0.097	Broken core	
38	37.00	38.00	1.00	0.91	1.00	91	76	Good	MLST	Grey massive limestone	NX	5	38	MP/29/38	37.00	38.00	1.00	45.35	0.28	15.44	1.00	0.51	36.50	0.082	0.093		
39	38.00	39.00	1.00	0.94	1.00	94	54	Fair	MLST	Grey massive limestone	NX	5	39	MP/29/39	38.00	39.00	1.00	44.68	0.25	16.74	0.96	0.70	35.67	0.098	0.100		
40	39.00	40.00	1.00	0.90	1.00	90	32	Poor	MLST	Grey massive limestone	NX	5	40	MP/29/40	39.00	40.00	1.00	44.72	0.22	17.16	0.94	0.44	35.51	0.159	0.077		
41	40.00	41.00	1.00																								

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/30
Azimuth	NA
Inclination	VERTICAL
RL-Collar	98.463m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 33.2" E
longitude	16° 38' 58.049" N
Date of Commencement	03.05.2020
Date of Completion	10.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00		1.00				BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00									Overburden	
5	4.00	5.00	1.00		1.00				BCS	Black cotton soil	NX	1	5		4.00	5.00	1.00									Overburden	
6	5.00	6.00	1.00		1.00				RS	Red soil	NX	1	6		5.00	6.00	1.00									Overburden	
7	6.00	7.00	1.00		1.00				RS	Red soil	NX	1	7		6.00	7.00	1.00									Overburden	
8	7.00	8.00	1.00	0.55	1.00	55	0	V.Poor	LST	Grey limestone	NX	1	8	MP/30/8	7.00	8.00	1.00	35.83	0.37	32.88	1.52	1.02	27.46	0.033	0.121	Broken core	
9	8.00	9.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	1	9	MP/30/9	8.00	9.00	1.00	33.74	0.15	35.99	1.80	1.53	25.72	0.033	0.124	Broken core	
10	9.00	10.00	1.00	0.75	1.00	75	20	V.Poor	LST	Grey limestone	NX	1	10	MP/30/10	9.00	10.00	1.00	34.59	0.10	36.74	1.16	0.43	26.18	0.013	0.094	Broken core	
11	10.00	11.00	1.00	0.65	1.00	65	0	V.Poor	LST	Grey limestone	NX	1	11	MP/30/11	10.00	11.00	1.00	37.12	0.12	32.48	0.96	0.47	28.13	0.028	0.089	Broken core	
12	11.00	12.00	1.00	0.70	1.00	70	10	V.Poor	LST	Grey limestone	NX	1	12	MP/30/12	11.00	12.00	1.00	38.35	0.19	30.46	0.99	0.39	28.90	0.043	0.094	Broken core	
13	12.00	13.00	1.00	0.80	1.00	80	37	Poor	LST	Grey limestone	NX	1	13	MP/30/13	12.00	13.00	1.00	39.65	0.20	28.06	1.14	0.49	29.65	0.033	0.108	Broken core	
14	13.00	14.00	1.00	0.70	1.00	70	31	Poor	LST	Grey limestone	NX	2	14	MP/30/14	13.00	14.00	1.00	36.35	0.30	32.24	1.70	0.99	27.40	0.033	0.156	Broken core	
15	14.00	15.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	2	15	MP/30/15	14.00	15.00	1.00	35.85	0.21	33.72	1.37	0.63	27.36	0.040	0.117	Broken core	
16	15.00	16.00	1.00	0.75	1.00	75	0	V.Poor	LST	Grey limestone	NX	2	16	MP/30/16	15.00	16.00	1.00	39.66	0.19	28.11	0.90	0.36	30.09	0.040	0.099	Broken core	
17	16.00	17.00	1.00	0.80	1.00	80	20	V.Poor	LST	Grey limestone	NX	2	17	MP/30/17	16.00	17.00	1.00	39.51	0.22	27.78	1.03	0.48	30.16	0.015	0.112	Broken core	
18	17.00	18.00	1.00	0.80	1.00	80	46	Poor	LST	Grey limestone	NX	2	18	MP/30/18	17.00	18.00	1.00	39.20	0.22	28.27	1.17	0.58	29.74	0.015	0.119		
19	18.00	19.00	1.00	0.85	1.00	85	42	Poor	LST	Grey limestone	NX	2	19	MP/30/19	18.00	19.00	1.00	39.05	0.22	28.57	1.03	0.50	29.86	0.038	0.117		
20	19.00	20.00	1.00	0.70	1.00	70	25	Poor	MLST	Grey massive limestone	NX	2	20	MP/30/20	19.00	20.00	1.00	43.42	0.26	20.78	0.97	0.56	33.33	0.025	0.103	Broken core	
21	20.00	21.00	1.00	0.75	1.00	75	44	Poor	MLST	Grey massive limestone	NX	3	21	MP/30/21	20.00	21.00	1.00	40.56	0.22	25.78	0.86	0.56	31.29	0.118	0.101	Broken core	
22	21.00	22.00	1.00	0.75	1.00	75	24	Poor	MLST	Grey massive limestone	NX	3	22	MP/30/22	21.00	22.00	1.00	40.33	0.22	26.88	0.82	0.42	30.65	0.023	0.101	Broken core	
23	22.00	23.00	1.00	0.75	1.00	75	32	Poor	LST	Grey limestone	NX	3	23	MP/30/23	22.00	23.00	1.00	38.83	0.20	29.32	0.89	0.42	29.69	0.038	0.101		
24	23.00	24.00	1.00	0.85	1.00	85	47	Poor	LST	Grey limestone	NX	3	24	MP/30/24	23.00	24.00	1.00	38.32	0.19	30.34	0.87	0.40	29.20	0.003	0.101		
25	24.00	25.00	1.00	0.90	1.00	90	43	Poor	MLST	Grey massive limestone	NX	3	25	MP/30/25	24.00	25.00	1.00	41.59	0.25	23.76	1.02	0.65	31.97	0.023	0.121		
26	25.00	26.00	1.00	0.90	1.00	90	44	Poor	LST	Grey limestone	NX	3	26	MP/30/26	25.00	26.00	1.00	39.82	0.26	27.34	0.94	0.49	30.41	0.030	0.110		
27	26.00	27.00	1.00	0.80	1.00	80	46	Poor	MLST	Grey massive limestone	NX	3	27	MP/30/27	26.00	27.00	1.00	42.14	0.27	22.59	1.19	0.68	32.25	0.025	0.151		
28	27.00	28.00	1.00	0.70	1.00	70	44	Poor	MLST	Grey massive limestone	NX	4	28	MP/30/28	27.00	28.00	1.00	42.88	0.22	21.93	0.92	0.51	32.81	0.013	0.119		
29	28.00	29.00	1.00	0.85	1.00	85	39	Poor	MLST	Grey massive limestone	NX	4	29	MP/30/29	28.00	29.00	1.00	43.38	0.27	20.81	0.98	0.60	33.19	0.015	0.121		
30	29.00	30.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	4	30	MP/30/30	29.00	30.00	1.00	42.58	0.22	22.74	1.06	0.54	32.09	0.008	0.135	Broken core	
31	30.00	31.00	1.00	0.75	1.00	75	0	V.Poor	MLST	Grey massive limestone	NX	4	31	MP/30/31	30.00	31.00	1.00	42.10	0.22	23.62	1.10	0.57	31.54	0.003	0.133	Broken core	
32	31.00	32.00	1.00	0.78	1.00	78	22	V.Poor	MLST	Grey massive limestone	NX	4	32	MP/30/32	31.00	32.00	1.00	46.62	0.29	16.29	0.74	0.35	35.10	0.003	0.076		
33	32.00	33.00	1.00	0.75	1.00	75	10	V.Poor	MLST	Grey massive limestone	NX	4	33	MP/30/33	32.00	33.00	1.00	40.94	0.25	25.70	0.98	0.46	30.94	0.018	0.103	Broken core	
34	33.00	34.00	1.00	0.75	1.00	75	10	V.Poor	MLST	Grey massive limestone	NX	5	34	MP/30/34	33.00	34.00	1.00	42.28	0.25	22.76	1.04	0.51	32.36	0.003	0.121	Broken core	
35	34.00	35.00	1.00	0.85	1.00	85	0	V.Poor	MLST	Grey massive limestone	NX	5	35	MP/30/35	34.00	35.00	1.00	43.77	0.22	20.34	0.82	0.45	33.75	0.018	0.096	Broken core	
36	35.00	36.00	1.00	0.80	1.00	80	10	V.Poor	MLST	Grey massive limestone	NX	5	36	MP/30/36	35.00	36.00	1.00	42.63	0.20	23.37	0.83	0.45	31.85	0.005	0.105	Broken core	
37	36.00	37.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	5	37	MP/30/37	36.00	37.00	1.00	43.40	0.25	20.68	0.86	0.45	33.65	0.010	0.105	Broken core	
38	37.00	38.00	1.00	0.75	1.00	75	0	V.Poor	MLST	Grey massive limestone	NX	5	38	MP/30/38	37.00	38.00	1.00	41.71	0.20	23.93	0.86	0.47	32.21	0.008	0.105	Broken core	
39	38.00	39.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	5	39	MP/30/39	38.00	39.00	1.00	43.01	0.23	21.66	0.92	0.48	33.03	0.003	0.110	Broken core	
40	39.00	40.00	1.00	0.75	1.00	75	0	V.Poor	MLST																		

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD /BH/31
Azimuth	NA
Inclination	VERTICAL
RL-Collar	96.026m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 46.823" E
longitude	16° 38' 58.036" N
Date of Commencement	06.01.2020
Date of Completion	14.01.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				BRS	Brown soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00	0.60	1.00	60	10	V.Poor	MLST	Grey massive limestone	NX	1	4	MP/31/4	3.00	4.00	1.00	44.21	0.73	18.06	0.61	0.41	34.79	0.040	0.089	Broken core	
5	4.00	5.00	1.00	0.80	1.00	80	18	V.Poor	MLST	Grey massive limestone	NX	1	5	MP/31/5	4.00	5.00	1.00	46.87	1.16	12.21	0.46	0.42	37.81	0.040	0.087	Broken core	
6	5.00	6.00	1.00	0.70	1.00	70	16	V.Poor	MLST	Grey massive limestone	NX	1	6	MP/31/6	5.00	6.00	1.00	47.10	1.56	11.03	0.64	0.54	37.97	0.057	0.089	Broken core	
7	6.00	7.00	1.00	0.72	1.00	72	43	Poor	MLST	Grey massive limestone	NX	1	7	MP/31/7	6.00	7.00	1.00	44.74	1.92	12.58	0.63	0.65	38.30	0.087	0.076		
8	7.00	8.00	1.00	0.61	1.00	61	0	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/31/8	7.00	8.00	1.00	46.08	1.70	11.94	0.80	0.67	37.56	0.040	0.110	Broken core	
9	8.00	9.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/31/9	8.00	9.00	1.00	47.22	1.07	11.39	0.58	0.50	38.10	0.045	0.092	Broken core	
10	9.00	10.00	1.00	0.90	1.00	90	71	Fair	MLST	Grey massive limestone	NX	2	10	MP/31/10	9.00	10.00	1.00	46.32	1.01	13.25	0.58	0.46	37.14	0.082	0.094		
11	10.00	11.00	1.00	0.77	1.00	77	0	V.Poor	MLST	Grey massive limestone	NX	2	11	MP/31/11	10.00	11.00	1.00	45.59	1.72	13.47	0.59	0.66	36.84	0.027	0.101	Broken core	
12	11.00	12.00	1.00	0.76	1.00	76	12	V.Poor	MLST	Grey massive limestone	NX	2	12	MP/31/12	11.00	12.00	1.00	43.53	2.88	13.95	0.69	0.90	36.84	0.030	0.115	Broken core	
13	12.00	13.00	1.00	0.77	1.00	77	0	V.Poor	MLST	Grey massive limestone	NX	2	13	MP/31/13	12.00	13.00	1.00	46.59	0.72	14.32	0.70	0.44	36.07	0.030	0.105	Broken core	
14	13.00	14.00	1.00	0.91	1.00	91	27	Poor	MLST	Grey massive limestone	NX	2	14	MP/31/14	13.00	14.00	1.00	44.55	0.93	15.37	0.91	0.93	35.84	0.220	0.105	Broken core	
15	14.00	15.00	1.00	0.90	1.00	90	12	V.Poor	MLST	Grey massive limestone	NX	2	15	MP/31/15	14.00	15.00	1.00	45.74	0.79	15.10	0.91	0.51	35.62	0.030	0.147	Broken core	
16	15.00	16.00	1.00	0.80	1.00	80	14	V.Poor	MLST	Grey massive limestone	NX	3	16	MP/31/16	15.00	16.00	1.00	46.88	0.40	14.56	0.60	0.38	36.04	0.027	0.110	Broken core	
17	16.00	17.00	1.00	0.81	1.00	81	16	V.Poor	MLST	Grey massive limestone	NX	3	17	MP/31/17	16.00	17.00	1.00	47.12	0.39	13.30	0.70	0.37	37.02	0.045	0.094	Broken core	
18	17.00	18.00	1.00	0.79	1.00	79	14	V.Poor	MLST	Grey massive limestone	NX	3	18	MP/31/18	17.00	18.00	1.00	46.26	0.46	14.84	0.83	0.41	35.94	0.097	0.103	Broken core	
19	18.00	19.00	1.00	0.71	1.00	71	0	V.Poor	MLST	Grey massive limestone	NX	3	19	MP/31/19	18.00	19.00	1.00	44.88	0.51	15.66	1.12	0.58	35.84	0.095	0.112	Broken core	
20	19.00	20.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	3	20	MP/31/20	19.00	20.00	1.00	46.08	0.55	14.50	0.89	0.49	36.09	0.087	0.099	Broken core	
21	20.00	21.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	3	21	MP/31/21	20.00	21.00	1.00	45.09	0.93	14.03	1.24	0.76	36.51	0.117	0.112	Broken core	
22	21.00	22.00	1.00	0.81	1.00	81	24	V.Poor	MLST	Grey massive limestone	NX	3	22	MP/31/22	21.00	22.00	1.00	46.78	0.62	12.90	0.92	0.46	37.15	0.095	0.085	Broken core	
23	22.00	23.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	4	23	MP/31/23	22.00	23.00	1.00	47.24	0.57	12.69	0.83	0.57	36.81	0.087	0.094	Broken core	
24	23.00	24.00	1.00	0.74	1.00	74	21	V.Poor	MLST	Grey massive limestone	NX	4	24	MP/31/24	23.00	24.00	1.00	45.74	0.59	13.83	1.13	0.66	36.76	0.082	0.105	Broken core	
25	24.00	25.00	1.00	0.75	1.00	75	10	V.Poor	MLST	Grey massive limestone	NX	4	25	MP/31/25	24.00	25.00	1.00	45.77	0.62	14.07	0.94	0.66	36.68	0.072	0.087	Broken core	
26	25.00	26.00	1.00	0.80	1.00	80	26	V.Poor	MLST	Grey massive limestone	NX	4	26	MP/31/26	25.00	26.00	1.00	45.88	0.49	14.16	0.94	0.53	36.78	0.080	0.080	Broken core	
27	26.00	27.00	1.00	0.81	1.00	81	17	V.Poor	MLST	Grey massive limestone	NX	4	27	MP/31/27	26.00	27.00	1.00	45.78	0.45	14.35	0.85	0.48	36.86	0.082	0.071	Broken core	
28	27.00	28.00	1.00	0.72	1.00	72	0	V.Poor	MLST	Grey massive limestone	NX	4	28	MP/31/28	27.00	28.00	1.00	43.90	0.37	18.73	0.94	0.63	34.05	0.105	0.087	Broken core	
29	28.00	29.00	1.00	0.70	1.00	70	47	Poor	MLST	Grey massive limestone	NX	5	29	MP/31/29	28.00	29.00	1.00	40.42	0.37	23.28	1.95	0.91	31.26	0.040	0.131		
30	29.00	30.00	1.00	0.80	1.00	80	0	Poor	LST	Grey limestone	NX	5	30	MP/31/30	29.00	30.00	1.00	37.34	0.60	27.67	2.16	1.17	29.14	0.082	0.160	Broken core	
31	30.00	31.00	1.00	0.81	1.00	81	0	Poor	MLST	Grey massive limestone	NX	5	31	MP/31/31	30.00	31.00	1.00	41.32	0.47	22.03	1.59	0.77	32.16	0.125	0.110	Broken core	
32	31.00	32.00	1.00	0.92	1.00	92	0	Poor	LST	Grey limestone	NX	5	32	MP/31/32	31.00	32.00	1.00	38.78	0.42	26.07	1.84	0.96	30.18	0.082	0.167	Broken core	
33	32.00	33.00	1.00	0.60	1.00	60	0	Poor	LST	Grey limestone	NX	5	33	MP/31/33	32.00	33.00	1.00	35.18	0.39	31.65	2.52	1.17	27.00	0.087	0.158	Broken core	
34	33.00	34.00	1.00	0.73	1.00	73	0	Poor	LST	Grey limestone	NX	5	34	MP/31/34	33.00	34.00	1.00	33.63	0.50	34.56	2.19	1.37	25.90	0.087	0.142	Broken core	
35	34.00	35.00	1.00	0.57	1.00	57	0	Poor	LST	Grey limestone	NX	5	35	MP/31/35	34.00	35.00	1.00	31.17	0.53	37.98	2.91	1.51	23.45	0.092	0.160	Broken core	
36	35.00	36.00	1.00	0.58	1.00	58	0	Poor	LST	Grey limestone	NX	6	36	MP/31/36	35.00	36.00	1.00	36.45	0.26	30.30	2.42	1.00	27.51	0.095	0.137	Broken core	
37	36.00	37.00	1.00	0.64	1.00	64	0	Poor	MLST	Grey massive limestone	NX	6	37	MP/31/37	36.00	37.00	1.00	41.60	0.29	22.75	1.05	0.48	32.46	0.070	0.050	Broken core	
38	37.00	38.00	1.00	0.85	1.00	85	12	Poor	MLST	Grey massive limestone	NX	6	38	MP/31/38	37.00	38.00	1.00	43.96	0.27	18.37	0.90	0.47	34.74	0.087	0.066	Broken core	

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/32
Azimuth	NA
Inclination	VERTICAL
RL-Collar	92.104m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 47' 0.451" E
Longitude	16° 38' 58.023" N
Date of Commencement	28.12.2019
Date of Completion	05.01.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %								
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden
3	2.00	3.00	1.00	0.53	1.00	53	12	V.Poor	MLST	Grey massive limestone	NX	1	3	MP/32/3	2.00	3.00	1.00	46.66	0.44	14.57	0.50	0.26	36.46	0.045	0.085	Broken core
4	3.00	4.00	1.00	0.55	1.00	55	14	V.Poor	MLST	Grey massive limestone	NX	1	4	MP/32/4	3.00	4.00	1.00	47.78	0.49	12.63	0.50	0.34	37.10	0.035	0.099	Broken core
5	4.00	5.00	1.00	0.66	1.00	66	28	Poor	MLST	Grey massive limestone	NX	1	5	MP/32/5	4.00	5.00	1.00	46.56	1.42	12.42	0.51	0.46	37.48	0.037	0.108	Broken core
6	5.00	6.00	1.00	0.61	1.00	61	12	V.Poor	MLST	Grey massive limestone	NX	1	6	MP/32/6	5.00	6.00	1.00	47.49	1.41	10.77	0.66	0.48	37.82	0.172	0.115	Broken core
7	6.00	7.00	1.00	0.76	1.00	76	36	Poor	MLST	Grey massive limestone	NX	1	7	MP/32/7	6.00	7.00	1.00	45.57	2.50	12.45	0.44	0.67	36.81	0.345	0.082	Broken core
8	7.00	8.00	1.00	0.92	1.00	92	68	Fair	MLST	Grey massive limestone	NX	1	8	MP/32/8	7.00	8.00	1.00	46.23	1.68	12.03	0.50	0.54	37.88	0.032	0.082	
9	8.00	9.00	1.00	0.88	1.00	88	70	Fair	MLST	Grey massive limestone	NX	2	9	MP/32/9	8.00	9.00	1.00	46.39	1.42	11.81	0.82	0.64	37.68	0.022	0.117	
10	9.00	10.00	1.00	0.93	1.00	93	79	Good	MLST	Grey massive limestone	NX	2	10	MP/32/10	9.00	10.00	1.00	46.80	1.30	12.21	0.52	0.60	37.37	0.080	0.101	
11	10.00	11.00	1.00	0.90	1.00	90	57	Fair	MLST	Grey massive limestone	NX	2	11	MP/32/11	10.00	11.00	1.00	44.82	1.63	14.50	0.78	0.60	36.33	0.030	0.128	
12	11.00	12.00	1.00	0.91	1.00	91	59	Fair	MLST	Grey massive limestone	NX	2	12	MP/32/12	11.00	12.00	1.00	44.72	0.97	16.51	0.77	0.53	35.19	0.015	0.137	
13	12.00	13.00	1.00	0.91	1.00	91	76	Good	MLST	Grey massive limestone	NX	2	13	MP/32/13	12.00	13.00	1.00	43.43	1.75	16.07	0.86	0.79	35.79	0.022	0.126	
14	13.00	14.00	1.00	0.87	1.00	87	65	Fair	MLST	Grey massive limestone	NX	2	14	MP/32/14	13.00	14.00	1.00	46.96	0.55	13.07	0.68	0.40	37.17	0.010	0.099	
15	14.00	15.00	1.00	0.90	1.00	90	49	Poor	MLST	Grey massive limestone	NX	3	15	MP/32/15	14.00	15.00	1.00	46.53	0.62	13.53	0.66	0.48	36.96	0.032	0.110	
16	15.00	16.00	1.00	0.86	1.00	86	53	Fair	MLST	Grey massive limestone	NX	3	16	MP/32/16	15.00	16.00	1.00	47.06	0.30	13.16	0.66	0.35	37.35	0.017	0.101	
17	16.00	17.00	1.00	0.82	1.00	82	52	Fair	MLST	Grey massive limestone	NX	3	17	MP/32/17	16.00	17.00	1.00	47.60	0.37	12.69	0.61	0.47	37.15	0.010	0.112	
18	17.00	18.00	1.00	0.81	1.00	81	0	V.Poor	MLST	Grey massive limestone	NX	3	18	MP/32/18	17.00	18.00	1.00	46.29	0.41	15.10	0.72	0.41	35.87	0.005	0.092	Broken core
19	18.00	19.00	1.00	0.77	1.00	77	10	V.Poor	MLST	Grey massive limestone	NX	3	19	MP/32/19	18.00	19.00	1.00	46.52	0.46	13.55	0.79	0.51	36.94	0.010	0.105	
20	19.00	20.00	1.00	0.84	1.00	84	70	Fair	MLST	Grey massive limestone	NX	3	20	MP/32/20	19.00	20.00	1.00	45.79	0.69	14.73	0.79	0.55	36.21	0.012	0.105	Broken core
21	20.00	21.00	1.00	0.88	1.00	88	58	Fair	MLST	Grey massive limestone	NX	4	21	MP/32/21	20.00	21.00	1.00	46.69	0.59	13.84	0.72	0.53	36.44	0.010	0.099	
22	21.00	22.00	1.00	0.89	1.00	89	34	Poor	MLST	Grey massive limestone	NX	4	22	MP/32/22	21.00	22.00	1.00	47.40	0.59	12.27	0.68	0.50	37.39	0.005	0.078	
23	22.00	23.00	1.00	0.91	1.00	91	59	Fair	MLST	Grey massive limestone	NX	4	23	MP/32/23	22.00	23.00	1.00	46.94	0.55	13.05	0.74	0.57	36.88	0.012	0.094	
24	23.00	24.00	1.00	0.91	1.00	91	33	Poor	MLST	Grey massive limestone	NX	4	24	MP/32/24	23.00	24.00	1.00	46.96	0.46	13.72	1.05	0.65	35.75	0.000	0.112	
25	24.00	25.00	1.00	0.87	1.00	87	24	V.Poor	MLST	Grey massive limestone	NX	4	25	MP/32/25	24.00	25.00	1.00	47.47	0.43	12.87	0.74	0.55	36.73	0.015	0.073	
26	25.00	26.00	1.00	0.90	1.00	90	33	Poor	MLST	Grey massive limestone	NX	5	26	MP/32/26	25.00	26.00	1.00	46.59	0.44	14.04	0.76	0.52	36.44	0.012	0.080	
27	26.00	27.00	1.00	0.73	1.00	73	0	V.Poor	MLST	Grey massive limestone	NX	5	27	MP/32/27	26.00	27.00	1.00	46.87	0.35	13.90	0.78	0.53	36.32	0.012	0.076	Broken core
28	27.00	28.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	5	28	MP/32/28	27.00	28.00	1.00	44.92	0.35	18.01	0.97	0.58	33.86	0.007	0.092	Broken core
29	28.00	29.00	1.00	0.73	1.00	73	0	V.Poor	LST	Grey limestone	NX	5	29	MP/32/29	28.00	29.00	1.00	35.53	0.56	30.36	2.78	1.48	26.89	0.015	0.192	Broken core
30	29.00	30.00	1.00	0.66	1.00	66	0	V.Poor	LST	Grey limestone	NX	5	30	MP/32/30	29.00	30.00	1.00	39.83	0.38	24.61	2.01	1.01	30.18	0.012	0.142	Broken core
31	30.00	31.00	1.00	0.76	1.00	76	0	V.Poor	MLST	Grey massive limestone	NX	5	31	MP/32/31	30.00	31.00	1.00	40.36	0.38	23.93	1.86	1.11	30.21	0.140	0.135	Broken core
32	31.00	32.00	1.00	0.62	1.00	62	0	V.Poor	LST	Grey limestone	NX	5	32	MP/32/32	31.00	32.00	1.00	39.36	0.36	26.14	1.60	0.87	29.84	0.105	0.158	Broken core
33	32.00	33.00	1.00	0.71	1.00	71	0	V.Poor	MLST	Grey massive limestone	NX	6	33	MP/32/33	32.00	33.00	1.00	41.28	0.49	22.49	1.46	0.91	31.78	0.065	0.110	Broken core
34	33.00	34.00	1.00	0.52	1.00	52	0	V.Poor	LST	Grey limestone	NX	6	34	MP/32/34	33.00	34.00	1.00	30.32	0.65	39.57	2.77	1.75	22.83	0.052	0.204	Broken core
35	34.00	35.00	1.00	0.55	1.00	55	0	V.Poor	LST	Grey limestone	NX	6	35	MP/32/35	34.00	35.00	1.00	38.00	0.36	28.09	1.92	1.01	28.77	0.050	0.158	Broken core
36	35.00	36.00	1.00	0.66	1.00	66	0	V.Poor	LST	Grey limestone	NX	6	36	MP/32/36	35.00	36.00	1.00	39.03	0.24	26.75	1.74	0.77	29.72	0.055	0.078	Broken core
37	36.00	37.00	1.00	0.89	1.00	89	0	V.Poor	MLST	Grey massive limestone	NX	6	37	MP/32/37	36.00	37.00	1.00	42.11	0.27	22.41	0.89	0.55	32.34	0.120	0.046	Broken core
38	37.00	38.00	1.00	0.84	1.00	84	20	V.Poor	MLST	Grey massive limestone	NX	6	38	MP/32/38	37.00	38.00	1.00	44.25	0.30	18.48	0.84	0.44	34.30	0.075	0.078	
39	38.00	39.00	1.00	0.89	1.00	89	10	V.Poor	MLST	Grey massive limestone	NX	6	39	MP/32/39	38.00	39.00	1.00	44.53	0.25	17.56	0.98	0.44	34.94	0.057	0.078	
40	39.00	40.00	1.00	0.82	1.00	82	10	V.Poor	MLST	Grey massive limestone	NX	7	40													

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/33
Azimuth	NA
Inclination	VERTICAL
RL-Collar	93.354m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 53.649" E
Longitude	16° 39' 10.922" N
Date of Commencement	05.05.2020
Date of Completion	09.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysis details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				SS	Sandy soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00		1.00				SS	Sandy soil	NX	1	4		3.00	4.00	1.00									Overburden	
5	4.00	5.00	1.00	0.30	1.00	30	0	V.Poor	MLST	Grey massive limestone	NX	1	5	MP/33/5	4.00	5.00	1.00	46.34	0.18	12.91	1.16	2.69	36.08	0.033	0.078	Broken core	
6	5.00	6.00	1.00	0.31	1.00	31	0	V.Poor	MLST	Grey massive limestone	NX	1	6	MP/33/6	5.00	6.00	1.00	45.67	0.08	14.71	1.16	2.21	35.42	0.038	0.080	Broken core	
7	6.00	7.00	1.00	0.30	1.00	30	0	V.Poor	MLST	Grey massive limestone	NX	1	7	MP/33/7	6.00	7.00	1.00	45.56	0.29	16.97	0.68	0.43	35.49	0.018	0.089	Broken core	
8	7.00	8.00	1.00	0.40	1.00	40	0	V.Poor	MLST	Grey massive limestone	NX	1	8	MP/33/8	7.00	8.00	1.00	47.17	0.29	14.57	0.80	0.53	36.01	0.020	0.087	Broken core	
9	8.00	9.00	1.00	0.43	1.00	43	0	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/33/9	8.00	9.00	1.00	47.63	0.38	14.09	0.82	0.51	35.95	0.043	0.092	Broken core	
10	9.00	10.00	1.00	0.43	1.00	43	14	V.Poor	MLST	Grey massive limestone	NX	1	10	MP/33/10	9.00	10.00	1.00	47.41	0.41	13.05	0.86	0.47	37.18	0.035	0.092	Broken core	
11	10.00	11.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	1	11	MP/33/11	10.00	11.00	1.00	48.45	0.34	12.76	0.73	0.45	36.69	0.018	0.099	Broken core	
12	11.00	12.00	1.00	0.55	1.00	55	22	V.Poor	MLST	Grey massive limestone	NX	1	12	MP/33/12	11.00	12.00	1.00	47.23	0.28	13.97	0.93	0.55	36.34	0.018	0.094	Broken core	
13	12.00	13.00	1.00	0.50	1.00	50	12	V.Poor	MLST	Grey massive limestone	NX	1	13	MP/33/13	12.00	13.00	1.00	47.51	0.30	13.31	1.05	0.69	36.38	0.050	0.082	Broken core	
14	13.00	14.00	1.00	0.80	1.00	80	35	Poor	MLST	Grey massive limestone	NX	1	14	MP/33/14	13.00	14.00	1.00	47.12	0.38	13.95	0.70	0.49	36.81	0.010	0.076		
15	14.00	15.00	1.00	0.55	1.00	55	25	Poor	LST	Grey limestone	NX	2	15	MP/33/15	14.00	15.00	1.00	38.17	0.09	28.17	2.25	1.24	28.61	0.038	0.174	Broken core	
16	15.00	16.00	1.00	0.53	1.00	53	11	V.Poor	LST	Grey limestone	NX	2	16	MP/33/16	15.00	16.00	1.00	38.94	0.27	28.19	1.42	1.01	29.24	0.040	0.101	Broken core	
17	16.00	17.00	1.00	0.55	1.00	55	12	V.Poor	MLST	Grey massive limestone	NX	2	17	MP/33/17	16.00	17.00	1.00	43.17	0.20	21.26	1.22	0.77	32.51	0.038	0.082	Broken core	
18	17.00	18.00	1.00	0.51	1.00	51	0	V.Poor	MLST	Grey massive limestone	NX	2	18	MP/33/18	17.00	18.00	1.00	41.18	0.19	24.62	1.32	0.89	30.94	0.033	0.089	Broken core	
19	18.00	19.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	2	19	MP/33/19	18.00	19.00	1.00	38.35	0.21	28.99	1.55	1.23	28.76	0.030	0.112	Broken core	
20	19.00	20.00	1.00	0.45	1.00	45	0	V.Poor	LST	Grey limestone	NX	2	20	MP/33/20	19.00	20.00	1.00	37.67	0.08	29.95	1.61	1.00	28.64	0.013	0.099	Broken core	
21	20.00	21.00	1.00	0.50	1.00	50	10	V.Poor	MLST	Grey massive limestone	NX	2	21	MP/33/21	20.00	21.00	1.00	42.13	0.14	23.95	0.91	0.46	31.70	0.010	0.062	Broken core	
22	21.00	22.00	1.00	0.55	1.00	55	28	Poor	MLST	Grey massive limestone	NX	2	22	MP/33/22	21.00	22.00	1.00	43.35	0.12	21.58	0.94	0.51	32.73	0.010	0.080	Broken core	
23	22.00	23.00	1.00	0.40	1.00	40	11	V.Poor	MLST	Grey massive limestone	NX	2	23	MP/33/23	22.00	23.00	1.00	43.27	0.16	21.39	1.02	0.66	32.79	0.018	0.078		
24	23.00	24.00	1.00	0.87	1.00	87	37	Poor	MLST	Grey massive limestone	NX	3	24	MP/33/24	23.00	24.00	1.00	43.81	0.16	20.02	1.09	0.55	33.59	0.050	0.082		
25	24.00	25.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	3	25	MP/33/25	24.00	25.00	1.00	41.31	0.17	25.55	0.95	0.57	30.80	0.013	0.080	Broken core	
26	25.00	26.00	1.00	0.70	1.00	70	44	Poor	MLST	Grey massive limestone	NX	3	26	MP/33/26	25.00	26.00	1.00	40.25	0.13	26.51	1.27	0.89	30.12	0.018	0.103		
27	26.00	27.00	1.00	0.60	1.00	60	10	V.Poor	MLST	Grey massive limestone	NX	3	27	MP/33/27	26.00	27.00	1.00	40.40	0.10	26.87	1.06	0.50	30.26	0.003	0.078		
28	27.00	28.00	1.00	0.60	1.00	60	11	V.Poor	MLST	Grey massive limestone	NX	3	28	MP/33/28	27.00	28.00	1.00	40.19	0.10	26.99	1.01	0.56	30.43	0.003	0.076	Broken core	
29	28.00	29.00	1.00	0.80	1.00	80	0	V.Poor	LST	Grey limestone	NX	3	29	MP/33/29	28.00	29.00	1.00	36.14	0.21	32.15	1.85	1.26	27.33	0.010	0.108	Broken core	
30	29.00	30.00	1.00	0.85	1.00	85	0	V.Poor	LST	Grey limestone	NX	3	30	MP/33/30	29.00	30.00	1.00	37.70	0.24	30.82	1.30	0.90	28.29	0.038	0.080	Broken core	
31	30.00	31.00	1.00	0.85	1.00	85	0	V.Poor	LST	Grey limestone	NX	4	31	MP/33/31	30.00	31.00	1.00	30.36	0.55	40.96	2.35	1.78	22.67	0.003	0.149	Broken core	
32	31.00	32.00	1.00	0.91	1.00	91	10	V.Poor	LST	Grey limestone	NX	4	32	MP/33/32	31.00	32.00	1.00	35.38	0.34	34.24	1.41	1.09	26.71	0.005	0.117	Broken core	
33	32.00	33.00	1.00	0.85	1.00	85	38	Poor	LST	Grey limestone	NX	4	33	MP/33/33	32.00	33.00	1.00	33.93	0.11	36.73	1.82	1.21	25.14	0.023	0.140		
34	33.00	34.00	1.00	0.80	1.00	80	35	Poor	LST	Grey limestone	NX	4	34	MP/33/34	33.00	34.00	1.00	37.13	0.11	32.52	1.11	0.52	27.79	0.005	0.101		
35	34.00	35.00	1.00	0.90	1.00	90	32	Poor	LST	Grey limestone	NX	4	35	MP/33/35	34.00	35.00	1.00	36.08	0.29	32.51	1.65	1.15	27.38	0.005	0.147		
36	35.00	36.00	1.00	0.91	1.00	91	13	V.Poor	LST	Grey limestone	NX	4	36	MP/33/36	35.00	36.00	1.00	38.30	0.18	29.89	1.21	0.73	28.91	0.003	0.117		
37	36.00	37.00	1.00	0.83	1.00	83	11	V.Poor	LST	Grey limestone	NX	5	37	MP/33/37	36.00	37.00	1.00	39.53	0.12	28.21	1.11	0.62	29.67	0.003	0.117	Broken core	
38	37.00	38.00	1.00	0.86	1.00	86	15	V.Poor	LST	Grey limestone	NX	5	38	MP/33/38	37.00	38.00	1.00	39.									

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/34
Azimuth	NA
Inclination	VERTICAL
RL-Collar	99.603m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 26.411" E
longitude	16° 39' 10.948" N
Date of Commencement	25.11.2019
Date of Completion	30.11.2019

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details					Analysis details (Major Radicals) in %								
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00					BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00								Overburden	
2	1.00	2.00	1.00		1.00					BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00								Overburden	
3	2.00	3.00	1.00		1.00					BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00								Overburden	
4	3.00	4.00	1.00		1.00					BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00								Overburden	
5	4.00	5.00	1.00		1.00					BCS	Black cotton soil	NX	1	5		4.00	5.00	1.00								Overburden	
6	5.00	6.00	1.00		1.00					BCS	Black cotton soil	NX	1	6		5.00	6.00	1.00								Overburden	
7	6.00	7.00	1.00		1.00					BCS	Black cotton soil	NX	1	7		6.00	7.00	1.00								Overburden	
8	7.00	8.00	1.00		1.00					BCS	Black cotton soil	NX	1	8		7.00	8.00	1.00								Overburden	
9	8.00	9.00	1.00		1.00					BRS	Brown soil	NX	1	9		8.00	9.00	1.00								Overburden	
10	9.00	10.00	1.00	0.47	1.00	47	0	V.Poor	LST	Grey limestone	NX	1	10	MP/34/10	9.00	10.00	1.00	35.94	0.02	33.14	1.22	1.08	27.24	0.012	0.121	Broken core	
11	10.00	11.00	1.00	0.38	1.00	38	17	V.Poor	LST	Grey limestone	NX	1	11	MP/34/11	10.00	11.00	1.00	36.83	0.09	31.47	1.28	1.18	27.74	0.012	0.112	Broken core	
12	11.00	12.00	1.00	0.64	1.00	64	24	V.Poor	LST	Grey limestone	NX	1	12	MP/34/12	11.00	12.00	1.00	35.61	0.08	32.61	1.65	1.49	27.14	0.010	0.108	Broken core	
13	12.00	13.00	1.00	0.48	1.00	48	0	V.Poor	LST	Grey limestone	NX	1	13	MP/34/13	12.00	13.00	1.00	36.31	0.04	32.86	1.22	0.61	27.43	0.007	0.110	Broken core	
14	13.00	14.00	1.00	0.74	1.00	74	22	V.Poor	LST	Grey limestone	NX	1	14	MP/34/14	13.00	14.00	1.00	38.72	0.07	29.17	1.08	0.62	28.96	0.005	0.110	Broken core	
15	14.00	15.00	1.00	0.70	1.00	70	14	V.Poor	LST	Grey limestone	NX	1	15	MP/34/15	14.00	15.00	1.00	29.82	0.10	37.10	3.15	4.25	23.48	0.010	0.165	Broken core	
16	15.00	16.00	1.00	0.71	1.00	71	0	V.Poor	MLST	Grey massive limestone	NX	2	16	MP/34/16	15.00	16.00	1.00	40.24	0.04	26.19	1.04	0.71	30.48	0.007	0.101	Broken core	
17	16.00	17.00	1.00	0.55	1.00	55	10	V.Poor	MLST	Grey massive limestone	NX	2	17	MP/34/17	16.00	17.00	1.00	40.52	0.03	25.82	1.12	0.82	30.24	0.007	0.131	Broken core	
18	17.00	18.00	1.00	0.53	1.00	53	12	V.Poor	MLST	Grey massive limestone	NX	2	18	MP/34/18	17.00	18.00	1.00	40.32	0.06	25.79	1.19	0.77	30.44	0.012	0.128	Broken core	
19	18.00	19.00	1.00	0.51	1.00	51	10	V.Poor	MLST	Grey massive limestone	NX	2	19	MP/34/19	18.00	19.00	1.00	41.54	0.04	25.02	0.86	0.63	30.71	0.010	0.115	Broken core	
20	19.00	20.00	1.00	0.53	1.00	53	26	Poor	MLST	Grey massive limestone	NX	2	20	MP/34/20	19.00	20.00	1.00	40.33	0.01	26.71	1.05	0.64	29.94	0.012	0.117	Broken core	
21	20.00	21.00	1.00		1.00					KNK	Kankar	NX	2	21	MP/34/21	20.00	21.00	1.00	23.81	0.05	41.95	4.59	6.00	21.82	0.017	0.073	
22	21.00	22.00	1.00	0.60	1.00	60	32	Poor	MLST	Grey massive limestone	NX	2	22	MP/34/22	21.00	22.00	1.00	41.90	0.03	24.01	0.73	0.56	31.55	0.007	0.094	Broken core	
23	22.00	23.00	1.00	0.61	1.00	61	26	Poor	MLST	Grey massive limestone	NX	2	23	MP/34/23	22.00	23.00	1.00	41.31	0.13	24.31	0.82	0.61	31.56	0.010	0.108	Broken core	
24	23.00	24.00	1.00	0.61	1.00	61	20	V.Poor	MLST	Grey massive limestone	NX	2	24	MP/34/24	23.00	24.00	1.00	43.19	0.16	21.41	0.92	0.57	32.45	0.007	0.121	Broken core	
25	24.00	25.00	1.00	0.80	1.00	80	0	V.Poor	MLST	Grey massive limestone	NX	2	25	MP/34/25	24.00	25.00	1.00	42.49	0.22	21.87	0.79	0.52	32.89	0.007	0.105	Broken core	
26	25.00	26.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	3	26	MP/34/26	25.00	26.00	1.00	41.83	0.23	23.00	0.93	0.60	32.13	0.002	0.110	Broken core	
27	26.00	27.00	1.00	0.65	1.00	65	0	V.Poor	MLST	Grey massive limestone	NX	3	27	MP/34/27	26.00	27.00	1.00	43.61	0.26	19.78	0.86	0.54	33.68	0.015	0.110	Broken core	
28	27.00	28.00	1.00	0.66	1.00	66	0	V.Poor	MLST	Grey massive limestone	NX	3	28	MP/34/28	27.00	28.00	1.00	40.87	0.23	24.95	0.84	0.44	31.40	0.010	0.108	Broken core	
29	28.00	29.00	1.00	0.53	1.00	53	0	V.Poor	MLST	Grey massive limestone	NX	3	29	MP/34/29	28.00	29.00	1.00	41.61	0.22	21.60	0.74	1.58	32.33	0.477	0.094	Broken core	
30	29.00	30.00	1.00	0.87	1.00	87	10	V.Poor	MLST	Grey massive limestone	NX	3	30	MP/34/30	29.00	30.00	1.00	44.10	0.24	19.12	0.67	0.69	33.80	0.117	0.099	Broken core	
31	30.00	31.00	1.00	0.80	1.00	80	22	V.Poor	MLST	Grey massive limestone	NX	3	31	MP/34/31	30.00	31.00	1.00	41.05	0.25	24.27	0.93	0.56	31.61	0.027	0.115	Broken core	
32	31.00	32.00	1.00	0.86	1.00	86	0	V.Poor	MLST	Grey massive limestone	NX	3	32	MP/34/32	31.00	32.00	1.00	44.01	0.27	18.98	0.88	0.53	34.04	0.012	0.110	Broken core	
33	32.00	33.00	1.00	0.90	1.00	90	70	Fair	MLST	Grey massive limestone	NX	4	33	MP/34/33	32.00	33.00	1.00	46.25	0.32	14.79	0.80	0.45	36.13	0.010	0.115		
34	33.00	34.00	1.00	0.95	1.00	95	50	Fair	MLST	Grey massive limestone	NX	4	34	MP/34/34	33.00	34.00	1.00	46.42	0.34	14.53	0.68	0.45	36.37	0.010	0.099		
35	34.00	35.00	1.00	0.95	1.00	95	38	Poor	MLST	Grey massive limestone	NX	4	35	MP/34/35	34.00	35.00	1.00	46.06	0.27	15.47	0.67	0.44	35.91	0.010	0.105		
36	35.00	36.00	1.00	0.93	1.00	93	39	Poor	MLST	Grey massive limestone	NX	4	36	MP/34/36	35.00	36.00	1.00	47.43	0.28	12.83	0.64	0.44	37.27	0.015	0.089		
37	36.00	37.00	1.00	0.93	1.00	93	21	V.Poor	MLST	Grey massive limestone	NX	4	37	MP/34/37	36.00	37.00	1.00	45.96	0.28	15.56	0.69	0.35	36.05	0.012	0.085		
38	37.00	38.00	1.00	0.88	1.00	88	10	V.Poor	MLST	Grey massive limestone	NX	5	38	MP/34/38	37.00	38.00	1.00	47.44	0.24	13.45	0.67	0.48	36.54	0.000	0.112		
39	38.00	39.00	1.00	0.86	1.00	86	12	V.Poor	MLST	Grey massive limestone	NX	5	39	MP/34/39	38.00	39.00	1.00	46.16	0.30	15.41	0.62	0.45	35.83	0.040	0.099		
40	39.00	40.00	1.00																								

Block	MADINAPADU LIMESTONE BLOCK
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/35
Azimuth	NA
Inclination	VERTICAL
RL-Collar	95.14m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 46' 46.857" E
longitude	16° 39' 23.851" N
Date of Commencement	10.05.2020
Date of Completion	18.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysys details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00										
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00										
3	2.00	3.00	1.00		1.00				BCS	Black cotton soil	NX	1	3		2.00	3.00	1.00										
4	3.00	4.00	1.00		1.00				BCS	Black cotton soil	NX	1	4		3.00	4.00	1.00										
5	4.00	5.00	1.00		1.00				BCS	Black cotton soil	NX	1	5		4.00	5.00	1.00										
6	5.00	6.00	1.00		1.00				SS	Sand soil	NX	1	6		5.00	6.00	1.00										
7	6.00	7.00	1.00	0.30	1.00	30	0	V.Poor	LST	Grey limestone	NX	1	7	MP/35/7	6.00	7.00	1.00	19.06	0.07	63.21	1.41	1.13	14.31	0.025	0.089	Broken core	
8	7.00	8.00	1.00	0.30	1.00	30	0	V.Poor	LST	Grey limestone	NX	1	8	MP/35/8	7.00	8.00	1.00	9.02	0.07	81.34	0.85	1.18	7.11	0.033	0.057	Broken core	
9	8.00	9.00	1.00	0.30	1.00	30	0	V.Poor	LST	Grey limestone	NX	1	9	MP/35/9	8.00	9.00	1.00	13.65	0.11	74.76	0.84	1.21	8.93	0.033	0.121	Broken core	
10	9.00	10.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	1	10	MP/35/10	9.00	10.00	1.00	39.51	0.32	26.42	1.42	1.43	30.07	0.033	0.105	Broken core	
11	10.00	11.00	1.00	0.48	1.00	48	0	V.Poor	LST	Grey limestone	NX	1	11	MP/35/11	10.00	11.00	1.00	35.81	0.05	32.16	2.14	1.72	27.20	0.033	0.119	Broken core	
12	11.00	12.00	1.00	0.48	1.00	48	12	V.Poor	MLST	Grey massive limestone	NX	1	12	MP/35/12	11.00	12.00	1.00	43.09	0.20	21.87	0.93	0.59	32.65	0.038	0.096	Broken core	
13	12.00	13.00	1.00	0.45	1.00	45	25	Poor	MLST	Grey massive limestone	NX	1	13	MP/35/13	12.00	13.00	1.00	43.29	0.12	22.27	0.81	0.60	32.27	0.030	0.092	Broken core	
14	13.00	14.00	1.00	0.55	1.00	55	10	Poor	MLST	Grey massive limestone	NX	1	14	MP/35/14	13.00	14.00	1.00	42.62	0.12	22.69	1.11	0.60	32.08	0.005	0.094	Broken core	
15	14.00	15.00	1.00	0.50	1.00	50	0	Poor	MLST	Grey massive limestone	NX	1	15	MP/35/15	14.00	15.00	1.00	42.02	0.04	23.77	1.12	0.63	31.65	0.010	0.082	Broken core	
16	15.00	16.00	1.00	0.60	1.00	60	0	Poor	MLST	Grey massive limestone	NX	1	16	MP/35/16	15.00	16.00	1.00	42.97	0.13	21.44	1.15	0.96	32.54	0.008	0.108	Broken core	
17	16.00	17.00	1.00	0.53	1.00	53	10	Poor	MLST	Grey massive limestone	NX	2	17	MP/35/17	16.00	17.00	1.00	41.98	0.22	23.81	0.92	0.70	31.69	0.008	0.080	Broken core	
18	17.00	18.00	1.00	0.55	1.00	55	0	V.Poor	LST	Grey limestone	NX	2	18	MP/35/18	17.00	18.00	1.00	38.21	0.36	29.63	1.40	0.98	28.58	0.015	0.099	Broken core	
19	18.00	19.00	1.00	0.40	1.00	40	0	V.Poor	LST	Grey limestone	NX	2	19	MP/35/19	18.00	19.00	1.00	37.86	0.41	29.06	1.82	1.34	28.45	0.003	0.110	Broken core	
20	19.00	20.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	2	20	MP/35/20	19.00	20.00	1.00	39.44	0.28	27.76	1.19	0.92	29.59	0.008	0.078	Broken core	
21	20.00	21.00	1.00	0.40	1.00	40	0	V.Poor	MLST	Grey massive limestone	NX	2	21	MP/35/21	20.00	21.00	1.00	41.11	0.19	25.00	1.18	0.75	30.97	0.010	0.089	Broken core	
22	21.00	22.00	1.00	0.60	1.00	60	13	V.Poor	LST	Grey limestone	NX	2	22	MP/35/22	21.00	22.00	1.00	33.11	0.37	37.25	1.86	1.40	24.96	0.023	0.151	Broken core	
23	22.00	23.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	2	23	MP/35/23	22.00	23.00	1.00	35.69	0.30	34.08	1.28	0.96	26.94	0.038	0.101	Broken core	
24	23.00	24.00	1.00	0.55	1.00	55	0	V.Poor	LST	Grey limestone	NX	2	24	MP/35/24	23.00	24.00	1.00	28.51	0.56	42.02	2.32	3.43	21.96	0.003	0.144	Broken core	
25	24.00	25.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	2	25	MP/35/25	24.00	25.00	1.00	36.84	0.26	32.38	1.12	0.81	27.84	0.010	0.099	Broken core	
26	25.00	26.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	2	26	MP/35/26	25.00	26.00	1.00	33.60	0.48	36.10	2.01	1.56	25.16	0.013	0.140	Broken core	
27	26.00	27.00	1.00	0.50	1.00	50	10	V.Poor	LST	Grey limestone	NX	3	27	MP/35/27	26.00	27.00	1.00	35.71	0.12	35.82	0.82	0.40	26.50	0.005	0.078	Broken core	
28	27.00	28.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	3	28	MP/35/28	27.00	28.00	1.00	38.99	0.11	29.97	0.94	0.45	28.82	0.010	0.103	Broken core	
29	28.00	29.00	1.00	0.55	1.00	55	0	V.Poor	LST	Grey limestone	NX	3	29	MP/35/29	28.00	29.00	1.00	39.44	0.17	28.49	1.12	0.70	29.36	0.028	0.096	Broken core	
30	29.00	30.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	3	30	MP/35/30	29.00	30.00	1.00	39.05	0.37	27.93	1.38	1.09	29.34	0.030	0.133	Broken core	
31	30.00	31.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	3	31	MP/35/31	30.00	31.00	1.00	39.60	0.12	28.35	1.15	0.56	29.40	0.028	0.115	Broken core	
32	31.00	32.00	1.00	0.58	1.00	58	0	V.Poor	LST	Grey limestone	NX	3	32	MP/35/32	31.00	32.00	1.00	39.02	0.16	28.74	1.01	0.49	29.83	0.003	0.115	Broken core	
33	32.00	33.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	3	33	MP/35/33	32.00	33.00	1.00	39.92	0.21	26.66	1.26	0.74	30.34	0.015	0.133	Broken core	
34	33.00	34.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	3	34	MP/35/34	33.00	34.00	1.00	41.33	0.25	24.84	1.04	0.59	31.19	0.023	0.121	Broken core	
35	34.00	35.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	3	35	MP/35/35	34.00	35.00	1.00	40.10	0.22	27.36	1.03	0.55	30.02	0.023	0.115	Broken core	
36	35.00	36.00	1.00	0.52	1.00	52	0	V.Poor	MLST	Grey massive limestone	NX	3	36	MP/35/36	35.00	36.00	1.00	41.08	0.23	25.58	0.91	0.53	31.00	0.025	0.105	Broken core	
37	36.00	37.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	4	37	MP/35/37	36.00	37.00	1.00	40.14	0.24	26.45	1.03	0.74	30.69	0.015	0.115	Broken core	
38	37.00	38.00	1.00	0.60	1.00	60	0	V.Poor	MLST	Grey massive limestone	NX	4	38	MP/35/38	37.00	38.00	1.00	41.66	0.22	24.53	0.86	0.50	31.57	0.020	0.105	Broken core	
39	38.00	39.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	4	39	MP/35/39	38.00	39.00	1.00	43.99	0.26	20.20	1.09	0.71	33.00	0.030	0.119	Broken core	
40	39.00	40.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	4	40	MP/35/40	39.00	40.00	1.00	41.56	0.								

Block	MADINAPADU
Commodity	LIMESTONE
Exploration level	G2
Bore Hole ID	MPD/BH/36
Azimuth	NA
Inclination	VERTICAL
RL-Collar	92.135m
Total depth of BH	70 m
Type & Make of Rig	VOLTAS-90

Location- Village	MADINAPADU
Mandal	DACHEPALLI
District & State	GUNTUR DISTRICT, ANDHRA PRADESH
S.O.I. Toposheet	56 P/14
Latitude	79° 47' 0.135" E
longitude	16° 39' 23.838" N
Date of Commencement	05.05.2020
Date of Completion	10.05.2020

S. No	Bore Hole Log Details (Runwise)										Core details		S. No	Sample Details				Analysys details (Major Radicals) in %									
	From (m)	To (m)	Length (m)	Recovered Length (m)	True Length (m)	Recovery %	RQD	RQD Index (%)	Litho Code	Lithological description	Size	Box No		Sample No.	From (m)	To (m)	Sample Length (m)	CaO	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	LOI	SO ₃	P ₂ O ₅	Remarks	
1	0.00	1.00	1.00		1.00				BCS	Black cotton soil	NX	1	1		0.00	1.00	1.00									Overburden	
2	1.00	2.00	1.00		1.00				BCS	Black cotton soil	NX	1	2		1.00	2.00	1.00									Overburden	
3	2.00	3.00	1.00		1.00				BRS	Brown soil	NX	1	3		2.00	3.00	1.00									Overburden	
4	3.00	4.00	1.00	0.40	1.00	40	0	V.Poor	LST	Grey limestone	NX	1	4	MP/36/4	3.00	4.00	1.00	34.03	0.05	27.30	3.01	7.27	27.09	0.013	0.144	Broken core	
5	4.00	5.00	1.00	0.55	1.00	55	0	V.Poor	LST	Grey limestone	NX	1	5	MP/36/5	4.00	5.00	1.00	38.25	0.34	28.26	1.56	1.11	29.58	0.035	0.094	Broken core	
6	5.00	6.00	1.00	0.50	1.00	50	0	V.Poor	LST	Grey limestone	NX	1	6	MP/36/6	5.00	6.00	1.00	38.77	0.35	27.57	1.35	1.16	30.06	0.035	0.103	Broken core	
7	6.00	7.00	1.00		1.00				BRS	Brown soil	NX	1	7		6.00	7.00	1.00										
8	7.00	8.00	1.00		1.00				BRS	Brown soil	NX	1	8		7.00	8.00	1.00										
9	8.00	9.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	1	9	MP/36/9	8.00	9.00	1.00	40.45	0.29	24.84	1.21	0.97	31.51	0.028	0.078	Broken core	
10	9.00	10.00	1.00	0.45	1.00	45	11	V.Poor	LST	Grey limestone	NX	1	10	MP/36/10	9.00	10.00	1.00	39.98	0.56	24.53	1.47	1.52	31.19	0.025	0.089	Broken core	
11	10.00	11.00	1.00	0.45	1.00	45	0	V.Poor	LST	Grey limestone	NX	1	11	MP/36/11	10.00	11.00	1.00	34.75	0.45	33.05	1.99	1.67	27.09	0.030	0.112	Broken core	
12	11.00	12.00	1.00	0.50	1.00	50	10	V.Poor	LST	Grey limestone	NX	1	12	MP/36/12	11.00	12.00	1.00	27.63	0.39	44.44	2.78	1.79	21.51	0.035	0.209	Broken core	
13	12.00	13.00	1.00	0.60	1.00	60	11	V.Poor	MLST	Grey massive limestone	NX	1	13	MP/36/13	12.00	13.00	1.00	44.26	0.20	19.61	0.71	0.32	34.29	0.028	0.062	Broken core	
14	13.00	14.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	1	14	MP/36/14	13.00	14.00	1.00	43.93	0.24	19.79	0.92	0.45	33.94	0.030	0.071	Broken core	
15	14.00	15.00	1.00	0.65	1.00	65	11	V.Poor	MLST	Grey massive limestone	NX	2	15	MP/36/15	14.00	15.00	1.00	44.44	0.23	19.05	0.82	0.45	34.37	0.030	0.073	Broken core	
16	15.00	16.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	2	16	MP/36/16	15.00	16.00	1.00	41.96	0.18	23.35	0.86	0.46	32.53	0.028	0.080	Broken core	
17	16.00	17.00	1.00	0.55	1.00	55	0	V.Poor	MLST	Grey massive limestone	NX	2	17	MP/36/17	16.00	17.00	1.00	40.48	0.21	25.26	1.37	0.77	31.04	0.033	0.117	Broken core	
18	17.00	18.00	1.00	0.50	1.00	50	0	V.Poor	MLST	Grey massive limestone	NX	2	18	MP/36/18	17.00	18.00	1.00	41.22	0.18	24.99	0.98	0.49	31.48	0.035	0.078	Broken core	
19	18.00	19.00	1.00	0.60	1.00	60	0	V.Poor	LST	Grey limestone	NX	2	19	MP/36/19	18.00	19.00	1.00	39.24	0.32	27.41	1.20	0.89	30.24	0.035	0.073	Broken core	
20	19.00	20.00	1.00	0.70	1.00	70	0	V.Poor	LST	Grey limestone	NX	2	20	MP/36/20	19.00	20.00	1.00	32.79	0.38	37.37	1.74	1.34	25.40	0.035	0.124	Broken core	
21	20.00	21.00	1.00	0.65	1.00	65	0	V.Poor	LST	Grey limestone	NX	2	21	MP/36/21	20.00	21.00	1.00	37.97	0.15	30.46	1.10	0.59	28.97	0.030	0.096	Broken core	
22	21.00	22.00	1.00	0.70	1.00	70	10	V.Poor	LST	Grey limestone	NX	2	22	MP/36/22	21.00	22.00	1.00	37.04	0.16	32.36	0.95	0.45	28.32	0.023	0.094	Broken core	
23	22.00	23.00	1.00	0.80	1.00	80	52	Fair	LST	Grey limestone	NX	2	23	MP/36/23	22.00	23.00	1.00	39.51	0.16	27.46	1.07	0.52	30.49	0.033	0.117		
24	23.00	24.00	1.00	0.80	1.00	80	57	Fair	LST	Grey limestone	NX	3	24	MP/36/24	23.00	24.00	1.00	38.88	0.15	28.49	1.20	0.54	29.95	0.023	0.103		
25	24.00	25.00	1.00	0.80	1.00	80	20	V.Poor	LST	Grey limestone	NX	3	25	MP/36/25	24.00	25.00	1.00	37.92	0.20	30.18	1.23	0.58	29.05	0.025	0.110		
26	25.00	26.00	1.00	0.70	1.00	70	20	V.Poor	LST	Grey limestone	NX	3	26	MP/36/26	25.00	26.00	1.00	39.08	0.19	28.26	0.90	0.41	30.44	0.013	0.105		
27	26.00	27.00	1.00	0.90	1.00	90	55	Fair	LST	Grey limestone	NX	3	27	MP/36/27	26.00	27.00	1.00	39.70	0.15	27.25	0.98	0.49	30.75	0.030	0.117		
28	27.00	28.00	1.00	0.60	1.00	60	11	V.Poor	MLST	Grey massive limestone	NX	3	28	MP/36/28	27.00	28.00	1.00	40.47	0.13	25.22	1.29	0.67	31.32	0.030	0.156	Broken core	
29	28.00	29.00	1.00	0.80	1.00	80	20	V.Poor	MLST	Grey massive limestone	NX	3	29	MP/36/29	28.00	29.00	1.00	40.73	0.18	24.94	1.15	0.60	31.60	0.030	0.151		
30	29.00	30.00	1.00	0.70	1.00	70	10	V.Poor	MLST	Grey massive limestone	NX	4	30	MP/36/30	29.00	30.00	1.00	40.76	0.16	25.55	0.95	0.49	31.38	0.028	0.108	Broken core	
31	30.00	31.00	1.00	0.72	1.00	72	37	Poor	LST	Grey limestone	NX	4	31	MP/36/31	30.00	31.00	1.00	37.85	0.18	30.35	0.97	0.53	29.38	0.020	0.115	Broken core	
32	31.00	32.00	1.00	0.90	1.00	90	27	V.Poor	MLST	Grey massive limestone	NX	4	32	MP/36/32	31.00	32.00	1.00	40.67	0.21	25.31	1.10	0.57	31.38	0.023	0.110		
33	32.00	33.00	1.00	0.90	1.00	90	35	Poor	MLST	Grey massive limestone	NX	4	33	MP/36/33	32.00	33.00	1.00	40.23	0.20	25.68	1.01	0.73	31.42	0.010	0.115		
34	33.00	34.00	1.00	0.85	1.00	85	22	V.Poor	MLST	Grey massive limestone	NX	4	34	MP/36/34	33.00	34.00	1.00	41.68	0.20	23.33	0.99	0.57	32.51	0.010	0.115		
35	34.00	35.00	1.00	0.90	1.00	90	33	Poor	MLST	Grey massive limestone	NX	4	35	MP/36/35	34.00	35.00	1.00	41.54	0.24	24.02	0.91	0.59	32.02	0.010	0.112		
36	35.00	36.00	1.00	0.90	1.00	90	45	Poor	MLST	Grey massive limestone	NX	4	36	MP/36/36	35.00	36.00	1.00	41.92	0.23	23.21	1.01	0.61	32.22	0.050	0.119		
37	36.00	37.00	1.00	0.91	1.00	91	14	V.Poor	MLST	Grey massive limestone	NX	5	37	MP/36/37	36.00	37.00	1.00	41.55	0.26	23.19	1.21	0.63	32.34	0.043	0.144		
38	37.00	38.00	1.00	0.75	1.00	75	35	Poor	MLST	Grey massive limestone	NX	5	38	MP/36/38	37.00	38.00	1.00	44.38	0.32	18.92	0.91	0.50	34.32	0.018	0.099	Broken core	
39	38.00	39.00	1.00	0.80	1.00	80	12	V.Poor	MLST	Grey massive limestone	NX	5	39	MP/36/39	38.00	39.00	1.00	41.76	0.20	23.45	0.94	0.49	32.46	0.003	0.117		
40	39.00	40.00	1.00	0.91	1.00	91	31	Poor	MLST	Grey massive limestone	NX	5	40	MP/36/40	39.00	40.00	1.00	41.16	0.25	24.74	0.94	0.52	31.75	0.010	0.092		
41	40.00	41.00	1.00	0.70	1.00	70	0	V.Poor	MLST	Grey massive limestone	NX	5	41	MP/36/41	40.00	41.00	1.00	42.45	0.37	19.98	2.01	0.98	32.86	0.090	0.188	Broken core	
42	41.00	42.00	1.00	0.91	1.00	91	46	Poor	MLST	Grey massive limestone	NX	5	42	MP/36/42	41.00	42.00	1.00	41.93	0.25	23.52	0.83	0.41	32.41	0.003	0.094		
43	42.00	43.00	1.00	0.92	1.00	92	65	Fair																			

**CHEMICAL ANALYSIS RESULTS OF 2129 CORE SAMPLES FROM
MADINAPADU LIMESTONE BLOCK**

MP-1											
S. No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1	696	MP/1/5	4.00m-5.00m	39.43	0.44	25.90	1.14	0.95	30.80	0.023	0.089
2	697	MP/1/6	5.00m-6.00m	38.92	0.27	27.80	0.85	0.55	30.35	0.018	0.073
3	698	MP/1/7	6.00m-7.00m	34.80	0.41	33.98	1.49	0.98	26.83	0.019	0.115
4	699	MP/1/8	7.00m-8.00m	38.13	0.39	28.52	1.19	0.93	29.48	0.017	0.099
5	700	MP/1/9	8.00m-9.00m	32.37	0.53	37.37	1.86	1.46	24.77	0.017	0.156
6	701	MP/1/10	9.00m-10.00m	36.21	0.27	32.89	1.04	0.69	27.56	0.019	0.121
7	702	MP/1/11	10.00m-11.00m	37.40	0.37	29.95	1.22	0.88	28.39	0.024	0.119
8	703	MP/1/12	11.00m-12.00m	29.98	0.66	40.21	2.29	1.92	23.14	0.023	0.144
9	704	MP/1/13	12.00m-13.00m	35.62	0.38	32.19	1.51	1.11	27.66	0.019	0.108
10	705	MP/1/14	13.00m-14.00m	32.84	0.46	36.84	1.58	1.20	25.55	0.019	0.119
11	706	MP/1/15	14.00m-15.00m	35.91	0.29	32.66	1.23	0.81	27.73	0.021	0.094
12	707	MP/1/16	15.00m-16.00m	34.17	0.57	35.07	1.82	1.24	25.48	0.024	0.131
13	708	MP/1/17	16.00m-17.00m	34.59	0.22	35.88	0.99	0.58	26.07	0.017	0.096
14	709	MP/1/18	17.00m-18.00m	36.97	0.29	31.40	1.27	0.66	27.88	0.019	0.117
15	710	MP/1/19	18.00m-19.00m	37.98	0.50	28.93	1.55	1.07	28.43	0.021	0.128
16	711	MP/1/20	19.00m-20.00m	37.22	0.27	30.99	1.17	0.66	28.10	0.019	0.119
17	712	MP/1/21	20.00m-21.00m	37.81	0.32	29.83	1.14	0.90	28.40	0.014	0.154
18	713	MP/1/22	21.00m-22.00m	40.90	0.31	24.87	0.86	0.55	31.20	0.016	0.099
19	714	MP/1/23	22.00m-23.00m	39.85	0.31	26.35	1.10	0.56	30.17	0.016	0.131
20	715	MP/1/24	23.00m-24.00m	39.28	0.24	27.38	0.88	0.50	29.79	0.015	0.105
21	716	MP/1/25	24.00m-25.00m	42.61	0.25	21.96	0.79	0.49	32.62	0.014	0.115
22	717	MP/1/26	25.00m-26.00m	40.14	0.24	26.51	0.80	0.47	30.54	0.014	0.112
23	718	MP/1/27	26.00m-27.00m	43.35	0.41	19.99	0.82	0.58	33.58	0.013	0.103
24	719	MP/1/28	27.00m-28.00m	41.52	0.25	23.81	0.87	0.50	31.74	0.015	0.112
25	720	MP/1/29	28.00m-29.00m	42.06	0.30	22.76	0.93	0.54	32.08	0.011	0.112
26	721	MP/1/30	29.00m-30.00m	43.66	0.26	20.19	0.66	0.46	33.54	0.016	0.099
27	722	MP/1/31	30.00m-31.00m	44.86	0.29	17.81	0.82	0.50	34.44	0.010	0.099
28	723	MP/1/32	31.00m-32.00m	42.71	0.24	21.83	0.73	0.40	32.83	0.011	0.094
29	724	MP/1/33	32.00m-33.00m	45.23	0.25	17.39	0.65	0.40	34.89	0.010	0.094
30	725	MP/1/34	33.00m-34.00m	45.73	0.27	16.40	0.58	0.35	35.48	0.009	0.092
31	726	MP/1/35	34.00m-35.00m	46.74	0.26	15.20	0.54	0.37	35.80	0.007	0.094
32	727	MP/1/36	35.00m-36.00m	44.17	0.36	18.86	0.55	0.34	34.39	0.006	0.082
33	728	MP/1/37	36.00m-37.00m	46.68	0.43	14.68	0.54	0.34	36.19	0.005	0.087
34	729	MP/1/38	37.00m-38.00m	45.39	0.30	16.93	0.62	0.32	35.32	0.007	0.071
35	730	MP/1/39	38.00m-39.00m	47.20	0.31	13.13	0.77	0.48	36.87	0.012	0.108
36	731	MP/1/40	39.00m-40.00m	47.37	0.39	13.06	0.67	0.44	36.90	0.007	0.103
37	732	MP/1/41	40.00m-41.00m	46.84	0.31	14.43	0.46	0.31	36.55	0.007	0.094
38	733	MP/1/42	41.00m-42.00m	46.85	0.35	13.98	0.66	0.58	36.24	0.048	0.103
39	734	MP/1/43	42.00m-43.00m	46.19	0.40	15.48	0.70	0.44	35.56	0.012	0.110
40	735	MP/1/44	43.00m-44.00m	48.03	0.40	12.38	0.61	0.39	37.08	0.004	0.094
41	736	MP/1/45	44.00m-45.00m	48.89	0.50	10.00	0.48	0.40	38.62	0.009	0.053
42	737	MP/1/46	45.00m-46.00m	47.70	1.45	10.09	0.52	0.61	38.52	0.009	0.055
43	738	MP/1/47	46.00m-47.00m	48.41	1.59	8.11	0.43	0.57	39.83	0.005	0.048
44	739	MP/1/48	47.00m-48.00m	48.11	1.49	8.92	0.50	0.56	39.25	0.013	0.046
45	740	MP/1/49	48.00m-49.00m	49.08	1.31	7.26	0.53	0.60	40.04	0.015	0.046
46	741	MP/1/50	49.00m-50.00m	47.56	1.69	9.58	0.44	0.58	39.02	0.006	0.050
47	742	MP/1/51	50.00m-51.00m	48.61	1.26	8.79	0.47	0.53	39.29	0.003	0.050
48	743	MP/1/52	51.00m-52.00m	47.22	2.10	9.08	0.50	0.71	39.29	0.012	0.048
49	744	MP/1/53	52.00m-53.00m	47.30	1.42	9.95	0.46	0.55	39.17	0.015	0.048
50	745	MP/1/54	53.00m-54.00m	49.57	0.84	7.77	0.53	0.48	39.68	0.014	0.055
51	746	MP/1/55	54.00m-55.00m	48.29	0.95	9.73	0.66	0.57	38.58	0.015	0.050
52	747	MP/1/56	55.00m-56.00m	48.34	1.17	8.95	0.76	0.66	38.87	0.013	0.050
53	748	MP/1/57	56.00m-57.00m	49.54	0.56	8.45	0.59	0.46	39.19	0.014	0.048
54	749	MP/1/58	57.00m-58.00m	48.93	0.59	8.16	0.87	0.65	39.49	0.016	0.053

55	750	MP/1/59	58.00m-59.00m	49.70	0.40	8.06	0.70	0.50	39.42	0.005	0.041
56	751	MP/1/60	59.00m-60.00m	49.40	0.45	7.90	0.64	0.57	39.87	0.004	0.044
57	752	MP/1/61	60.00m-61.00m	49.36	0.42	8.11	0.63	0.61	39.66	0.014	0.039
58	753	MP/1/62	61.00m-62.00m	49.34	0.38	8.17	0.70	0.58	39.60	0.004	0.046
59	754	MP/1/63	62.00m-63.00m	48.58	0.39	9.73	0.80	0.61	38.62	0.004	0.048
60	755	MP/1/64	63.00m-64.00m	48.38	0.79	8.97	0.76	0.58	39.32	0.010	0.055
61	756	MP/1/65	64.00m-65.00m	48.68	0.76	8.71	0.50	0.48	39.80	0.007	0.053
62	757	MP/1/66	65.00m-66.00m	48.30	1.45	8.11	0.62	0.60	39.77	0.010	0.046
63	758	MP/1/67	66.00m-67.00m	48.28	1.27	8.16	0.60	0.60	39.94	0.007	0.041
64	759	MP/1/68	67.00m-68.00m	48.77	1.05	7.90	0.65	0.58	39.84	0.009	0.046
65	760	MP/1/69	68.00m-69.00m	49.34	0.62	8.52	0.62	0.54	39.17	0.007	0.055
66	761	MP/1/70	69.00m-70.00m	48.66	0.57	11.10	0.74	0.55	37.39	0.003	0.055

MP-2

S. No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
67	762	MP/2/6	5.00m-6.00m	27.17	0.12	20.68	5.92	18.29	26.22	0.011	0.101
68	763	MP/2/7	6.00m-7.00m	28.59	0.11	22.06	5.23	16.87	25.73	0.007	0.135
69	764	MP/2/8	7.00m-8.00m	41.11	0.19	25.20	0.81	0.54	30.92	0.004	0.119
70	765	MP/2/9	8.00m-9.00m	39.92	0.11	27.14	0.83	0.50	30.28	0.004	0.112
71	766	MP/2/10	9.00m-10.00m	40.31	0.18	26.31	0.92	0.57	30.39	0.003	0.121
72	767	MP/2/11	10.00m-11.00m	40.39	0.16	26.48	0.81	0.49	30.46	0.004	0.105
73	768	MP/2/12	11.00m-12.00m	39.17	0.21	27.86	1.40	0.75	29.07	0.002	0.197
74	769	MP/2/13	12.00m-13.00m	41.65	0.26	23.13	0.81	0.60	32.33	0.003	0.121
75	770	MP/2/14	13.00m-14.00m	39.05	0.17	27.25	1.19	1.52	29.48	0.002	0.105
76	771	MP/2/15	14.00m-15.00m	39.66	0.23	27.47	0.90	0.58	29.88	0.005	0.121
77	772	MP/2/16	15.00m-16.00m	41.27	0.25	25.52	0.80	0.52	30.39	0.019	0.112
78	773	MP/2/17	16.00m-17.00m	38.33	0.21	29.49	0.99	0.61	29.02	0.004	0.133
79	774	MP/2/18	17.00m-18.00m	38.59	0.26	28.40	1.07	0.66	29.65	0.002	0.131
80	775	MP/2/19	18.00m-19.00m	42.61	0.23	21.16	1.09	0.72	32.37	0.009	0.156
81	776	MP/2/20	19.00m-20.00m	42.06	0.19	23.47	0.86	0.55	31.60	0.003	0.126
82	777	MP/2/21	20.00m-21.00m	42.01	0.24	23.36	0.91	0.62	31.61	0.003	0.128
83	778	MP/2/22	21.00m-22.00m	39.91	0.16	24.34	1.37	1.91	30.86	0.015	0.140
84	779	MP/2/23	22.00m-23.00m	42.68	0.26	21.50	0.81	0.55	32.99	0.002	0.131
85	780	MP/2/24	23.00m-24.00m	42.48	0.30	21.57	0.86	0.57	32.97	0.003	0.115
86	781	MP/2/25	24.00m-25.00m	41.72	0.22	22.85	0.92	0.65	32.34	0.010	0.142
87	782	MP/2/26	25.00m-26.00m	41.67	0.25	22.68	0.88	0.92	32.03	0.094	0.121
88	783	MP/2/27	26.00m-27.00m	41.73	0.25	23.36	0.76	0.52	32.19	0.011	0.115
89	784	MP/2/28	27.00m-28.00m	43.07	0.28	20.13	1.07	0.63	33.36	0.016	0.172
90	785	MP/2/29	28.00m-29.00m	42.79	0.27	21.22	0.72	0.55	33.24	0.010	0.110
91	786	MP/2/30	29.00m-30.00m	41.32	0.26	23.79	0.95	0.64	31.70	0.012	0.110
92	787	MP/2/31	30.00m-31.00m	41.16	0.26	23.94	0.90	0.51	31.96	0.012	0.110
93	788	MP/2/32	31.00m-32.00m	40.03	0.25	25.94	1.09	0.84	30.32	0.053	0.089
94	789	MP/2/33	32.00m-33.00m	41.29	0.28	24.65	0.85	0.59	31.08	0.009	0.110
95	790	MP/2/34	33.00m-34.00m	41.63	0.24	23.77	0.81	0.52	31.78	0.009	0.115
96	791	MP/2/35	34.00m-35.00m	42.25	0.23	23.12	0.70	0.49	32.01	0.010	0.101
97	792	MP/2/36	35.00m-36.00m	40.75	0.24	25.62	0.75	0.47	30.94	0.013	0.103
98	793	MP/2/37	36.00m-37.00m	41.47	0.22	24.18	0.70	0.56	31.68	0.009	0.099
99	794	MP/2/38	37.00m-38.00m	41.18	0.22	24.44	0.80	0.54	31.59	0.005	0.105
100	795	MP/2/39	38.00m-39.00m	39.89	0.20	25.78	0.85	1.04	30.85	0.043	0.103
101	796	MP/2/40	39.00m-40.00m	42.70	0.27	21.16	0.96	0.59	33.02	0.010	0.119
102	797	MP/2/41	40.00m-41.00m	42.70	0.26	21.90	0.72	0.46	32.76	0.009	0.112
103	798	MP/2/42	41.00m-42.00m	42.98	0.28	21.34	0.78	0.51	32.83	0.013	0.124
104	799	MP/2/43	42.00m-43.00m	43.36	0.25	20.77	0.87	0.53	32.99	0.006	0.108
105	800	MP/2/44	43.00m-44.00m	41.45	0.30	23.44	0.79	0.50	32.29	0.011	0.108
106	801	MP/2/45	44.00m-45.00m	42.75	0.30	20.86	0.84	0.54	33.43	0.011	0.112
107	802	MP/2/46	45.00m-46.00m	43.25	0.26	20.11	0.67	0.42	34.09	0.005	0.096
108	803	MP/2/47	46.00m-47.00m	46.22	0.28	14.63	0.58	0.40	36.73	0.014	0.092
109	804	MP/2/48	47.00m-48.00m	44.71	0.25	17.71	0.62	0.42	35.15	0.008	0.092
110	805	MP/2/49	48.00m-49.00m	45.75	0.26	15.90	0.47	0.32	36.22	0.005	0.082
111	806	MP/2/50	49.00m-50.00m	46.90	0.29	13.93	0.51	0.36	36.90	0.005	0.085
112	807	MP/2/51	50.00m-51.00m	45.77	0.33	15.60	0.60	0.37	36.19	0.007	0.087

113	808	MP/2/52	51.00m-52.00m	47.29	0.31	13.34	0.63	0.43	36.82	0.009	0.096
114	809	MP/2/53	52.00m-53.00m	46.35	0.27	15.32	0.53	0.35	36.07	0.005	0.089
115	810	MP/2/54	53.00m-54.00m	47.00	0.25	13.77	0.61	0.43	36.75	0.006	0.092
116	811	MP/2/55	54.00m-55.00m	47.61	0.29	12.53	0.61	0.38	37.39	0.015	0.087
117	812	MP/2/56	55.00m-56.00m	45.60	0.30	15.98	0.91	0.62	35.13	0.037	0.167
118	813	MP/2/57	56.00m-57.00m	45.82	0.37	15.69	0.63	0.46	35.89	0.003	0.082
119	814	MP/2/58	57.00m-58.00m	45.69	0.23	16.30	0.64	0.44	35.53	0.004	0.108
120	815	MP/2/59	58.00m-59.00m	44.55	0.25	13.80	0.65	4.13	34.50	0.293	0.101
121	816	MP/2/60	59.00m-60.00m	46.08	0.27	15.29	0.68	0.58	35.93	0.005	0.103
122	817	MP/2/61	60.00m-61.00m	47.24	0.31	13.49	0.55	0.37	36.92	0.005	0.094
123	818	MP/2/62	61.00m-62.00m	47.07	0.33	13.91	0.54	0.54	36.50	0.013	0.073
124	819	MP/2/63	62.00m-63.00m	49.35	0.34	8.91	0.50	0.39	39.88	0.010	0.046
125	820	MP/2/64	63.00m-64.00m	49.31	0.50	9.15	0.45	0.54	38.98	0.019	0.044
126	821	MP/2/65	64.00m-65.00m	49.17	0.56	8.84	0.75	0.55	38.84	0.021	0.062
127	822	MP/2/66	65.00m-66.00m	49.32	0.42	9.29	0.39	0.42	39.13	0.008	0.044
128	823	MP/2/67	66.00m-67.00m	48.01	0.82	10.91	0.57	0.61	38.02	0.009	0.048
129	824	MP/2/68	67.00m-68.00m	47.96	0.98	10.60	0.51	0.54	38.29	0.008	0.055
130	825	MP/2/69	68.00m-69.00m	47.78	1.28	9.97	0.64	0.78	38.38	0.002	0.055
131	826	MP/2/70	69.00m-70.00m	47.35	2.32	8.66	0.59	0.80	39.08	0.005	0.062
MP-3											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
132	2115	MP/3/10	9.00m-10.00m	36.83	0.48	29.73	1.63	1.13	28.64	0.102	0.101
133	2116	MP/3/11	10.00m-11.00m	39.06	0.27	27.42	1.04	0.61	30.20	0.083	0.071
134	2117	MP/3/12	11.00m-12.00m	35.16	0.44	33.38	1.50	1.02	26.91	0.117	0.101
135	2118	MP/3/13	12.00m-13.00m	36.25	0.33	32.61	1.22	0.86	27.19	0.100	0.124
136	2119	MP/3/14	13.00m-14.00m	32.63	0.22	35.41	2.50	1.33	25.55	0.296	0.119
137	2120	MP/3/15	14.00m-15.00m	37.39	0.21	30.69	1.09	0.50	28.58	0.119	0.108
138	2121	MP/3/16	15.00m-16.00m	38.21	0.21	29.21	0.96	0.55	29.44	0.097	0.101
139	2122	MP/3/17	16.00m-17.00m	38.95	0.20	27.42	1.17	0.60	30.12	0.108	0.124
140	2123	MP/3/18	17.00m-18.00m	36.72	0.21	32.03	1.04	0.49	28.05	0.140	0.105
141	2124	MP/3/19	18.00m-19.00m	39.78	0.28	25.65	1.10	0.58	31.03	0.224	0.105
142	2125	MP/3/20	19.00m-20.00m	39.93	0.23	25.95	1.02	0.61	30.80	0.102	0.110
143	2126	MP/3/21	20.00m-21.00m	40.53	0.30	24.72	1.06	0.61	31.28	0.116	0.124
144	2127	MP/3/22	21.00m-22.00m	41.25	0.26	23.88	0.88	0.60	31.77	0.094	0.121
145	2128	MP/3/23	22.00m-23.00m	40.45	0.24	25.67	0.80	0.54	30.93	0.112	0.112
146	2129	MP/3/24	23.00m-24.00m	38.53	0.42	22.45	2.22	0.60	33.77	0.516	0.108
147	2130	MP/3/25	24.00m-25.00m	37.89	0.41	25.77	1.88	0.56	31.33	0.557	0.119
148	2131	MP/3/26	25.00m-26.00m	41.63	0.40	21.50	1.72	0.99	32.05	0.027	0.181
149	2132	MP/3/27	26.00m-27.00m	41.53	0.25	23.83	0.85	0.52	31.63	0.020	0.121
150	2133	MP/3/28	27.00m-28.00m	42.96	0.25	20.47	1.04	0.65	33.40	0.021	0.105
151	2134	MP/3/29	28.00m-29.00m	44.76	0.25	17.86	0.76	0.46	34.60	0.008	0.101
152	2135	MP/3/30	29.00m-30.00m	45.09	0.25	17.30	0.71	0.43	35.02	0.012	0.094
153	2136	MP/3/31	30.00m-31.00m	45.68	0.25	15.79	0.76	0.41	35.92	0.012	0.112
154	2137	MP/3/32	31.00m-32.00m	46.35	0.22	14.60	0.71	0.38	36.54	0.005	0.094
155	2138	MP/3/33	32.00m-33.00m	47.12	0.29	13.64	0.66	0.44	36.67	0.015	0.103
156	2139	MP/3/34	33.00m-34.00m	45.97	0.30	15.85	0.61	0.36	35.79	0.017	0.092
157	2140	MP/3/35	34.00m-35.00m	46.55	0.31	14.32	0.72	0.44	36.41	0.023	0.099
158	2141	MP/3/36	35.00m-36.00m	47.41	0.30	12.78	0.68	0.41	37.20	0.026	0.087
159	2142	MP/3/37	36.00m-37.00m	46.02	0.28	15.78	0.61	0.38	35.74	0.018	0.094
160	2143	MP/3/38	37.00m-38.00m	45.20	0.26	16.90	0.67	0.38	35.38	0.016	0.099
161	2144	MP/3/39	38.00m-39.00m	46.50	0.30	14.44	0.71	0.44	36.34	0.030	0.110
162	2145	MP/3/40	39.00m-40.00m	40.47	0.20	25.51	1.04	0.55	30.81	0.049	0.112
163	2146	MP/3/41	40.00m-41.00m	38.21	0.25	29.07	1.17	0.54	29.34	0.122	0.110
164	2147	MP/3/42	41.00m-42.00m	40.13	0.21	25.70	0.93	0.53	31.12	0.056	0.082
165	2148	MP/3/43	42.00m-43.00m	38.67	0.28	28.47	1.17	0.73	29.36	0.046	0.085
166	2149	MP/3/44	43.00m-44.00m	38.19	0.27	29.18	1.21	0.73	28.94	0.048	0.112
167	2150	MP/3/45	44.00m-45.00m	40.28	0.26	26.27	0.97	0.57	30.29	0.057	0.124
168	2151	MP/3/46	45.00m-46.00m	41.47	0.24	23.37	0.97	0.51	32.10	0.057	0.110
169	2152	MP/3/47	46.00m-47.00m	41.80	0.23	23.13	0.89	0.55	32.15	0.042	0.117
170	2153	MP/3/48	47.00m-48.00m	39.85	0.23	26.38	1.02	0.57	30.54	0.062	0.117

171	2154	MP/3/49	48.00m-49.00m	40.40	0.17	24.96	1.17	0.59	31.38	0.050	0.119
172	2155	MP/3/50	49.00m-50.00m	39.28	0.24	26.40	1.44	0.74	30.32	0.056	0.163
173	2156	MP/3/51	50.00m-51.00m	39.40	0.17	26.34	1.47	0.68	30.49	0.021	0.140
174	2157	MP/3/52	51.00m-52.00m	39.90	0.25	26.13	0.95	0.57	30.82	0.044	0.115
175	2158	MP/3/53	52.00m-53.00m	40.25	0.24	25.85	1.18	0.61	30.48	0.037	0.133
176	2159	MP/3/54	53.00m-54.00m	40.66	0.20	24.49	1.24	0.63	31.44	0.027	0.131
177	2160	MP/3/55	54.00m-55.00m	39.94	0.30	25.21	1.41	0.93	30.76	0.037	0.144
178	2161	MP/3/56	55.00m-56.00m	40.21	0.26	25.70	1.18	0.68	30.62	0.026	0.128
179	2162	MP/3/57	56.00m-57.00m	33.41	0.53	36.35	1.85	1.49	24.93	0.019	0.126
180	2163	MP/3/58	57.00m-58.00m	36.19	0.24	32.62	1.18	0.76	27.69	0.028	0.101
181	2164	MP/3/59	58.00m-59.00m	35.43	0.25	34.40	1.28	0.80	26.43	0.015	0.119
182	2165	MP/3/60	59.00m-60.00m	36.72	0.10	32.07	1.13	0.47	28.21	0.014	0.099
183	2166	MP/3/61	60.00m-61.00m	40.28	0.19	25.93	1.02	0.59	30.71	0.012	0.092
184	2167	MP/3/62	61.00m-62.00m	39.15	0.14	27.99	1.00	0.46	30.03	0.025	0.103
185	2168	MP/3/63	62.00m-63.00m	42.41	0.20	22.13	1.06	0.53	32.39	0.034	0.126
186	2169	MP/3/64	63.00m-64.00m	39.76	0.20	27.34	0.98	0.53	29.88	0.050	0.112
187	2170	MP/3/65	64.00m-65.00m	40.94	0.23	24.45	0.83	0.55	30.98	0.061	0.117
188	2171	MP/3/66	65.00m-66.00m	43.39	0.23	20.44	0.82	0.60	33.27	0.019	0.112
189	2172	MP/3/67	66.00m-67.00m	39.81	0.30	27.00	1.16	0.78	29.57	0.021	0.108
190	2173	MP/3/68	67.00m-68.00m	38.58	0.24	28.42	1.40	0.81	28.89	0.047	0.144
191	2174	MP/3/69	68.00m-69.00m	41.01	0.24	24.69	1.06	0.60	31.07	0.023	0.089
192	2175	MP/3/70	69.00m-70.00m	39.31	0.24	28.29	1.11	0.64	29.08	0.017	0.089

MP-4

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
193	831	MP/4/10	9.00m-10.00m	44.42	0.19	15.70	1.58	3.00	33.71	0.015	0.121
194	832	MP/4/11	10.00m-11.00m	48.81	0.33	11.76	0.54	0.41	37.01	0.010	0.089
195	833	MP/4/12	11.00m-12.00m	48.18	0.35	12.51	0.53	0.43	36.90	0.007	0.078
196	834	MP/4/13	12.00m-13.00m	48.47	0.36	12.02	0.88	0.59	36.43	0.010	0.099
197	835	MP/4/14	13.00m-14.00m	47.39	0.38	14.01	0.60	0.50	35.96	0.007	0.082
198	836	MP/4/15	14.00m-15.00m	47.61	0.34	12.79	0.59	0.52	36.99	0.010	0.064
199	837	MP/4/16	15.00m-16.00m	45.00	0.33	17.75	0.86	0.59	34.24	0.010	0.069
200	838	MP/4/17	16.00m-17.00m	46.17	0.30	16.23	0.68	0.48	34.96	0.020	0.066
201	839	MP/4/18	17.00m-18.00m	42.42	0.33	21.00	1.24	0.75	32.80	0.010	0.108
202	840	MP/4/19	18.00m-19.00m	43.30	0.30	20.13	0.78	0.54	33.69	0.010	0.071
203	841	MP/4/20	19.00m-20.00m	39.03	0.24	26.03	1.92	0.94	29.95	0.010	0.160
204	842	MP/4/21	20.00m-21.00m	41.78	0.25	22.34	1.15	0.70	32.39	0.010	0.099
205	843	MP/4/22	21.00m-22.00m	33.79	0.44	34.58	2.07	1.52	25.91	0.007	0.172
206	844	MP/4/23	22.00m-23.00m	34.17	0.49	33.74	1.97	1.63	26.36	0.010	0.142
207	845	MP/4/24	23.00m-24.00m	38.90	0.30	27.04	1.39	1.10	29.98	0.012	0.085
208	846	MP/4/25	24.00m-25.00m	32.32	0.27	37.49	2.15	1.15	24.78	0.010	0.156
209	847	MP/4/26	25.00m-26.00m	21.69	0.08	51.72	4.54	1.72	17.68	0.007	0.089
210	848	MP/4/27	26.00m-27.00m	38.59	0.19	29.39	0.41	0.68	29.75	0.007	0.030
211	849	MP/4/28	27.00m-28.00m	43.37	0.18	20.70	0.80	0.59	33.19	0.005	0.057
212	850	MP/4/29	28.00m-29.00m	41.54	0.18	24.16	0.93	0.43	31.47	0.005	0.048
213	851	MP/4/30	29.00m-30.00m	40.39	0.15	25.47	1.12	0.78	30.70	0.010	0.053
214	852	MP/4/31	30.00m-31.00m	39.35	0.19	27.82	0.88	0.45	30.04	0.010	0.044
215	853	MP/4/32	31.00m-32.00m	44.36	0.16	20.48	0.74	0.37	32.69	0.007	0.057
216	854	MP/4/33	32.00m-33.00m	45.53	0.20	17.11	0.64	0.37	35.02	0.010	0.060
217	855	MP/4/34	33.00m-34.00m	44.93	0.27	18.57	0.79	0.52	33.74	0.005	0.069
218	856	MP/4/35	34.00m-35.00m	44.89	0.23	17.90	0.68	0.49	34.59	0.017	0.069
219	857	MP/4/36	35.00m-36.00m	45.04	0.22	17.80	0.67	0.45	34.67	0.005	0.066
220	858	MP/4/37	36.00m-37.00m	42.62	0.23	21.39	0.97	0.61	32.87	0.005	0.094
221	859	MP/4/38	37.00m-38.00m	43.72	0.22	20.30	0.93	0.57	33.01	0.010	0.078
222	860	MP/4/39	38.00m-39.00m	40.08	0.20	25.04	1.03	0.55	30.75	0.005	0.087
223	861	MP/4/40	39.00m-40.00m	42.37	0.19	22.49	0.85	0.57	32.25	0.010	0.073
224	862	MP/4/41	40.00m-41.00m	42.75	0.17	22.46	0.71	0.51	32.22	0.002	0.064
225	863	MP/4/42	41.00m-42.00m	40.65	0.16	25.88	0.98	0.55	30.48	0.005	0.080
226	864	MP/4/43	42.00m-43.00m	39.52	0.05	27.77	1.27	0.69	29.25	0.002	0.087
227	865	MP/4/44	43.00m-44.00m	38.75	0.13	27.70	1.24	0.58	30.27	0.005	0.082
228	866	MP/4/45	44.00m-45.00m	41.32	0.15	23.78	0.91	0.57	32.00	0.002	0.080

229	867	MP/4/46	45.00m-46.00m	38.63	0.20	28.14	1.38	0.90	29.11	0.052	0.094
230	868	MP/4/47	46.00m-47.00m	36.88	0.27	31.58	1.27	1.06	27.35	0.065	0.089
231	869	MP/4/48	47.00m-48.00m	36.59	0.44	31.49	1.34	1.14	27.66	0.007	0.110
232	870	MP/4/49	48.00m-49.00m	34.69	0.39	34.28	1.55	1.44	25.80	0.087	0.137
233	871	MP/4/50	49.00m-50.00m	33.50	0.18	37.89	1.26	0.70	24.99	0.010	0.103
234	872	MP/4/51	50.00m-51.00m	42.62	0.09	22.67	0.84	0.52	32.08	0.003	0.076
235	873	MP/4/52	51.00m-52.00m	41.57	0.08	23.83	1.03	0.61	31.70	0.004	0.105
236	874	MP/4/53	52.00m-53.00m	36.41	0.26	31.54	1.59	0.99	27.64	0.002	0.144
237	875	MP/4/54	53.00m-54.00m	40.09	0.23	25.99	1.06	0.58	30.66	0.005	0.128
238	876	MP/4/55	54.00m-55.00m	39.01	0.18	27.86	1.29	0.61	29.50	0.012	0.154
239	877	MP/4/56	55.00m-56.00m	41.74	0.24	23.20	0.96	0.61	31.94	0.007	0.121
240	878	MP/4/57	56.00m-57.00m	41.15	0.24	24.22	0.81	0.60	31.73	0.012	0.115
241	879	MP/4/58	57.00m-58.00m	41.15	0.24	24.22	0.84	0.53	31.75	0.005	0.124
242	880	MP/4/59	58.00m-59.00m	42.20	0.23	22.71	0.79	0.48	32.34	0.005	0.108
243	881	MP/4/60	59.00m-60.00m	43.60	0.25	20.05	0.70	0.53	33.68	0.002	0.099
244	882	MP/4/61	60.00m-61.00m	41.56	0.23	23.78	0.69	0.47	32.08	0.005	0.103
245	883	MP/4/62	61.00m-62.00m	39.87	0.24	26.30	0.89	0.76	30.49	0.050	0.115
246	884	MP/4/63	62.00m-63.00m	42.04	0.24	22.98	0.79	0.53	32.21	0.005	0.105
247	885	MP/4/64	63.00m-64.00m	40.56	0.18	25.70	0.78	0.54	31.02	0.002	0.112
248	886	MP/4/65	64.00m-65.00m	42.20	0.23	23.11	0.98	0.54	31.63	0.002	0.128
249	887	MP/4/66	65.00m-66.00m	43.00	0.26	21.23	0.83	0.53	32.86	0.010	0.112
250	888	MP/4/67	66.00m-67.00m	40.98	0.17	24.78	0.98	0.49	31.38	0.005	0.110
251	889	MP/4/68	67.00m-68.00m	43.43	0.23	20.33	0.82	0.50	33.45	0.005	0.101
252	890	MP/4/69	68.00m-69.00m	41.66	0.25	23.68	0.80	0.53	31.86	0.002	0.108
253	891	MP/4/70	69.00m-70.00m	43.07	0.27	20.52	1.06	0.63	33.03	0.007	0.137
MP-5											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
254	892	MP/5/6	5.00m-6.00m	37.29	0.09	20.68	2.40	8.04	30.16	0.012	0.101
255	893	MP/5/7	6.00m-7.00m	42.94	0.24	21.85	0.75	0.46	32.54	0.010	0.094
256	894	MP/5/8	7.00m-8.00m	46.91	0.27	14.58	0.64	0.46	35.99	0.010	0.096
257	895	MP/5/9	8.00m-9.00m	47.40	0.29	13.95	0.60	0.40	36.23	0.010	0.094
258	896	MP/5/10	9.00m-10.00m	46.49	0.27	15.33	0.79	0.45	35.48	0.010	0.108
259	897	MP/5/11	10.00m-11.00m	46.35	0.35	14.53	0.79	0.75	35.98	0.020	0.115
260	898	MP/5/12	11.00m-12.00m	42.73	0.22	21.45	0.88	0.55	32.96	0.012	0.094
261	899	MP/5/13	12.00m-13.00m	45.59	0.23	16.88	0.91	0.43	34.76	0.010	0.094
262	900	MP/5/14	13.00m-14.00m	46.01	0.44	15.57	0.90	0.53	35.26	0.012	0.124
263	901	MP/5/15	14.00m-15.00m	44.80	0.27	18.79	0.59	0.37	34.01	0.012	0.087
264	902	MP/5/16	15.00m-16.00m	47.35	0.32	14.71	0.64	0.51	35.30	0.012	0.101
265	903	MP/5/17	16.00m-17.00m	46.83	0.36	14.08	0.62	0.40	36.55	0.017	0.094
266	904	MP/5/18	17.00m-18.00m	47.22	0.35	13.72	0.58	0.41	36.59	0.012	0.085
267	905	MP/5/19	18.00m-19.00m	47.15	0.33	14.29	0.65	0.47	35.96	0.012	0.105
268	906	MP/5/20	19.00m-20.00m	44.73	0.45	18.35	0.69	0.43	34.17	0.007	0.099
269	907	MP/5/21	20.00m-21.00m	47.24	0.52	13.04	0.62	0.45	36.96	0.010	0.103
270	908	MP/5/22	21.00m-22.00m	47.63	0.55	12.03	0.69	0.55	37.38	0.010	0.078
271	909	MP/5/23	22.00m-23.00m	47.96	1.14	10.40	0.47	0.55	38.37	0.012	0.050
272	910	MP/5/24	23.00m-24.00m	47.98	1.45	9.57	0.58	0.60	38.69	0.015	0.050
273	911	MP/5/25	24.00m-25.00m	46.59	2.02	9.39	1.25	1.00	38.39	0.015	0.078
274	912	MP/5/26	25.00m-26.00m	47.39	1.67	9.33	0.67	0.69	39.10	0.022	0.057
275	913	MP/5/27	26.00m-27.00m	49.73	1.13	6.49	0.53	0.59	40.32	0.020	0.053
276	914	MP/5/28	27.00m-28.00m	49.27	1.34	6.68	0.69	0.70	40.10	0.015	0.069
277	915	MP/5/29	28.00m-29.00m	49.53	1.23	6.56	0.62	0.71	40.16	0.020	0.064
278	916	MP/5/30	29.00m-30.00m	49.59	0.94	7.24	0.53	0.56	40.04	0.003	0.053
279	917	MP/5/31	30.00m-31.00m	49.62	0.68	8.03	0.70	0.60	39.69	0.003	0.048
280	918	MP/5/32	31.00m-32.00m	49.06	0.47	9.36	0.71	0.57	38.60	0.004	0.048
281	919	MP/5/33	32.00m-33.00m	49.12	0.36	8.53	0.83	1.07	38.81	0.004	0.048
282	920	MP/5/34	33.00m-34.00m	49.42	0.46	8.11	0.82	0.62	39.29	0.005	0.048
MP-6											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
283	921	MP/6/5	4.00m-5.00m	39.64	0.08	21.88	3.10	3.17	31.07	0.015	0.053

284	922	MP/6/6	5.00m-6.00m	39.26	0.06	21.68	3.19	3.10	31.50	0.028	0.050
285	923	MP/6/7	6.00m-7.00m	41.06	0.07	19.37	3.08	2.83	32.40	0.028	0.055
286	924	MP/6/8	7.00m-8.00m	45.29	0.29	15.55	1.26	0.58	35.88	0.020	0.096
287	925	MP/6/9	8.00m-9.00m	45.97	0.49	15.41	0.76	0.55	35.60	0.022	0.096
288	926	MP/6/10	9.00m-10.00m	46.94	0.42	14.11	0.69	0.49	36.20	0.026	0.085
289	927	MP/6/11	10.00m-11.00m	46.63	0.41	13.71	0.78	0.76	36.50	0.024	0.085
290	928	MP/6/12	11.00m-12.00m	45.80	0.19	16.11	1.25	0.50	35.02	0.023	0.064
291	929	MP/6/13	12.00m-13.00m	44.71	0.40	17.54	0.90	0.63	34.60	0.026	0.082
292	930	MP/6/14	13.00m-14.00m	39.52	0.34	26.71	1.45	0.75	29.68	0.029	0.140
293	931	MP/6/15	14.00m-15.00m	35.58	0.50	31.59	2.04	1.29	27.31	0.030	0.121
294	932	MP/6/16	15.00m-16.00m	40.82	0.25	23.74	1.46	0.97	31.25	0.025	0.085
295	933	MP/6/17	16.00m-17.00m	41.95	0.28	23.51	0.85	0.48	31.66	0.024	0.053
296	934	MP/6/18	17.00m-18.00m	41.50	0.23	20.90	1.06	2.31	32.76	0.021	0.073
297	935	MP/6/19	18.00m-19.00m	42.66	0.25	20.09	0.96	0.91	33.92	0.028	0.078
298	936	MP/6/20	19.00m-20.00m	42.96	0.22	20.38	1.07	0.64	33.48	0.023	0.082
299	937	MP/6/21	20.00m-21.00m	42.66	0.27	21.01	0.84	0.52	33.49	0.023	0.064
300	938	MP/6/22	21.00m-22.00m	40.40	0.21	25.45	1.08	0.64	30.93	0.018	0.085
301	939	MP/6/23	22.00m-23.00m	41.87	0.21	23.78	0.90	0.47	31.54	0.020	0.073
302	940	MP/6/24	23.00m-24.00m	42.06	0.19	22.16	1.08	0.54	32.74	0.017	0.076
303	941	MP/6/25	24.00m-25.00m	39.75	0.19	27.20	1.02	0.53	30.09	0.017	0.073
304	942	MP/6/26	25.00m-26.00m	38.97	0.36	27.26	1.30	0.94	29.84	0.017	0.080
305	943	MP/6/27	26.00m-27.00m	34.95	0.45	33.15	1.68	1.45	26.65	0.063	0.103
306	944	MP/6/28	27.00m-28.00m	35.30	0.29	32.76	1.81	1.20	27.13	0.023	0.087
307	945	MP/6/29	28.00m-29.00m	32.42	0.55	37.73	1.85	1.50	24.45	0.018	0.128
308	946	MP/6/30	29.00m-30.00m	34.01	0.49	34.65	1.83	1.21	26.29	0.019	0.151
309	947	MP/6/31	30.00m-31.00m	38.18	0.21	29.86	0.99	0.49	28.98	0.018	0.092
310	948	MP/6/32	31.00m-32.00m	33.97	0.15	35.05	2.30	0.92	25.86	0.018	0.110
311	949	MP/6/33	32.00m-33.00m	36.94	0.18	30.71	1.27	0.60	28.93	0.019	0.099
312	950	MP/6/34	33.00m-34.00m	35.20	0.19	34.01	1.45	0.60	27.08	0.021	0.126
313	951	MP/6/35	34.00m-35.00m	37.20	0.39	29.11	1.68	1.12	28.94	0.016	0.160
314	952	MP/6/36	35.00m-36.00m	36.33	0.31	31.92	1.36	0.85	27.76	0.018	0.142
315	953	MP/6/37	36.00m-37.00m	35.65	0.27	33.12	1.58	0.82	26.98	0.023	0.131
316	954	MP/6/38	37.00m-38.00m	38.35	0.21	29.34	0.93	0.45	29.47	0.016	0.108
317	955	MP/6/39	38.00m-39.00m	38.18	0.18	29.30	0.95	0.47	29.62	0.015	0.115
318	956	MP/6/40	39.00m-40.00m	40.24	0.21	26.12	0.82	0.51	30.83	0.017	0.108
319	957	MP/6/41	40.00m-41.00m	37.07	0.22	32.07	0.61	0.52	28.45	0.012	0.078
320	958	MP/6/42	41.00m-42.00m	43.33	0.27	16.14	0.61	2.88	34.77	0.224	0.080
321	959	MP/6/43	42.00m-43.00m	39.63	0.18	27.44	0.85	0.51	30.13	0.013	0.110
322	960	MP/6/44	43.00m-44.00m	41.37	0.25	24.61	0.81	0.60	31.13	0.013	0.110
323	961	MP/6/45	44.00m-45.00m	41.14	0.18	25.29	0.86	0.56	30.72	0.015	0.124
324	962	MP/6/46	45.00m-46.00m	42.93	0.32	21.01	0.84	0.66	32.99	0.015	0.112
325	963	MP/6/47	46.00m-47.00m	43.17	0.30	20.99	0.79	0.58	32.96	0.015	0.115
326	964	MP/6/48	47.00m-48.00m	42.43	0.31	21.54	0.99	0.95	32.28	0.041	0.126
327	965	MP/6/49	48.00m-49.00m	42.12	0.24	22.10	0.87	0.54	32.90	0.015	0.115
328	966	MP/6/50	49.00m-50.00m	42.18	0.26	23.23	0.83	0.44	32.33	0.014	0.115
329	967	MP/6/51	50.00m-51.00m	42.27	0.29	22.57	0.83	0.53	32.27	0.017	0.115
330	968	MP/6/52	51.00m-52.00m	40.89	0.26	25.06	0.83	0.53	31.14	0.021	0.117
331	969	MP/6/53	52.00m-53.00m	40.87	0.24	24.75	0.96	0.60	31.24	0.025	0.117
332	970	MP/6/54	53.00m-54.00m	41.83	0.24	22.80	0.86	0.64	32.40	0.014	0.121
333	971	MP/6/55	54.00m-55.00m	41.36	0.13	22.02	1.35	1.09	32.74	0.012	0.147
334	972	MP/6/56	55.00m-56.00m	42.00	0.25	22.09	1.08	0.72	32.48	0.014	0.160
335	973	MP/6/57	56.00m-57.00m	42.71	0.24	21.54	0.88	0.65	32.73	0.010	0.103
336	974	MP/6/58	57.00m-58.00m	40.72	0.23	24.62	0.92	0.61	31.62	0.018	0.119
337	975	MP/6/59	58.00m-59.00m	42.07	0.19	22.05	0.94	0.50	33.05	0.015	0.101
338	976	MP/6/60	59.00m-60.00m	46.13	0.28	15.57	0.71	0.39	35.77	0.012	0.096
339	977	MP/6/61	60.00m-61.00m	46.24	0.30	14.79	0.62	0.36	36.53	0.014	0.096
340	978	MP/6/62	61.00m-62.00m	44.90	0.25	17.39	0.77	0.43	35.10	0.012	0.096
341	979	MP/6/63	62.00m-63.00m	47.13	0.41	14.71	0.53	0.37	35.70	0.018	0.082
342	980	MP/6/64	63.00m-64.00m	45.88	0.30	16.31	0.56	0.38	35.45	0.022	0.087
343	981	MP/6/65	64.00m-65.00m	45.79	0.27	16.45	0.66	0.34	35.35	0.012	0.099
344	982	MP/6/66	65.00m-66.00m	45.77	0.34	16.52	0.70	0.42	35.10	0.011	0.094

345	983	MP/6/67	66.00m-67.00m	46.88	0.40	13.87	0.65	0.41	36.64	0.015	0.101
346	984	MP/6/68	67.00m-68.00m	48.97	0.39	10.13	0.56	0.39	38.42	0.013	0.094
347	985	MP/6/69	68.00m-69.00m	47.63	0.69	11.84	0.54	0.45	37.73	0.017	0.062
348	986	MP/6/70	69.00m-70.00m	47.28	1.72	9.70	0.56	0.73	38.84	0.016	0.057
MP-7											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
349	1087	MP/7/4	3.00m-4.00m	41.61	0.08	12.78	2.48	9.31	32.69	0.011	0.082
350	1088	MP/7/5	4.00m-5.00m	46.41	0.44	14.27	0.61	0.52	36.58	0.010	0.133
351	1089	MP/7/6	5.00m-6.00m	46.35	0.43	15.24	0.50	0.43	35.97	0.011	0.092
352	1090	MP/7/7	6.00m-7.00m	47.34	0.29	13.96	0.44	0.37	36.55	0.010	0.092
353	1091	MP/7/8	7.00m-8.00m	47.31	0.30	14.00	0.55	0.36	36.43	0.009	0.082
354	1092	MP/7/9	8.00m-9.00m	47.28	0.30	14.26	0.53	0.37	36.17	0.010	0.099
355	1093	MP/7/10	9.00m-10.00m	46.98	0.35	14.01	0.57	0.43	36.53	0.015	0.101
356	1094	MP/7/11	10.00m-11.00m	47.02	0.33	14.29	0.50	0.37	36.40	0.010	0.085
357	1095	MP/7/12	11.00m-12.00m	45.97	0.37	16.09	0.62	0.52	35.35	0.012	0.082
358	1096	MP/7/13	12.00m-13.00m	45.48	0.52	15.86	0.81	0.72	35.48	0.012	0.099
359	1097	MP/7/14	13.00m-14.00m	49.03	0.34	10.62	0.47	0.41	38.13	0.012	0.062
360	1098	MP/7/15	14.00m-15.00m	47.37	0.28	13.69	0.66	0.47	36.46	0.010	0.087
361	1099	MP/7/16	15.00m-16.00m	46.36	0.46	13.24	0.81	1.31	36.69	0.010	0.099
362	1100	MP/7/17	16.00m-17.00m	45.91	0.38	15.01	1.19	0.66	35.51	0.015	0.101
363	1101	MP/7/18	17.00m-18.00m	46.35	0.39	13.61	0.78	0.58	37.12	0.011	0.082
364	1102	MP/7/19	18.00m-19.00m	47.11	0.39	12.82	0.70	0.54	37.29	0.011	0.073
365	1103	MP/7/20	19.00m-20.00m	45.92	0.25	14.97	0.64	0.40	36.71	0.018	0.060
366	1104	MP/7/21	20.00m-21.00m	46.64	0.28	13.24	0.81	0.50	37.31	0.012	0.066
367	1105	MP/7/22	21.00m-22.00m	46.17	0.27	14.56	0.52	0.35	37.05	0.013	0.053
368	1106	MP/7/23	22.00m-23.00m	45.57	0.30	15.61	0.64	0.44	36.30	0.013	0.057
369	1107	MP/7/24	23.00m-24.00m	46.22	0.24	15.09	0.58	0.49	36.29	0.013	0.060
370	1108	MP/7/25	24.00m-25.00m	46.31	0.26	15.58	0.53	0.41	35.85	0.009	0.055
371	1109	MP/7/26	25.00m-26.00m	45.10	0.25	16.72	0.74	0.58	35.48	0.010	0.076
372	1110	MP/7/27	26.00m-27.00m	43.73	0.36	18.52	1.28	0.78	33.86	0.010	0.115
373	1111	MP/7/28	27.00m-28.00m	46.05	0.29	15.75	0.61	0.48	35.73	0.008	0.062
374	1112	MP/7/29	28.00m-29.00m	42.39	0.32	21.49	0.89	0.62	33.02	0.008	0.101
375	1113	MP/7/30	29.00m-30.00m	41.56	0.41	22.07	1.27	0.94	32.35	0.009	0.133
376	1114	MP/7/31	30.00m-31.00m	38.93	0.40	25.64	2.00	1.14	30.18	0.010	0.144
377	1115	MP/7/32	31.00m-32.00m	40.87	0.32	23.39	1.40	0.87	31.77	0.012	0.099
378	1116	MP/7/33	32.00m-33.00m	39.48	0.34	26.20	1.48	0.96	29.98	0.017	0.117
379	1117	MP/7/34	33.00m-34.00m	39.15	0.33	26.76	1.62	0.93	29.54	0.014	0.112
380	1118	MP/7/35	34.00m-35.00m	39.22	0.35	25.90	1.80	1.06	29.54	0.105	0.135
381	1119	MP/7/36	35.00m-36.00m	26.45	0.36	46.08	3.41	1.65	19.57	0.017	0.202
382	1120	MP/7/37	36.00m-37.00m	32.68	0.35	36.13	2.32	1.34	25.14	0.033	0.160
383	1121	MP/7/38	37.00m-38.00m	29.94	0.60	38.58	2.79	2.79	22.55	0.194	0.202
384	1122	MP/7/39	38.00m-39.00m	32.63	0.56	35.69	1.65	1.56	26.49	0.012	0.087
385	1123	MP/7/40	39.00m-40.00m	25.55	0.61	47.51	3.05	2.02	19.17	0.012	0.170
386	1124	MP/7/41	40.00m-41.00m	30.05	0.71	38.69	3.20	2.33	22.88	0.012	0.225
387	1125	MP/7/42	41.00m-42.00m	32.17	0.25	37.51	2.63	1.27	24.18	0.010	0.124
388	1126	MP/7/43	42.00m-43.00m	24.76	0.20	47.82	4.11	1.59	18.73	0.010	0.222
389	1127	MP/7/44	43.00m-44.00m	39.57	0.24	26.82	1.23	0.82	29.96	0.008	0.085
390	1128	MP/7/45	44.00m-45.00m	43.94	0.17	19.07	0.77	0.81	33.88	0.052	0.053
391	1129	MP/7/46	45.00m-46.00m	41.25	0.23	22.89	1.25	1.08	31.82	0.032	0.060
392	1130	MP/7/47	46.00m-47.00m	41.01	0.22	24.51	0.93	0.43	31.60	0.020	0.064
393	1131	MP/7/48	47.00m-48.00m	42.87	0.14	20.40	1.25	0.47	33.47	0.018	0.069
394	1132	MP/7/49	48.00m-49.00m	42.80	0.22	21.45	0.92	0.56	32.80	0.012	0.080
395	1133	MP/7/50	49.00m-50.00m	43.64	0.24	19.77	0.91	0.65	33.48	0.025	0.078
396	1134	MP/7/51	50.00m-51.00m	41.16	0.17	23.60	1.35	0.69	31.66	0.017	0.080
397	1135	MP/7/52	51.00m-52.00m	41.57	0.11	23.51	1.15	0.48	31.96	0.011	0.069
398	1136	MP/7/53	52.00m-53.00m	41.55	0.21	23.90	0.77	0.47	31.85	0.020	0.066
399	1137	MP/7/54	53.00m-54.00m	43.23	0.28	20.63	0.79	0.53	33.28	0.019	0.076
400	1138	MP/7/55	54.00m-55.00m	41.07	0.27	23.48	1.14	0.74	31.90	0.014	0.096
401	1139	MP/7/56	55.00m-56.00m	39.81	0.20	25.49	1.09	0.65	31.47	0.015	0.073
402	1140	MP/7/57	56.00m-57.00m	37.35	0.22	31.02	0.83	0.66	28.65	0.022	0.076

403	1141	MP/7/58	57.00m-58.00m	39.21	0.19	27.24	1.08	0.80	29.97	0.040	0.076
404	1142	MP/7/59	58.00m-59.00m	37.49	0.18	29.13	1.32	0.63	29.66	0.019	0.087
405	1143	MP/7/60	59.00m-60.00m	39.06	0.18	26.55	1.43	0.79	30.34	0.018	0.099
406	1144	MP/7/61	60.00m-61.00m	34.11	0.47	34.50	1.79	1.33	26.18	0.015	0.121
407	1145	MP/7/62	61.00m-62.00m	33.72	0.56	34.76	1.77	1.52	26.06	0.015	0.110
408	1146	MP/7/63	62.00m-63.00m	34.74	0.44	33.92	1.46	1.21	26.76	0.019	0.094
409	1147	MP/7/64	63.00m-64.00m	35.45	0.36	32.75	1.57	1.09	27.24	0.013	0.108
410	1148	MP/7/65	64.00m-65.00m	30.46	0.52	37.99	3.55	2.02	23.11	0.027	0.174
411	1149	MP/7/66	65.00m-66.00m	30.77	0.30	40.77	2.02	1.40	23.12	0.018	0.126
412	1150	MP/7/67	66.00m-67.00m	34.58	0.18	36.32	0.80	0.62	26.30	0.016	0.073
413	1151	MP/7/68	67.00m-68.00m	37.25	0.15	31.16	1.21	0.54	28.24	0.013	0.108
414	1152	MP/7/69	68.00m-69.00m	39.66	0.17	26.18	1.16	0.61	30.83	0.014	0.110
415	1153	MP/7/70	69.00m-70.00m	36.79	0.46	29.24	1.95	1.52	28.24	0.013	0.181

MP-8

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
416	1154	MP/8/7	6.00m-7.00m	36.98	0.25	31.60	1.13	0.70	28.00	0.009	0.087
417	1155	MP/8/8	7.00m-8.00m	36.24	0.19	33.09	1.17	0.57	27.34	0.009	0.108
418	1156	MP/8/9	8.00m-9.00m	40.63	0.24	25.04	0.94	0.53	31.32	0.008	0.103
419	1157	MP/8/10	9.00m-10.00m	38.15	0.22	29.46	1.18	0.70	28.92	0.007	0.115
420	1158	MP/8/11	10.00m-11.00m	40.28	0.20	26.22	1.02	0.61	30.33	0.010	0.110
421	1159	MP/8/12	11.00m-12.00m	36.51	0.14	31.82	1.30	0.66	28.13	0.015	0.128
422	1160	MP/8/13	12.00m-13.00m	40.08	0.19	26.70	0.74	0.47	30.59	0.009	0.103
423	1161	MP/8/14	13.00m-14.00m	42.01	0.28	22.28	1.03	0.57	32.45	0.026	0.140
424	1162	MP/8/15	14.00m-15.00m	39.66	0.23	27.51	0.86	0.49	29.96	0.024	0.105
425	1163	MP/8/16	15.00m-16.00m	41.69	0.27	23.62	0.81	0.51	31.83	0.021	0.105
426	1164	MP/8/17	16.00m-17.00m	42.49	0.29	21.78	0.96	0.61	32.50	0.020	0.128
427	1165	MP/8/18	17.00m-18.00m	41.34	0.27	24.35	0.81	0.57	31.40	0.022	0.103
428	1166	MP/8/19	18.00m-19.00m	42.64	0.15	21.37	1.23	0.65	32.48	0.024	0.133
429	1167	MP/8/20	19.00m-20.00m	40.77	0.26	25.34	0.74	0.45	31.18	0.024	0.105
430	1168	MP/8/21	20.00m-21.00m	41.49	0.24	24.08	1.00	0.55	31.25	0.022	0.128
431	1169	MP/8/22	21.00m-22.00m	42.18	0.19	22.76	1.09	0.63	31.69	0.022	0.133
432	1170	MP/8/23	22.00m-23.00m	42.27	0.14	23.01	0.74	0.83	31.76	0.020	0.108
433	1171	MP/8/24	23.00m-24.00m	42.70	0.24	22.27	0.68	0.48	32.38	0.022	0.096
434	1172	MP/8/25	24.00m-25.00m	43.77	0.30	19.49	0.79	0.58	33.82	0.021	0.105
435	1173	MP/8/26	25.00m-26.00m	46.20	0.29	15.54	0.59	0.46	35.72	0.024	0.101
436	1174	MP/8/27	26.00m-27.00m	47.32	0.32	13.68	0.76	0.49	36.17	0.008	0.108
437	1175	MP/8/28	27.00m-28.00m	47.29	0.18	13.56	0.62	0.40	36.76	0.007	0.096
438	1176	MP/8/29	28.00m-29.00m	47.10	0.25	14.33	0.65	0.41	36.04	0.017	0.085
439	1177	MP/8/30	29.00m-30.00m	46.55	0.16	15.03	0.64	0.62	35.76	0.018	0.101
440	1178	MP/8/31	30.00m-31.00m	47.65	0.22	12.16	0.62	1.01	37.15	0.021	0.101
441	1179	MP/8/32	31.00m-32.00m	45.83	0.30	16.28	0.72	0.42	35.20	0.018	0.105
442	1180	MP/8/33	32.00m-33.00m	47.63	0.30	12.65	0.68	0.44	37.12	0.014	0.066
443	1181	MP/8/34	33.00m-34.00m	48.29	0.40	11.18	0.64	0.74	37.49	0.015	0.053
444	1182	MP/8/35	34.00m-35.00m	47.98	0.59	10.21	0.58	0.53	38.96	0.019	0.050
445	1183	MP/8/36	35.00m-36.00m	48.19	1.34	8.53	0.52	0.61	39.70	0.016	0.050
446	1184	MP/8/37	36.00m-37.00m	45.04	0.96	14.64	1.04	0.96	35.98	0.018	0.101
447	1185	MP/8/38	37.00m-38.00m	44.48	0.79	16.30	1.16	0.98	34.81	0.014	0.117

MP-9

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
448	1186	MP/9/5	4.00m-5.00m	37.69	0.19	29.25	1.23	1.25	29.19	0.014	0.069
449	1187	MP/9/6	5.00m-6.00m	42.34	0.21	22.64	0.75	0.45	32.50	0.014	0.069
450	1188	MP/9/7	6.00m-7.00m	38.47	0.34	28.48	1.05	0.91	29.61	0.015	0.062
451	1189	MP/9/8	7.00m-8.00m	41.06	0.37	24.11	1.33	0.99	30.84	0.015	0.080
452	1190	MP/9/9	8.00m-9.00m	37.20	0.35	31.54	1.16	0.81	27.70	0.014	0.099
453	1191	MP/9/10	9.00m-10.00m	35.48	0.20	34.58	1.26	0.64	26.52	0.011	0.099
454	1192	MP/9/11	10.00m-11.00m	38.98	0.31	27.91	1.35	0.96	29.16	0.008	0.135
455	1193	MP/9/12	11.00m-12.00m	36.37	0.46	31.06	2.00	1.25	27.24	0.014	0.165
456	1194	MP/9/13	12.00m-13.00m	40.13	0.21	26.58	0.94	0.53	30.36	0.025	0.105

457	1195	MP/9/14	13.00m-14.00m	38.10	0.21	30.27	0.90	0.55	28.77	0.015	0.110
458	1196	MP/9/15	14.00m-15.00m	40.16	0.21	26.43	0.99	0.55	30.48	0.016	0.110
459	1197	MP/9/16	15.00m-16.00m	41.69	0.28	23.10	1.23	0.80	31.54	0.012	0.176
460	1198	MP/9/17	16.00m-17.00m	42.92	0.31	20.93	1.11	0.70	32.79	0.011	0.160
461	1199	MP/9/18	17.00m-18.00m	42.12	0.30	22.57	0.91	0.62	32.31	0.014	0.121
462	1200	MP/9/19	18.00m-19.00m	42.99	0.23	21.79	0.76	0.54	32.56	0.013	0.112
463	1201	MP/9/20	19.00m-20.00m	42.60	0.24	21.72	0.89	0.67	32.72	0.013	0.108
464	1202	MP/9/21	20.00m-21.00m	42.88	0.24	21.89	0.72	0.48	32.70	0.009	0.108
465	1203	MP/9/22	21.00m-22.00m	41.52	0.24	23.92	0.83	0.54	31.84	0.008	0.108
466	1204	MP/9/23	22.00m-23.00m	43.16	0.26	21.46	0.77	0.64	32.60	0.008	0.103
467	1205	MP/9/24	23.00m-24.00m	46.61	0.28	14.81	0.58	0.44	36.24	0.019	0.089
468	1206	MP/9/25	24.00m-25.00m	45.93	0.30	15.97	0.72	0.49	35.46	0.022	0.094
469	1207	MP/9/26	25.00m-26.00m	47.89	0.26	12.90	0.64	0.41	36.84	0.011	0.096
470	1208	MP/9/27	26.00m-27.00m	46.96	0.21	15.15	0.72	0.47	35.43	0.009	0.080
471	1209	MP/9/28	27.00m-28.00m	46.23	0.31	16.03	0.73	0.40	35.18	0.022	0.103
472	1210	MP/9/29	28.00m-29.00m	48.09	0.44	12.31	0.62	0.39	37.08	0.020	0.085
473	1211	MP/9/30	29.00m-30.00m	48.38	0.92	10.06	0.56	0.47	38.55	0.023	0.062
474	1212	MP/9/31	30.00m-31.00m	49.64	1.09	7.08	0.64	0.62	39.80	0.040	0.050
475	1213	MP/9/32	31.00m-32.00m	48.98	0.84	9.01	0.73	0.58	38.81	0.027	0.055
476	1214	MP/9/33	32.00m-33.00m	49.24	0.72	8.44	0.56	0.49	39.52	0.022	0.048
477	1215	MP/9/34	33.00m-34.00m	48.48	1.42	7.98	0.50	0.64	39.94	0.026	0.048
478	1216	MP/9/35	34.00m-35.00m	49.26	1.27	7.82	0.52	0.62	39.59	0.019	0.050
479	1217	MP/9/36	35.00m-36.00m	48.65	1.24	8.54	0.58	0.60	39.39	0.027	0.053
480	1218	MP/9/37	36.00m-37.00m	48.24	0.80	10.82	0.69	0.58	37.80	0.023	0.048
481	1219	MP/9/38	37.00m-38.00m	48.61	0.42	9.41	0.80	0.65	38.87	0.035	0.048
482	1220	MP/9/39	38.00m-39.00m	48.92	0.78	8.21	0.74	0.59	39.58	0.031	0.044
483	1221	MP/9/40	39.00m-40.00m	48.95	0.44	8.36	0.79	0.63	39.63	0.026	0.044
484	1222	MP/9/41	40.00m-41.00m	49.59	0.39	8.35	0.76	0.62	39.11	0.021	0.044
485	1223	MP/9/42	41.00m-42.00m	49.30	0.36	8.86	0.78	0.63	38.82	0.025	0.041
486	1224	MP/9/43	42.00m-43.00m	48.89	0.39	8.95	0.92	0.71	38.82	0.030	0.048
487	1225	MP/9/44	43.00m-44.00m	47.97	0.39	10.61	1.03	0.73	37.96	0.022	0.053
488	1226	MP/9/45	44.00m-45.00m	48.79	0.41	8.76	0.84	0.66	39.33	0.022	0.046
489	1227	MP/9/46	45.00m-46.00m	50.02	0.48	8.27	0.79	0.65	38.58	0.018	0.046
490	1228	MP/9/47	46.00m-47.00m	48.71	0.38	9.08	0.91	0.67	39.03	0.020	0.044
491	1229	MP/9/48	47.00m-48.00m	48.03	0.33	9.51	0.97	0.70	39.16	0.023	0.046
492	1230	MP/9/49	48.00m-49.00m	48.21	0.42	10.34	1.15	0.83	37.62	0.021	0.044
493	1231	MP/9/50	49.00m-50.00m	47.57	0.34	11.39	1.01	0.75	37.66	0.013	0.046
494	1232	MP/9/51	50.00m-51.00m	46.91	0.32	12.30	1.40	1.01	36.51	0.038	0.048
495	1233	MP/9/52	51.00m-52.00m	47.49	0.38	10.59	1.12	0.90	38.12	0.018	0.046
496	1234	MP/9/53	52.00m-53.00m	46.55	0.39	13.04	1.39	1.10	36.00	0.020	0.055
497	1235	MP/9/54	53.00m-54.00m	44.78	0.49	13.97	1.85	1.35	35.73	0.032	0.066
498	1236	MP/9/55	54.00m-55.00m	44.37	0.54	14.84	2.15	1.57	34.77	0.016	0.071
499	1237	MP/9/56	55.00m-56.00m	49.16	0.73	9.58	0.61	0.58	38.32	0.015	0.055
500	1238	MP/9/57	56.00m-57.00m	48.70	1.11	7.92	0.55	0.64	40.00	0.020	0.048
501	1239	MP/9/58	57.00m-58.00m	48.72	0.91	8.83	0.52	0.56	39.42	0.017	0.050
502	1240	MP/9/59	58.00m-59.00m	50.17	0.71	8.47	0.55	0.61	38.46	0.012	0.046
503	1241	MP/9/60	59.00m-60.00m	49.98	0.62	8.94	0.64	0.59	38.19	0.012	0.050
504	1242	MP/9/61	60.00m-61.00m	49.34	0.59	9.70	0.63	0.63	38.03	0.018	0.053
505	1243	MP/9/62	61.00m-62.00m	50.14	0.36	8.15	0.62	0.54	39.08	0.016	0.046
506	1244	MP/9/63	62.00m-63.00m	49.65	0.35	9.22	0.74	0.61	38.23	0.015	0.046
507	1245	MP/9/64	63.00m-64.00m	49.65	0.34	9.47	0.86	0.75	37.70	0.010	0.048
508	1246	MP/9/65	64.00m-65.00m	49.44	0.38	8.59	1.19	0.97	37.99	0.012	0.057
509	1247	MP/9/66	65.00m-66.00m	48.63	0.43	9.31	0.98	0.78	38.54	0.026	0.046
510	1248	MP/9/67	66.00m-67.00m	48.27	0.33	10.77	1.10	0.78	37.42	0.023	0.053
511	1249	MP/9/68	67.00m-68.00m	48.88	0.34	10.17	1.06	0.83	37.45	0.014	0.046
512	1250	MP/9/69	68.00m-69.00m	46.65	0.34	13.52	1.50	1.09	35.41	0.011	0.057
513	1251	MP/9/70	69.00m-70.00m	47.43	0.34	12.20	1.27	1.13	36.35	0.016	0.048
MP-10											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
514	1325	MP/10/4	3.00m-4.00m	31.86	0.14	22.56	4.15	14.09	26.76	0.032	0.110

515	1326	MP/10/5	4.00m-5.00m	31.93	0.11	32.28	4.53	4.37	25.94	0.028	0.128
516	1327	MP/10/6	5.00m-6.00m	31.40	0.15	32.21	4.51	5.05	25.68	0.027	0.144
517	1328	MP/10/7	6.00m-7.00m	45.37	0.35	17.21	0.57	0.47	34.85	0.020	0.087
518	1329	MP/10/8	7.00m-8.00m	46.26	0.37	14.69	1.07	0.61	35.58	0.021	0.124
519	1330	MP/10/9	8.00m-9.00m	46.43	0.37	14.34	0.79	0.57	36.32	0.022	0.099
520	1331	MP/10/10	9.00m-10.00m	45.37	0.47	16.12	0.83	0.62	35.37	0.026	0.112
521	1332	MP/10/11	10.00m-11.00m	47.25	0.40	13.00	0.68	0.55	36.93	0.026	0.076
522	1333	MP/10/12	11.00m-12.00m	42.58	0.14	17.81	1.74	2.06	34.35	0.028	0.062
523	1334	MP/10/13	12.00m-13.00m	45.44	0.21	14.24	1.34	1.58	35.89	0.025	0.064
524	1335	MP/10/14	13.00m-14.00m	47.64	0.38	12.68	0.57	0.51	37.04	0.023	0.069
525	1336	MP/10/15	14.00m-15.00m	46.80	0.40	13.67	0.71	0.57	36.68	0.019	0.080
526	1337	MP/10/16	15.00m-16.00m	47.58	0.39	12.77	0.51	0.49	37.08	0.026	0.076
527	1338	MP/10/17	16.00m-17.00m	46.22	0.40	15.18	0.58	0.48	35.96	0.029	0.071
528	1339	MP/10/18	17.00m-18.00m	47.17	0.40	13.15	0.59	0.57	36.92	0.026	0.071
529	1340	MP/10/19	18.00m-19.00m	47.02	0.24	14.47	0.60	0.48	36.00	0.021	0.055
530	1341	MP/10/20	19.00m-20.00m	46.51	0.27	15.95	0.56	0.41	35.08	0.025	0.066
531	1342	MP/10/21	20.00m-21.00m	44.43	0.31	19.01	0.62	0.52	33.91	0.023	0.069
532	1343	MP/10/22	21.00m-22.00m	46.99	0.32	14.42	0.61	0.49	35.95	0.023	0.062
533	1344	MP/10/23	22.00m-23.00m	44.88	0.33	17.40	0.92	0.70	34.42	0.023	0.092
534	1345	MP/10/24	23.00m-24.00m	39.87	0.47	24.74	1.64	1.09	30.49	0.025	0.135
535	1346	MP/10/25	24.00m-25.00m	44.11	0.33	19.01	0.81	0.63	33.81	0.026	0.066
536	1347	MP/10/26	25.00m-26.00m	43.17	0.25	21.42	0.74	0.52	32.63	0.019	0.071
537	1348	MP/10/27	26.00m-27.00m	38.04	0.18	27.78	2.08	1.05	28.94	0.020	0.147
538	1349	MP/10/28	27.00m-28.00m	37.78	0.34	28.42	1.75	1.10	28.91	0.021	0.137
539	1350	MP/10/29	28.00m-29.00m	39.66	0.35	27.39	0.60	0.78	30.11	0.021	0.055
540	1351	MP/10/30	29.00m-30.00m	41.34	0.23	23.58	0.91	0.57	32.00	0.027	0.073
541	1352	MP/10/31	30.00m-31.00m	41.00	0.25	24.67	0.73	0.43	31.62	0.029	0.060
542	1353	MP/10/32	31.00m-32.00m	38.31	0.23	29.85	0.89	0.74	28.73	0.016	0.078
543	1354	MP/10/33	32.00m-33.00m	43.03	0.26	20.49	1.03	0.67	33.13	0.020	0.092
544	1355	MP/10/34	33.00m-34.00m	42.95	0.31	21.05	1.09	0.72	32.48	0.016	0.096
545	1356	MP/10/35	34.00m-35.00m	42.41	0.24	22.23	0.79	0.51	32.58	0.016	0.071
546	1357	MP/10/36	35.00m-36.00m	40.42	0.25	25.74	1.12	0.78	30.28	0.019	0.103
547	1358	MP/10/37	36.00m-37.00m	40.99	0.20	25.16	0.83	0.53	30.97	0.028	0.073
548	1359	MP/10/38	37.00m-38.00m	39.35	0.28	27.80	1.02	0.75	29.49	0.022	0.080
549	1360	MP/10/39	38.00m-39.00m	35.83	0.43	32.58	1.50	1.24	26.94	0.019	0.112
550	1361	MP/10/40	39.00m-40.00m	35.26	0.29	33.67	1.62	0.95	26.49	0.037	0.117
551	1362	MP/10/41	40.00m-41.00m	38.51	0.28	29.07	1.13	0.75	28.86	0.021	0.112
552	1363	MP/10/42	41.00m-42.00m	36.14	0.24	32.83	1.52	0.77	26.86	0.017	0.147
553	1364	MP/10/43	42.00m-43.00m	38.79	0.20	28.83	0.87	0.53	29.45	0.017	0.119
554	1365	MP/10/44	43.00m-44.00m	40.32	0.23	26.04	0.94	0.63	30.51	0.017	0.119
555	1366	MP/10/45	44.00m-45.00m	40.31	0.19	26.02	0.93	0.62	30.62	0.018	0.121
556	1367	MP/10/46	45.00m-46.00m	40.91	0.22	24.94	0.90	0.61	31.10	0.018	0.124
557	1368	MP/10/47	46.00m-47.00m	43.06	0.25	21.10	0.71	0.53	33.10	0.015	0.103
558	1369	MP/10/48	47.00m-48.00m	41.77	0.24	23.56	0.74	0.54	31.85	0.026	0.108
559	1370	MP/10/49	48.00m-49.00m	43.75	0.27	19.99	0.72	0.51	33.49	0.024	0.101
560	1371	MP/10/50	49.00m-50.00m	45.88	0.26	16.22	0.56	0.38	35.51	0.020	0.082
561	1372	MP/10/51	50.00m-51.00m	47.21	0.27	13.48	0.62	0.49	36.70	0.013	0.108
562	1373	MP/10/52	51.00m-52.00m	45.52	0.25	16.95	0.58	0.37	35.15	0.018	0.099
563	1374	MP/10/53	52.00m-53.00m	44.36	0.31	18.51	0.85	0.48	34.22	0.017	0.110
564	1375	MP/10/54	53.00m-54.00m	41.55	0.27	23.79	0.67	0.47	31.97	0.034	0.096
565	1376	MP/10/55	54.00m-55.00m	43.23	0.26	20.40	1.00	0.64	32.98	0.041	0.137
566	1377	MP/10/56	55.00m-56.00m	45.64	0.26	16.32	0.75	0.64	34.90	0.066	0.115
567	1378	MP/10/57	56.00m-57.00m	42.95	0.26	21.30	0.74	0.50	32.96	0.028	0.112
568	1379	MP/10/58	57.00m-58.00m	43.74	0.26	20.15	0.63	0.46	33.50	0.026	0.103
569	1380	MP/10/59	58.00m-59.00m	42.54	0.27	22.08	0.77	0.54	32.51	0.032	0.110
570	1381	MP/10/60	59.00m-60.00m	42.21	0.25	22.77	0.68	0.45	32.37	0.032	0.096
571	1382	MP/10/61	60.00m-61.00m	42.26	0.26	22.22	0.88	0.53	32.49	0.034	0.112
572	1383	MP/10/62	61.00m-62.00m	40.80	0.25	25.12	0.77	0.51	31.22	0.035	0.110
573	1384	MP/10/63	62.00m-63.00m	42.62	0.27	21.83	0.86	0.61	32.44	0.035	0.124
574	1385	MP/10/64	63.00m-64.00m	40.88	0.24	24.97	0.96	0.60	30.96	0.028	0.115
575	1386	MP/10/65	64.00m-65.00m	39.77	0.25	26.59	0.94	0.58	30.48	0.031	0.119

576	1387	MP/10/66	65.00m-66.00m	33.01	0.55	36.57	1.81	1.52	24.84	0.040	0.137
577	1388	MP/10/67	66.00m-67.00m	35.27	0.54	32.67	1.70	1.45	26.79	0.028	0.110
578	1389	MP/10/68	67.00m-68.00m	38.76	0.30	28.02	1.22	0.86	29.35	0.032	0.092
579	1390	MP/10/69	68.00m-69.00m	39.02	0.18	28.07	0.98	0.56	29.79	0.029	0.089
580	1391	MP/10/70	69.00m-70.00m	40.19	0.18	26.09	0.88	0.54	30.74	0.027	0.073
MP-11											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
581	1392	MP/11/4	3.00m-4.00m	47.75	0.42	11.66	0.71	0.87	37.24	0.041	0.124
582	1393	MP/11/5	4.00m-5.00m	42.87	0.25	15.41	1.98	3.26	34.73	0.022	0.089
583	1394	MP/11/6	5.00m-6.00m	47.25	0.40	13.41	0.52	0.45	36.83	0.019	0.080
584	1395	MP/11/8	7.00m-8.00m	46.49	0.41	14.59	0.65	0.38	36.21	0.021	0.105
585	1396	MP/11/9	8.00m-9.00m	48.42	0.37	11.21	0.46	0.36	38.10	0.016	0.096
586	1397	MP/11/10	9.00m-10.00m	48.03	0.35	11.45	0.57	0.32	38.08	0.019	0.108
587	1398	MP/11/11	10.00m-11.00m	48.41	0.39	10.88	0.36	0.35	38.49	0.025	0.085
588	1399	MP/11/12	11.00m-12.00m	47.94	0.34	11.81	0.50	0.37	37.87	0.016	0.110
589	1400	MP/11/13	12.00m-13.00m	47.84	0.33	11.16	0.92	0.46	37.86	0.017	0.170
590	1401	MP/11/14	13.00m-14.00m	49.49	0.29	9.59	0.36	0.32	38.89	0.013	0.080
591	1402	MP/11/15	14.00m-15.00m	47.03	0.62	12.48	1.15	0.77	36.53	0.013	0.167
592	1403	MP/11/16	15.00m-16.00m	46.61	0.29	14.42	0.55	0.36	36.64	0.012	0.103
593	1404	MP/11/17	16.00m-17.00m	49.47	0.31	9.34	0.40	0.31	39.11	0.013	0.087
594	1405	MP/11/18	17.00m-18.00m	47.17	0.32	13.98	0.47	0.40	36.51	0.023	0.082
595	1406	MP/11/19	18.00m-19.00m	48.25	0.30	11.71	0.64	0.36	37.48	0.021	0.101
596	1407	MP/11/20	19.00m-20.00m	47.86	0.42	12.60	0.38	0.41	37.16	0.032	0.066
597	1408	MP/11/21	20.00m-21.00m	46.82	0.61	13.66	0.43	0.44	36.92	0.019	0.076
598	1409	MP/11/22	21.00m-22.00m	45.79	1.19	13.62	0.66	0.78	36.70	0.020	0.117
599	1410	MP/11/23	22.00m-23.00m	48.13	0.32	12.18	0.55	0.39	37.25	0.021	0.080
600	1411	MP/11/24	23.00m-24.00m	47.92	0.49	12.36	0.60	0.47	36.97	0.015	0.101
601	1412	MP/11/25	24.00m-25.00m	47.64	0.29	13.56	0.55	0.39	36.38	0.016	0.119
602	1413	MP/11/26	25.00m-26.00m	47.40	0.59	12.26	0.53	0.47	37.61	0.014	0.101
603	1414	MP/11/27	26.00m-27.00m	48.40	0.38	11.17	0.43	0.35	38.20	0.012	0.089
604	1415	MP/11/28	27.00m-28.00m	47.48	0.30	12.41	0.55	0.63	37.23	0.062	0.110
605	1416	MP/11/29	28.00m-29.00m	46.66	0.38	12.47	0.55	1.62	36.66	0.180	0.094
606	1417	MP/11/30	29.00m-30.00m	44.53	0.55	17.01	0.88	0.60	35.07	0.023	0.142
607	1418	MP/11/31	30.00m-31.00m	47.15	0.38	12.82	0.61	0.47	37.40	0.013	0.105
608	1419	MP/11/32	31.00m-32.00m	47.20	0.40	13.82	0.54	0.42	36.44	0.009	0.103
609	1420	MP/11/33	32.00m-33.00m	47.53	0.30	12.89	0.64	0.41	37.05	0.009	0.105
610	1421	MP/11/34	33.00m-34.00m	45.78	0.62	14.97	0.82	0.65	35.90	0.012	0.144
611	1422	MP/11/35	34.00m-35.00m	46.22	0.33	15.44	0.71	0.47	35.63	0.011	0.101
612	1423	MP/11/36	35.00m-36.00m	47.28	0.37	13.41	0.70	0.48	36.51	0.018	0.147
613	1424	MP/11/37	36.00m-37.00m	47.81	0.27	13.53	0.54	0.35	36.34	0.015	0.089
614	1425	MP/11/38	37.00m-38.00m	45.03	0.38	17.38	0.99	0.56	34.26	0.020	0.115
615	1426	MP/11/39	38.00m-39.00m	46.37	0.44	14.74	0.82	0.61	35.72	0.020	0.108
616	1427	MP/11/40	39.00m-40.00m	47.19	0.37	14.08	0.69	0.49	35.98	0.016	0.092
617	1428	MP/11/41	40.00m-41.00m	45.46	0.43	16.96	0.68	0.52	34.72	0.010	0.099
618	1429	MP/11/42	41.00m-42.00m	47.21	0.42	13.36	0.78	0.52	36.43	0.017	0.115
619	1430	MP/11/43	42.00m-43.00m	48.56	0.34	11.41	0.49	0.39	37.72	0.012	0.073
620	1431	MP/11/44	43.00m-44.00m	48.22	0.33	11.86	0.49	0.48	37.44	0.027	0.071
621	1432	MP/11/45	44.00m-45.00m	47.70	0.40	12.41	0.57	0.64	37.02	0.038	0.085
622	1433	MP/11/46	45.00m-46.00m	45.14	0.28	17.58	0.59	0.45	34.80	0.010	0.066
623	1434	MP/11/47	46.00m-47.00m	42.37	0.32	21.50	1.27	0.75	32.29	0.009	0.112
624	1435	MP/11/48	47.00m-48.00m	38.65	0.38	26.56	2.19	1.12	28.99	0.017	0.149
625	1436	MP/11/49	48.00m-49.00m	35.49	0.37	31.47	2.24	1.23	26.94	0.044	0.202
626	1437	MP/11/50	49.00m-50.00m	31.67	0.34	37.93	2.56	1.33	24.07	0.009	0.181
627	1438	MP/11/51	50.00m-51.00m	34.44	0.72	32.52	2.26	1.99	26.21	0.024	0.174
628	1439	MP/11/52	51.00m-52.00m	29.48	0.45	41.10	2.82	1.72	22.27	0.012	0.192
629	1440	MP/11/53	52.00m-53.00m	42.15	0.22	22.28	0.94	1.05	31.67	0.097	0.103
630	1441	MP/11/54	53.00m-54.00m	40.63	0.26	25.30	1.06	0.68	30.62	0.022	0.060
631	1442	MP/11/55	54.00m-55.00m	44.63	0.19	18.71	0.66	0.60	33.92	0.029	0.066
632	1443	MP/11/56	55.00m-56.00m	44.37	0.24	19.26	0.83	0.56	33.42	0.018	0.076
633	1444	MP/11/57	56.00m-57.00m	41.89	0.29	22.85	1.25	0.87	31.41	0.022	0.108

634	1445	MP/11/58	57.00m-58.00m	41.82	0.27	23.32	0.86	0.62	31.92	0.011	0.080
635	1446	MP/11/59	58.00m-59.00m	41.42	0.27	23.92	0.96	0.72	31.20	0.036	0.092
636	1447	MP/11/60	59.00m-60.00m	42.06	0.25	23.13	0.83	0.56	31.89	0.009	0.092
637	1448	MP/11/61	60.00m-61.00m	37.06	0.20	30.40	1.91	0.87	27.70	0.014	0.131
638	1449	MP/11/62	61.00m-62.00m	37.70	0.43	29.44	1.34	1.19	28.44	0.023	0.089
639	1450	MP/11/63	62.00m-63.00m	37.28	0.50	30.66	1.16	1.14	27.98	0.008	0.094
640	1451	MP/11/64	63.00m-64.00m	38.80	0.33	28.36	1.13	0.89	29.09	0.018	0.094
641	1452	MP/11/65	64.00m-65.00m	32.57	0.58	37.35	1.92	1.59	24.36	0.016	0.131
642	1453	MP/11/66	65.00m-66.00m	36.73	0.39	31.57	1.17	1.01	27.78	0.011	0.082
643	1454	MP/11/67	66.00m-67.00m	39.70	0.29	26.93	1.00	0.75	30.02	0.012	0.073
644	1455	MP/11/68	67.00m-68.00m	38.60	0.31	28.73	1.10	0.79	29.05	0.015	0.078
645	1456	MP/11/69	68.00m-69.00m	36.84	0.44	30.92	1.35	1.16	27.80	0.027	0.099
646	1457	MP/11/70	69.00m-70.00m	40.38	0.24	25.94	1.09	0.68	30.30	0.012	0.096

MP-12

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
647	6601	MP/12/4	3.00m-4.00m	42.13	0.35	20.91	1.14	0.93	33.78	0.140	0.092
648	6602	MP/12/5	4.00m-5.00m	41.92	0.36	21.03	1.27	0.96	33.65	0.120	0.096
649	6603	MP/12/6	5.00m-6.00m	42.13	0.35	20.97	1.16	0.93	33.71	0.138	0.092
650	6604	MP/12/7	6.00m-7.00m	41.83	0.35	21.34	1.16	0.94	33.63	0.090	0.094
651	6605	MP/12/8	7.00m-8.00m	42.19	0.34	21.02	1.12	1.01	33.56	0.120	0.094
652	6606	MP/12/9	8.00m-9.00m	42.10	0.35	21.27	1.14	0.98	33.39	0.118	0.092
653	6607	MP/12/10	9.00m-10.00m	41.78	0.35	21.27	1.17	1.03	33.64	0.100	0.094
654	6608	MP/12/11	10.00m-11.00m	42.11	0.35	21.06	1.16	0.97	33.60	0.110	0.094
655	6609	MP/12/12	11.00m-12.00m	42.04	0.35	21.15	1.13	0.98	33.60	0.123	0.096
656	6610	MP/12/13	12.00m-13.00m	41.97	0.34	21.18	1.16	0.97	33.63	0.103	0.092
657	6611	MP/12/14	13.00m-14.00m	42.21	0.36	20.97	1.13	0.87	33.72	0.098	0.092
658	6612	MP/12/15	14.00m-15.00m	41.89	0.39	21.22	1.29	0.92	33.51	0.143	0.094
659	6613	MP/12/16	15.00m-16.00m	42.29	0.33	20.86	1.13	0.93	33.73	0.083	0.094
660	6614	MP/12/17	16.00m-17.00m	42.28	0.36	20.89	1.13	0.90	33.71	0.093	0.094
661	6615	MP/12/18	17.00m-18.00m	42.35	0.35	20.89	1.13	0.96	33.57	0.083	0.094
662	6616	MP/12/19	18.00m-19.00m	42.23	0.33	21.10	1.10	0.98	33.51	0.088	0.096
663	6617	MP/12/20	19.00m-20.00m	41.89	0.33	21.32	1.14	0.94	33.61	0.088	0.099
664	6618	MP/12/21	20.00m-21.00m	41.99	0.33	21.21	1.14	0.99	33.58	0.073	0.092
665	6619	MP/12/22	21.00m-22.00m	42.37	0.34	21.01	1.10	0.96	33.48	0.078	0.096
666	6620	MP/12/23	22.00m-23.00m	42.34	0.32	21.01	1.09	0.88	33.62	0.053	0.092
667	6621	MP/12/24	23.00m-24.00m	41.79	0.42	21.20	1.27	0.94	33.60	0.168	0.094
668	6622	MP/12/25	24.00m-25.00m	41.40	0.40	21.59	1.31	0.92	33.59	0.168	0.096
669	6623	MP/12/26	25.00m-26.00m	41.60	0.41	21.43	1.30	0.89	33.60	0.173	0.096
670	6624	MP/12/27	26.00m-27.00m	41.55	0.40	21.24	1.35	0.94	33.72	0.195	0.101
671	6625	MP/12/28	27.00m-28.00m	41.84	0.39	21.24	1.25	0.94	33.56	0.180	0.094
672	6626	MP/12/29	28.00m-29.00m	41.85	0.39	21.09	1.26	1.00	33.64	0.170	0.096
673	6627	MP/12/30	29.00m-30.00m	41.74	0.37	21.45	1.34	0.97	33.36	0.198	0.094
674	6628	MP/12/31	30.00m-31.00m	41.69	0.41	21.21	1.29	0.93	33.69	0.213	0.094
675	6629	MP/12/32	31.00m-32.00m	41.41	0.42	21.56	1.36	0.99	33.46	0.230	0.092
676	6630	MP/12/33	32.00m-33.00m	42.21	0.39	20.83	1.22	0.81	33.77	0.173	0.094
677	6631	MP/12/34	33.00m-34.00m	41.99	0.39	21.03	1.26	0.92	33.66	0.138	0.092
678	6632	MP/12/35	34.00m-35.00m	42.53	0.42	20.32	1.30	0.99	33.61	0.193	0.101
679	6633	MP/12/36	35.00m-36.00m	41.53	0.41	21.36	1.37	0.90	33.65	0.185	0.096
680	6634	MP/12/37	36.00m-37.00m	41.10	0.38	21.82	1.36	0.94	33.60	0.168	0.099
681	6635	MP/12/38	37.00m-38.00m	41.17	0.42	21.60	1.37	0.91	33.76	0.153	0.101
682	6636	MP/12/39	38.00m-39.00m	37.51	0.29	29.39	1.38	0.83	29.75	0.085	0.133
683	6637	MP/12/40	39.00m-40.00m	36.96	0.29	29.98	1.44	0.82	29.64	0.128	0.137
684	6638	MP/12/41	40.00m-41.00m	36.89	0.30	30.03	1.46	0.85	29.61	0.130	0.131
685	6639	MP/12/42	41.00m-42.00m	36.67	0.28	30.28	1.48	0.85	29.57	0.140	0.131
686	6640	MP/12/43	42.00m-43.00m	37.16	0.29	29.15	1.42	0.86	30.26	0.120	0.126
687	6641	MP/12/44	43.00m-44.00m	37.95	0.29	28.36	1.34	0.87	30.37	0.095	0.124
688	6642	MP/12/45	44.00m-45.00m	45.45	0.44	15.53	0.91	0.52	36.44	0.243	0.108
689	6643	MP/12/46	45.00m-46.00m	45.15	0.46	15.79	0.98	0.48	36.47	0.180	0.099
690	6644	MP/12/47	46.00m-47.00m	45.33	0.42	15.93	0.90	0.47	36.27	0.200	0.103
691	6645	MP/12/48	47.00m-48.00m	45.36	0.45	15.63	0.95	0.49	36.45	0.165	0.108

692	6646	MP/12/49	48.00m-49.00m	44.99	0.42	16.06	1.05	0.50	36.29	0.195	0.112
693	6647	MP/12/50	49.00m-50.00m	45.48	0.44	15.53	0.97	0.48	36.42	0.165	0.103
694	6648	MP/12/51	50.00m-51.00m	45.59	0.41	15.59	0.86	0.48	36.41	0.133	0.103
695	6649	MP/12/52	51.00m-52.00m	45.46	0.41	15.74	0.88	0.51	36.33	0.165	0.101
696	6650	MP/12/53	52.00m-53.00m	45.58	0.44	15.39	0.92	0.51	36.48	0.203	0.099
697	6651	MP/12/54	53.00m-54.00m	45.33	0.44	15.74	0.88	0.51	36.42	0.203	0.103
698	6652	MP/12/55	54.00m-55.00m	45.40	0.43	15.51	0.91	0.49	36.57	0.213	0.105
699	6653	MP/12/56	55.00m-56.00m	45.67	0.42	15.53	0.88	0.52	36.30	0.185	0.103
700	6654	MP/12/57	56.00m-57.00m	45.30	0.43	15.84	0.90	0.49	36.37	0.173	0.101
701	6655	MP/12/58	57.00m-58.00m	45.65	0.42	15.31	0.81	0.51	36.62	0.190	0.105
702	6656	MP/12/59	58.00m-59.00m	45.70	0.40	15.34	0.77	0.49	36.64	0.130	0.108
703	6657	MP/12/60	59.00m-60.00m	45.83	0.40	15.53	0.79	0.50	36.29	0.138	0.103
704	6658	MP/12/61	60.00m-61.00m	45.94	0.39	15.44	0.77	0.48	36.34	0.125	0.101
705	6659	MP/12/62	61.00m-62.00m	48.50	1.15	9.28	0.77	0.70	39.02	0.085	0.066
706	6660	MP/12/63	62.00m-63.00m	48.64	1.16	9.06	0.76	0.69	39.12	0.070	0.069
707	6661	MP/12/64	63.00m-64.00m	48.62	1.16	9.14	0.75	0.68	39.08	0.068	0.066
708	6662	MP/12/65	64.00m-65.00m	48.47	1.19	9.25	0.75	0.67	39.11	0.068	0.066
709	6663	MP/12/66	65.00m-66.00m	49.03	1.17	8.89	0.73	0.67	38.96	0.063	0.064
710	6664	MP/12/67	66.00m-67.00m	48.68	1.16	9.16	0.75	0.67	39.02	0.065	0.062
711	6665	MP/12/68	67.00m-68.00m	48.40	1.17	9.12	0.80	0.90	39.03	0.065	0.064
712	6666	MP/12/69	68.00m-69.00m	48.53	1.18	9.06	0.75	0.71	39.21	0.058	0.062
713	6667	MP/12/70	69.00m-70.00m	48.35	1.19	9.39	0.77	0.69	39.04	0.083	0.069
714	6668	MP/12/71	70.00m-71.00m	48.46	1.21	9.28	0.77	0.66	39.06	0.088	0.069
715	6669	MP/12/72	71.00m-72.00m	48.32	1.21	9.30	0.76	0.70	39.14	0.090	0.064
716	6670	MP/12/73	72.00m-73.00m	48.13	1.25	9.10	0.77	0.68	39.51	0.083	0.069
717	6671	MP/12/74	73.00m-74.00m	48.48	1.32	8.98	0.73	0.65	39.30	0.078	0.066
718	6672	MP/12/75	74.00m-75.00m	48.51	1.29	8.92	0.75	0.68	39.30	0.078	0.064
719	6673	MP/12/76	75.00m-76.00m	45.17	0.31	14.32	1.82	1.36	35.88	0.163	0.053
720	6674	MP/12/77	76.00m-77.00m	45.52	0.33	14.09	1.77	1.31	35.84	0.178	0.053
721	6675	MP/12/78	77.00m-78.00m	45.42	0.33	14.08	1.79	1.35	35.88	0.173	0.053
722	6676	MP/12/79	78.00m-79.00m	45.40	0.33	14.18	1.78	1.31	35.89	0.113	0.055
723	6677	MP/12/80	79.00m-80.00m	45.37	0.31	14.15	1.80	1.34	35.88	0.170	0.050
724	6678	MP/12/81	80.00m-81.00m	45.29	0.34	14.07	1.76	1.54	35.88	0.130	0.053
725	6679	MP/12/82	81.00m-82.00m	33.85	0.06	28.50	4.59	4.07	26.55	0.120	0.080
726	6680	MP/12/83	82.00m-83.00m	34.40	0.08	27.79	4.50	4.20	26.52	0.193	0.082
727	6681	MP/12/84	83.00m-84.00m	33.19	0.09	28.69	4.71	4.18	26.57	0.465	0.089
728	6682	MP/12/85	84.00m-85.00m	33.56	0.12	28.39	4.61	4.11	26.64	0.635	0.092
729	6683	MP/12/86	85.00m-86.00m	33.53	0.12	28.36	4.74	4.13	26.56	0.413	0.089
730	6684	MP/12/87	86.00m-87.00m	33.33	0.11	28.62	4.69	4.11	26.63	0.398	0.087
731	6685	MP/12/88	87.00m-88.00m	32.86	0.07	29.00	4.78	4.21	26.55	0.343	0.092
732	6686	MP/12/89	88.00m-89.00m	33.25	0.08	29.08	4.66	4.10	26.39	0.195	0.089
733	6687	MP/12/90	89.00m-90.00m	33.11	0.05	29.13	4.71	4.09	26.48	0.148	0.092
734	6688	MP/12/91	90.00m-91.00m	33.07	0.05	29.21	4.68	4.11	26.43	0.178	0.092
735	6689	MP/12/92	91.00m-92.00m	33.63	0.09	28.65	4.60	4.06	26.57	0.158	0.087
736	6690	MP/12/93	92.00m-93.00m	33.40	0.10	28.46	4.60	4.15	26.81	0.305	0.087
737	6691	MP/12/94	93.00m-94.00m	33.20	0.07	28.95	4.65	4.09	26.59	0.160	0.089
738	6692	MP/12/95	94.00m-95.00m	33.20	0.05	28.94	4.69	4.11	26.55	0.203	0.080
739	6693	MP/12/96	95.00m-96.00m	33.39	0.06	28.83	4.66	4.12	26.49	0.153	0.087
740	6694	MP/12/97	96.00m-97.00m	33.30	0.06	28.59	4.66	4.20	26.69	0.358	0.087
741	6695	MP/12/98	97.00m-98.00m	33.59	0.09	28.72	4.55	4.09	26.54	0.148	0.087
742	6696	MP/12/99	98.00m-99.00m	33.10	0.05	29.01	4.67	4.17	26.51	0.228	0.085
MP-13											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
743	6963	MP/13/5	4.00m-5.00m	40.79	0.32	23.51	1.01	0.56	32.76	0.085	0.110
744	6964	MP/13/6	5.00m-6.00m	40.95	0.34	23.16	0.99	0.57	32.95	0.085	0.115
745	6965	MP/13/7	6.00m-7.00m	41.37	0.45	22.11	0.98	0.58	33.49	0.088	0.110
746	6966	MP/13/8	7.00m-8.00m	40.81	0.28	23.80	0.96	0.56	32.57	0.070	0.115
747	6967	MP/13/9	8.00m-9.00m	40.95	0.32	23.52	0.99	0.56	32.61	0.083	0.112
748	6968	MP/13/10	9.00m-10.00m	41.10	0.38	22.88	0.99	0.55	33.06	0.068	0.112
749	6969	MP/13/11	10.00m-11.00m	40.47	0.28	24.11	1.00	0.55	32.17	0.103	0.119

750	6970	MP/13/12	11.00m-12.00m	41.51	0.41	22.98	1.02	0.56	32.89	0.083	0.115
751	6971	MP/13/13	12.00m-13.00m	41.20	0.40	22.79	0.95	0.55	33.09	0.075	0.112
752	6972	MP/13/14	13.00m-14.00m	41.69	0.47	21.86	0.96	0.56	33.43	0.080	0.105
753	6973	MP/13/15	14.00m-15.00m	41.79	0.48	21.65	0.94	0.58	33.54	0.080	0.105
754	6974	MP/13/16	15.00m-16.00m	40.74	0.30	23.82	0.96	0.58	32.57	0.053	0.110
755	6975	MP/13/17	16.00m-17.00m	42.22	0.61	20.35	0.98	0.64	34.16	0.130	0.108
756	6976	MP/13/18	17.00m-18.00m	41.28	0.42	22.45	0.99	0.63	33.19	0.078	0.110
757	6977	MP/13/19	18.00m-19.00m	41.40	0.45	22.09	1.02	0.60	33.41	0.088	0.110
758	6978	MP/13/20	19.00m-20.00m	41.68	0.49	21.66	0.96	0.56	33.64	0.063	0.105
759	6979	MP/13/21	20.00m-21.00m	40.67	0.31	23.89	1.03	0.55	32.54	0.060	0.112
760	6980	MP/13/22	21.00m-22.00m	41.09	0.34	23.08	0.94	0.59	32.94	0.048	0.119
761	6981	MP/13/23	22.00m-23.00m	42.11	0.45	21.59	0.88	0.57	33.37	0.045	0.112
762	6982	MP/13/24	23.00m-24.00m	41.18	0.43	22.79	1.00	0.56	33.02	0.040	0.112
763	6983	MP/13/25	24.00m-25.00m	40.72	0.36	23.66	1.00	0.57	32.68	0.033	0.117
764	6984	MP/13/26	25.00m-26.00m	41.51	0.44	22.26	0.93	0.59	33.25	0.035	0.110
765	6985	MP/13/27	26.00m-27.00m	40.61	0.34	23.65	1.04	0.56	32.78	0.043	0.115
766	6986	MP/13/28	27.00m-28.00m	41.18	0.40	22.76	0.97	0.56	33.10	0.038	0.115
767	6987	MP/13/29	28.00m-29.00m	42.36	0.65	20.35	0.98	0.59	34.04	0.085	0.103
768	6988	MP/13/30	29.00m-30.00m	40.93	0.31	23.56	0.97	0.59	32.61	0.058	0.115
769	6989	MP/13/31	30.00m-31.00m	41.50	0.44	22.07	0.97	0.58	33.38	0.113	0.110
770	6990	MP/13/32	31.00m-32.00m	40.55	0.29	24.04	0.97	0.54	32.57	0.095	0.110
771	6991	MP/13/33	32.00m-33.00m	40.97	0.37	22.93	0.95	0.56	33.18	0.100	0.108
772	6992	MP/13/34	33.00m-34.00m	41.15	0.48	22.16	1.10	0.61	33.42	0.163	0.117
773	6993	MP/13/35	34.00m-35.00m	40.99	0.49	22.28	1.12	0.59	33.45	0.170	0.110
774	6994	MP/13/36	35.00m-36.00m	40.80	0.43	22.74	1.07	0.60	33.29	0.175	0.112
775	6995	MP/13/37	36.00m-37.00m	40.57	0.36	23.61	1.10	0.58	32.71	0.135	0.108
776	6996	MP/13/38	37.00m-38.00m	40.68	0.34	23.56	1.02	0.57	32.79	0.100	0.119
777	6997	MP/13/39	38.00m-39.00m	40.65	0.31	23.83	1.04	0.61	32.52	0.078	0.117
778	6998	MP/13/40	39.00m-40.00m	40.75	0.28	23.88	1.04	0.56	32.45	0.078	0.115

MP-14

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
779	5536	MP/14/2	1.00m-2.00m	48.73	0.87	9.10	1.23	0.78	38.75	0.068	0.057
780	5537	MP/14/3	2.00m-3.00m	48.45	0.84	9.24	1.34	0.81	38.75	0.080	0.046
781	5538	MP/14/4	3.00m-4.00m	48.61	0.85	9.17	1.28	0.80	38.73	0.083	0.046
782	5539	MP/14/5	4.00m-5.00m	48.58	0.88	9.15	1.28	0.76	38.82	0.080	0.050
783	5540	MP/14/6	5.00m-6.00m	48.79	0.89	8.98	1.26	0.78	38.77	0.075	0.060
784	5541	MP/14/7	6.00m-7.00m	48.84	0.86	8.98	1.21	0.83	38.75	0.078	0.050
785	5542	MP/14/8	7.00m-8.00m	48.01	0.55	10.08	1.56	0.94	37.93	0.245	0.048
786	5543	MP/14/9	8.00m-9.00m	48.18	0.54	10.00	1.52	0.92	37.93	0.215	0.044
787	5544	MP/14/10	9.00m-10.00m	48.26	0.54	9.94	1.50	0.93	37.89	0.283	0.044
788	5545	MP/14/11	10.00m-11.00m	48.27	0.53	9.92	1.47	0.95	37.91	0.305	0.050
789	5546	MP/14/12	11.00m-12.00m	48.21	0.52	9.96	1.51	0.93	37.92	0.275	0.041
790	5547	MP/14/13	12.00m-13.00m	47.94	0.53	10.08	1.56	0.99	37.93	0.355	0.050
791	5548	MP/14/14	13.00m-14.00m	48.09	0.52	9.98	1.52	0.93	38.03	0.265	0.044
792	5549	MP/14/15	14.00m-15.00m	48.85	0.54	9.42	0.80	0.57	39.26	0.100	0.053
793	5550	MP/14/16	15.00m-16.00m	49.24	0.52	9.02	0.84	0.58	39.23	0.090	0.055
794	5551	MP/14/17	16.00m-17.00m	49.16	0.52	9.05	0.85	0.58	39.25	0.085	0.053
795	5552	MP/14/18	17.00m-18.00m	49.23	0.52	9.02	0.94	0.54	39.20	0.065	0.060
796	5553	MP/14/19	18.00m-19.00m	49.40	0.51	8.95	0.76	0.54	39.29	0.060	0.050
797	5554	MP/14/20	19.00m-20.00m	49.39	0.50	9.01	0.77	0.55	39.23	0.068	0.055
798	5555	MP/14/21	20.00m-21.00m	49.33	0.50	8.94	0.77	0.63	39.27	0.060	0.053
799	5556	MP/14/22	21.00m-22.00m	49.49	0.47	8.27	1.19	0.60	39.29	0.090	0.057
800	5557	MP/14/23	22.00m-23.00m	49.62	0.45	8.25	1.12	0.60	39.27	0.083	0.046
801	5558	MP/14/24	23.00m-24.00m	48.41	0.34	9.69	1.50	0.88	38.39	0.198	0.050
802	5559	MP/14/25	24.00m-25.00m	48.48	0.34	9.59	1.48	0.83	38.50	0.145	0.050
803	5560	MP/14/26	25.00m-26.00m	35.64	0.68	25.29	4.92	3.55	28.17	0.093	0.014
804	5561	MP/14/27	26.00m-27.00m	35.56	0.66	25.37	4.90	3.56	28.19	0.093	0.002
805	5562	MP/14/28	27.00m -28.00m	35.28	0.66	25.65	4.95	3.58	28.11	0.085	0.009
806	5563	MP/14/29	28.00m-29.00m	35.41	0.67	25.40	4.95	3.56	28.26	0.085	0.007
807	5564	MP/14/30	29.00m-30.00m	34.29	0.67	26.25	5.05	3.69	28.26	0.078	0.002

808	5565	MP/14/31	30.00m-31.00m	34.72	0.68	26.12	5.08	3.66	27.94	0.085	0.009
809	5566	MP/14/32	31.00m-32.00m	34.13	0.72	25.69	5.74	4.24	27.43	0.080	0.007
810	5567	MP/14/33	32.00m-33.00m	34.07	0.70	25.61	5.65	4.18	27.75	0.053	0.002
811	5568	MP/14/34	33.00m-34.00m	34.08	0.70	25.72	5.72	4.22	27.53	0.048	0.011
812	5569	MP/14/35	34.00m-35.00m	34.14	0.69	25.71	5.66	4.19	27.58	0.055	0.007
813	5570	MP/14/36	35.00m-36.00m	34.15	0.70	25.74	5.73	4.26	27.38	0.050	0.005
814	5571	MP/14/37	36.00m-37.00m	34.16	0.70	25.68	5.70	4.24	27.49	0.040	0.007
815	5572	MP/14/38	37.00m-38.00m	29.17	0.77	31.12	7.40	5.38	23.65	0.048	BDL
816	5573	MP/14/39	38.00m-39.00m	29.30	0.77	30.93	7.38	5.35	23.79	0.043	BDL
817	5574	MP/14/40	39.00m-40.00m	29.20	0.77	31.00	7.39	5.35	23.81	0.048	BDL
818	5575	MP/14/41	40.00m-41.00m	29.27	0.84	31.09	7.43	5.36	23.62	0.033	BDL
819	5576	MP/14/42	41.00m-42.00m	10.13	0.99	49.00	14.86	11.98	9.32	0.028	BDL
820	5577	MP/14/43	42.00m-43.00m	9.34	0.98	49.69	15.49	11.91	9.03	0.028	BDL
821	5578	MP/14/44	43.00m-44.00m	9.60	0.96	49.60	15.59	11.63	9.21	0.015	BDL
822	5579	MP/14/45	44.00m-45.00m	9.89	0.95	49.50	15.27	11.60	9.38	0.015	BDL
823	5580	MP/14/46	45.00m-46.00m	9.23	0.97	49.69	15.40	11.96	9.20	0.010	BDL
824	5581	MP/14/47	46.00m-47.00m	9.54	0.99	49.32	15.36	11.99	9.22	0.015	BDL
825	5582	MP/14/48	47.00m-48.00m	9.03	0.93	50.11	15.55	11.64	9.39	0.005	BDL
826	5583	MP/14/49	48.00m-49.00m	4.98	0.59	73.53	7.59	7.24	4.21	BDL	BDL
MP-15											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
827	5584	MP/15/4	3.00m-4.00m	36.38	0.26	28.98	2.46	1.78	29.25	0.103	0.027
828	5585	MP/15/5	4.00m-5.00m	34.91	0.23	30.64	2.42	1.85	29.06	0.130	0.018
829	5586	MP/15/6	5.00m-6.00m	36.15	0.24	29.94	2.39	1.80	28.62	0.115	0.030
830	5587	MP/15/7	6.00m-7.00m	35.80	0.22	30.05	2.44	1.82	28.77	0.113	0.025
831	5588	MP/15/8	7.00m-8.00m	35.97	0.21	30.08	2.37	1.74	28.77	0.110	0.021
832	5589	MP/15/9	8.00m-9.00m	36.37	0.24	29.33	2.38	1.65	29.24	0.098	0.030
833	5590	MP/15/10	9.00m-10.00m	37.56	0.24	28.27	2.14	1.65	29.31	0.108	0.027
834	5591	MP/15/11	10.00m-11.00m	36.85	0.21	29.07	2.21	1.68	29.13	0.103	0.021
835	5592	MP/15/12	11.00m-12.00m	35.89	0.23	30.06	2.38	1.78	28.82	0.085	0.027
836	5593	MP/15/13	12.00m-13.00m	36.11	0.23	29.99	2.35	1.75	28.74	0.085	0.021
837	5594	MP/15/14	13.00m-14.00m	36.32	0.22	29.78	2.30	1.80	28.74	0.065	0.027
838	5595	MP/15/15	14.00m-15.00m	36.95	0.22	28.75	2.23	1.72	29.29	0.073	0.030
839	5596	MP/15/16	15.00m-16.00m	36.26	0.21	29.59	2.22	1.63	29.28	0.068	0.027
840	5597	MP/15/17	16.00m-17.00m	36.44	0.21	29.59	2.21	1.64	29.10	0.070	0.025
841	5598	MP/15/18	17.00m-18.00m	36.80	0.23	28.98	2.28	1.53	29.36	0.053	0.048
842	5599	MP/15/19	18.00m-19.00m	35.92	0.21	30.14	2.35	1.72	28.84	0.053	0.034
843	5600	MP/15/20	19.00m-20.00m	35.98	0.20	30.12	2.33	1.80	28.75	0.048	0.034
844	5601	MP/15/21	20.00m-21.00m	36.75	0.21	29.33	2.18	1.67	29.07	0.033	0.025
845	5602	MP/15/22	21.00m-22.00m	36.27	0.21	29.72	2.26	1.67	29.06	0.043	0.034
846	5603	MP/15/23	22.00m-23.00m	37.61	0.21	28.42	2.22	1.74	28.96	0.038	0.016
847	5604	MP/15/24	23.00m-24.00m	36.59	0.20	29.55	2.32	1.82	28.65	0.048	0.025
848	5605	MP/15/25	24.00m-25.00m	36.60	0.21	29.62	2.25	1.75	28.75	0.023	0.046
849	5606	MP/15/26	25.00m-26.00m	36.62	0.22	29.52	2.27	1.71	28.82	0.023	0.048
850	5607	MP/15/27	26.00m-27.00m	36.07	0.20	30.13	2.29	1.78	28.71	0.018	0.046
851	5608	MP/15/28	27.00m -28.00m	35.89	0.22	30.02	2.38	1.76	28.89	0.035	0.046
852	5609	MP/15/29	28.00m-29.00m	36.48	0.21	29.25	2.25	1.65	29.33	0.028	0.048
853	5610	MP/15/30	29.00m-30.00m	37.08	0.19	28.62	2.10	1.58	29.62	0.028	0.050
854	5611	MP/15/31	30.00m-31.00m	36.30	0.22	29.59	2.19	1.59	29.31	0.033	0.016
855	5612	MP/15/32	31.00m-32.00m	37.39	0.21	28.19	2.05	1.51	29.88	0.035	0.023
856	5613	MP/15/33	32.00m-33.00m	36.75	0.20	29.04	2.11	1.59	29.52	0.033	0.027
857	5614	MP/15/34	33.00m-34.00m	5.05	0.16	69.88	6.77	10.09	6.68	0.020	BDL
858	5615	MP/15/35	34.00m-35.00m	8.14	0.29	63.91	8.13	7.79	10.10	0.038	BDL
859	5616	MP/15/36	35.00m-36.00m	36.60	0.21	29.36	2.27	1.63	29.11	0.033	0.023
860	5617	MP/15/37	36.00m-37.00m	49.31	0.57	8.63	0.82	0.63	39.48	0.063	0.046
861	5618	MP/15/38	37.00m-38.00m	49.66	0.58	8.17	0.79	0.63	39.61	0.075	0.048
862	5619	MP/15/39	38.00m-39.00m	49.79	0.60	8.20	0.85	0.61	39.38	0.060	0.050
863	5620	MP/15/40	39.00m-40.00m	49.93	0.57	8.14	0.77	0.62	39.40	0.063	0.057
864	5621	MP/15/41	40.00m-41.00m	49.83	0.57	8.13	0.77	0.63	39.50	0.060	0.055
865	5622	MP/15/42	41.00m-42.00m	48.55	0.60	8.95	1.03	0.75	39.52	0.055	0.046

866	5623	MP/15/43	42.00m-43.00m	49.97	0.59	8.12	0.78	0.64	39.33	0.065	0.050
867	5624	MP/15/44	43.00m-44.00m	49.94	0.57	8.05	0.76	0.62	39.49	0.073	0.050
868	5625	MP/15/45	44.00m-45.00m	49.90	0.57	8.12	0.77	0.62	39.45	0.055	0.046
869	5626	MP/15/46	45.00m-46.00m	49.94	0.58	8.09	0.77	0.61	39.44	0.055	0.050
870	5627	MP/15/47	46.00m-47.00m	48.05	0.39	10.60	1.50	1.02	37.63	0.148	0.044
871	5628	MP/15/48	47.00m-48.00m	47.40	0.23	11.46	1.63	1.12	37.33	0.088	0.046
872	5629	MP/15/49	48.00m-49.00m	45.92	0.30	13.24	2.05	1.43	36.15	0.055	0.039
873	5630	MP/15/50	49.00m-50.00m	39.12	0.38	21.34	3.84	2.54	31.31	0.068	0.018
874	5631	MP/15/51	50.00m-51.00m	43.34	0.33	16.63	2.48	1.71	34.41	0.145	0.027
875	5632	MP/15/52	51.00m-52.00m	35.26	0.79	25.49	4.95	3.83	27.76	0.048	0.007
876	5633	MP/15/53	52.00m-53.00m	33.37	0.79	27.82	5.36	3.89	26.83	0.038	BDL
877	5634	MP/15/54	53.00m-54.00m	33.34	0.81	27.52	5.36	3.92	27.16	0.038	0.002
878	5635	MP/15/55	54.00m-55.00m	30.62	0.43	30.58	6.10	4.95	25.15	0.018	BDL

MP-16

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
879	2796	MP/16/6	5.00m-6.00m	37.57	0.13	24.61	3.63	2.71	30.34	0.062	0.087
880	2797	MP/16/7	6.00m-7.00m	40.21	0.25	25.28	0.93	0.73	31.46	0.100	0.092
881	2798	MP/16/8	7.00m-8.00m	39.88	0.26	25.62	1.02	0.72	31.35	0.110	0.094
882	2799	MP/16/9	8.00m-9.00m	40.09	0.22	25.45	0.96	0.70	31.44	0.072	0.094
883	2800	MP/16/10	9.00m-10.00m	41.22	0.25	23.36	0.87	0.69	32.45	0.080	0.096
884	2801	MP/16/11	10.00m-11.00m	40.39	0.22	25.15	0.93	0.74	31.53	0.100	0.099
885	2802	MP/16/12	11.00m-12.00m	40.51	0.22	25.01	0.91	0.72	31.60	0.035	0.096
886	2803	MP/16/13	12.00m-13.00m	39.87	0.22	25.35	1.06	0.73	31.71	0.120	0.094
887	2804	MP/16/14	13.00m-14.00m	40.05	0.20	25.32	1.04	0.75	31.58	0.122	0.099
888	2805	MP/16/15	14.00m-15.00m	40.01	0.23	25.52	0.92	0.80	31.45	0.095	0.094
889	2806	MP/16/16	15.00m-16.00m	39.85	0.23	25.61	1.02	0.79	31.43	0.135	0.094
890	2807	MP/16/17	16.00m-17.00m	39.36	0.21	26.56	0.96	0.82	31.02	0.195	0.089
891	2808	MP/16/18	17.00m-18.00m	39.57	0.20	25.66	1.02	1.08	31.42	0.085	0.096
892	2809	MP/16/19	18.00m-19.00m	39.66	0.23	25.57	0.93	1.24	31.33	0.105	0.094
893	2810	MP/16/20	19.00m-20.00m	39.85	0.20	25.88	0.99	0.73	31.30	0.057	0.089
894	2811	MP/16/21	20.00m-21.00m	39.97	0.23	25.45	0.93	0.74	31.64	0.102	0.094
895	2812	MP/16/22	21.00m-22.00m	39.84	0.19	25.52	1.03	0.72	31.64	0.102	0.094
896	2813	MP/16/23	22.00m-23.00m	40.16	0.24	24.94	0.97	1.01	31.61	0.107	0.094
897	2814	MP/16/24	23.00m-24.00m	40.77	0.20	24.08	0.96	0.79	32.16	0.120	0.094
898	2815	MP/16/25	24.00m-25.00m	40.29	0.21	24.83	0.94	0.72	31.97	0.065	0.094
899	2816	MP/16/26	25.00m-26.00m	39.72	0.21	25.63	1.08	0.77	31.51	0.112	0.092
900	2817	MP/16/27	26.00m-27.00m	39.61	0.20	26.28	0.96	0.77	31.11	0.095	0.092
901	2818	MP/16/28	27.00m-28.00m	40.11	0.22	25.48	0.93	0.74	31.48	0.092	0.094
902	2819	MP/16/29	28.00m-29.00m	40.30	0.20	25.08	0.95	0.73	31.69	0.090	0.094
903	2820	MP/16/30	29.00m-30.00m	40.36	0.24	24.97	0.93	0.75	31.71	0.082	0.089
904	2821	MP/16/31	30.00m-31.00m	39.93	0.22	25.71	0.99	0.74	31.35	0.092	0.096
905	2822	MP/16/32	31.00m-32.00m	39.77	0.22	25.82	0.95	0.73	31.44	0.080	0.094
906	2823	MP/16/33	32.00m-33.00m	39.96	0.17	25.71	1.01	0.76	31.33	0.100	0.094
907	2824	MP/16/34	33.00m-34.00m	39.55	0.19	26.45	1.02	0.75	30.98	0.080	0.092
908	2825	MP/16/35	34.00m-35.00m	39.54	0.16	26.01	1.06	0.82	31.35	0.157	0.099
909	2826	MP/16/36	35.00m-36.00m	39.58	0.16	26.13	1.05	0.80	31.22	0.135	0.096
910	2827	MP/16/37	36.00m-37.00m	39.88	0.20	25.18	1.10	0.78	31.80	0.122	0.096
911	2828	MP/16/38	37.00m-38.00m	39.56	0.18	25.98	1.04	0.78	31.38	0.117	0.099
912	2829	MP/16/39	38.00m-39.00m	46.52	0.56	13.51	0.61	0.52	37.39	0.082	0.076
913	2830	MP/16/40	39.00m-40.00m	46.23	0.55	13.76	0.62	0.54	37.39	0.075	0.082
914	2831	MP/16/41	40.00m-41.00m	45.96	0.54	13.90	0.72	0.55	37.42	0.092	0.078
915	2832	MP/16/42	41.00m-42.00m	46.39	0.56	13.69	0.57	0.58	37.29	0.097	0.076
916	2833	MP/16/43	42.00m-43.00m	46.42	0.56	13.76	0.59	0.52	37.24	0.065	0.078
917	2834	MP/16/44	43.00m-44.00m	46.11	0.59	13.75	0.74	0.55	37.34	0.090	0.082
918	2835	MP/16/45	44.00m-45.00m	46.14	0.55	14.01	0.71	0.54	37.14	0.077	0.078
919	2836	MP/16/46	45.00m-46.00m	46.60	0.56	13.55	0.55	0.52	37.32	0.062	0.080
920	2837	MP/16/47	46.00m-47.00m	46.53	0.56	13.54	0.58	0.53	37.35	0.070	0.076
921	2838	MP/16/48	47.00m-48.00m	46.63	0.57	13.35	0.60	0.54	37.42	0.062	0.078
922	2839	MP/16/49	48.00m-49.00m	46.28	0.54	13.80	0.64	0.54	37.30	0.072	0.082
923	2840	MP/16/50	49.00m-50.00m	46.62	0.58	12.94	0.64	0.54	37.77	0.052	0.078

924	2841	MP/16/51	50.00m-51.00m	46.82	0.56	13.12	0.55	0.54	37.52	0.062	0.078
925	2842	MP/16/52	51.00m-52.00m	46.71	0.56	13.16	0.61	0.57	37.49	0.042	0.076
926	2843	MP/16/53	52.00m-53.00m	46.65	0.54	13.63	0.58	0.54	37.15	0.062	0.078
927	2844	MP/16/54	53.00m-54.00m	46.33	0.57	13.69	0.59	0.55	37.36	0.060	0.078
928	2845	MP/16/55	54.00m-55.00m	46.44	0.58	13.45	0.53	0.66	37.44	0.050	0.080
929	2846	MP/16/56	55.00m-56.00m	46.98	0.59	12.64	0.59	0.54	37.76	0.040	0.076
930	2847	MP/16/57	56.00m-57.00m	46.57	0.56	13.53	0.58	0.53	37.34	0.055	0.076
931	2848	MP/16/58	57.00m-58.00m	46.32	0.53	13.68	0.65	0.58	37.36	0.050	0.073
932	2849	MP/16/59	58.00m-59.00m	48.96	0.47	9.57	0.52	0.52	39.11	0.010	0.044
933	2850	MP/16/60	59.00m-60.00m	47.25	1.71	9.51	0.48	0.71	39.51	0.002	0.046
934	2851	MP/16/61	60.00m-61.00m	47.36	1.71	9.52	0.50	0.71	39.36	0.060	0.050
935	2852	MP/16/62	61.00m-62.00m	47.31	1.51	9.43	0.55	0.67	39.72	0.062	0.046
936	2853	MP/16/63	62.00m-63.00m	46.94	1.52	9.60	0.62	0.67	39.79	0.055	0.046
937	2854	MP/16/64	63.00m-64.00m	47.21	0.87	12.33	0.54	0.54	37.64	0.040	0.055
938	2855	MP/16/65	64.00m-65.00m	46.65	0.86	12.64	0.69	0.53	37.80	0.050	0.055
939	2856	MP/16/66	65.00m-66.00m	48.67	0.45	9.92	0.60	0.46	39.12	0.047	0.037
940	2857	MP/16/67	66.00m-67.00m	48.73	0.51	9.34	0.66	0.60	39.28	0.120	0.053
941	2858	MP/16/68	67.00m-68.00m	48.19	0.34	9.88	0.63	0.44	39.57	0.060	0.039
942	2859	MP/16/69	68.00m-69.00m	48.20	0.47	9.70	0.76	0.75	39.00	0.247	0.044
943	2860	MP/16/70	69.00m-70.00m	48.68	0.48	9.50	0.71	0.75	38.76	0.237	0.041
MP-17											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
944	2861	MP/17/3	2.00m-3.00m	38.52	0.17	23.57	2.92	3.27	30.70	0.040	0.048
945	2862	MP/17/4	3.00m-4.00m	38.26	0.13	23.63	2.92	3.28	30.87	0.037	0.050
946	2863	MP/17/5	4.00m-5.00m	31.03	0.21	30.19	4.31	5.69	27.58	0.045	0.046
947	2864	MP/17/6	5.00m-6.00m	31.32	0.11	30.03	4.24	5.74	27.46	0.050	0.050
948	2865	MP/17/7	6.00m-7.00m	42.21	0.17	23.45	0.74	0.50	31.95	0.032	0.071
949	2866	MP/17/8	7.00m-8.00m	39.80	0.08	26.86	1.25	0.68	30.12	0.017	0.087
950	2867	MP/17/9	8.00m-9.00m	39.29	0.12	27.69	1.15	0.68	29.92	0.022	0.073
951	2868	MP/17/10	9.00m-10.00m	39.53	0.16	27.58	1.02	0.66	29.94	0.020	0.069
952	2869	MP/17/11	10.00m-11.00m	35.37	0.30	33.38	1.64	1.38	26.60	0.012	0.101
953	2870	MP/17/12	11.00m-12.00m	34.98	0.37	33.81	1.69	1.42	26.35	0.010	0.105
954	2871	MP/17/13	12.00m-13.00m	35.78	0.27	33.04	1.42	1.23	27.01	0.035	0.103
955	2872	MP/17/14	13.00m-14.00m	35.54	0.27	33.23	1.43	1.22	27.08	0.032	0.096
956	2873	MP/17/15	14.00m-15.00m	37.81	0.11	31.51	0.98	0.73	28.13	0.007	0.069
957	2874	MP/17/16	15.00m-16.00m	36.67	0.34	31.23	1.44	1.08	28.15	0.007	0.103
958	2875	MP/17/17	16.00m-17.00m	36.79	0.36	31.24	1.38	1.05	27.97	0.020	0.092
959	2876	MP/17/18	17.00m-18.00m	36.46	0.32	32.50	1.22	0.98	27.54	0.007	0.089
960	2877	MP/17/19	18.00m-19.00m	33.20	0.49	37.33	1.65	1.50	24.52	0.012	0.117
961	2878	MP/17/20	19.00m-20.00m	37.97	0.26	30.47	0.98	0.85	28.38	0.010	0.105
962	2879	MP/17/21	20.00m-21.00m	36.95	0.16	32.30	1.11	0.81	27.55	0.012	0.112
963	2880	MP/17/22	21.00m-22.00m	33.13	0.15	38.85	1.38	0.72	24.49	0.010	0.110
964	2881	MP/17/23	22.00m-23.00m	35.52	0.35	34.04	1.32	1.06	26.53	0.007	0.117
965	2882	MP/17/24	23.00m-24.00m	35.57	0.34	34.23	1.29	1.05	26.33	0.010	0.115
966	2883	MP/17/25	24.00m-25.00m	36.76	0.30	32.24	1.17	0.91	27.58	0.007	0.135
967	2884	MP/17/26	25.00m-26.00m	35.66	0.40	33.07	1.50	1.19	26.93	0.010	0.128
968	2885	MP/17/27	26.00m-27.00m	35.79	0.42	32.97	1.40	1.19	27.03	0.012	0.133
969	2886	MP/17/28	27.00m-28.00m	33.38	0.40	37.39	1.59	1.18	24.82	0.047	0.112
970	2887	MP/17/29	28.00m-29.00m	33.45	0.41	37.19	1.60	1.15	24.94	0.070	0.112
971	2888	MP/17/30	29.00m-30.00m	36.42	0.20	32.79	1.10	0.81	27.56	0.067	0.099
972	2889	MP/17/31	30.00m-31.00m	36.68	0.16	33.00	0.99	0.56	27.53	0.062	0.096
973	2890	MP/17/32	31.00m-32.00m	37.32	0.20	31.47	1.12	0.66	28.08	0.057	0.110
974	2891	MP/17/33	32.00m-33.00m	37.23	0.21	31.62	1.20	0.63	27.95	0.050	0.110
975	2892	MP/17/34	33.00m-34.00m	39.72	0.20	26.60	1.19	0.80	30.30	0.027	0.135
976	2893	MP/17/35	34.00m-35.00m	36.81	0.22	32.29	1.07	0.61	27.82	0.047	0.103
977	2894	MP/17/36	35.00m-36.00m	37.71	0.26	30.35	1.07	0.58	28.95	0.092	0.099
978	2895	MP/17/37	36.00m-37.00m	33.93	0.44	36.27	1.59	1.08	25.45	0.077	0.128
979	2896	MP/17/38	37.00m-38.00m	35.85	0.40	32.52	1.48	1.03	27.44	0.082	0.112
980	2897	MP/17/39	38.00m-39.00m	35.86	0.42	32.37	1.55	1.04	27.45	0.095	0.112
981	2898	MP/17/40	39.00m-40.00m	35.33	0.49	31.95	1.66	2.23	27.02	0.077	0.099

982	2899	MP/17/41	40.00m-41.00m	35.58	0.56	32.33	1.76	1.44	26.99	0.090	0.099
983	2900	MP/17/42	41.00m-42.00m	36.03	0.37	32.39	1.45	1.09	27.37	0.072	0.121
984	2901	MP/17/43	42.00m-43.00m	37.01	0.43	31.29	1.44	1.14	27.31	0.082	0.121
985	2902	MP/17/44	43.00m-44.00m	36.95	0.35	31.61	1.55	1.15	27.01	0.075	0.147
986	2903	MP/17/45	44.00m-45.00m	34.06	0.53	34.61	1.78	1.78	25.69	0.300	0.151
987	2904	MP/17/46	45.00m-46.00m	37.81	0.12	31.28	1.32	0.69	27.43	0.042	0.112
988	2905	MP/17/47	46.00m-47.00m	36.64	0.14	32.83	1.19	0.60	27.42	0.050	0.112
989	2906	MP/17/48	47.00m-48.00m	36.89	0.31	31.25	1.41	0.90	27.97	0.077	0.124
990	2907	MP/17/49	48.00m-49.00m	37.21	0.26	30.88	1.27	0.70	28.48	0.067	0.105
991	2908	MP/17/50	49.00m-50.00m	38.87	0.20	28.42	1.11	0.66	29.60	0.072	0.121
992	2909	MP/17/51	50.00m-51.00m	41.12	0.25	24.50	0.96	0.58	31.51	0.085	0.094
993	2910	MP/17/52	51.00m-52.00m	39.33	0.23	27.71	0.93	0.54	30.18	0.040	0.105
994	2911	MP/17/53	52.00m-53.00m	40.47	0.28	24.72	1.38	0.90	30.88	0.232	0.140
995	2912	MP/17/54	53.00m-54.00m	41.27	0.31	23.85	1.31	0.93	30.88	0.305	0.140
996	2913	MP/17/55	54.00m-55.00m	41.07	0.23	25.39	0.78	0.57	30.91	0.080	0.101
997	2914	MP/17/56	55.00m-56.00m	42.09	0.27	22.81	1.04	0.72	31.96	0.062	0.133
998	2915	MP/17/57	56.00m-57.00m	41.75	0.28	23.33	0.92	0.62	32.01	0.065	0.110
999	2916	MP/17/58	57.00m-58.00m	43.36	0.27	20.73	0.86	0.54	33.19	0.105	0.105
1000	2917	MP/17/59	58.00m-59.00m	43.49	0.28	20.77	0.80	0.54	33.04	0.102	0.105
1001	2918	MP/17/60	59.00m-60.00m	46.61	0.27	15.39	0.61	0.50	35.66	0.080	0.101
1002	2919	MP/17/61	60.00m-61.00m	46.60	0.28	15.32	0.63	0.46	35.76	0.037	0.096
1003	2920	MP/17/62	61.00m-62.00m	45.37	0.29	17.14	0.81	0.52	34.81	0.105	0.103
1004	2921	MP/17/63	62.00m-63.00m	46.53	0.32	15.65	0.67	0.42	35.40	0.072	0.103
1005	2922	MP/17/64	63.00m-64.00m	46.43	0.30	15.47	0.62	0.43	35.75	0.080	0.103
1006	2923	MP/17/65	64.00m-65.00m	46.07	0.33	15.84	0.71	0.53	35.50	0.070	0.103
1007	2924	MP/17/66	65.00m-66.00m	46.02	0.31	15.86	0.71	0.56	35.50	0.065	0.101
1008	2925	MP/17/67	66.00m-67.00m	46.95	0.38	14.16	0.63	0.44	36.39	0.060	0.105
1009	2926	MP/17/68	67.00m-68.00m	47.10	0.39	14.11	0.68	0.45	36.28	0.080	0.105
1010	2927	MP/17/69	68.00m-69.00m	48.02	1.12	10.16	0.57	0.60	38.58	0.090	0.057
1011	2928	MP/17/70	69.00m-70.00m	47.90	1.12	10.48	0.55	0.58	38.39	0.065	0.053

MP-18

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1012	2929	MP/18/4	3.00m-4.00m	31.19	0.13	17.63	3.83	17.39	28.26	0.037	0.082
1013	2930	MP/18/5	4.00m-5.00m	48.55	0.37	12.00	0.46	0.34	37.40	0.032	0.078
1014	2931	MP/18/6	5.00m-6.00m	49.64	0.35	10.48	0.41	0.40	37.90	0.032	0.071
1015	2932	MP/18/7	6.00m-7.00m	49.31	0.26	11.47	0.51	0.34	37.26	0.017	0.076
1016	2933	MP/18/8	7.00m-8.00m	49.68	0.34	10.24	0.48	0.37	37.77	0.045	0.087
1017	2934	MP/18/9	8.00m-9.00m	46.57	0.35	15.37	0.83	0.58	35.19	0.045	0.126
1018	2935	MP/18/10	9.00m-10.00m	47.37	0.40	14.32	0.63	0.44	35.97	0.047	0.089
1019	2936	MP/18/11	10.00m-11.00m	49.53	0.30	10.97	0.43	0.31	37.64	0.017	0.069
1020	2937	MP/18/12	11.00m-12.00m	46.26	0.43	15.05	0.74	0.82	35.72	0.110	0.087
1021	2938	MP/18/13	12.00m-13.00m	47.64	0.39	12.69	0.80	0.57	36.92	0.035	0.112
1022	2939	MP/18/14	13.00m-14.00m	49.91	0.26	9.57	0.45	0.31	38.71	0.010	0.080
1023	2940	MP/18/15	14.00m-15.00m	48.81	0.32	11.12	0.44	0.36	38.12	0.080	0.069
1024	2941	MP/18/16	15.00m-16.00m	47.44	0.53	12.90	0.77	0.53	36.81	0.060	0.126
1025	2942	MP/18/17	16.00m-17.00m	48.53	0.37	11.62	0.65	0.34	37.64	0.085	0.085
1026	2943	MP/18/18	17.00m-18.00m	46.62	0.46	14.81	0.61	0.40	36.21	0.115	0.073
1027	2944	MP/18/19	18.00m-19.00m	48.92	0.27	11.18	0.51	0.33	37.87	0.115	0.103
1028	2945	MP/18/20	19.00m-20.00m	47.27	0.72	13.40	0.56	0.48	36.69	0.130	0.085
1029	2946	MP/18/21	20.00m-21.00m	46.87	0.78	12.45	0.87	0.63	37.42	0.272	0.099
1030	2947	MP/18/22	21.00m-22.00m	49.73	0.30	9.90	0.55	0.40	38.23	0.125	0.089
1031	2948	MP/18/23	22.00m-23.00m	47.03	0.54	12.12	0.99	0.49	37.93	0.120	0.089
1032	2949	MP/18/24	23.00m-24.00m	47.72	0.64	13.39	0.52	0.52	36.36	0.080	0.092
1033	2950	MP/18/25	24.00m-25.00m	48.48	0.35	12.48	0.55	0.49	36.75	0.072	0.108
1034	2951	MP/18/26	25.00m-26.00m	46.69	0.69	14.06	0.61	0.60	36.36	0.047	0.117
1035	2952	MP/18/27	26.00m-27.00m	47.32	0.36	13.96	0.68	0.47	36.32	0.017	0.108
1036	2953	MP/18/28	27.00m-28.00m	45.30	0.69	15.48	1.00	0.70	35.83	0.115	0.126
1037	2954	MP/18/29	28.00m-29.00m	48.68	0.26	12.22	0.46	0.35	37.21	0.047	0.078
1038	2955	MP/18/30	29.00m-30.00m	45.62	0.63	15.37	0.80	1.08	35.42	0.120	0.126
1039	2956	MP/18/31	30.00m-31.00m	45.59	0.57	16.43	0.75	0.64	35.01	0.070	0.128

1040	2957	MP/18/32	31.00m-32.00m	46.70	0.38	14.60	0.67	0.43	36.29	0.062	0.089
1041	2958	MP/18/33	32.00m-33.00m	46.51	0.33	14.59	0.79	0.52	36.34	0.070	0.089
1042	2959	MP/18/34	33.00m-34.00m	46.54	0.38	15.08	0.77	0.42	35.88	0.072	0.094
1043	2960	MP/18/35	34.00m-35.00m	47.14	0.37	13.91	0.74	0.47	36.47	0.047	0.082
1044	2961	MP/18/36	35.00m-36.00m	46.59	0.43	15.12	0.83	0.60	35.41	0.035	0.099
1045	2962	MP/18/37	36.00m-37.00m	46.49	0.36	14.98	0.89	0.53	35.73	0.055	0.089
1046	2963	MP/18/38	37.00m-38.00m	48.36	0.41	12.21	0.63	0.47	37.07	0.012	0.087
1047	2964	MP/18/39	38.00m-39.00m	47.54	0.34	13.53	0.65	0.52	36.52	0.012	0.069
1048	2965	MP/18/40	39.00m-40.00m	48.06	0.34	12.34	0.67	0.57	37.10	0.067	0.082
1049	2966	MP/18/41	40.00m-41.00m	47.68	0.36	13.31	0.69	0.52	36.52	0.020	0.078
1050	2967	MP/18/42	41.00m-42.00m	47.81	0.38	12.73	0.67	0.47	37.05	0.027	0.069
1051	2968	MP/18/43	42.00m-43.00m	46.78	0.32	14.96	0.89	0.54	35.56	0.027	0.071
1052	2969	MP/18/44	43.00m-44.00m	42.51	0.33	22.09	1.36	0.73	31.84	0.027	0.117
1053	2970	MP/18/45	44.00m-45.00m	37.94	0.41	28.08	1.98	1.23	28.79	0.045	0.135
1054	2971	MP/18/46	45.00m-46.00m	39.82	0.30	26.18	1.40	0.86	30.01	0.060	0.142
1055	2972	MP/18/47	46.00m-47.00m	37.49	0.29	28.69	2.30	1.18	28.29	0.050	0.156
1056	2973	MP/18/48	47.00m-48.00m	33.75	0.33	35.53	2.21	1.22	25.32	0.035	0.147
1057	2974	MP/18/49	48.00m-49.00m	32.04	0.64	37.14	2.51	1.92	24.10	0.077	0.158
1058	2975	MP/18/50	49.00m-50.00m	31.90	0.25	37.29	3.22	1.62	23.56	0.172	0.151
1059	2976	MP/18/51	50.00m-51.00m	36.06	0.28	32.00	1.67	1.37	27.06	0.422	0.094
1060	2977	MP/18/52	51.00m-52.00m	42.26	0.22	22.75	0.83	0.61	32.34	0.047	0.048
1061	2978	MP/18/53	52.00m-53.00m	38.49	0.29	29.61	1.01	0.55	28.98	0.002	0.050
1062	2979	MP/18/54	53.00m-54.00m	37.95	0.30	30.02	1.05	0.65	28.93	0.012	0.060
1063	2980	MP/18/55	54.00m-55.00m	42.83	0.22	21.37	0.85	0.86	32.82	0.097	0.057
1064	2981	MP/18/56	55.00m-56.00m	34.65	0.21	34.69	1.78	1.00	26.25	0.002	0.073
1065	2982	MP/18/57	56.00m-57.00m	37.42	0.62	28.75	1.93	1.72	28.17	0.040	0.128
1066	2983	MP/18/58	57.00m-58.00m	40.83	0.46	24.54	1.09	1.15	30.95	0.010	0.087
1067	2984	MP/18/59	58.00m-59.00m	32.27	0.48	37.96	2.24	1.57	23.88	0.010	0.195
1068	2985	MP/18/60	59.00m-60.00m	33.70	0.34	35.80	2.06	1.15	25.35	0.007	0.121
1069	2986	MP/18/61	60.00m-61.00m	40.12	0.32	25.31	1.36	0.79	30.71	0.002	0.119
1070	2987	MP/18/62	61.00m-62.00m	38.42	0.32	27.61	1.70	1.27	29.15	0.142	0.119
1071	2988	MP/18/63	62.00m-63.00m	33.92	0.45	34.86	2.14	1.53	25.46	0.037	0.156
1072	2989	MP/18/64	63.00m-64.00m	36.22	0.53	30.72	1.75	1.77	27.46	0.312	0.119
1073	2990	MP/18/65	64.00m-65.00m	25.10	0.33	47.17	4.17	1.79	18.70	0.005	0.259
1074	2991	MP/18/66	65.00m-66.00m	29.77	0.30	41.36	2.82	1.51	22.18	0.110	0.110
1075	2992	MP/18/67	66.00m-67.00m	42.65	0.22	21.47	1.03	0.83	32.59	0.120	0.080
1076	2993	MP/18/68	67.00m-68.00m	43.78	0.23	20.20	0.74	0.48	33.64	0.007	0.060
1077	2994	MP/18/69	68.00m-69.00m	43.37	0.31	20.50	0.92	0.62	33.21	0.017	0.073
1078	2995	MP/18/70	69.00m-70.00m	42.03	0.19	24.13	0.64	0.43	31.67	0.025	0.064

MP-19

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1079	3421	MP/19/3	2.00m-3.00m	48.32	0.37	12.06	0.62	0.33	37.50	0.010	0.078
1080	3422	MP/19/4	3.00m-4.00m	48.09	0.39	12.22	0.73	0.38	37.33	0.007	0.094
1081	3423	MP/19/5	4.00m-5.00m	48.59	0.37	11.92	0.64	0.37	37.24	0.007	0.096
1082	3424	MP/19/6	5.00m-6.00m	47.16	0.70	12.78	0.80	0.59	37.01	0.017	0.112
1083	3425	MP/19/7	6.00m-7.00m	48.53	0.34	11.80	0.48	0.37	37.53	0.005	0.080
1084	3426	MP/19/8	7.00m-8.00m	48.52	0.27	11.19	0.91	0.97	37.19	0.007	0.092
1085	3427	MP/19/9	8.00m-9.00m	48.12	0.27	11.04	0.86	0.94	37.85	0.005	0.089
1086	3428	MP/19/10	9.00m-10.00m	48.53	0.27	11.61	0.55	0.36	37.85	0.005	0.076
1087	3429	MP/19/11	10.00m-11.00m	49.14	0.28	10.89	0.50	0.34	38.01	0.007	0.080
1088	3430	MP/19/12	11.00m-12.00m	47.89	0.27	12.06	0.64	1.16	37.14	0.015	0.082
1089	3431	MP/19/13	12.00m-13.00m	47.91	0.29	11.90	0.57	1.13	37.38	0.015	0.076
1090	3432	MP/19/14	13.00m-14.00m	49.87	0.36	10.18	0.39	0.32	38.08	0.005	0.080
1091	3433	MP/19/15	14.00m-15.00m	47.95	0.75	11.28	0.53	0.52	38.16	0.007	0.089
1092	3434	MP/19/16	15.00m-16.00m	48.04	0.65	11.79	0.51	0.40	37.79	0.005	0.069
1093	3435	MP/19/17	16.00m-17.00m	47.85	0.65	11.66	0.51	0.39	38.09	0.005	0.069
1094	3436	MP/19/18	17.00m-18.00m	47.15	0.52	12.97	0.66	0.45	37.31	0.005	0.103
1095	3437	MP/19/19	18.00m-19.00m	47.40	0.52	13.10	0.65	0.45	36.96	0.007	0.103
1096	3438	MP/19/20	19.00m-20.00m	44.18	1.74	15.45	0.77	0.79	36.13	0.010	0.124
1097	3439	MP/19/21	20.00m-21.00m	46.75	0.69	13.83	0.54	0.52	36.74	0.045	0.080

1098	3440	MP/19/22	21.00m-22.00m	47.72	0.54	12.09	0.49	0.40	37.98	0.007	0.085
1099	3441	MP/19/23	22.00m-23.00m	47.20	0.80	12.77	0.72	0.56	37.04	0.005	0.110
1100	3442	MP/19/24	23.00m-24.00m	46.89	0.81	12.77	0.73	0.55	37.33	0.005	0.108
1101	3443	MP/19/25	24.00m-25.00m	45.51	0.73	16.35	0.64	0.45	35.45	0.007	0.094
1102	3444	MP/19/26	25.00m-26.00m	45.14	0.69	16.49	0.69	0.45	35.66	0.005	0.092
1103	3445	MP/19/27	26.00m-27.00m	45.20	0.95	16.25	0.71	0.60	35.31	0.005	0.117
1104	3446	MP/19/28	27.00m-28.00m	44.71	0.95	16.11	0.63	0.61	36.04	0.005	0.115
1105	3447	MP/19/29	28.00m-29.00m	46.07	0.55	15.04	0.72	0.54	36.14	0.017	0.085
1106	3448	MP/19/30	29.00m-30.00m	47.22	0.37	13.07	0.76	0.45	37.09	0.010	0.128
1107	3449	MP/19/31	30.00m-31.00m	47.34	0.37	13.26	0.81	0.45	36.78	0.005	0.128
1108	3450	MP/19/32	31.00m-32.00m	48.22	0.28	13.23	0.53	0.32	36.54	0.005	0.082
1109	3451	MP/19/33	32.00m-33.00m	47.84	0.27	13.14	0.54	0.33	37.06	0.007	0.085
1110	3452	MP/19/34	33.00m-34.00m	46.84	0.54	14.34	0.60	0.44	36.35	0.007	0.082
1111	3453	MP/19/35	34.00m-35.00m	45.75	0.31	15.45	0.79	0.49	36.17	0.005	0.105
1112	3454	MP/19/36	35.00m-36.00m	46.05	0.46	16.02	0.73	0.48	35.32	0.005	0.096
1113	3455	MP/19/37	36.00m-37.00m	46.03	0.46	16.00	0.75	0.48	35.32	0.005	0.096
1114	3456	MP/19/38	37.00m-38.00m	47.45	0.54	13.09	0.60	0.51	36.95	0.005	0.094
1115	3457	MP/19/39	38.00m-39.00m	47.96	0.55	12.81	0.62	0.50	36.69	0.002	0.092
1116	3458	MP/19/40	39.00m-40.00m	47.33	0.62	13.15	0.69	0.56	36.73	0.007	0.087
1117	3459	MP/19/41	40.00m-41.00m	47.30	0.61	13.07	0.69	0.56	36.84	0.010	0.085
1118	3460	MP/19/42	41.00m-42.00m	47.48	0.51	13.18	0.64	0.56	36.77	0.007	0.080
1119	3461	MP/19/43	42.00m-43.00m	47.08	0.52	12.94	0.60	0.54	36.96	0.007	0.082
1120	3462	MP/19/44	43.00m-44.00m	48.56	0.45	11.36	0.66	0.56	37.50	0.005	0.087
1121	3463	MP/19/45	44.00m-45.00m	47.40	0.47	12.66	0.64	0.54	37.39	0.007	0.066
1122	3464	MP/19/46	45.00m-46.00m	46.55	0.71	13.69	0.59	0.64	36.96	0.007	0.073
1123	3465	MP/19/47	46.00m-47.00m	47.35	0.41	13.28	0.63	0.51	36.91	0.007	0.071
1124	3466	MP/19/48	47.00m-48.00m	45.90	0.52	15.66	0.61	0.57	35.89	0.005	0.073
1125	3467	MP/19/49	48.00m-49.00m	44.36	0.48	18.13	1.05	0.78	34.06	0.005	0.101
1126	3468	MP/19/50	49.00m-50.00m	44.18	0.46	18.39	1.13	0.77	33.93	0.007	0.099
1127	3469	MP/19/51	50.00m-51.00m	39.39	0.42	25.90	1.48	0.95	30.66	0.025	0.126
1128	3470	MP/19/52	51.00m-52.00m	39.16	0.40	26.11	1.52	0.94	30.72	0.012	0.131
1129	3471	MP/19/53	52.00m-53.00m	34.54	0.72	32.87	2.16	1.66	26.47	0.005	0.135
1130	3472	MP/19/54	53.00m-54.00m	33.98	0.56	35.29	1.81	1.42	25.59	0.005	0.142
1131	3473	MP/19/55	54.00m-55.00m	32.44	0.45	37.34	2.02	1.36	24.90	0.075	0.140
1132	3474	MP/19/56	55.00m-56.00m	30.56	0.25	40.98	2.47	1.21	22.75	0.007	0.128
1133	3475	MP/19/57	56.00m-57.00m	40.49	0.27	24.50	1.26	1.03	30.96	0.387	0.085
1134	3476	MP/19/58	57.00m-58.00m	40.58	0.25	24.65	1.23	1.12	30.68	0.420	0.085
1135	3477	MP/19/59	58.00m-59.00m	42.55	0.33	21.99	0.79	0.51	32.90	0.007	0.078
1136	3478	MP/19/60	59.00m-60.00m	44.06	0.33	19.17	0.85	0.61	33.91	0.017	0.087
1137	3479	MP/19/61	60.00m-61.00m	43.87	0.30	19.36	0.81	0.60	33.99	0.015	0.082
1138	3480	MP/19/62	61.00m-62.00m	44.05	0.47	19.09	0.58	0.48	34.44	0.005	0.066
1139	3481	MP/19/63	62.00m-63.00m	42.81	0.39	21.09	0.65	0.56	33.51	0.012	0.066
1140	3482	MP/19/64	63.00m-64.00m	38.59	0.39	27.23	1.77	1.00	29.74	0.095	0.158
1141	3483	MP/19/65	64.00m-65.00m	40.96	0.23	24.79	0.82	0.48	31.75	0.017	0.069
1142	3484	MP/19/66	65.00m-66.00m	41.06	0.22	24.47	0.83	0.48	31.96	0.017	0.071
1143	3485	MP/19/67	66.00m-67.00m	40.65	0.22	25.65	0.86	0.44	31.17	0.022	0.069
1144	3486	MP/19/68	67.00m-68.00m	40.67	0.22	25.69	0.89	0.43	31.10	0.015	0.069
1145	3487	MP/19/69	68.00m-69.00m	36.68	0.46	30.79	1.38	1.21	28.21	0.137	0.089
1146	3488	MP/19/70	69.00m-70.00m	36.58	0.45	30.84	1.36	1.23	28.31	0.130	0.089

MP-20

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1147	3489	MP/20/5	4.00m-5.00m	48.92	0.30	11.52	0.47	0.35	37.70	0.005	0.071
1148	3490	MP/20/6	5.00m-6.00m	45.70	0.45	16.71	0.71	0.61	34.97	0.005	0.115
1149	3491	MP/20/7	6.00m-7.00m	47.10	0.16	14.55	0.91	0.38	36.11	0.007	0.087
1150	3492	MP/20/8	7.00m-8.00m	48.65	0.45	12.16	0.45	0.37	37.21	0.005	0.096
1151	3493	MP/20/9	8.00m-9.00m	49.83	0.36	9.95	0.45	0.38	38.37	0.005	0.073
1152	3494	MP/20/10	9.00m-10.00m	50.03	0.32	9.51	0.61	0.37	38.38	0.005	0.087
1153	3495	MP/20/11	10.00m-11.00m	47.11	0.33	14.60	0.47	0.45	36.31	0.007	0.071
1154	3496	MP/20/12	11.00m-12.00m	47.22	0.34	14.14	0.56	0.47	36.44	0.072	0.076
1155	3497	MP/20/13	12.00m-13.00m	47.90	0.34	12.65	0.57	0.47	37.30	0.007	0.085

1156	3498	MP/20/14	13.00m-14.00m	49.06	0.35	10.97	0.62	0.49	37.62	0.005	0.108
1157	3499	MP/20/15	14.00m-15.00m	47.08	0.28	13.99	0.58	0.75	36.38	0.170	0.101
1158	3500	MP/20/16	15.00m-16.00m	47.75	0.24	13.73	0.49	0.35	36.68	0.005	0.080
1159	3501	MP/20/17	16.00m-17.00m	47.31	0.21	14.60	0.48	0.39	36.20	0.005	0.073
1160	3502	MP/20/18	17.00m-18.00m	46.39	0.45	15.61	0.61	0.60	35.41	0.007	0.112
1161	3503	MP/20/19	18.00m-19.00m	44.28	0.46	16.08	0.77	2.66	34.23	0.921	0.133
1162	3504	MP/20/20	19.00m-20.00m	46.36	0.36	15.44	0.66	0.56	35.73	0.007	0.110
1163	3505	MP/20/21	20.00m-21.00m	45.90	0.36	16.21	0.76	0.60	35.20	0.005	0.110
1164	3506	MP/20/22	21.00m-22.00m	48.70	0.32	12.10	0.53	0.42	37.07	0.007	0.089
1165	3507	MP/20/23	22.00m-23.00m	44.64	0.90	17.55	0.83	0.89	34.32	0.010	0.126
1166	3508	MP/20/24	23.00m-24.00m	48.85	0.27	11.62	0.49	0.36	37.56	0.005	0.094
1167	3509	MP/20/25	24.00m-25.00m	47.45	0.25	14.49	0.65	0.40	35.98	0.005	0.089
1168	3510	MP/20/26	25.00m-26.00m	47.43	0.24	14.52	0.44	0.46	36.09	0.007	0.085
1169	3511	MP/20/27	26.00m-27.00m	45.31	0.36	16.79	1.05	0.63	34.71	0.005	0.181
1170	3512	MP/20/28	27.00m-28.00m	46.91	0.24	14.89	0.73	0.69	35.43	0.322	0.110
1171	3513	MP/20/29	28.00m-29.00m	47.57	0.24	14.34	0.58	0.47	36.02	0.005	0.087
1172	3514	MP/20/30	29.00m-30.00m	48.03	0.29	13.67	0.50	0.40	36.38	0.005	0.076
1173	3515	MP/20/31	30.00m-31.00m	45.86	0.35	16.33	0.75	0.59	35.27	0.005	0.089
1174	3516	MP/20/32	31.00m-32.00m	46.66	0.32	15.06	0.64	0.47	36.00	0.007	0.078
1175	3517	MP/20/33	32.00m-33.00m	48.75	0.28	11.65	0.54	0.44	37.55	0.032	0.071
1176	3518	MP/20/34	33.00m-34.00m	47.44	0.37	13.43	0.78	0.54	36.52	0.007	0.117
1177	3519	MP/20/35	34.00m-35.00m	48.73	0.30	12.03	0.48	0.42	37.32	0.007	0.062
1178	3520	MP/20/36	35.00m-36.00m	48.50	0.31	12.40	0.47	0.38	37.08	0.007	0.069
1179	3521	MP/20/37	36.00m-37.00m	47.89	0.31	12.79	0.67	0.67	36.84	0.010	0.096
1180	3522	MP/20/38	37.00m-38.00m	48.16	0.30	12.64	0.55	0.52	37.06	0.005	0.060
1181	3523	MP/20/39	38.00m-39.00m	47.25	0.41	13.75	0.56	0.58	36.66	0.005	0.076
1182	3524	MP/20/40	39.00m-40.00m	47.79	0.30	12.91	0.69	0.59	36.81	0.007	0.073
1183	3525	MP/20/41	40.00m-41.00m	46.08	0.33	16.63	0.61	0.53	35.05	0.007	0.080
1184	3526	MP/20/42	41.00m-42.00m	46.84	0.26	15.38	0.56	0.48	35.62	0.005	0.057
1185	3527	MP/20/43	42.00m-43.00m	45.26	0.32	17.29	0.99	0.70	34.34	0.005	0.096
1186	3528	MP/20/44	43.00m-44.00m	44.01	0.36	19.33	0.99	0.78	33.52	0.005	0.089
1187	3529	MP/20/45	44.00m-45.00m	41.05	0.31	24.28	1.12	0.88	31.44	0.007	0.087
1188	3530	MP/20/46	45.00m-46.00m	40.59	0.31	24.65	1.29	0.83	31.12	0.005	0.144
1189	3531	MP/20/47	46.00m-47.00m	36.42	0.44	30.32	2.46	1.40	27.45	0.120	0.142
1190	3532	MP/20/48	47.00m-48.00m	31.63	0.36	38.89	2.21	1.34	23.63	0.007	0.186
1191	3533	MP/20/49	48.00m-49.00m	38.06	0.57	28.07	1.54	1.54	29.03	0.007	0.151
1192	3534	MP/20/50	49.00m-50.00m	33.24	0.61	34.77	1.90	2.31	25.53	0.489	0.140
1193	3535	MP/20/51	50.00m-51.00m	33.36	0.39	35.80	2.15	1.38	25.34	0.005	0.154
1194	3536	MP/20/52	51.00m-52.00m	36.54	0.26	31.16	2.10	1.16	27.47	0.060	0.119
1195	3537	MP/20/53	52.00m-53.00m	40.83	0.22	25.83	0.75	0.41	31.12	0.005	0.050
1196	3538	MP/20/54	53.00m-54.00m	43.92	0.22	18.82	0.82	1.03	34.34	0.100	0.060
1197	3539	MP/20/55	54.00m-55.00m	45.00	0.23	18.05	0.71	0.57	34.50	0.067	0.064
1198	3540	MP/20/56	55.00m-56.00m	44.48	0.22	19.14	0.63	0.59	34.06	0.112	0.069
1199	3541	MP/20/57	56.00m-57.00m	42.83	0.23	21.76	1.00	0.66	32.46	0.005	0.092
1200	3542	MP/20/58	57.00m-58.00m	42.97	0.27	21.11	0.99	0.81	32.85	0.005	0.080
1201	3543	MP/20/59	58.00m-59.00m	42.20	0.22	23.40	0.97	0.65	31.97	0.032	0.094
1202	3544	MP/20/60	59.00m-60.00m	41.19	0.26	24.42	1.08	1.05	31.32	0.227	0.108
1203	3545	MP/20/61	60.00m-61.00m	39.27	0.20	28.23	1.06	0.65	29.53	0.005	0.096
1204	3546	MP/20/62	61.00m-62.00m	40.89	0.29	24.99	0.99	0.79	31.06	0.007	0.076
1205	3547	MP/20/63	62.00m-63.00m	36.35	0.54	31.70	1.47	1.38	27.40	0.005	0.096
1206	3548	MP/20/64	63.00m-64.00m	36.62	0.25	32.89	0.81	0.90	27.65	0.042	0.060
1207	3549	MP/20/65	64.00m-65.00m	36.49	0.26	32.33	1.15	0.93	27.71	0.007	0.080
1208	3550	MP/20/66	65.00m-66.00m	34.51	0.46	35.52	1.35	1.25	26.06	0.005	0.105
1209	3551	MP/20/67	66.00m-67.00m	37.66	0.38	30.07	1.26	1.06	28.42	0.005	0.115
1210	3552	MP/20/68	67.00m-68.00m	35.30	0.20	35.00	1.33	0.72	26.35	0.007	0.119
1211	3553	MP/20/69	68.00m-69.00m	37.05	0.41	29.59	1.65	1.17	28.84	0.005	0.174
1212	3554	MP/20/70	69.00m-70.00m	38.63	0.21	28.54	0.99	0.64	30.03	0.005	0.101
MP-21											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1213	3555	MP/21/13	12.00m-13.00m	33.80	0.16	21.10	3.67	11.45	28.63	0.040	0.066

1214	3556	MP/21/14	13.00m-14.00m	42.33	0.25	22.20	0.90	0.63	32.27	0.032	0.071
1215	3557	MP/21/15	14.00m-15.00m	43.89	0.15	20.02	1.01	0.67	33.29	0.015	0.080
1216	3558	MP/21/16	15.00m-16.00m	36.41	0.18	25.69	2.33	4.51	29.92	0.035	0.060
1217	3559	MP/21/17	16.00m-17.00m	42.37	0.30	23.10	0.95	0.58	32.07	0.032	0.080
1218	3560	MP/21/18	17.00m-18.00m	37.85	0.18	30.73	1.12	0.78	28.33	0.005	0.087
1219	3561	MP/21/19	18.00m-19.00m	36.52	0.20	32.13	1.23	1.39	27.46	0.007	0.115
1220	3562	MP/21/20	19.00m-20.00m	41.33	0.18	24.98	0.81	0.53	31.45	0.005	0.110
1221	3563	MP/21/21	20.00m-21.00m	41.02	0.29	24.54	1.30	0.70	30.88	0.042	0.126
1222	3564	MP/21/22	21.00m-22.00m	41.02	0.32	25.28	0.84	0.54	31.18	0.030	0.096
1223	3565	MP/21/23	22.00m-23.00m	41.01	0.23	25.06	0.86	0.54	31.29	0.030	0.099
1224	3566	MP/21/24	23.00m-24.00m	42.85	0.34	21.47	0.86	0.59	32.88	0.022	0.110
1225	3567	MP/21/25	24.00m-25.00m	41.99	0.21	23.20	0.89	0.58	32.11	0.022	0.105
1226	3568	MP/21/26	25.00m-26.00m	42.06	0.23	23.50	0.76	0.49	31.93	0.010	0.103
1227	3569	MP/21/27	26.00m-27.00m	41.99	0.18	23.80	0.85	0.56	31.61	0.005	0.115
1228	3570	MP/21/28	27.00m-28.00m	44.85	0.23	19.14	0.63	0.41	33.80	0.010	0.087
1229	3571	MP/21/29	28.00m-29.00m	44.95	0.23	18.21	0.66	0.43	34.58	0.005	0.089
1230	3572	MP/21/30	29.00m-30.00m	44.37	0.22	18.95	0.71	0.53	34.27	0.020	0.089
1231	3573	MP/21/31	30.00m-31.00m	44.72	0.24	19.12	0.63	0.42	33.99	0.007	0.082
1232	3574	MP/21/32	31.00m-32.00m	46.66	0.30	14.77	0.58	0.42	36.34	0.040	0.080
1233	3575	MP/21/33	32.00m-33.00m	47.31	0.41	13.21	0.62	0.48	36.98	0.052	0.094
1234	3576	MP/21/34	33.00m-34.00m	46.34	0.26	15.36	0.58	0.37	36.18	0.005	0.078
1235	3577	MP/21/35	34.00m-35.00m	48.39	0.41	12.01	0.67	0.45	37.07	0.007	0.105
1236	3578	MP/21/36	35.00m-36.00m	46.50	0.33	15.67	0.65	0.45	35.41	0.007	0.099
1237	3579	MP/21/37	36.00m-37.00m	48.17	0.73	10.98	0.56	0.51	38.07	0.007	0.076
1238	3580	MP/21/38	37.00m-38.00m	48.51	1.80	8.21	0.42	0.72	39.46	0.007	0.044
1239	3581	MP/21/39	38.00m-39.00m	48.64	1.61	8.73	0.51	0.69	38.94	0.007	0.053
1240	3582	MP/21/40	39.00m-40.00m	48.30	0.88	10.08	0.55	0.60	38.69	0.025	0.053
1241	3583	MP/21/41	40.00m-41.00m	48.64	1.11	9.72	0.59	0.59	38.46	0.005	0.050
1242	3584	MP/21/42	41.00m-42.00m	48.98	1.46	8.05	0.60	0.71	39.31	0.030	0.057
1243	3585	MP/21/43	42.00m-43.00m	49.06	1.53	7.85	0.55	0.74	39.46	0.015	0.050

MP-22

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1244	2176	MP/22/8	7.00m-8.00m	38.08	0.04	26.72	2.44	2.12	28.85	0.007	0.154
1245	2177	MP/22/9	8.00m-9.00m	40.23	0.13	25.53	1.54	0.84	30.28	0.007	0.121
1246	2178	MP/22/10	9.00m-10.00m	44.01	0.28	18.58	1.29	0.76	33.46	0.006	0.167
1247	2179	MP/22/11	10.00m-11.00m	45.78	0.20	15.79	0.99	0.46	35.58	0.012	0.101
1248	2180	MP/22/12	11.00m-12.00m	46.72	0.24	14.58	0.85	0.54	35.84	0.004	0.119
1249	2181	MP/22/13	12.00m-13.00m	46.25	0.28	15.74	0.59	0.41	35.61	0.003	0.101
1250	2182	MP/22/14	13.00m-14.00m	46.52	0.32	13.50	0.83	0.58	36.97	0.059	0.103
1251	2183	MP/22/15	14.00m-15.00m	47.12	0.32	12.62	0.90	0.55	37.19	0.056	0.121
1252	2184	MP/22/16	15.00m-16.00m	46.24	0.35	14.54	0.78	0.47	36.41	0.010	0.110
1253	2185	MP/22/17	16.00m-17.00m	46.24	0.33	14.01	0.85	0.39	36.89	0.070	0.103
1254	2186	MP/22/18	17.00m-18.00m	46.96	0.33	12.50	0.80	0.48	37.71	0.073	0.099
1255	2187	MP/22/19	18.00m-19.00m	45.59	0.28	16.03	0.71	0.41	35.77	0.056	0.108
1256	2188	MP/22/20	19.00m-20.00m	46.10	0.31	14.57	0.97	0.43	36.35	0.063	0.096
1257	2189	MP/22/21	20.00m-21.00m	45.68	0.27	16.18	0.62	0.38	35.71	0.048	0.089
1258	2190	MP/22/22	21.00m-22.00m	47.09	0.27	14.54	0.80	0.43	35.66	0.059	0.092
1259	2191	MP/22/23	22.00m-23.00m	46.73	0.31	12.34	1.16	0.54	37.54	0.086	0.121
1260	2192	MP/22/24	23.00m-24.00m	44.90	0.36	16.77	0.80	0.39	35.48	0.085	0.089
1261	2193	MP/22/25	24.00m-25.00m	44.36	0.33	17.93	0.78	0.35	34.96	0.080	0.096
1262	2194	MP/22/26	25.00m-26.00m	46.72	0.44	13.06	0.88	0.73	36.76	0.085	0.103
1263	2195	MP/22/27	26.00m-27.00m	47.75	0.56	11.22	0.74	0.55	37.85	0.051	0.066
1264	2196	MP/22/28	27.00m-28.00m	46.85	0.70	11.30	1.11	0.63	37.99	0.073	0.112
1265	2197	MP/22/29	28.00m-29.00m	48.18	1.26	8.87	0.57	0.61	39.46	0.016	0.053
1266	2198	MP/22/30	29.00m-30.00m	46.43	1.63	11.35	0.63	0.64	38.19	0.072	0.053
1267	2199	MP/22/31	30.00m-31.00m	47.57	1.57	9.19	0.75	0.73	38.98	0.060	0.055
1268	2200	MP/22/32	31.00m-32.00m	48.79	1.31	7.58	0.67	0.67	39.89	0.051	0.050
1269	2201	MP/22/33	32.00m-33.00m	48.52	0.71	8.62	0.92	0.66	39.26	0.049	0.050
1270	2202	MP/22/34	33.00m-34.00m	48.10	0.63	9.41	1.06	0.77	38.72	0.046	0.048
1271	2203	MP/22/35	34.00m-35.00m	47.98	0.38	10.03	1.03	0.86	38.23	0.064	0.046

1272	2204	MP/22/36	35.00m-36.00m	47.41	0.32	10.67	1.16	0.90	38.08	0.062	0.046
1273	2205	MP/22/37	36.00m-37.00m	47.42	0.39	10.34	1.30	0.85	38.10	0.084	0.044
1274	2206	MP/22/38	37.00m-38.00m	44.82	0.34	13.78	2.01	1.21	35.84	0.134	0.064
1275	2207	MP/22/39	38.00m-39.00m	42.04	0.40	18.26	2.49	1.92	32.73	0.086	0.078
1276	2208	MP/22/40	39.00m-40.00m	37.34	0.27	23.72	3.71	3.25	28.76	0.116	0.101
1277	2209	MP/22/41	40.00m-41.00m	34.24	0.26	27.92	4.17	4.56	25.54	0.117	0.096
1278	2210	MP/22/42	41.00m-42.00m	34.15	0.19	28.02	4.16	4.40	25.94	0.071	0.094
1279	2211	MP/22/43	42.00m-43.00m	33.37	0.23	28.79	4.36	4.58	25.44	0.100	0.092
1280	2212	MP/22/44	43.00m-44.00m	34.49	0.22	27.93	3.98	4.29	26.02	0.093	0.092
1281	2213	MP/22/45	44.00m-45.00m	33.58	0.19	28.62	4.16	4.66	25.69	0.045	0.087
1282	2214	MP/22/46	45.00m-46.00m	35.36	0.16	26.38	3.82	4.35	27.02	0.058	0.092
MP-23											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1283	3611	MP/23/10	9.00m-10.00m	42.38	0.09	23.39	1.09	0.68	31.64	0.005	0.087
1284	3612	MP/23/11	10.00m-11.00m	39.41	0.14	28.35	1.00	0.51	29.86	0.005	0.069
1285	3613	MP/23/12	11.00m-12.00m	39.04	0.34	27.67	1.18	0.98	30.09	0.007	0.080
1286	3614	MP/23/13	12.00m-13.00m	34.99	0.34	34.43	1.79	1.26	26.17	0.005	0.110
1287	3615	MP/23/14	13.00m-14.00m	35.28	0.32	34.49	1.49	1.21	26.38	0.005	0.101
1288	3616	MP/23/15	14.00m-15.00m	36.34	0.21	33.41	1.34	0.85	27.03	0.005	0.105
1289	3617	MP/23/16	15.00m-16.00m	38.63	0.15	29.60	1.09	0.51	29.28	0.007	0.096
1290	3618	MP/23/17	16.00m-17.00m	37.69	0.25	30.97	1.24	0.78	28.27	0.005	0.105
1291	3619	MP/23/18	17.00m-18.00m	38.44	0.21	30.11	1.13	0.68	28.70	0.007	0.112
1292	3620	MP/23/19	18.00m-19.00m	39.91	0.16	27.62	0.93	0.49	30.18	0.005	0.099
1293	3621	MP/23/20	19.00m-20.00m	38.95	0.18	28.08	1.08	0.64	30.32	0.005	0.112
1294	3622	MP/23/21	20.00m-21.00m	39.07	0.21	28.21	1.05	0.64	30.11	0.007	0.105
1295	3623	MP/23/22	21.00m-22.00m	41.80	0.21	24.22	0.91	0.56	31.67	0.007	0.096
1296	3624	MP/23/23	22.00m-23.00m	41.08	0.18	25.21	0.98	0.58	31.27	0.010	0.112
1297	3625	MP/23/24	23.00m-24.00m	42.44	0.22	22.60	0.82	0.50	32.79	0.007	0.101
1298	3626	MP/23/25	24.00m-25.00m	41.85	0.23	23.42	0.94	0.53	32.29	0.005	0.117
1299	3627	MP/23/26	25.00m-26.00m	41.84	0.21	23.30	1.00	0.55	32.36	0.007	0.101
1300	3628	MP/23/27	26.00m-27.00m	41.89	0.23	23.32	0.86	0.49	32.55	0.005	0.103
1301	3629	MP/23/28	27.00m-28.00m	42.99	0.24	21.37	0.90	0.55	33.32	0.007	0.092
1302	3630	MP/23/29	28.00m-29.00m	45.31	0.22	18.08	0.78	0.54	34.49	0.005	0.089
1303	3631	MP/23/30	29.00m-30.00m	46.19	0.27	15.13	0.87	0.45	36.51	0.112	0.092
1304	3632	MP/23/31	30.00m-31.00m	44.13	0.26	19.02	0.88	0.45	34.66	0.105	0.080
1305	3633	MP/23/32	31.00m-32.00m	45.19	0.27	17.20	1.08	0.51	35.00	0.107	0.117
1306	3634	MP/23/33	32.00m-33.00m	45.65	0.28	16.27	0.85	0.44	35.88	0.112	0.080
1307	3635	MP/23/34	33.00m-34.00m	45.19	0.28	17.03	0.95	0.55	35.34	0.102	0.101
1308	3636	MP/23/35	34.00m-35.00m	45.17	0.37	16.85	1.07	0.48	35.35	0.095	0.101
1309	3637	MP/23/36	35.00m-36.00m	44.80	0.26	17.23	0.94	0.63	35.51	0.097	0.092
1310	3638	MP/23/37	36.00m-37.00m	45.90	0.29	15.56	0.94	0.51	36.15	0.115	0.094
1311	3639	MP/23/38	37.00m-38.00m	44.97	0.34	17.44	0.96	0.49	35.09	0.125	0.117
1312	3640	MP/23/39	38.00m-41.00m	42.62	0.22	19.76	1.60	1.34	33.64	0.102	0.089
1313	3641	MP/23/42	41.00m-42.00m	46.72	0.32	14.48	0.79	0.38	36.66	0.115	0.092
1314	3642	MP/23/43	42.00m-43.00m	43.93	0.42	19.28	1.12	0.73	33.76	0.185	0.128
1315	3643	MP/23/44	43.00m-48.00m	41.92	0.29	23.31	0.98	0.67	32.14	0.165	0.101
MP-24											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1316	3644	MP/24/5	4.00m-5.00m	41.69	0.26	19.37	2.21	2.47	33.02	0.120	0.069
1317	3645	MP/24/6	5.00m-6.00m	41.48	0.18	25.37	0.94	0.47	30.90	0.113	0.071
1318	3646	MP/24/7	6.00m-7.00m	34.07	0.15	32.20	2.20	2.75	27.76	0.008	0.064
1319	3647	MP/24/8	7.00m-8.00m	30.82	0.16	38.19	2.43	2.52	24.88	0.005	0.080
1320	3648	MP/24/9	8.00m-9.00m	37.01	0.16	32.56	1.21	0.88	27.47	0.003	0.085
1321	3649	MP/24/10	9.00m-10.00m	33.63	0.22	34.38	1.97	2.14	26.80	0.015	0.076
1322	3650	MP/24/11	10.00m-11.00m	40.21	0.19	27.20	0.96	0.65	30.15	0.015	0.064
1323	3651	MP/24/12	11.00m-12.00m	37.92	0.21	30.25	1.27	0.98	28.66	0.013	0.080
1324	3652	MP/24/13	12.00m-13.00m	35.89	0.20	33.74	1.38	0.92	27.07	0.010	0.092
1325	3653	MP/24/14	13.00m-14.00m	37.86	0.20	30.51	1.20	0.92	28.56	0.020	0.069
1326	3654	MP/24/15	14.00m-15.00m	33.04	0.18	37.79	1.62	1.27	25.22	0.010	0.108

1327	3655	MP/24/16	15.00m-16.00m	39.69	0.18	27.98	0.95	0.67	29.90	0.025	0.089
1328	3656	MP/24/17	16.00m-17.00m	35.48	0.19	34.68	1.43	0.75	26.62	0.020	0.103
1329	3657	MP/24/18	17.00m-18.00m	35.15	0.11	35.99	1.21	0.61	26.09	0.028	0.112
1330	3658	MP/24/19	18.00m-19.00m	39.39	0.38	27.10	1.61	1.09	29.47	0.030	0.119
1331	3659	MP/24/20	19.00m-20.00m	34.61	0.29	34.71	1.84	1.38	26.17	0.055	0.144
1332	3660	MP/24/21	20.00m-21.00m	37.55	0.26	30.32	1.55	1.03	28.40	0.085	0.115
1333	3661	MP/24/22	21.00m-22.00m	38.88	0.17	28.41	1.28	0.69	29.75	0.075	0.108
1334	3662	MP/24/23	22.00m-23.00m	39.11	0.21	28.84	0.97	0.47	29.72	0.065	0.089
1335	3663	MP/24/24	23.00m-24.00m	39.78	0.15	27.52	0.91	0.53	30.41	0.060	0.099
1336	3664	MP/24/25	24.00m-25.00m	39.74	0.20	27.37	1.07	0.58	30.24	0.083	0.115
1337	3665	MP/24/26	25.00m-26.00m	39.11	0.20	27.81	1.05	0.61	30.46	0.105	0.103
1338	3666	MP/24/27	26.00m-27.00m	40.47	0.25	25.65	1.11	0.57	31.19	0.085	0.103
1339	3667	MP/24/28	27.00m-28.00m	42.83	0.22	22.89	0.84	0.52	32.06	0.065	0.099
1340	3668	MP/24/29	28.00m-29.00m	39.40	0.10	28.68	1.00	0.59	29.46	0.073	0.112
1341	3669	MP/24/30	29.00m-30.00m	43.53	0.24	20.44	0.93	0.63	33.54	0.073	0.096
1342	3670	MP/24/31	30.00m-31.00m	45.18	0.27	18.14	0.90	0.59	34.24	0.055	0.094
1343	3671	MP/24/32	31.00m-32.00m	41.33	0.14	24.51	1.12	0.66	31.44	0.065	0.137
1344	3672	MP/24/33	32.00m-33.00m	41.30	0.15	25.58	0.97	0.60	30.83	0.038	0.108
1345	3673	MP/24/34	33.00m-34.00m	42.18	0.18	23.79	0.97	0.63	31.62	0.055	0.089
1346	3674	MP/24/35	34.00m-35.00m	41.68	0.12	24.39	0.96	0.61	31.57	0.003	0.105
1347	3675	MP/24/36	35.00m-36.00m	43.56	0.11	20.15	0.98	1.17	33.29	0.055	0.112
1348	3676	MP/24/37	36.00m-37.00m	41.12	0.17	25.61	0.81	0.48	31.18	0.050	0.096
1349	3677	MP/24/38	37.00m-38.00m	41.32	0.08	24.89	1.18	0.94	30.93	0.030	0.103
1350	3678	MP/24/39	38.00m-39.00m	45.08	0.20	17.60	1.00	0.67	34.72	0.065	0.115
1351	3679	MP/24/40	39.00m-40.00m	46.55	0.18	16.23	0.78	0.49	35.18	0.008	0.101
1352	3680	MP/24/41	40.00m-42.00m	28.01	0.09	44.18	2.81	2.67	21.42	0.010	0.186
1353	3681	MP/24/43	42.00m-43.00m	45.59	0.18	18.39	0.72	0.40	34.15	0.013	0.092
1354	3682	MP/24/44	43.00m-44.00m	31.68	0.10	37.94	2.81	2.66	24.08	0.010	0.206
1355	3683	MP/24/45	44.00m-45.00m	19.64	0.15	54.89	4.50	4.12	15.82	0.010	0.316
1356	3684	MP/24/46	45.00m-46.00m	46.20	0.12	16.88	0.88	0.43	34.66	0.005	0.092
1357	3685	MP/24/47	46.00m-47.00m	48.36	0.38	12.15	0.76	0.43	37.32	0.018	0.082
1358	3686	MP/24/48	47.00m-48.00m	49.66	0.57	9.44	0.70	0.72	38.33	0.013	0.046
1359	3687	MP/24/49	48.00m-49.00m	48.93	0.63	9.86	0.60	0.62	38.82	0.025	0.041
1360	3688	MP/24/50	49.00m-50.00m	50.05	0.18	9.34	0.96	0.78	37.98	0.003	0.055
1361	3689	MP/24/51	50.00m-51.00m	49.44	0.33	10.44	0.72	0.72	37.78	0.005	0.050
1362	3690	MP/24/52	51.00m-52.00m	49.27	0.39	10.41	0.69	0.65	38.07	0.033	0.053
1363	3691	MP/24/53	52.00m-53.00m	48.75	0.62	10.15	0.63	0.62	38.67	0.010	0.050
1364	3692	MP/24/54	53.00m-54.00m	49.43	0.38	9.45	0.63	0.56	38.98	0.015	0.041
1365	3693	MP/24/55	54.00m-55.00m	48.07	0.71	10.97	0.70	0.56	38.43	0.033	0.048
1366	3694	MP/24/56	55.00m-56.00m	47.87	1.16	10.66	0.68	0.60	38.47	0.005	0.046
1367	3695	MP/24/57	56.00m-57.00m	47.19	0.87	12.15	0.72	0.66	37.84	0.023	0.048
1368	3696	MP/24/58	57.00m-58.00m	48.38	0.36	10.83	0.90	0.69	38.15	0.013	0.046
1369	3697	MP/24/59	58.00m-59.00m	48.81	0.52	9.88	0.90	0.66	38.57	0.023	0.050

MP-25

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1370	3698	MP/25/10	9.00m-10.00m	46.72	0.34	15.63	0.76	0.46	35.49	0.015	0.096
1371	3699	MP/25/11	10.00m-11.00m	44.13	0.39	19.88	0.92	0.56	33.39	0.070	0.115
1372	3700	MP/25/12	11.00m-12.00m	47.03	0.24	15.36	0.67	0.42	35.74	0.053	0.080
1373	3701	MP/25/13	12.00m-13.00m	46.90	0.24	14.99	0.69	0.34	36.26	0.075	0.078
1374	3702	MP/25/14	13.00m-14.00m	45.52	0.33	17.52	0.79	0.45	34.75	0.050	0.103
1375	3703	MP/25/15	14.00m-15.00m	43.22	0.26	21.96	0.73	0.44	32.75	0.065	0.076
1376	3704	MP/25/16	15.00m-16.00m	46.15	0.28	16.73	0.85	0.47	34.84	0.040	0.094
1377	3705	MP/25/17	16.00m-17.00m	46.95	0.31	14.85	0.97	0.52	35.61	0.053	0.112
1378	3706	MP/25/18	17.00m-18.00m	47.94	0.25	13.25	0.84	0.41	36.68	0.050	0.080
1379	3707	MP/25/19	18.00m-19.00m	47.26	0.32	14.19	0.71	0.43	36.50	0.045	0.080
1380	3708	MP/25/20	19.00m-20.00m	47.35	0.33	13.66	0.90	0.53	36.54	0.035	0.101
1381	3709	MP/25/21	20.00m-21.00m	46.16	0.34	15.81	0.80	0.50	35.78	0.003	0.076
1382	3710	MP/25/22	21.00m-22.00m	47.79	0.28	13.66	0.65	0.40	36.68	0.013	0.076
1383	3711	MP/25/23	22.00m-23.00m	46.45	0.34	14.81	0.93	0.61	36.13	0.023	0.080
1384	3712	MP/25/24	23.00m-24.00m	47.58	0.36	13.35	0.73	0.51	36.88	0.005	0.076

1385	3713	MP/25/25	24.00m-25.00m	47.14	0.28	14.76	0.83	0.48	35.86	0.005	0.087
1386	3714	MP/25/26	25.00m-26.00m	45.11	0.26	17.74	0.88	0.55	34.81	0.005	0.073
1387	3715	MP/25/27	26.00m-27.00m	44.23	0.29	19.57	1.14	0.73	33.20	0.013	0.092
1388	3716	MP/25/28	27.00m-28.00m	39.73	0.30	25.75	1.99	1.07	29.82	0.008	0.124
1389	3717	MP/25/29	28.00m-29.00m	41.81	0.19	23.61	1.17	0.86	31.34	0.005	0.096
1390	3718	MP/25/30	29.00m-30.00m	40.07	0.22	26.40	1.43	0.77	30.11	0.005	0.089
1391	3719	MP/25/31	30.00m-31.00m	35.75	0.52	32.17	2.07	1.51	26.81	0.015	0.137
1392	3720	MP/25/32	31.00m-32.00m	29.21	0.55	42.66	2.31	1.74	22.33	0.008	0.115
1393	3721	MP/25/33	32.00m-33.00m	33.38	0.28	36.14	2.78	1.36	24.54	0.013	0.192
1394	3722	MP/25/34	33.00m-34.00m	43.27	0.19	21.66	1.03	0.52	32.43	0.018	0.064
1395	3723	MP/25/35	34.00m-35.00m	41.42	0.21	24.49	0.93	0.48	31.80	0.005	0.053
1396	3724	MP/25/36	35.00m-36.00m	45.32	0.19	17.62	0.82	0.44	34.99	0.005	0.069
1397	3725	MP/25/37	36.00m-37.00m	44.86	0.23	18.82	0.93	0.50	33.66	0.025	0.076
1398	3726	MP/25/38	37.00m-38.00m	43.62	0.21	20.99	0.82	0.45	33.31	0.013	0.060
1399	3727	MP/25/39	38.00m-39.00m	42.54	0.22	23.09	0.90	0.49	32.13	0.028	0.076
1400	3728	MP/25/40	39.00m-40.00m	41.24	0.25	21.75	1.55	2.65	31.76	0.005	0.071
1401	3729	MP/25/41	40.00m-41.00m	41.22	0.21	25.47	0.97	0.53	30.93	0.015	0.078
1402	3730	MP/25/42	41.00m-42.00m	42.88	0.23	22.78	0.92	0.53	32.02	0.033	0.071
1403	3731	MP/25/43	42.00m-43.00m	41.45	0.17	25.13	0.87	0.43	30.80	0.030	0.069
1404	3732	MP/25/44	43.00m-44.00m	40.40	0.19	26.54	1.11	0.55	30.46	0.038	0.076
1405	3733	MP/25/45	44.00m-45.00m	37.03	0.30	31.74	1.52	0.87	27.57	0.043	0.099
1406	3734	MP/25/46	45.00m-46.00m	34.82	0.57	34.19	1.66	1.48	26.35	0.068	0.103
1407	3735	MP/25/47	46.00m-47.00m	34.27	0.45	35.60	1.56	1.30	25.89	0.090	0.092
1408	3736	MP/25/48	47.00m-48.00m	38.35	0.24	29.43	1.19	0.69	29.30	0.045	0.073
1409	3737	MP/25/49	48.00m-49.00m	33.88	0.45	36.03	1.72	1.34	25.68	0.025	0.119
1410	3738	MP/25/50	49.00m-50.00m	32.87	0.45	37.23	1.87	1.46	25.06	0.043	0.121
1411	3739	MP/25/51	50.00m-51.00m	34.19	0.41	35.44	1.71	1.38	25.81	0.228	0.124
1412	3740	MP/25/52	51.00m-52.00m	34.84	0.37	34.74	1.79	1.11	26.12	0.035	0.128
1413	3741	MP/25/53	52.00m-53.00m	30.05	0.23	42.61	2.26	1.06	22.41	0.065	0.144
1414	3742	MP/25/54	53.00m-54.00m	37.57	0.15	31.93	0.97	0.42	28.21	0.043	0.126
1415	3743	MP/25/55	54.00m-55.00m	35.10	0.16	35.97	1.03	0.52	26.46	0.070	0.092
1416	3744	MP/25/56	55.00m-56.00m	37.55	0.20	31.24	1.25	0.58	28.32	0.048	0.115
1417	3745	MP/25/57	56.00m-57.00m	40.02	0.20	26.64	1.03	0.70	30.59	0.208	0.108
1418	3746	MP/25/58	57.00m-58.00m	36.72	0.46	31.08	1.57	1.24	28.03	0.025	0.133
1419	3747	MP/25/59	58.00m-59.00m	38.20	0.26	29.78	1.19	0.72	29.09	0.045	0.110
1420	3748	MP/25/60	59.00m-60.00m	35.38	0.37	33.88	1.73	1.11	26.51	0.063	0.156
1421	3749	MP/25/61	60.00m-61.00m	37.03	0.28	31.17	1.55	0.87	28.13	0.053	0.119
1422	3750	MP/25/62	61.00m-62.00m	36.71	0.27	31.63	1.43	0.88	28.14	0.058	0.117
1423	3751	MP/25/63	62.00m-63.00m	38.83	0.19	28.68	1.21	0.68	29.52	0.185	0.103
1424	3752	MP/25/64	63.00m-64.00m	42.51	0.23	22.27	1.13	0.58	32.46	0.048	0.121
1425	3753	MP/25/65	64.00m-65.00m	36.73	0.21	32.80	0.91	0.43	28.27	0.030	0.094
1426	3754	MP/25/66	65.00m-66.00m	40.37	0.22	25.72	1.22	0.62	31.00	0.028	0.112
1427	3755	MP/25/67	66.00m-67.00m	40.30	0.29	24.64	2.26	1.14	29.99	0.155	0.284
1428	3756	MP/25/68	67.00m-68.00m	40.21	0.23	26.06	1.15	0.76	30.75	0.048	0.126
1429	3757	MP/25/69	68.00m-69.00m	41.26	0.26	24.06	1.28	0.75	31.49	0.065	0.144
1430	3758	MP/25/70	69.00m-70.00m	39.30	0.26	27.21	1.50	0.83	29.89	0.068	0.186

MP-26

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1431	4013	MP/26/7	6.00m-7.00m	34.79	0.20	32.61	2.07	2.83	26.52	0.010	0.089
1432	4014	MP/26/8	7.00m-8.00m	35.28	0.25	33.96	1.48	1.24	26.90	0.115	0.071
1433	4015	MP/26/9	8.00m-9.00m	41.50	0.21	24.94	1.02	0.49	31.37	0.020	0.057
1434	4016	MP/26/10	9.00m-10.00m	43.17	0.20	22.43	0.84	0.38	32.37	0.015	0.064
1435	4017	MP/26/11	10.00m-11.00m	44.32	0.23	19.55	0.97	0.58	33.65	0.015	0.073
1436	4018	MP/26/12	11.00m-12.00m	44.66	0.26	19.78	0.92	0.49	33.22	0.015	0.066
1437	4019	MP/26/13	12.00m-13.00m	43.72	0.25	20.89	0.93	0.48	33.07	0.010	0.071
1438	4020	MP/26/14	13.00m-14.00m	44.61	0.20	19.48	1.06	0.50	33.41	0.013	0.073
1439	4021	MP/26/15	14.00m-15.00m	42.59	0.23	23.20	1.04	0.50	31.67	0.008	0.080
1440	4022	MP/26/16	15.00m-16.00m	42.78	0.20	22.61	0.97	0.44	32.30	0.015	0.071
1441	4023	MP/26/17	16.00m-17.00m	42.32	0.26	22.56	1.17	0.65	32.27	0.005	0.094
1442	4024	MP/26/18	17.00m-18.00m	44.62	0.22	19.40	0.98	0.50	33.64	0.003	0.066

1443	4025	MP/26/19	18.00m-19.00m	41.88	0.23	23.77	0.98	0.49	31.98	0.013	0.071
1444	4026	MP/26/20	19.00m-20.00m	42.68	0.25	22.21	1.26	0.67	32.10	0.003	0.092
1445	4027	MP/26/21	20.00m-21.00m	43.09	0.24	21.89	1.00	0.52	32.58	0.003	0.073
1446	4028	MP/26/22	21.00m-22.00m	43.03	0.19	21.80	0.89	0.44	33.02	0.003	0.071
1447	4029	MP/26/23	22.00m-23.00m	42.90	0.20	20.94	1.02	0.87	33.16	0.380	0.071
1448	4030	MP/26/24	23.00m-24.00m	40.54	0.26	25.78	1.04	0.49	31.22	0.005	0.048
1449	4031	MP/26/25	24.00m-25.00m	35.64	0.25	33.31	1.87	0.97	26.85	0.003	0.121
1450	4032	MP/26/26	25.00m-26.00m	36.17	0.26	32.29	1.96	1.06	27.13	0.005	0.154
1451	4033	MP/26/27	26.00m-27.00m	46.85	0.21	14.95	0.76	0.59	36.04	0.013	0.066
1452	4034	MP/26/28	27.00m-28.00m	32.65	0.21	37.48	2.44	1.14	24.72	0.013	0.105
1453	4035	MP/26/29	28.00m-29.00m	26.99	0.26	46.46	3.04	1.31	20.27	0.013	0.144
1454	4036	MP/26/30	29.00m-30.00m	40.58	0.22	25.98	1.29	0.64	30.55	0.015	0.078
1455	4037	MP/26/31	30.00m-31.00m	42.15	0.18	23.28	1.17	0.60	31.85	0.003	0.062
1456	4038	MP/26/32	31.00m-32.00m	43.38	0.18	20.93	0.87	0.46	33.56	0.040	0.066
1457	4039	MP/26/33	32.00m-33.00m	43.53	0.14	21.54	0.93	0.56	32.63	0.013	0.064
1458	4040	MP/26/34	33.00m-34.00m	44.09	0.16	20.51	0.95	0.50	33.15	0.013	0.069
1459	4041	MP/26/35	34.00m-35.00m	43.04	0.17	21.85	1.09	0.60	32.52	0.005	0.078
1460	4042	MP/26/36	35.00m-36.00m	41.91	0.16	24.64	0.88	0.44	31.37	0.020	0.071
1461	4043	MP/26/37	36.00m-37.00m	42.11	0.22	22.59	0.98	0.58	32.83	0.025	0.066
1462	4044	MP/26/38	37.00m-38.00m	42.17	0.20	23.12	0.88	0.59	32.42	0.013	0.064
1463	4045	MP/26/39	38.00m-39.00m	42.21	0.16	23.45	0.81	0.43	32.35	0.023	0.069
1464	4046	MP/26/40	39.00m-40.00m	40.87	0.22	26.66	1.16	0.63	29.74	0.028	0.085
1465	4047	MP/26/41	40.00m-41.00m	41.27	0.21	25.19	0.96	0.61	31.04	0.078	0.062
1466	4048	MP/26/42	41.00m-42.00m	38.25	0.25	29.40	1.22	0.88	29.23	0.003	0.080
1467	4049	MP/26/43	42.00m-43.00m	35.98	0.45	32.43	1.50	1.14	27.58	0.010	0.099
1468	4050	MP/26/44	43.00m-44.00m	30.75	0.50	39.69	2.62	1.66	23.24	0.050	0.144
1469	4051	MP/26/45	44.00m-45.00m	33.83	0.38	36.43	1.63	1.16	25.60	0.048	0.096
1470	4052	MP/26/46	45.00m-46.00m	33.48	0.44	36.53	1.74	1.31	25.53	0.015	0.117
1471	4053	MP/26/47	46.00m-47.00m	33.75	0.32	36.58	1.70	1.06	25.59	0.033	0.112
1472	4054	MP/26/48	47.00m-48.00m	34.35	0.36	35.63	1.55	1.01	26.20	0.003	0.119
1473	4055	MP/26/49	48.00m-49.00m	33.07	0.42	37.36	1.91	1.23	25.04	0.028	0.112
1474	4056	MP/26/50	49.00m-50.00m	37.64	0.17	30.94	1.20	0.58	28.58	0.050	0.117
1475	4057	MP/26/51	50.00m-51.00m	37.30	0.14	32.10	1.15	0.50	27.99	0.023	0.105
1476	4058	MP/26/52	51.00m-52.00m	35.25	0.27	34.07	1.57	0.94	26.89	0.095	0.121
1477	4059	MP/26/53	52.00m-53.00m	37.81	0.27	30.39	1.21	0.71	28.79	0.018	0.112
1478	4060	MP/26/54	53.00m-54.00m	36.85	0.31	31.71	1.31	0.87	28.09	0.020	0.119
1479	4061	MP/26/55	54.00m-55.00m	35.33	0.31	33.91	1.66	1.08	26.68	0.030	0.133
1480	4062	MP/26/56	55.00m-56.00m	35.93	0.35	33.35	1.82	1.15	26.31	0.015	0.156
1481	4063	MP/26/57	56.00m-57.00m	38.61	0.24	29.08	1.29	0.69	29.15	0.078	0.133
1482	4064	MP/26/58	57.00m-58.00m	37.68	0.17	31.13	1.07	0.56	28.62	0.008	0.121
1483	4065	MP/26/59	58.00m-59.00m	38.30	0.21	29.42	1.23	0.67	29.30	0.063	0.112
1484	4066	MP/26/60	59.00m-60.00m	40.65	0.15	26.46	0.83	0.36	30.95	0.003	0.066
1485	4067	MP/26/61	60.00m-61.00m	40.65	0.26	25.31	1.24	0.70	30.98	0.008	0.154
1486	4068	MP/26/62	61.00m-62.00m	42.47	0.20	22.63	0.87	0.51	32.61	0.003	0.101
1487	4069	MP/26/63	62.00m-63.00m	40.64	0.24	25.37	1.11	0.65	31.17	0.015	0.115
1488	4070	MP/26/64	63.00m-64.00m	40.66	0.22	25.15	1.11	0.73	31.32	0.015	0.108
1489	4071	MP/26/65	64.00m-65.00m	38.15	0.22	29.98	1.13	0.61	29.04	0.013	0.112
1490	4072	MP/26/66	65.00m-66.00m	38.64	0.22	29.46	1.06	0.56	29.32	0.003	0.096
1491	4073	MP/26/67	66.00m-67.00m	39.03	0.23	28.56	1.09	0.57	29.70	0.005	0.108
1492	4074	MP/26/68	67.00m-68.00m	39.10	0.25	27.68	1.28	0.80	29.89	0.035	0.149
1493	4075	MP/26/69	68.00m-69.00m	39.54	0.23	27.83	1.03	0.56	30.02	0.023	0.117
1494	4076	MP/26/70	69.00m-70.00m	41.17	0.20	25.01	0.92	0.52	31.47	0.003	0.103
MP-27											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1495	4077	MP/27/4	3.00m-4.00m	46.61	0.26	15.83	0.78	0.46	35.45	0.028	0.078
1496	4078	MP/27/5	4.00m-5.00m	47.40	0.37	14.70	0.81	0.55	35.55	0.025	0.082
1497	4079	MP/27/6	5.00m-6.00m	46.38	0.42	15.29	0.94	0.65	35.61	0.020	0.105
1498	4080	MP/27/7	6.00m-7.00m	46.12	0.39	16.28	0.75	0.57	35.30	0.025	0.092
1499	4081	MP/27/8	7.00m-8.00m	45.48	0.43	16.43	1.02	0.67	35.22	0.020	0.105
1500	4082	MP/27/9	8.00m-9.00m	46.01	0.44	15.90	0.70	0.60	35.78	0.028	0.076

1501	4083	MP/27/10	9.00m-10.00m	48.42	0.38	12.32	0.81	0.56	36.92	0.028	0.073
1502	4084	MP/27/11	10.00m-11.00m	46.98	0.38	14.02	0.75	0.55	36.74	0.030	0.085
1503	4085	MP/27/12	11.00m-12.00m	46.11	0.37	15.10	0.91	0.58	36.19	0.030	0.080
1504	4086	MP/27/13	12.00m-13.00m	46.98	0.32	14.16	0.76	0.47	36.59	0.028	0.073
1505	4087	MP/27/14	13.00m-14.00m	46.62	0.33	15.69	0.71	0.46	35.59	0.033	0.050
1506	4088	MP/27/15	14.00m-15.00m	44.63	0.27	19.07	0.92	0.59	33.84	0.025	0.073
1507	4089	MP/27/16	15.00m-16.00m	41.85	0.26	23.30	1.05	0.83	32.01	0.028	0.078
1508	4090	MP/27/17	16.00m-17.00m	42.62	0.24	21.87	1.23	0.72	32.39	0.028	0.103
1509	4091	MP/27/18	17.00m-18.00m	37.50	0.29	30.27	1.63	1.17	28.20	0.035	0.101
1510	4092	MP/27/19	18.00m-19.00m	28.97	0.59	43.28	2.42	1.83	21.67	0.035	0.154
1511	4093	MP/27/20	19.00m-20.00m	33.40	0.49	35.98	2.17	1.64	25.16	0.038	0.170
1512	4094	MP/27/21	20.00m-21.00m	32.25	0.14	41.22	0.87	0.83	24.11	0.023	0.057
1513	4095	MP/27/22	21.00m-22.00m	40.16	0.20	26.91	1.15	0.56	30.25	0.033	0.046
1514	4096	MP/27/23	22.00m-23.00m	40.22	0.25	26.61	1.06	0.59	30.55	0.033	0.046
1515	4097	MP/27/24	23.00m-24.00m	38.83	0.25	28.45	1.18	0.59	29.93	0.008	0.055
1516	4098	MP/27/25	24.00m-25.00m	39.53	0.20	27.70	0.93	0.50	30.43	0.035	0.060
1517	4099	MP/27/26	25.00m-26.00m	43.60	0.18	21.14	0.88	0.46	33.08	0.003	0.069
1518	4100	MP/27/27	26.00m-27.00m	45.78	0.21	17.19	0.82	0.43	34.92	0.008	0.066
1519	4101	MP/27/28	27.00m-28.00m	45.20	0.25	17.35	0.89	0.58	35.05	0.065	0.069
1520	4102	MP/27/29	28.00m-29.00m	41.94	0.27	23.54	1.21	0.73	31.50	0.003	0.096
1521	4103	MP/27/30	29.00m-30.00m	41.63	0.24	23.61	1.24	0.75	31.68	0.003	0.094
1522	4104	MP/27/31	30.00m-31.00m	44.53	0.17	19.00	0.73	0.42	34.56	0.020	0.066
1523	4105	MP/27/32	31.00m-32.00m	42.99	0.23	21.80	0.91	0.49	32.88	0.013	0.071
1524	4106	MP/27/33	32.00m-33.00m	42.07	0.15	22.22	1.53	1.07	31.99	0.088	0.105
1525	4107	MP/27/34	33.00m-34.00m	39.84	0.20	27.57	1.03	0.57	30.07	0.003	0.078
1526	4108	MP/27/35	34.00m-35.00m	42.77	0.18	22.63	0.83	0.45	32.49	0.005	0.076
1527	4109	MP/27/36	35.00m-36.00m	38.77	0.23	28.92	1.15	0.77	29.42	0.020	0.078
1528	4110	MP/27/37	36.00m-37.00m	32.70	0.58	37.01	2.00	1.72	24.93	0.008	0.119
1529	4111	MP/27/38	37.00m-38.00m	35.55	0.33	33.54	1.56	1.12	26.92	0.020	0.087
1530	4112	MP/27/39	38.00m-39.00m	36.20	0.41	32.59	1.38	1.12	27.51	0.018	0.105
1531	4113	MP/27/40	39.00m-40.00m	33.48	0.40	37.12	1.66	1.17	25.24	0.023	0.128
1532	4114	MP/27/41	40.00m-41.00m	35.96	0.32	33.15	1.48	0.95	27.27	0.013	0.124
1533	4115	MP/27/42	41.00m-42.00m	31.23	0.27	41.39	1.70	1.01	23.41	0.020	0.121
1534	4116	MP/27/43	42.00m-43.00m	30.22	0.31	41.93	2.08	1.25	23.03	0.013	0.172
1535	4117	MP/27/44	43.00m-44.00m	37.66	0.10	31.20	1.28	0.57	28.36	0.020	0.131
1536	4118	MP/27/45	44.00m-45.00m	38.57	0.20	29.27	1.23	0.63	29.24	0.008	0.105
1537	4119	MP/27/46	45.00m-46.00m	38.30	0.22	29.53	1.08	0.71	29.43	0.013	0.085
1538	4120	MP/27/47	46.00m-47.00m	37.15	0.22	31.38	1.20	0.74	28.46	0.093	0.103
1539	4121	MP/27/48	47.00m-48.00m	38.89	0.23	28.78	1.26	0.66	29.35	0.013	0.133
1540	4122	MP/27/49	48.00m-49.00m	38.42	0.18	29.63	1.14	0.63	29.21	0.008	0.110
1541	4123	MP/27/50	49.00m-50.00m	36.42	0.16	33.48	1.01	0.50	27.72	0.023	0.096
1542	4124	MP/27/51	50.00m-51.00m	35.73	0.15	34.86	0.92	0.47	27.19	0.018	0.105
1543	4125	MP/27/52	51.00m-52.00m	37.92	0.18	30.80	1.05	0.57	28.71	0.030	0.108
1544	4126	MP/27/53	52.00m-53.00m	38.59	0.20	29.50	1.10	0.56	29.26	0.013	0.115
1545	4127	MP/27/54	53.00m-54.00m	40.63	0.23	25.83	1.09	0.63	30.85	0.025	0.117
1546	4128	MP/27/55	54.00m-55.00m	39.34	0.24	27.90	1.15	0.67	29.89	0.008	0.121
1547	4129	MP/27/56	55.00m-56.00m	41.28	0.21	25.03	0.88	0.51	31.42	0.013	0.105
1548	4130	MP/27/57	56.00m-57.00m	40.57	0.21	26.15	0.97	0.55	30.82	0.010	0.112
1549	4131	MP/27/58	57.00m-58.00m	42.44	0.27	22.02	0.92	0.61	33.08	0.010	0.101
1550	4132	MP/27/59	58.00m-59.00m	41.98	0.23	23.52	0.88	0.52	32.20	0.003	0.103
1551	4133	MP/27/60	59.00m-60.00m	42.38	0.23	22.69	0.99	0.56	32.41	0.003	0.119
1552	4134	MP/27/61	60.00m-61.00m	43.04	0.24	21.73	0.94	0.61	32.73	0.003	0.105
1553	4135	MP/27/62	61.00m-62.00m	44.24	0.27	19.27	0.85	0.54	34.16	0.003	0.096
1554	4136	MP/27/63	62.00m-63.00m	43.77	0.27	20.06	0.86	0.49	33.90	0.020	0.092
1555	4137	MP/27/64	63.00m-64.00m	41.69	0.26	22.49	1.17	1.18	32.13	0.503	0.128
1556	4138	MP/27/65	64.00m-65.00m	43.01	0.24	21.30	0.87	0.58	33.24	0.090	0.094
1557	4139	MP/27/66	65.00m-66.00m	39.97	0.24	25.50	1.58	1.04	30.48	0.220	0.163
1558	4140	MP/27/67	66.00m-67.00m	42.04	0.23	22.99	1.15	0.65	32.06	0.008	0.121
1559	4141	MP/27/68	67.00m-68.00m	46.15	0.17	16.47	0.79	0.65	35.12	0.038	0.094
1560	4142	MP/27/69	68.00m-69.00m	47.50	0.27	13.40	0.74	0.42	37.02	0.018	0.096
1561	4143	MP/27/70	69.00m-70.00m	45.19	0.23	18.25	0.75	0.39	34.61	0.028	0.089

S.No	MP-28										
	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1562	4144	MP/28/7	6.00m-7.00m	40.01	0.10	15.34	3.07	7.52	33.19	0.005	0.055
1563	4145	MP/28/8	7.00m-8.00m	39.64	0.19	27.92	1.00	0.60	29.94	0.040	0.103
1564	4146	MP/28/9	8.00m-9.00m	40.90	0.20	26.53	0.86	0.40	30.38	0.033	0.087
1565	4147	MP/28/10	9.00m-10.00m	39.78	0.17	27.40	0.98	0.69	30.23	0.028	0.103
1566	4148	MP/28/11	10.00m-11.00m	40.74	0.23	25.04	1.22	0.66	31.31	0.028	0.112
1567	4149	MP/28/12	11.00m-12.00m	40.71	0.23	24.93	1.12	0.74	31.47	0.045	0.103
1568	4150	MP/28/13	12.00m-13.00m	40.65	0.20	25.20	1.06	0.53	31.59	0.050	0.108
1569	4151	MP/28/14	13.00m-14.00m	42.57	0.25	21.83	1.27	0.68	32.52	0.030	0.131
1570	4152	MP/28/15	14.00m-15.00m	42.47	0.24	22.52	1.10	0.58	32.32	0.025	0.117
1571	4153	MP/28/16	15.00m-16.00m	39.89	0.21	27.19	1.01	0.49	30.51	0.020	0.101
1572	4154	MP/28/17	16.00m-17.00m	41.79	0.28	22.09	1.80	0.97	31.96	0.018	0.234
1573	4155	MP/28/18	17.00m-18.00m	41.50	0.26	23.64	0.97	0.49	32.45	0.043	0.096
1574	4156	MP/28/19	18.00m-19.00m	43.21	0.27	20.48	1.08	0.66	33.47	0.035	0.117
1575	4157	MP/28/20	19.00m-20.00m	41.21	0.25	24.39	0.98	0.50	31.93	0.045	0.099
1576	4158	MP/28/21	20.00m-21.00m	41.15	0.25	24.59	1.14	0.63	31.45	0.023	0.112
1577	4159	MP/28/22	21.00m-22.00m	40.81	0.26	25.25	1.01	0.54	31.40	0.018	0.105
1578	4160	MP/28/23	22.00m-23.00m	44.03	0.28	18.60	1.28	0.72	34.22	0.015	0.137
1579	4161	MP/28/24	23.00m-24.00m	40.66	0.24	25.73	1.02	0.55	31.08	0.005	0.110
1580	4162	MP/28/25	24.00m-25.00m	41.46	0.23	23.90	1.13	0.56	31.92	0.005	0.135
1581	4163	MP/28/26	25.00m-26.00m	40.32	0.23	26.51	0.96	0.49	30.78	0.010	0.099
1582	4164	MP/28/27	26.00m-27.00m	41.96	0.24	23.42	1.12	0.61	31.83	0.005	0.128
1583	4165	MP/28/28	27.00m-28.00m	42.95	0.26	21.44	0.98	0.51	33.20	0.008	0.103
1584	4166	MP/28/29	28.00m-29.00m	42.07	0.23	21.73	1.07	1.11	33.03	0.078	0.101
1585	4167	MP/28/30	29.00m-30.00m	40.84	0.19	24.71	0.93	0.88	31.61	0.320	0.108
1586	4168	MP/28/31	30.00m-31.00m	42.48	0.24	22.43	0.93	0.45	32.80	0.005	0.099
1587	4169	MP/28/32	31.00m-32.00m	41.81	0.22	23.46	0.96	0.55	32.26	0.035	0.094
1588	4170	MP/28/33	32.00m-33.00m	42.20	0.24	22.70	1.01	0.50	32.64	0.005	0.101
1589	4171	MP/28/34	33.00m-34.00m	42.79	0.27	21.70	1.17	0.63	32.59	0.040	0.124
1590	4172	MP/28/35	34.00m-35.00m	43.33	0.25	20.90	0.89	0.45	33.44	0.003	0.099
1591	4173	MP/28/36	35.00m-36.00m	43.08	0.26	20.36	1.43	0.85	33.01	0.033	0.156
1592	4174	MP/28/37	36.00m-37.00m	42.79	0.23	21.84	0.83	0.48	33.17	0.005	0.087
1593	4175	MP/28/38	37.00m-38.00m	38.92	0.21	29.03	0.91	0.42	29.83	0.015	0.087
1594	4176	MP/28/39	38.00m-39.00m	46.39	0.28	15.12	0.85	0.44	36.21	0.020	0.103
1595	4177	MP/28/40	39.00m-40.00m	46.04	0.29	15.67	1.03	0.51	35.72	0.003	0.112
1596	4178	MP/28/41	40.00m-41.00m	45.72	0.25	16.37	0.85	0.44	35.65	0.038	0.108
1597	4179	MP/28/42	41.00m-42.00m	43.34	0.26	21.02	0.83	0.42	33.51	0.005	0.089
1598	4180	MP/28/43	42.00m-43.00m	46.56	0.42	14.37	0.96	0.47	36.47	0.005	0.119
1599	4181	MP/28/44	43.00m-44.00m	47.85	0.35	12.62	0.82	0.41	37.32	0.010	0.096
1600	4182	MP/28/45	44.00m-45.00m	47.48	0.36	13.13	0.98	0.45	36.83	0.008	0.126
1601	4183	MP/28/46	45.00m-46.00m	45.25	0.34	17.79	0.89	0.43	34.61	0.010	0.101
1602	4184	MP/28/47	46.00m-47.00m	47.51	0.36	13.24	0.84	0.43	36.89	0.013	0.103
1603	4185	MP/28/48	47.00m-48.00m	46.80	0.36	14.43	0.83	0.54	36.38	0.010	0.117
1604	4186	MP/28/49	48.00m-49.00m	46.68	0.34	14.84	0.75	0.40	36.34	0.008	0.078
1605	4187	MP/28/50	49.00m-50.00m	48.29	0.42	11.33	1.03	0.60	37.52	0.028	0.115
1606	4188	MP/28/51	50.00m-51.00m	46.04	0.39	15.49	0.91	0.47	35.94	0.015	0.101
1607	4189	MP/28/52	51.00m-52.00m	46.51	0.36	14.65	0.88	0.91	36.00	0.005	0.082
1608	4190	MP/28/53	52.00m-53.00m	47.50	0.51	12.91	1.02	0.52	36.78	0.003	0.131
1609	4191	MP/28/54	53.00m-54.00m	48.92	1.08	9.34	0.81	0.62	38.64	0.003	0.057
1610	4192	MP/28/55	54.00m-55.00m	49.77	0.62	8.39	0.86	0.61	39.09	0.030	0.076
1611	4193	MP/28/56	55.00m-56.00m	49.99	0.58	8.52	0.82	0.54	38.92	0.010	0.060
1612	4194	MP/28/57	56.00m-57.00m	49.09	0.94	8.87	0.81	0.65	39.00	0.010	0.053
1613	4195	MP/28/58	57.00m-58.00m	48.84	0.74	9.30	1.01	0.80	38.56	0.028	0.048
1614	4196	MP/28/59	58.00m-59.00m	49.51	0.38	9.37	0.82	0.66	38.52	0.108	0.053
1615	4197	MP/28/60	59.00m-60.00m	49.16	0.43	9.58	0.91	0.62	38.61	0.013	0.062
1616	4198	MP/28/61	60.00m-61.00m	49.72	0.41	9.63	0.95	0.63	37.93	0.023	0.055
1617	4199	MP/28/62	61.00m-62.00m	50.20	0.35	8.49	0.84	0.57	38.81	0.023	0.046
1618	4200	MP/28/63	62.00m-63.00m	49.23	0.37	9.24	0.92	0.68	38.78	0.013	0.044
1619	4201	MP/28/64	63.00m-64.00m	48.97	0.34	9.75	0.98	0.67	38.46	0.040	0.048

1620	4202	MP/28/65	64.00m-65.00m	48.85	0.31	9.85	1.08	0.77	38.28	0.003	0.048
1621	4203	MP/28/66	65.00m-66.00m	47.84	0.34	11.16	1.21	0.84	37.71	0.083	0.044
1622	4204	MP/28/67	66.00m-67.00m	46.27	0.36	13.12	1.45	1.08	36.70	0.148	0.060
1623	4205	MP/28/68	67.00m-68.00m	41.16	0.34	20.52	2.44	2.31	31.58	0.118	0.089
1624	4206	MP/28/69	68.00m-69.00m	43.22	0.35	17.61	2.17	1.71	33.57	0.063	0.073
1625	4207	MP/28/70	69.00m-70.00m	44.18	0.36	16.43	1.94	1.51	34.31	0.040	0.073
MP-29											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1626	12538	MP/29/11	10.00m-11.00m	27.11	0.21	46.88	1.64	1.22	21.87	0.127	0.058
1627	12539	MP/29/12	11.00m-12.00m	24.33	0.15	31.38	4.10	14.80	23.96	0.200	0.065
1628	12540	MP/29/13	12.00m-13.00m	24.40	0.10	32.96	4.00	13.35	23.94	0.147	0.063
1629	12541	MP/29/14	13.00m-14.00m	37.37	0.19	29.63	1.25	0.51	30.14	0.025	0.080
1630	12542	MP/29/15	14.00m-15.00m	36.37	0.13	31.41	1.38	0.67	28.97	0.025	0.102
1631	12543	MP/29/16	15.00m-16.00m	39.57	0.19	26.28	1.19	0.58	31.24	0.010	0.103
1632	12544	MP/29/17	16.00m-17.00m	38.40	0.22	28.01	1.17	0.70	30.58	0.010	0.088
1633	12545	MP/29/18	17.00m-18.00m	39.81	0.25	25.78	1.03	0.59	31.69	0.010	0.092
1634	12546	MP/29/19	18.00m-19.00m	39.72	0.24	25.93	1.00	0.65	31.54	0.064	0.080
1635	12547	MP/29/20	19.00m-20.00m	39.79	0.24	25.45	1.21	0.79	31.57	0.024	0.093
1636	12548	MP/29/21	20.00m-21.00m	39.59	0.17	25.65	1.34	0.58	31.80	0.031	0.088
1637	12549	MP/29/22	21.00m-22.00m	41.64	0.29	22.59	0.88	0.61	33.21	0.026	0.080
1638	12550	MP/29/23	22.00m-23.00m	40.48	0.22	24.43	1.07	0.78	32.12	0.013	0.082
1639	12551	MP/29/24	23.00m-24.00m	39.34	0.22	26.87	0.97	0.55	31.21	0.010	0.080
1640	12552	MP/29/25	24.00m-25.00m	40.43	0.21	24.98	0.81	0.52	32.27	0.008	0.075
1641	12553	MP/29/26	25.00m-26.00m	40.96	0.23	23.61	0.90	0.47	32.97	0.057	0.073
1642	12554	MP/29/27	26.00m-27.00m	40.95	0.26	23.34	1.15	0.63	32.72	0.026	0.095
1643	12555	MP/29/28	27.00m-28.00m	41.23	0.27	22.87	1.18	0.66	32.81	0.039	0.098
1644	12556	MP/29/29	28.00m-29.00m	42.55	0.25	20.87	1.02	0.58	33.88	0.010	0.072
1645	12557	MP/29/30	29.00m-30.00m	44.48	0.24	17.71	0.69	0.46	35.68	0.005	0.072
1646	12558	MP/29/31	30.00m-31.00m	45.42	0.19	15.52	1.20	0.74	35.94	0.005	0.105
1647	12559	MP/29/32	31.00m-32.00m	46.50	0.24	14.27	0.73	0.47	37.01	0.027	0.072
1648	12560	MP/29/33	32.00m-33.00m	44.99	0.22	16.78	0.73	0.59	35.82	0.083	0.067
1649	12561	MP/29/34	33.00m-34.00m	45.08	0.27	15.20	1.28	0.67	36.34	0.158	0.112
1650	12562	MP/29/35	34.00m-35.00m	44.60	0.21	17.12	0.94	0.58	35.60	0.080	0.090
1651	12563	MP/29/36	35.00m-36.00m	43.02	0.13	19.72	1.00	0.72	34.48	0.069	0.073
1652	12564	MP/29/37	36.00m-37.00m	45.63	0.13	15.20	0.93	0.47	36.69	0.117	0.097
1653	12565	MP/29/38	37.00m-38.00m	45.35	0.28	15.44	1.00	0.51	36.50	0.082	0.093
1654	12566	MP/29/39	38.00m-39.00m	44.68	0.25	16.74	0.96	0.70	35.67	0.098	0.100
1655	12567	MP/29/40	39.00m-40.00m	44.72	0.22	17.16	0.94	0.44	35.51	0.159	0.077
1656	12568	MP/29/41	40.00m-41.00m	44.91	0.34	16.49	1.02	0.55	35.68	0.076	0.087
1657	12569	MP/29/42	41.00m-42.00m	46.52	0.36	13.65	0.87	0.43	37.20	0.077	0.083
1658	12570	MP/29/43	42.00m-43.00m	45.33	0.42	14.95	1.56	0.75	35.58	0.172	0.147
1659	12571	MP/29/44	43.00m-44.00m	47.04	0.51	11.96	1.22	0.82	37.43	0.094	0.055
1660	12572	MP/29/45	44.00m-45.00m	48.29	0.30	9.88	1.18	0.64	38.56	0.107	0.033
1661	12573	MP/29/46	45.00m-46.00m	48.25	0.23	9.12	1.39	0.90	38.97	0.128	0.037
1662	12574	MP/29/47	46.00m-47.00m	47.73	0.30	10.77	1.21	0.77	38.15	0.094	0.033
1663	12575	MP/29/48	47.00m-48.00m	45.77	0.25	12.74	1.48	0.89	37.71	0.083	0.043
1664	12576	MP/29/49	48.00m-49.00m	43.37	0.24	15.78	2.15	1.31	35.73	0.096	0.042
1665	12577	MP/29/50	49.00m-50.00m	42.66	0.33	17.46	2.33	2.19	33.22	0.136	0.065
1666	12578	MP/29/51	50.00m-51.00m	38.12	0.78	22.85	3.33	2.85	29.75	0.258	0.077
1667	12579	MP/29/52	51.00m-52.00m	36.18	0.79	25.20	3.62	3.48	28.23	0.259	0.078
1668	12580	MP/29/53	52.00m-53.00m	32.22	0.94	29.49	4.48	4.56	25.41	0.269	0.083
1669	12581	MP/29/54	53.00m-54.00m	32.56	0.89	28.31	4.57	4.70	26.08	0.243	0.088
1670	12582	MP/29/55	54.00m-55.00m	39.39	0.92	20.11	3.09	2.55	31.76	0.259	0.075
1671	12583	MP/29/56	55.00m-56.00m	36.48	0.94	24.00	3.61	3.72	28.73	0.239	0.083
1672	12584	MP/29/57	56.00m-57.00m	35.08	0.66	25.76	4.07	4.13	27.54	0.211	0.085
1673	12585	MP/29/58	57.00m-58.00m	35.94	0.59	24.38	4.03	4.00	28.30	0.241	0.085
1674	12586	MP/29/59	58.00m-59.00m	34.95	0.63	25.87	4.32	4.32	26.96	0.272	0.087
1675	12587	MP/29/60	59.00m-60.00m	31.04	0.60	29.96	5.33	5.24	24.42	0.235	0.087
1676	12588	MP/29/61	60.00m-61.00m	29.20	0.54	32.28	5.71	5.80	22.81	0.268	0.080
1677	12589	MP/29/62	61.00m-62.00m	28.95	0.64	32.29	5.83	5.74	22.84	0.303	0.083

1678	12590	MP/29/63	62.00m-63.00m	29.22	0.52	32.12	5.74	5.60	23.15	0.274	0.088
1679	12591	MP/29/64	63.00m-64.00m	30.35	0.49	31.33	5.48	5.20	23.79	0.209	0.095
1680	12592	MP/29/65	64.00m-65.00m	32.43	0.50	28.88	4.84	5.00	25.13	0.316	0.088
1681	12593	MP/29/66	65.00m-66.00m	27.91	0.39	34.38	6.16	5.81	21.60	0.217	0.092
1682	12594	MP/29/67	66.00m-67.00m	26.92	0.27	35.88	6.25	6.06	20.94	0.208	0.098
1683	12595	MP/29/68	67.00m-68.00m	26.20	0.19	37.19	6.41	6.09	20.20	0.200	0.088
1684	12596	MP/29/69	68.00m-69.00m	28.41	0.09	34.66	5.57	6.12	21.65	0.186	0.073
1685	12597	MP/29/70	69.00m-70.00m	24.89	0.08	39.84	5.98	6.99	18.90	0.043	0.073
MP-30											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1686	4209	MP/30/8	7.00m-8.00m	35.83	0.37	32.88	1.52	1.02	27.46	0.033	0.121
1687	4210	MP/30/9	8.00m-9.00m	33.74	0.15	35.99	1.80	1.53	25.72	0.033	0.124
1688	4211	MP/30/10	9.00m-10.00m	34.59	0.10	36.74	1.16	0.43	26.18	0.013	0.094
1689	4212	MP/30/11	10.00m-11.00m	37.12	0.12	32.48	0.96	0.47	28.13	0.028	0.089
1690	4213	MP/30/12	11.00m-12.00m	38.35	0.19	30.46	0.99	0.39	28.90	0.043	0.094
1691	4214	MP/30/13	12.00m-13.00m	39.65	0.20	28.06	1.14	0.49	29.65	0.033	0.108
1692	4215	MP/30/14	13.00m-14.00m	36.35	0.30	32.24	1.70	0.99	27.40	0.033	0.156
1693	4216	MP/30/15	14.00m-15.00m	35.85	0.21	33.72	1.37	0.63	27.36	0.040	0.117
1694	4217	MP/30/16	15.00m-16.00m	39.66	0.19	28.11	0.90	0.36	30.09	0.040	0.099
1695	4218	MP/30/17	16.00m-17.00m	39.51	0.22	27.78	1.03	0.48	30.16	0.015	0.112
1696	4219	MP/30/18	17.00m-18.00m	39.20	0.22	28.27	1.17	0.58	29.74	0.015	0.119
1697	4220	MP/30/19	18.00m-19.00m	39.05	0.22	28.57	1.03	0.50	29.86	0.038	0.117
1698	4221	MP/30/20	19.00m-20.00m	43.42	0.26	20.78	0.97	0.56	33.33	0.025	0.103
1699	4222	MP/30/21	20.00m-21.00m	40.56	0.22	25.78	0.86	0.56	31.29	0.118	0.101
1700	4223	MP/30/22	21.00m-22.00m	40.33	0.22	26.88	0.82	0.42	30.65	0.023	0.101
1701	4224	MP/30/23	22.00m-23.00m	38.83	0.20	29.32	0.89	0.42	29.69	0.038	0.101
1702	4225	MP/30/24	23.00m-24.00m	38.32	0.19	30.34	0.87	0.40	29.20	0.003	0.101
1703	4226	MP/30/25	24.00m-25.00m	41.59	0.25	23.76	1.02	0.65	31.97	0.023	0.121
1704	4227	MP/30/26	25.00m-26.00m	39.82	0.26	27.34	0.94	0.49	30.41	0.030	0.110
1705	4228	MP/30/27	26.00m-27.00m	42.14	0.27	22.59	1.19	0.68	32.25	0.025	0.151
1706	4229	MP/30/28	27.00m-28.00m	42.88	0.22	21.93	0.92	0.51	32.81	0.013	0.119
1707	4230	MP/30/29	28.00m-29.00m	43.38	0.27	20.81	0.98	0.60	33.19	0.015	0.121
1708	4231	MP/30/30	29.00m-30.00m	42.58	0.22	22.74	1.06	0.54	32.09	0.008	0.135
1709	4232	MP/30/31	30.00m-31.00m	42.10	0.22	23.62	1.10	0.57	31.54	0.003	0.133
1710	4233	MP/30/32	31.00m-32.00m	46.62	0.29	16.29	0.74	0.35	35.10	0.003	0.076
1711	4234	MP/30/33	32.00m-33.00m	40.94	0.25	25.70	0.98	0.46	30.94	0.018	0.103
1712	4235	MP/30/34	33.00m-34.00m	42.28	0.25	22.76	1.04	0.51	32.36	0.003	0.121
1713	4236	MP/30/35	34.00m-35.00m	43.77	0.22	20.34	0.82	0.45	33.75	0.018	0.096
1714	4237	MP/30/36	35.00m-36.00m	42.63	0.20	23.37	0.83	0.45	31.85	0.005	0.105
1715	4238	MP/30/37	36.00m-37.00m	43.40	0.25	20.68	0.86	0.45	33.65	0.010	0.105
1716	4239	MP/30/38	37.00m-38.00m	41.71	0.20	23.93	0.86	0.47	32.21	0.008	0.105
1717	4240	MP/30/39	38.00m-39.00m	43.01	0.23	21.66	0.92	0.48	33.03	0.003	0.110
1718	4241	MP/30/40	39.00m-40.00m	43.24	0.25	21.36	0.84	0.46	33.22	0.015	0.096
1719	4242	MP/30/41	40.00m-41.00m	43.32	0.24	21.19	0.92	0.50	33.13	0.015	0.103
1720	4243	MP/30/42	41.00m-42.00m	41.95	0.24	23.11	0.93	0.64	32.33	0.178	0.110
1721	4244	MP/30/43	42.00m-43.00m	42.77	0.23	21.80	0.88	0.53	33.11	0.045	0.096
1722	4245	MP/30/44	43.00m-44.00m	40.61	0.17	23.73	0.88	1.91	31.54	0.588	0.096
1723	4246	MP/30/45	44.00m-45.00m	40.58	0.25	25.63	0.95	0.56	31.27	0.135	0.103
1724	4247	MP/30/46	45.00m-46.00m	40.98	0.24	24.82	0.99	0.62	31.57	0.158	0.108
1725	4248	MP/30/47	46.00m-47.00m	42.67	0.23	21.91	0.97	0.51	33.02	0.010	0.101
1726	4249	MP/30/48	47.00m-48.00m	41.50	0.24	24.10	0.92	0.49	32.07	0.023	0.103
1727	4250	MP/30/49	48.00m-49.00m	42.31	0.24	22.82	0.89	0.45	32.60	0.020	0.096
1728	4251	MP/30/50	49.00m-50.00m	42.55	0.31	21.36	1.51	0.77	32.47	0.065	0.192
1729	4252	MP/30/51	50.00m-51.00m	43.74	0.23	20.15	0.85	0.43	33.95	0.008	0.092
1730	4253	MP/30/52	51.00m-52.00m	44.76	0.23	18.62	0.77	0.35	34.65	0.003	0.099
1731	4254	MP/30/53	52.00m-53.00m	45.82	0.26	17.24	0.82	0.43	34.78	0.003	0.103
1732	4255	MP/30/54	53.00m-54.00m	47.20	0.23	15.38	0.66	0.33	35.59	0.008	0.089
1733	4256	MP/30/55	54.00m-55.00m	45.55	0.25	17.32	0.69	0.33	35.30	0.010	0.085
1734	4257	MP/30/56	55.00m-56.00m	45.53	0.24	17.27	0.67	0.45	35.23	0.103	0.089
1735	4258	MP/30/57	56.00m-57.00m	45.54	0.22	17.00	0.70	0.59	35.18	0.283	0.092

1736	4259	MP/30/58	57.00m-58.00m	46.32	0.25	15.66	0.69	0.38	36.11	0.010	0.089
1737	4260	MP/30/59	58.00m-59.00m	47.04	0.28	14.47	0.72	0.36	36.55	0.008	0.089
1738	4261	MP/30/60	59.00m-60.00m	43.93	0.24	19.68	0.93	0.58	33.93	0.020	0.105
1739	4262	MP/30/61	60.00m-61.00m	45.78	0.25	17.39	0.73	0.37	34.89	0.003	0.094
1740	4263	MP/30/62	61.00m-62.00m	45.74	0.25	16.65	0.69	0.33	35.72	0.008	0.101
1741	4264	MP/30/63	62.00m-63.00m	45.57	0.31	16.65	0.85	0.58	35.35	0.025	0.105
1742	4265	MP/30/64	63.00m-64.00m	45.32	0.43	17.55	0.78	0.41	34.89	0.020	0.099
1743	4266	MP/30/65	64.00m-65.00m	46.55	0.32	15.10	0.72	0.47	36.15	0.125	0.092
1744	4267	MP/30/66	65.00m-66.00m	47.50	0.39	13.04	0.89	0.46	37.02	0.003	0.133
1745	4268	MP/30/67	66.00m-67.00m	46.96	0.34	14.34	0.73	0.37	36.61	0.003	0.092
1746	4269	MP/30/68	67.00m-68.00m	47.52	0.32	13.38	0.62	0.37	37.16	0.053	0.071
1747	4270	MP/30/69	68.00m-69.00m	48.90	0.38	10.59	0.65	0.42	38.42	0.020	0.057
1748	4271	MP/30/70	69.00m-70.00m	46.51	1.37	12.30	0.67	0.75	37.79	0.003	0.060
MP-31											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1749	2215	MP/31/4	3.00m-4.00m	44.21	0.73	18.06	0.61	0.41	34.79	0.040	0.089
1750	2216	MP/31/5	4.00m-5.00m	46.87	1.16	12.21	0.46	0.42	37.81	0.040	0.087
1751	2217	MP/31/6	5.00m-6.00m	47.10	1.56	11.03	0.64	0.54	37.97	0.057	0.089
1752	2218	MP/31/7	6.00m-7.00m	44.74	1.92	12.58	0.63	0.65	38.30	0.087	0.076
1753	2219	MP/31/8	7.00m-8.00m	46.08	1.70	11.94	0.80	0.67	37.56	0.040	0.110
1754	2220	MP/31/9	8.00m-9.00m	47.22	1.07	11.39	0.58	0.50	38.10	0.045	0.092
1755	2221	MP/31/10	9.00m-10.00m	46.32	1.01	13.25	0.58	0.46	37.14	0.082	0.094
1756	2222	MP/31/11	10.00m-11.00m	45.59	1.72	13.47	0.59	0.66	36.84	0.027	0.101
1757	2223	MP/31/12	11.00m-12.00m	43.53	2.88	13.95	0.69	0.90	36.84	0.030	0.115
1758	2224	MP/31/13	12.00m-13.00m	46.59	0.72	14.32	0.70	0.44	36.07	0.030	0.105
1759	2225	MP/31/14	13.00m-14.00m	44.55	0.93	15.37	0.91	0.93	35.84	0.220	0.105
1760	2226	MP/31/15	14.00m-15.00m	45.74	0.79	15.10	0.91	0.51	35.62	0.030	0.147
1761	2227	MP/31/16	15.00m-16.00m	46.88	0.40	14.56	0.60	0.38	36.04	0.027	0.110
1762	2228	MP/31/17	16.00m-17.00m	47.12	0.39	13.30	0.70	0.37	37.02	0.045	0.094
1763	2229	MP/31/18	17.00m-18.00m	46.26	0.46	14.84	0.83	0.41	35.94	0.097	0.103
1764	2230	MP/31/19	18.00m-19.00m	44.88	0.51	15.66	1.12	0.58	35.84	0.095	0.112
1765	2231	MP/31/20	19.00m-20.00m	46.08	0.55	14.50	0.89	0.49	36.09	0.087	0.099
1766	2232	MP/31/21	20.00m-21.00m	45.09	0.93	14.03	1.24	0.76	36.51	0.117	0.112
1767	2233	MP/31/22	21.00m-22.00m	46.78	0.62	12.90	0.92	0.46	37.15	0.095	0.085
1768	2234	MP/31/23	22.00m-23.00m	47.24	0.57	12.69	0.83	0.57	36.81	0.087	0.094
1769	2235	MP/31/24	23.00m-24.00m	45.74	0.59	13.83	1.13	0.66	36.76	0.082	0.105
1770	2236	MP/31/25	24.00m-25.00m	45.77	0.62	14.07	0.94	0.66	36.68	0.072	0.087
1771	2237	MP/31/26	25.00m-26.00m	45.88	0.49	14.16	0.94	0.53	36.78	0.080	0.080
1772	2238	MP/31/27	26.00m-27.00m	45.78	0.45	14.35	0.85	0.48	36.86	0.082	0.071
1773	2239	MP/31/28	27.00m-28.00m	43.90	0.37	18.73	0.94	0.63	34.05	0.105	0.087
1774	2240	MP/31/29	28.00m-29.00m	40.42	0.37	23.28	1.95	0.91	31.26	0.040	0.131
1775	2241	MP/31/30	29.00m-30.00m	37.34	0.60	27.67	2.16	1.17	29.14	0.082	0.160
1776	2242	MP/31/31	30.00m-31.00m	41.32	0.47	22.03	1.59	0.77	32.16	0.125	0.110
1777	2243	MP/31/32	31.00m-32.00m	38.78	0.42	26.07	1.84	0.96	30.18	0.082	0.167
1778	2244	MP/31/33	32.00m-33.00m	35.18	0.39	31.65	2.52	1.17	27.00	0.087	0.158
1779	2245	MP/31/34	33.00m-34.00m	33.63	0.50	34.56	2.19	1.37	25.90	0.087	0.142
1780	2246	MP/31/35	34.00m-35.00m	31.17	0.53	37.98	2.91	1.51	23.45	0.092	0.160
1781	2247	MP/31/36	35.00m-36.00m	36.45	0.26	30.30	2.42	1.00	27.51	0.095	0.137
1782	2248	MP/31/37	36.00m-37.00m	41.60	0.29	22.75	1.05	0.48	32.46	0.070	0.050
1783	2249	MP/31/38	37.00m-38.00m	43.96	0.27	18.37	0.90	0.47	34.74	0.087	0.066
1784	2250	MP/31/39	38.00m-39.00m	43.85	0.20	18.36	1.07	0.72	34.33	0.152	0.071
1785	2251	MP/31/40	39.00m-40.00m	43.02	0.25	20.42	0.95	0.50	33.62	0.047	0.071
1786	2252	MP/31/41	40.00m-41.00m	41.25	0.18	23.63	1.04	0.54	32.03	0.057	0.076
1787	2253	MP/31/42	41.00m-42.00m	40.40	0.23	25.29	1.06	0.51	31.20	0.040	0.071
1788	2254	MP/31/43	42.00m-43.00m	35.99	0.46	31.58	1.43	0.96	28.11	0.045	0.089
1789	2255	MP/31/44	43.00m-44.00m	31.66	0.51	38.23	2.14	1.57	24.16	0.045	0.140
1790	2256	MP/31/45	44.00m-45.00m	36.80	0.24	31.15	1.46	0.96	27.89	0.032	0.131
1791	2257	MP/31/46	45.00m-46.00m	37.31	0.19	30.80	1.11	0.57	28.57	0.037	0.115
1792	2258	MP/31/47	46.00m-47.00m	38.29	0.35	28.43	1.41	0.90	29.13	0.027	0.128
1793	2259	MP/31/48	47.00m-48.00m	36.85	0.22	31.93	1.23	0.68	27.65	0.037	0.119

1794	2260	MP/31/49	48.00m-49.00m	37.81	0.21	30.22	0.97	0.49	29.00	0.027	0.105
1795	2261	MP/31/50	49.00m-50.00m	39.33	0.22	26.93	1.22	0.69	30.14	0.025	0.131
1796	2262	MP/31/51	50.00m-51.00m	38.83	0.21	28.35	0.94	0.54	29.79	0.027	0.105
1797	2263	MP/31/52	51.00m-52.00m	41.11	0.15	23.88	1.02	0.66	31.83	0.022	0.128
1798	2264	MP/31/53	52.00m-53.00m	40.58	0.15	25.37	1.00	0.59	30.98	0.010	0.124
1799	2265	MP/31/54	53.00m-54.00m	41.98	0.19	23.10	0.94	0.58	31.92	0.010	0.119
1800	2266	MP/31/55	54.00m-55.00m	41.59	0.28	23.07	0.96	0.60	32.22	0.022	0.121
1801	2267	MP/31/56	55.00m-56.00m	41.40	0.19	23.60	0.83	0.46	32.30	0.015	0.103
1802	2268	MP/31/57	56.00m-57.00m	43.77	0.23	19.52	0.59	0.49	34.25	0.012	0.096
1803	2269	MP/31/58	57.00m-58.00m	43.92	0.29	18.18	1.04	0.63	34.55	0.025	0.121
1804	2270	MP/31/59	58.00m-59.00m	42.65	0.23	21.63	0.80	0.46	33.00	0.012	0.108
1805	2271	MP/31/60	59.00m-60.00m	45.30	0.26	16.65	0.58	0.46	35.62	0.010	0.094
1806	2272	MP/31/61	60.00m-61.00m	41.78	0.24	21.93	0.99	0.45	33.38	0.062	0.099
1807	2273	MP/31/62	61.00m-62.00m	39.48	0.26	27.08	0.92	0.49	30.48	0.062	0.103
1808	2274	MP/31/63	62.00m-63.00m	43.65	0.31	19.59	0.87	0.53	33.73	0.060	0.101
1809	2275	MP/31/64	63.00m-64.00m	45.73	0.29	16.54	0.65	0.39	35.19	0.010	0.099
1810	2276	MP/31/65	64.00m-65.00m	46.24	0.31	14.85	0.74	0.40	36.29	0.037	0.099
1811	2277	MP/31/66	65.00m-66.00m	45.68	0.32	16.20	0.64	0.38	35.56	0.052	0.092
1812	2278	MP/31/67	66.00m-67.00m	46.74	0.32	14.45	0.55	0.49	36.24	0.095	0.092
1813	2279	MP/31/68	67.00m-68.00m	45.43	0.42	16.49	0.64	0.39	35.45	0.010	0.092
1814	2280	MP/31/69	68.00m-69.00m	45.73	0.31	15.44	0.89	0.38	35.97	0.050	0.108
1815	2281	MP/31/70	69.00m-70.00m	46.27	0.31	15.37	0.57	0.37	35.91	0.040	0.085

MP-32

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1816	2282	MP/32/3	2.00m-3.00m	46.66	0.44	14.57	0.50	0.26	36.46	0.045	0.085
1817	2283	MP/32/4	3.00m-4.00m	47.78	0.49	12.63	0.50	0.34	37.10	0.035	0.099
1818	2284	MP/32/5	4.00m-5.00m	46.56	1.42	12.42	0.51	0.46	37.48	0.037	0.108
1819	2285	MP/32/6	5.00m-6.00m	47.49	1.41	10.77	0.66	0.48	37.82	0.172	0.115
1820	2286	MP/32/7	6.00m-7.00m	45.57	2.50	12.45	0.44	0.67	36.81	0.345	0.082
1821	2287	MP/32/8	7.00m-8.00m	46.23	1.68	12.03	0.50	0.54	37.88	0.032	0.082
1822	2288	MP/32/9	8.00m-9.00m	46.39	1.42	11.81	0.82	0.64	37.68	0.022	0.117
1823	2289	MP/32/10	9.00m-10.00m	46.80	1.30	12.21	0.52	0.60	37.37	0.080	0.101
1824	2290	MP/32/11	10.00m-11.00m	44.82	1.63	14.50	0.78	0.60	36.33	0.030	0.128
1825	2291	MP/32/12	11.00m-12.00m	44.72	0.97	16.51	0.77	0.53	35.19	0.015	0.137
1826	2292	MP/32/13	12.00m-13.00m	43.43	1.75	16.07	0.86	0.79	35.79	0.022	0.126
1827	2293	MP/32/14	13.00m-14.00m	46.96	0.55	13.07	0.68	0.40	37.17	0.010	0.099
1828	2294	MP/32/15	14.00m-15.00m	46.53	0.62	13.53	0.66	0.48	36.96	0.032	0.110
1829	2295	MP/32/16	15.00m-16.00m	47.06	0.30	13.16	0.66	0.35	37.35	0.017	0.101
1830	2296	MP/32/17	16.00m-17.00m	47.60	0.37	12.69	0.61	0.47	37.15	0.010	0.112
1831	2297	MP/32/18	17.00m-18.00m	46.29	0.41	15.10	0.72	0.41	35.87	0.005	0.092
1832	2298	MP/32/19	18.00m-19.00m	46.52	0.46	13.55	0.79	0.51	36.94	0.010	0.105
1833	2299	MP/32/20	19.00m-20.00m	45.79	0.69	14.73	0.79	0.55	36.21	0.012	0.105
1834	2300	MP/32/21	20.00m-21.00m	46.69	0.59	13.84	0.72	0.53	36.44	0.010	0.099
1835	2301	MP/32/22	21.00m-22.00m	47.40	0.59	12.27	0.68	0.50	37.39	0.005	0.078
1836	2302	MP/32/23	22.00m-23.00m	46.94	0.55	13.05	0.74	0.57	36.88	0.012	0.094
1837	2303	MP/32/24	23.00m-24.00m	46.96	0.46	13.72	1.05	0.65	35.75	0.000	0.112
1838	2304	MP/32/25	24.00m-25.00m	47.47	0.43	12.87	0.74	0.55	36.73	0.015	0.073
1839	2305	MP/32/26	25.00m-26.00m	46.59	0.44	14.04	0.76	0.52	36.44	0.012	0.080
1840	2306	MP/32/27	26.00m-27.00m	46.87	0.35	13.90	0.78	0.53	36.32	0.012	0.076
1841	2307	MP/32/28	27.00m-28.00m	44.92	0.35	18.01	0.97	0.58	33.86	0.007	0.092
1842	2308	MP/32/29	28.00m-29.00m	35.53	0.56	30.36	2.78	1.48	26.89	0.015	0.192
1843	2309	MP/32/30	29.00m-30.00m	39.83	0.38	24.61	2.01	1.01	30.18	0.012	0.142
1844	2310	MP/32/31	30.00m-31.00m	40.36	0.38	23.93	1.86	1.11	30.21	0.140	0.135
1845	2311	MP/32/32	31.00m-32.00m	39.36	0.36	26.14	1.60	0.87	29.84	0.105	0.158
1846	2312	MP/32/33	32.00m-33.00m	41.28	0.49	22.49	1.46	0.91	31.78	0.065	0.110
1847	2313	MP/32/34	33.00m-34.00m	30.32	0.65	39.57	2.77	1.75	22.83	0.052	0.204
1848	2314	MP/32/35	34.00m-35.00m	38.00	0.36	28.09	1.92	1.01	28.77	0.050	0.158
1849	2315	MP/32/36	35.00m-36.00m	39.03	0.24	26.75	1.74	0.77	29.72	0.055	0.078
1850	2316	MP/32/37	36.00m-37.00m	42.11	0.27	22.41	0.89	0.55	32.34	0.120	0.046
1851	2317	MP/32/38	37.00m-38.00m	44.25	0.30	18.48	0.84	0.44	34.30	0.075	0.078

1852	2318	MP/32/39	38.00m-39.00m	44.53	0.25	17.56	0.98	0.44	34.94	0.057	0.078
1853	2319	MP/32/40	39.00m-40.00m	43.49	0.27	21.18	0.96	0.59	32.25	0.052	0.076
1854	2320	MP/32/41	40.00m-41.00m	40.40	0.27	23.79	1.35	0.65	31.99	0.062	0.092
1855	2321	MP/32/42	41.00m-42.00m	41.00	0.25	24.05	1.44	0.86	30.81	0.080	0.115
1856	2322	MP/32/43	42.00m-43.00m	38.73	0.34	28.29	1.17	0.82	29.23	0.052	0.078
1857	2323	MP/32/44	43.00m-44.00m	36.92	0.51	30.41	1.52	1.22	27.78	0.092	0.094
1858	2324	MP/32/45	44.00m-45.00m	35.13	0.49	33.49	1.53	1.16	26.67	0.050	0.119
1859	2325	MP/32/46	45.00m-46.00m	29.79	0.44	41.21	2.50	1.50	22.46	0.065	0.144
1860	2326	MP/32/47	46.00m-47.00m	37.89	0.20	30.13	1.18	0.57	28.60	0.040	0.115
1861	2327	MP/32/48	47.00m-48.00m	37.28	0.26	30.78	1.22	0.73	28.22	0.072	0.115
1862	2328	MP/32/49	48.00m-49.00m	38.57	0.23	28.66	1.26	0.69	29.09	0.032	0.128
1863	2329	MP/32/50	49.00m-50.00m	35.55	0.20	34.67	0.86	0.44	27.01	0.005	0.112
1864	2330	MP/32/51	50.00m-51.00m	37.18	0.28	29.06	1.34	1.64	28.49	0.377	0.133
1865	2331	MP/32/52	51.00m-52.00m	38.57	0.34	27.42	1.81	1.00	28.96	0.070	0.220
1866	2332	MP/32/53	52.00m-53.00m	40.09	0.25	26.28	0.89	0.54	30.60	0.045	0.110
1867	2333	MP/32/54	53.00m-54.00m	40.60	0.25	24.84	0.99	0.54	31.36	0.052	0.119
1868	2334	MP/32/55	54.00m-55.00m	40.48	0.25	25.66	0.82	0.53	30.90	0.032	0.108
1869	2335	MP/32/56	55.00m-56.00m	41.40	0.28	23.66	0.95	0.57	31.80	0.017	0.128
1870	2336	MP/32/57	56.00m-57.00m	40.42	0.25	25.58	0.93	0.49	31.01	0.027	0.119
1871	2337	MP/32/58	57.00m-58.00m	41.99	0.27	22.17	1.16	0.77	32.03	0.097	0.156
1872	2338	MP/32/59	58.00m-59.00m	45.70	0.30	15.49	0.72	0.54	36.00	0.027	0.112
1873	2339	MP/32/60	59.00m-60.00m	44.09	0.29	19.02	1.01	0.60	33.56	0.040	0.160
1874	2340	MP/32/61	60.00m-61.00m	41.11	0.25	24.88	0.74	0.41	31.32	0.032	0.108
1875	2341	MP/32/62	61.00m-62.00m	40.95	0.27	24.70	0.65	0.64	31.54	0.052	0.094
1876	2342	MP/32/63	62.00m-63.00m	43.99	0.31	19.41	0.53	0.47	34.16	0.025	0.087
1877	2343	MP/32/64	63.00m-64.00m	42.87	0.30	21.29	0.82	0.46	32.95	0.040	0.099
1878	2344	MP/32/65	64.00m-65.00m	44.23	0.28	18.77	0.78	0.41	34.25	0.030	0.096
1879	2345	MP/32/66	65.00m-66.00m	45.84	0.30	15.89	0.69	0.35	35.75	0.027	0.099
1880	2346	MP/32/67	66.00m-67.00m	45.87	0.28	16.02	0.66	0.35	35.67	0.027	0.094
1881	2347	MP/32/68	67.00m-68.00m	47.14	0.42	13.40	0.56	0.39	36.93	0.032	0.096
1882	2348	MP/32/69	68.00m-69.00m	46.91	0.29	13.82	0.74	0.43	36.51	0.032	0.099
1883	2349	MP/32/70	69.00m-70.00m	45.50	0.38	16.54	0.58	0.45	35.27	0.065	0.087
MP-33											
S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1884	4272	MP/33/5	4.00m-5.00m	46.34	0.18	12.91	1.16	2.69	36.08	0.033	0.078
1885	4273	MP/33/6	5.00m-6.00m	45.67	0.08	14.71	1.16	2.21	35.42	0.038	0.080
1886	4274	MP/33/7	6.00m-7.00m	45.56	0.29	16.97	0.68	0.43	35.49	0.018	0.089
1887	4275	MP/33/8	7.00m-8.00m	47.17	0.29	14.57	0.80	0.53	36.01	0.020	0.087
1888	4276	MP/33/9	8.00m-9.00m	47.63	0.38	14.09	0.82	0.51	35.95	0.043	0.092
1889	4277	MP/33/10	9.00m-10.00m	47.41	0.41	13.05	0.86	0.47	37.18	0.035	0.092
1890	4278	MP/33/11	10.00m-11.00m	48.45	0.34	12.76	0.73	0.45	36.69	0.018	0.099
1891	4279	MP/33/12	11.00m-12.00m	47.23	0.28	13.97	0.93	0.55	36.34	0.018	0.094
1892	4280	MP/33/13	12.00m-13.00m	47.51	0.30	13.31	1.05	0.69	36.38	0.050	0.082
1893	4281	MP/33/14	13.00m-14.00m	47.12	0.38	13.95	0.70	0.49	36.81	0.010	0.076
1894	4282	MP/33/15	14.00m-15.00m	38.17	0.09	28.17	2.25	1.24	28.61	0.038	0.174
1895	4283	MP/33/16	15.00m-16.00m	38.94	0.27	28.19	1.42	1.01	29.24	0.040	0.101
1896	4284	MP/33/17	16.00m-17.00m	43.17	0.20	21.26	1.22	0.77	32.51	0.038	0.082
1897	4285	MP/33/18	17.00m-18.00m	41.18	0.19	24.62	1.32	0.89	30.94	0.033	0.089
1898	4286	MP/33/19	18.00m-19.00m	38.35	0.21	28.99	1.55	1.23	28.76	0.030	0.112
1899	4287	MP/33/20	19.00m-20.00m	37.67	0.08	29.95	1.61	1.00	28.64	0.013	0.099
1900	4288	MP/33/21	20.00m-21.00m	42.13	0.14	23.95	0.91	0.46	31.70	0.010	0.062
1901	4289	MP/33/22	21.00m-22.00m	43.35	0.12	21.58	0.94	0.51	32.73	0.010	0.080
1902	4290	MP/33/23	22.00m-23.00m	43.27	0.16	21.39	1.02	0.66	32.79	0.018	0.078
1903	4291	MP/33/24	23.00m-24.00m	43.81	0.16	20.02	1.09	0.55	33.59	0.050	0.082
1904	4292	MP/33/25	24.00m-25.00m	41.31	0.17	25.55	0.95	0.57	30.80	0.013	0.080
1905	4293	MP/33/26	25.00m-26.00m	40.25	0.13	26.51	1.27	0.89	30.12	0.018	0.103
1906	4294	MP/33/27	26.00m-27.00m	40.40	0.10	26.87	1.06	0.50	30.26	0.003	0.078
1907	4295	MP/33/28	27.00m-28.00m	40.19	0.10	26.99	1.01	0.56	30.43	0.003	0.076
1908	4296	MP/33/29	28.00m-29.00m	36.14	0.21	32.15	1.85	1.26	27.33	0.010	0.108
1909	4297	MP/33/30	29.00m-30.00m	37.70	0.24	30.82	1.30	0.90	28.29	0.038	0.080

1910	4298	MP/33/31	30.00m-31.00m	30.36	0.55	40.96	2.35	1.78	22.67	0.003	0.149
1911	4299	MP/33/32	31.00m-32.00m	35.38	0.34	34.24	1.41	1.09	26.71	0.005	0.117
1912	4300	MP/33/33	32.00m-33.00m	33.93	0.11	36.73	1.82	1.21	25.14	0.023	0.140
1913	4301	MP/33/34	33.00m-34.00m	37.13	0.11	32.52	1.11	0.52	27.79	0.005	0.101
1914	4302	MP/33/35	34.00m-35.00m	36.08	0.29	32.51	1.65	1.15	27.38	0.005	0.147
1915	4303	MP/33/36	35.00m-36.00m	38.30	0.18	29.89	1.21	0.73	28.91	0.003	0.117
1916	4304	MP/33/37	36.00m-37.00m	39.53	0.12	28.21	1.11	0.62	29.67	0.003	0.117
1917	4305	MP/33/38	37.00m-38.00m	39.32	0.12	28.38	1.07	0.54	29.86	0.008	0.121
1918	4306	MP/33/39	38.00m-39.00m	39.04	0.10	29.44	0.99	0.53	29.20	0.013	0.099
1919	4307	MP/33/40	39.00m-40.00m	41.17	0.04	25.56	1.03	0.57	30.90	0.013	0.128
1920	4308	MP/33/41	40.00m-41.00m	39.13	0.14	28.38	1.09	0.60	29.92	0.020	0.115
1921	4309	MP/33/42	41.00m-42.00m	41.19	0.11	25.40	1.02	0.62	30.94	0.015	0.115
1922	4310	MP/33/43	42.00m-43.00m	39.54	0.13	27.97	0.99	0.54	30.13	0.013	0.112
1923	4311	MP/33/44	43.00m-44.00m	41.47	0.07	25.27	0.96	0.54	31.02	0.010	0.115
1924	4312	MP/33/45	44.00m-45.00m	42.96	0.13	22.48	0.92	0.58	32.27	0.005	0.103
1925	4313	MP/33/46	45.00m-46.00m	41.47	0.10	24.51	1.32	0.69	31.17	0.010	0.163
1926	4314	MP/33/47	46.00m-47.00m	41.73	0.18	23.70	0.95	0.47	32.31	0.033	0.092
1927	4315	MP/33/48	47.00m-48.00m	42.47	0.18	22.93	0.89	0.48	32.39	0.005	0.103
1928	4316	MP/33/49	48.00m-49.00m	42.02	0.05	23.91	1.03	0.58	31.65	0.018	0.112
1929	4317	MP/33/50	49.00m-50.00m	41.92	0.14	24.08	0.82	0.47	31.96	0.008	0.099
1930	4318	MP/33/51	50.00m-51.00m	39.60	0.13	27.53	0.96	0.69	30.28	0.183	0.103
1931	4319	MP/33/52	51.00m-52.00m	44.45	0.15	19.96	0.82	0.39	33.61	0.013	0.094
1932	4320	MP/33/53	52.00m-53.00m	45.87	0.03	17.38	0.76	0.57	34.79	0.020	0.089
1933	4321	MP/33/54	53.00m-54.00m	45.34	0.06	18.55	0.70	0.38	34.44	0.023	0.096
1934	4322	MP/33/55	54.00m-55.00m	46.12	0.20	16.91	0.70	0.36	35.16	0.015	0.087
1935	4323	MP/33/56	55.00m-56.00m	46.21	0.19	16.11	0.79	0.48	35.55	0.010	0.099
1936	4324	MP/33/57	56.00m-57.00m	47.08	0.15	14.33	0.80	0.44	36.60	0.015	0.099
1937	4325	MP/33/58	57.00m-62.00m	45.74	0.08	16.60	1.11	1.01	34.70	0.030	0.126
1938	4326	MP/33/63	62.00m-63.00m	43.24	0.10	22.29	0.79	0.43	32.53	0.035	0.096
1939	4327	MP/33/64	63.00m-64.00m	44.54	0.16	19.61	0.76	0.41	33.93	0.025	0.092
1940	4328	MP/33/65	64.00m-65.00m	44.87	0.16	19.12	0.68	0.38	34.21	0.008	0.089
1941	4329	MP/33/66	65.00m-66.00m	46.18	0.25	16.24	0.75	0.35	35.64	0.008	0.092
1942	4330	MP/33/67	66.00m-67.00m	45.91	0.23	16.74	0.81	0.40	35.31	0.005	0.103
1943	4331	MP/33/68	67.00m-68.00m	45.09	0.17	18.80	0.75	0.42	34.21	0.025	0.094
1944	4332	MP/33/69	68.00m-69.00m	45.32	0.05	18.49	0.73	0.42	34.43	0.028	0.085

MP-34

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1945	2350	MP/34/10	9.00m-10.00m	35.94	0.02	33.14	1.22	1.08	27.24	0.012	0.121
1946	2351	MP/34/11	10.00m-11.00m	36.83	0.09	31.47	1.28	1.18	27.74	0.012	0.112
1947	2352	MP/34/12	11.00m-12.00m	35.61	0.08	32.61	1.65	1.49	27.14	0.010	0.108
1948	2353	MP/34/13	12.00m-13.00m	36.31	0.04	32.86	1.22	0.61	27.43	0.007	0.110
1949	2354	MP/34/14	13.00m-14.00m	38.72	0.07	29.17	1.08	0.62	28.96	0.005	0.110
1950	2355	MP/34/15	14.00m-15.00m	29.82	0.10	37.10	3.15	4.25	23.48	0.010	0.165
1951	2356	MP/34/16	15.00m-16.00m	40.24	0.04	26.19	1.04	0.71	30.48	0.007	0.101
1952	2357	MP/34/17	16.00m-17.00m	40.52	0.03	25.82	1.12	0.82	30.24	0.007	0.131
1953	2358	MP/34/18	17.00m-18.00m	40.32	0.06	25.79	1.19	0.77	30.44	0.012	0.128
1954	2359	MP/34/19	18.00m-19.00m	41.54	0.04	25.02	0.86	0.63	30.71	0.010	0.115
1955	2360	MP/34/20	19.00m-20.00m	40.33	0.01	26.71	1.05	0.64	29.94	0.012	0.117
1956	2361	MP/34/21	20.00m-21.00m	23.81	0.05	41.95	4.59	6.00	21.82	0.017	0.073
1957	2362	MP/34/22	21.00m-22.00m	41.90	0.03	24.01	0.73	0.56	31.55	0.007	0.094
1958	2363	MP/34/23	22.00m-23.00m	41.31	0.13	24.31	0.82	0.61	31.56	0.010	0.108
1959	2364	MP/34/24	23.00m-24.00m	43.19	0.16	21.41	0.92	0.57	32.45	0.007	0.121
1960	2365	MP/34/25	24.00m-25.00m	42.49	0.22	21.87	0.79	0.52	32.89	0.007	0.105
1961	2366	MP/34/26	25.00m-26.00m	41.83	0.23	23.00	0.93	0.60	32.13	0.002	0.110
1962	2367	MP/34/27	26.00m-27.00m	43.61	0.26	19.78	0.86	0.54	33.68	0.015	0.110
1963	2368	MP/34/28	27.00m-28.00m	40.87	0.23	24.95	0.84	0.44	31.40	0.010	0.108
1964	2369	MP/34/29	28.00m-29.00m	41.61	0.22	21.60	0.74	1.58	32.33	0.477	0.094
1965	2370	MP/34/30	29.00m-30.00m	44.10	0.24	19.12	0.67	0.69	33.80	0.117	0.099
1966	2371	MP/34/31	30.00m-31.00m	41.05	0.25	24.27	0.93	0.56	31.61	0.027	0.115
1967	2372	MP/34/32	31.00m-32.00m	44.01	0.27	18.98	0.88	0.53	34.04	0.012	0.110

1968	2373	MP/34/33	32.00m-33.00m	46.25	0.32	14.79	0.80	0.45	36.13	0.010	0.115
1969	2374	MP/34/34	33.00m-34.00m	46.42	0.34	14.53	0.68	0.45	36.37	0.010	0.099
1970	2375	MP/34/35	34.00m-35.00m	46.06	0.27	15.47	0.67	0.44	35.91	0.010	0.105
1971	2376	MP/34/36	35.00m-36.00m	47.43	0.28	12.83	0.64	0.44	37.27	0.015	0.089
1972	2377	MP/34/37	36.00m-37.00m	45.96	0.28	15.56	0.69	0.35	36.05	0.012	0.085
1973	2378	MP/34/38	37.00m-38.00m	47.44	0.24	13.45	0.67	0.48	36.54	0.000	0.112
1974	2379	MP/34/39	38.00m-39.00m	46.16	0.30	15.41	0.62	0.45	35.83	0.040	0.099
1975	2380	MP/34/40	39.00m-40.00m	45.09	0.34	17.03	0.75	0.62	34.79	0.102	0.108
1976	2381	MP/34/41	40.00m-41.00m	47.08	0.42	13.17	0.91	0.51	36.55	0.022	0.128
1977	2382	MP/34/42	41.00m-42.00m	47.39	0.41	12.74	0.74	0.45	37.03	0.007	0.115
1978	2383	MP/34/43	42.00m-43.00m	48.24	0.32	11.42	0.54	0.38	37.96	0.012	0.089
1979	2384	MP/34/44	43.00m-44.00m	47.49	0.29	13.12	0.51	0.32	37.13	0.007	0.092
1980	2385	MP/34/45	44.00m-45.00m	47.76	1.06	10.16	0.63	0.63	38.50	0.032	0.057
1981	2386	MP/34/46	45.00m-46.00m	48.22	1.52	8.55	0.47	0.63	39.49	0.027	0.044
1982	2387	MP/34/47	46.00m-47.00m	46.59	1.59	9.68	0.70	0.65	39.50	0.122	0.050
1983	2388	MP/34/48	47.00m-48.00m	47.59	1.60	8.63	0.64	0.75	39.50	0.067	0.048
1984	2389	MP/34/49	48.00m-49.00m	48.15	1.63	7.20	0.79	0.68	40.21	0.085	0.057
1985	2390	MP/34/50	49.00m-50.00m	48.48	1.55	7.42	0.54	0.70	40.15	0.060	0.048
1986	2391	MP/34/51	50.00m-51.00m	48.21	1.04	8.89	0.68	0.62	39.32	0.072	0.048
1987	2392	MP/34/52	51.00m-52.00m	48.65	0.89	7.79	0.73	0.63	40.04	0.095	0.048
1988	2393	MP/34/53	52.00m-53.00m	48.55	0.40	8.87	0.97	0.76	38.95	0.110	0.044
1989	2394	MP/34/54	53.00m-54.00m	47.80	0.40	9.99	1.24	0.69	38.35	0.082	0.048
1990	2395	MP/34/55	54.00m-55.00m	47.81	0.44	9.93	1.19	0.75	38.41	0.065	0.048
1991	2396	MP/34/56	55.00m-56.00m	47.73	0.35	10.45	1.08	0.80	38.03	0.087	0.053
1992	2397	MP/34/57	56.00m-57.00m	45.66	0.45	13.42	1.64	1.22	35.84	0.082	0.048
1993	2398	MP/34/58	57.00m-58.00m	44.04	0.33	15.33	2.31	1.43	34.37	0.102	0.064
1994	2399	MP/34/59	58.00m-59.00m	41.84	0.47	17.64	2.73	1.89	33.17	0.120	0.085
1995	2400	MP/34/60	59.00m-60.00m	43.32	0.42	16.50	2.15	1.92	33.69	0.087	0.071
1996	2401	MP/34/61	60.00m-61.00m	39.40	0.39	21.49	2.97	2.81	30.42	0.150	0.087
1997	2402	MP/34/62	61.00m-62.00m	37.09	0.24	24.58	3.46	3.37	28.38	0.112	0.092
1998	2403	MP/34/63	62.00m-63.00m	41.58	0.28	18.52	2.56	2.60	32.07	0.102	0.076
1999	2404	MP/34/64	63.00m-64.00m	38.65	0.22	22.08	3.26	3.38	29.66	0.095	0.087
2000	2405	MP/34/65	64.00m-65.00m	33.38	0.20	28.67	4.31	4.63	25.54	0.095	0.089

MP-35

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
2001	4365	MP/35/7	6.00m-7.00m	19.06	0.07	63.21	1.41	1.13	14.31	0.025	0.089
2002	4366	MP/35/8	7.00m-8.00m	9.02	0.07	81.34	0.85	1.18	7.11	0.033	0.057
2003	4367	MP/35/9	8.00m-9.00m	13.65	0.11	74.76	0.84	1.21	8.93	0.033	0.121
2004	4368	MP/35/10	9.00m-10.00m	39.51	0.32	26.42	1.42	1.43	30.07	0.033	0.105
2005	4369	MP/35/11	10.00m-11.00m	35.81	0.05	32.16	2.14	1.72	27.20	0.033	0.119
2006	4370	MP/35/12	11.00m-12.00m	43.09	0.20	21.87	0.93	0.59	32.65	0.038	0.096
2007	4371	MP/35/13	12.00m-13.00m	43.29	0.12	22.27	0.81	0.60	32.27	0.030	0.092
2008	4372	MP/35/14	13.00m-14.00m	42.62	0.12	22.69	1.11	0.60	32.08	0.005	0.094
2009	4373	MP/35/15	14.00m-15.00m	42.02	0.04	23.77	1.12	0.63	31.65	0.010	0.082
2010	4374	MP/35/16	15.00m-16.00m	42.97	0.13	21.44	1.15	0.96	32.54	0.008	0.108
2011	4375	MP/35/17	16.00m-17.00m	41.98	0.22	23.81	0.92	0.70	31.69	0.008	0.080
2012	4376	MP/35/18	17.00m-18.00m	38.21	0.36	29.63	1.40	0.98	28.58	0.015	0.099
2013	4377	MP/35/19	18.00m-19.00m	37.86	0.41	29.06	1.82	1.34	28.45	0.003	0.110
2014	4378	MP/35/20	19.00m-20.00m	39.44	0.28	27.76	1.19	0.92	29.59	0.008	0.078
2015	4379	MP/35/21	20.00m-21.00m	41.11	0.19	25.00	1.18	0.75	30.97	0.010	0.089
2016	4380	MP/35/22	21.00m-22.00m	33.11	0.37	37.25	1.86	1.40	24.96	0.023	0.151
2017	4381	MP/35/23	22.00m-23.00m	35.69	0.30	34.08	1.28	0.96	26.94	0.038	0.101
2018	4382	MP/35/24	23.00m-24.00m	28.51	0.56	42.02	2.32	3.43	21.96	0.003	0.144
2019	4383	MP/35/25	24.00m-25.00m	36.84	0.26	32.38	1.12	0.81	27.84	0.010	0.099
2020	4384	MP/35/26	25.00m-26.00m	33.60	0.48	36.10	2.01	1.56	25.16	0.013	0.140
2021	4385	MP/35/27	26.00m-27.00m	35.71	0.12	35.82	0.82	0.40	26.50	0.005	0.078
2022	4386	MP/35/28	27.00m-28.00m	38.99	0.11	29.97	0.94	0.45	28.82	0.010	0.103
2023	4387	MP/35/29	28.00m-29.00m	39.44	0.17	28.49	1.12	0.70	29.36	0.028	0.096
2024	4388	MP/35/30	29.00m-30.00m	39.05	0.37	27.93	1.38	1.09	29.34	0.030	0.133
2025	4389	MP/35/31	30.00m-31.00m	39.60	0.12	28.35	1.15	0.56	29.40	0.028	0.115

2026	4390	MP/35/32	31.00m-32.00m	39.02	0.16	28.74	1.01	0.49	29.83	0.003	0.115
2027	4391	MP/35/33	32.00m-33.00m	39.92	0.21	26.66	1.26	0.74	30.34	0.015	0.133
2028	4392	MP/35/34	33.00m-34.00m	41.33	0.25	24.84	1.04	0.59	31.19	0.023	0.121
2029	4393	MP/35/35	34.00m-35.00m	40.10	0.22	27.36	1.03	0.55	30.02	0.023	0.115
2030	4394	MP/35/36	35.00m-36.00m	41.08	0.23	25.58	0.91	0.53	31.00	0.025	0.105
2031	4395	MP/35/37	36.00m-37.00m	40.14	0.24	26.45	1.03	0.74	30.69	0.015	0.115
2032	4396	MP/35/38	37.00m-38.00m	41.66	0.22	24.53	0.86	0.50	31.57	0.020	0.105
2033	4397	MP/35/39	38.00m-39.00m	43.99	0.26	20.20	1.09	0.71	33.00	0.030	0.119
2034	4398	MP/35/40	39.00m-40.00m	41.56	0.21	24.45	0.92	0.50	31.68	0.008	0.108
2035	4399	MP/35/41	40.00m-41.00m	41.55	0.22	23.94	0.97	0.52	32.07	0.013	0.112
2036	4400	MP/35/42	41.00m-42.00m	42.44	0.22	22.48	0.96	0.51	32.70	0.025	0.105
2037	4401	MP/35/43	42.00m-43.00m	42.98	0.20	21.80	0.90	0.55	32.89	0.013	0.105
2038	4402	MP/35/44	43.00m-44.00m	42.40	0.22	23.10	0.87	0.46	32.26	0.005	0.117
2039	4403	MP/35/45	44.00m-45.00m	40.75	0.19	25.84	0.79	0.44	31.38	0.015	0.094
2040	4404	MP/35/46	45.00m-46.00m	43.78	0.25	20.03	0.90	0.47	33.88	0.023	0.103
2041	4405	MP/35/47	46.00m-47.00m	42.97	0.19	22.03	0.72	0.42	33.03	0.035	0.085
2042	4406	MP/35/48	47.00m-48.00m	45.18	0.24	17.76	0.82	0.45	34.87	0.005	0.099
2043	4407	MP/35/49	48.00m-49.00m	47.11	0.24	14.34	0.68	0.35	36.70	0.023	0.087
2044	4408	MP/35/50	49.00m-50.00m	45.87	0.23	16.42	0.68	0.49	35.67	0.083	0.092
2045	4409	MP/35/51	50.00m-51.00m	47.47	0.26	13.41	0.85	0.43	36.96	0.003	0.110
2046	4410	MP/35/52	51.00m-52.00m	47.50	0.25	13.63	0.69	0.37	36.98	0.013	0.087
2047	4411	MP/35/53	52.00m-53.00m	43.84	0.18	20.94	0.77	0.39	33.27	0.033	0.096
2048	4412	MP/35/54	53.00m-54.00m	48.21	0.17	13.17	0.65	0.45	36.77	0.028	0.087
2049	4413	MP/35/55	54.00m-55.00m	46.20	0.18	16.97	0.73	0.55	34.77	0.033	0.085
2050	4414	MP/35/56	55.00m-56.00m	46.47	0.25	16.04	0.75	0.38	35.51	0.020	0.092
2051	4415	MP/35/57	56.00m-57.00m	44.34	0.19	20.26	0.78	0.43	33.42	0.025	0.089
2052	4416	MP/35/58	57.00m-58.00m	47.22	0.15	14.24	0.69	0.38	36.75	0.030	0.087
2053	4417	MP/35/59	58.00m-59.00m	46.55	0.17	16.40	0.68	0.36	35.25	0.028	0.096
2054	4418	MP/35/60	59.00m-60.00m	46.27	0.15	16.73	0.78	0.39	35.04	0.028	0.094
2055	4419	MP/35/61	60.00m-61.00m	48.36	0.27	12.78	0.72	0.43	36.88	0.033	0.080
2056	4420	MP/35/62	61.00m-62.00m	48.32	1.53	8.52	0.62	0.76	39.66	0.030	0.050
2057	4421	MP/35/63	62.00m-63.00m	49.37	0.56	10.33	0.64	0.68	37.87	0.020	0.046
2058	4422	MP/35/64	63.00m-64.00m	50.11	0.74	7.87	0.80	0.74	39.06	0.028	0.064
2059	4423	MP/35/65	64.00m-65.00m	50.12	1.06	6.81	0.68	0.62	40.10	0.018	0.053
2060	4424	MP/35/66	65.00m-66.00m	49.09	1.18	8.10	0.63	0.67	39.71	0.020	0.053
2061	4425	MP/35/67	66.00m-67.00m	48.91	0.79	10.04	0.70	0.81	38.14	0.030	0.055
2062	4426	MP/35/68	67.00m-68.00m	49.82	0.48	9.03	0.68	0.71	38.70	0.023	0.048
2063	4427	MP/35/69	68.00m-69.00m	48.13	0.31	11.90	0.88	0.73	37.45	0.020	0.053
2064	4428	MP/35/70	69.00m-70.00m	50.63	0.20	8.57	0.61	0.46	39.01	0.028	0.055

MP-36

S.No	Sample Code	Sample No	DEPTH	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
2065	4429	MP/36/4	3.00m-4.00m	34.03	0.05	27.30	3.01	7.27	27.09	0.013	0.144
2066	4430	MP/36/5	4.00m-5.00m	38.25	0.34	28.26	1.56	1.11	29.58	0.035	0.094
2067	4431	MP/36/6	5.00m-6.00m	38.77	0.35	27.57	1.35	1.16	30.06	0.035	0.103
2068	4432	MP/36/9	8.00m-9.00m	40.45	0.29	24.84	1.21	0.97	31.51	0.028	0.078
2069	4433	MP/36/10	9.00m-10.00m	39.98	0.56	24.53	1.47	1.52	31.19	0.025	0.089
2070	4434	MP/36/11	10.00m-11.00m	34.75	0.45	33.05	1.99	1.67	27.09	0.030	0.112
2071	4435	MP/36/12	11.00m-12.00m	27.63	0.39	44.44	2.78	1.79	21.51	0.035	0.209
2072	4436	MP/36/13	12.00m-13.00m	44.26	0.20	19.61	0.71	0.32	34.29	0.028	0.062
2073	4437	MP/36/14	13.00m-14.00m	43.93	0.24	19.79	0.92	0.45	33.94	0.030	0.071
2074	4438	MP/36/15	14.00m-15.00m	44.44	0.23	19.05	0.82	0.45	34.37	0.030	0.073
2075	4439	MP/36/16	15.00m-16.00m	41.96	0.18	23.35	0.86	0.46	32.53	0.028	0.080
2076	4440	MP/36/17	16.00m-17.00m	40.48	0.21	25.26	1.37	0.77	31.04	0.033	0.117
2077	4441	MP/36/18	17.00m-18.00m	41.22	0.18	24.99	0.98	0.49	31.48	0.035	0.078
2078	4442	MP/36/19	18.00m-19.00m	39.24	0.32	27.41	1.20	0.89	30.24	0.035	0.073
2079	4443	MP/36/20	19.00m-20.00m	32.79	0.38	37.37	1.74	1.34	25.40	0.035	0.124
2080	4444	MP/36/21	20.00m-21.00m	37.97	0.15	30.46	1.10	0.59	28.97	0.030	0.096
2081	4445	MP/36/22	21.00m-22.00m	37.04	0.16	32.36	0.95	0.45	28.32	0.023	0.094
2082	4446	MP/36/23	22.00m-23.00m	39.51	0.16	27.46	1.07	0.52	30.49	0.033	0.117
2083	4447	MP/36/24	23.00m-24.00m	38.88	0.15	28.49	1.20	0.54	29.95	0.023	0.103

2084	4448	MP/36/25	24.00m-25.00m	37.92	0.20	30.18	1.23	0.58	29.05	0.025	0.110
2085	4449	MP/36/26	25.00m-26.00m	39.08	0.19	28.26	0.90	0.41	30.44	0.013	0.105
2086	4450	MP/36/27	26.00m-27.00m	39.70	0.15	27.25	0.98	0.49	30.75	0.030	0.117
2087	4451	MP/36/28	27.00m-28.00m	40.47	0.13	25.22	1.29	0.67	31.32	0.030	0.156
2088	4452	MP/36/29	28.00m-29.00m	40.73	0.18	24.94	1.15	0.60	31.60	0.030	0.151
2089	4453	MP/36/30	29.00m-30.00m	40.76	0.16	25.55	0.95	0.49	31.38	0.028	0.108
2090	4454	MP/36/31	30.00m-31.00m	37.85	0.18	30.35	0.97	0.53	29.38	0.020	0.115
2091	4455	MP/36/32	31.00m-32.00m	40.67	0.21	25.31	1.10	0.57	31.38	0.023	0.110
2092	4456	MP/36/33	32.00m-33.00m	40.23	0.20	25.68	1.01	0.73	31.42	0.010	0.115
2093	4457	MP/36/34	33.00m-34.00m	41.68	0.20	23.33	0.99	0.57	32.51	0.010	0.115
2094	4458	MP/36/35	34.00m-35.00m	41.54	0.24	24.02	0.91	0.59	32.02	0.010	0.112
2095	4459	MP/36/36	35.00m-36.00m	41.92	0.23	23.21	1.01	0.61	32.22	0.050	0.119
2096	4460	MP/36/37	36.00m-37.00m	41.55	0.26	23.19	1.21	0.63	32.34	0.043	0.144
2097	4461	MP/36/38	37.00m-38.00m	44.38	0.32	18.92	0.91	0.50	34.32	0.018	0.099
2098	4462	MP/36/39	38.00m-39.00m	41.76	0.20	23.45	0.94	0.49	32.46	0.003	0.117
2099	4463	MP/36/40	39.00m-40.00m	41.16	0.25	24.74	0.94	0.52	31.75	0.010	0.092
2100	4464	MP/36/41	40.00m-41.00m	42.45	0.37	19.98	2.01	0.98	32.86	0.090	0.188
2101	4465	MP/36/42	41.00m-42.00m	41.93	0.25	23.52	0.83	0.41	32.41	0.003	0.094
2102	4466	MP/36/43	42.00m-43.00m	45.73	0.27	17.00	0.77	0.35	35.30	0.010	0.089
2103	4467	MP/36/44	43.00m-44.00m	45.57	0.28	16.81	0.81	0.40	35.47	0.023	0.096
2104	4468	MP/36/45	44.00m-45.00m	46.24	0.28	15.69	0.80	0.43	35.91	0.020	0.089
2105	4469	MP/36/46	45.00m-46.00m	45.09	0.23	17.54	0.82	0.42	35.31	0.010	0.101
2106	4470	MP/36/47	46.00m-47.00m	45.01	0.23	17.95	0.77	0.40	35.03	0.008	0.089
2107	4471	MP/36/48	47.00m-48.00m	45.87	0.29	15.01	0.78	1.17	36.22	0.015	0.103
2108	4472	MP/36/49	48.00m-49.00m	45.07	0.27	18.10	0.75	0.39	34.80	0.023	0.105
2109	4473	MP/36/50	49.00m-50.00m	46.80	0.33	14.45	0.82	0.41	36.57	0.008	0.101
2110	4474	MP/36/51	50.00m-51.00m	44.92	0.30	18.04	0.83	0.39	34.90	0.010	0.101
2111	4475	MP/36/52	51.00m-52.00m	46.20	0.26	15.74	0.70	0.35	36.13	0.003	0.096
2112	4476	MP/36/53	52.00m-53.00m	46.61	0.26	14.99	0.71	0.36	36.45	0.010	0.087
2113	4477	MP/36/54	53.00m-54.00m	45.63	0.31	16.66	0.95	0.47	35.28	0.018	0.115
2114	4478	MP/36/55	54.00m-55.00m	46.17	0.26	16.13	0.75	0.39	35.66	0.015	0.092
2115	4479	MP/36/56	55.00m-56.00m	46.42	0.25	15.43	0.71	0.37	36.22	0.013	0.078
2116	4480	MP/36/57	56.00m-57.00m	47.26	0.27	13.97	0.73	0.41	36.71	0.025	0.101
2117	4481	MP/36/58	57.00m-58.00m	44.17	0.22	19.31	0.77	0.34	34.54	0.018	0.082
2118	4482	MP/36/59	58.00m-59.00m	44.90	0.24	18.36	0.78	0.33	34.76	0.003	0.073
2119	4483	MP/36/60	59.00m-60.00m	45.03	0.24	17.43	0.89	0.48	35.27	0.005	0.119
2120	4484	MP/36/61	60.00m-61.00m	47.00	0.26	14.85	0.71	0.39	36.21	0.018	0.092
2121	4485	MP/36/62	61.00m-62.00m	45.36	0.25	17.19	0.73	0.34	35.50	0.005	0.099
2122	4486	MP/36/63	62.00m-63.00m	46.53	0.28	15.07	0.85	0.46	36.14	0.018	0.099
2123	4487	MP/36/64	63.00m-64.00m	46.41	0.36	15.26	0.88	0.47	35.91	0.005	0.108
2124	4488	MP/36/65	64.00m-65.00m	47.29	0.33	13.99	0.77	0.35	36.66	0.013	0.099
2125	4489	MP/36/66	65.00m-66.00m	47.19	0.32	14.62	0.75	0.36	36.14	0.015	0.089
2126	4490	MP/36/67	66.00m-67.00m	46.39	0.30	15.10	0.82	0.73	36.04	0.013	0.099
2127	4491	MP/36/68	67.00m-68.00m	47.47	0.36	13.53	0.72	0.37	36.97	0.005	0.085
2128	4492	MP/36/69	68.00m-69.00m	47.12	0.30	14.29	0.72	0.34	36.65	0.005	0.087
2129	4493	MP/36/70	69.00m-70.00m	47.95	0.30	12.69	0.69	0.34	37.43	0.005	0.092

Chemical Analysis of 228 Check Samples from Madinapadu Limestone Block

S.No	Sample No.	Sample Code	CaO (%)	MgO (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	LOI (%)	SO3 (%)	P2O5 (%)
1	MPD/1/1	4609	35.72	0.24	34.32	1.14	0.70	27.16	0.005	0.121
2	MPD/1/2	4610	34.35	0.20	36.89	1.13	0.57	26.13	0.002	0.094
3	MPD/1/3	4611	39.57	0.28	27.46	1.21	0.58	30.12	0.007	0.126
4	MPD/1/4	4612	45.02	0.29	17.82	0.77	0.33	35.20	0.005	0.076
5	MPD/1/5	4613	47.38	0.39	13.02	0.79	0.39	37.41	0.005	0.099
6	MPD/1/6	4614	48.31	0.87	10.01	0.79	0.61	38.80	0.040	0.050
7	MPD/1/7	4615	48.71	0.54	11.25	0.92	0.56	37.55	0.007	0.057
8	MPD/2/1	4616	40.09	0.15	27.22	1.13	0.62	30.01	0.005	0.124
9	MPD/2/2	4617	41.15	0.22	24.73	1.05	0.57	31.58	0.007	0.117
10	MPD/2/3	4618	39.51	0.22	26.95	1.19	0.88	30.37	0.197	0.085
11	MPD/2/4	4619	39.46	0.18	26.65	0.99	1.09	30.82	0.152	0.108
12	MPD/2/5	4620	43.06	0.21	21.41	0.99	0.51	33.13	0.002	0.108
13	MPD/2/6	4621	46.19	0.24	15.94	0.70	0.39	35.97	0.005	0.089
14	MPD/2/7	4622	47.62	1.19	10.54	0.79	0.81	38.43	0.005	0.062
15	MPD/3/1	4623	37.16	0.16	31.38	1.19	0.54	28.32	0.005	0.101
16	MPD/3/2	4624	39.63	0.26	23.06	1.90	0.60	33.78	0.002	0.108
17	MPD/3/3	4625	45.16	0.26	17.45	0.83	0.40	35.24	0.010	0.099
18	MPD/3/4	4626	40.35	0.22	25.82	0.95	0.52	31.42	0.005	0.115
19	MPD/3/5	4627	35.87	0.19	33.66	1.20	0.80	27.55	0.002	0.096
20	MPD/3/6	4628	40.65	0.21	25.64	1.08	0.59	31.08	0.005	0.089
21	MPD/4/1	4629	45.18	0.33	17.95	0.93	0.61	34.14	0.002	0.069
22	MPD/4/2	4630	31.32	0.25	39.31	2.16	1.17	24.58	0.002	0.156
23	MPD/4/3	4631	44.51	0.24	19.26	0.91	0.53	33.94	0.002	0.071
24	MPD/4/4	4632	36.48	0.41	32.21	1.39	1.13	27.53	0.005	0.110
25	MPD/4/5	4633	41.17	0.23	24.26	1.09	0.62	31.88	0.005	0.115
26	MPD/4/6	4634	40.67	0.21	25.54	0.99	0.51	31.34	0.007	0.110
27	MPD/5/1	4635	46.45	0.26	15.95	0.86	0.46	35.38	0.002	0.105
28	MPD/5/2	4636	47.26	0.29	14.26	0.73	0.41	36.47	0.002	0.089
29	MPD/5/3	4637	49.47	1.19	6.95	0.78	0.76	40.19	0.047	0.064
30	MPD/5/4	4638	49.14	0.37	9.26	1.01	1.15	38.32	0.002	0.053
31	MPD/6/1	4639	46.57	0.36	15.38	0.86	0.58	35.63	0.005	0.096
32	MPD/6/2	4640	43.78	0.22	20.01	0.88	0.54	33.91	0.002	0.076
33	MPD/6/3	4641	33.71	0.49	35.68	1.77	1.25	26.17	0.010	0.147
34	MPD/6/4	4642	37.98	0.17	30.28	1.10	0.49	29.21	0.007	0.108
35	MPD/6/5	4643	41.40	0.25	23.89	1.04	0.57	32.13	0.015	0.103
36	MPD/6/6	4644	40.56	0.19	25.62	1.06	0.59	31.27	0.020	0.108
37	MPD/6/7	4645	46.37	0.39	15.50	0.78	0.38	36.01	0.022	0.076
38	MPD/7/1	4646	45.82	0.41	15.25	0.88	0.53	36.49	0.002	0.124
39	MPD/7/2	4647	46.48	0.43	13.81	0.96	1.31	36.37	0.005	0.096
40	MPD/7/3	4648	46.22	0.21	15.79	0.77	0.43	36.01	0.012	0.060
41	MPD/7/4	4649	40.84	0.32	24.22	1.39	0.85	31.57	0.005	0.101
42	MPD/7/5	4650	42.31	0.22	22.38	1.08	0.54	32.76	0.020	0.082
43	MPD/7/6	4651	39.94	0.24	26.12	1.08	0.66	31.28	0.020	0.076
44	MPD/7/7	4652	39.18	0.21	27.68	1.18	0.63	30.33	0.017	0.112

45	MPD/8/1	4653	37.76	0.23	30.52	1.35	0.71	28.63	0.005	0.110
46	MPD/8/2	4654	42.17	0.12	22.31	1.36	0.65	32.58	0.002	0.128
47	MPD/8/3	4655	46.81	0.16	14.55	0.85	0.42	36.58	0.005	0.099
48	MPD/8/4	4656	47.92	1.28	9.23	0.74	0.63	39.67	0.002	0.050
49	MPD/9/1	4657	40.49	0.35	25.35	1.46	1.02	30.53	0.005	0.076
50	MPD/9/2	4658	37.82	0.18	31.06	1.09	0.54	28.57	0.005	0.103
51	MPD/9/3	4659	46.19	0.25	15.59	0.76	0.44	36.11	0.060	0.085
52	MPD/9/4	4660	48.82	0.40	9.62	0.95	0.67	38.77	0.057	0.048
53	MPD/9/5	4661	48.46	0.37	10.60	1.11	0.74	37.88	0.002	0.050
54	MPD/9/6	4662	49.61	0.66	8.73	0.74	0.61	39.10	0.005	0.048
55	MPD/9/7	4663	48.79	0.37	9.79	1.12	0.79	38.28	0.065	0.048
56	MPD/10/1	4664	46.14	0.33	15.52	1.16	0.66	35.42	0.005	0.117
57	MPD/10/2	4665	46.41	0.24	15.28	0.79	0.49	36.21	0.005	0.057
58	MPD/10/3	4666	37.58	0.33	29.18	1.86	1.13	28.89	0.007	0.131
59	MPD/10/4	4667	41.60	0.24	23.35	1.00	0.52	32.56	0.007	0.073
60	MPD/10/5	4668	42.75	0.22	21.82	0.92	0.55	33.14	0.015	0.094
61	MPD/10/6	4669	42.13	0.23	22.88	0.90	0.59	32.61	0.005	0.105
62	MPD/10/7	4670	40.94	0.22	25.44	1.13	0.70	30.80	0.002	0.115
63	MPD/11/1	4671	48.21	0.34	11.78	0.66	0.35	38.13	0.002	0.094
64	MPD/11/2	4672	49.81	0.25	10.10	0.55	0.34	38.48	0.002	0.080
65	MPD/11/3	4673	47.77	0.46	13.07	0.75	0.49	36.89	0.005	0.101
66	MPD/11/4	4674	46.98	0.36	14.46	0.72	0.47	36.42	0.002	0.103
67	MPD/11/5	4675	35.43	0.34	32.15	2.21	1.29	27.03	0.207	0.188
68	MPD/11/6	4676	41.51	0.24	23.93	0.99	0.66	31.99	0.002	0.082
69	MPD/11/7	4677	39.28	0.27	27.85	1.11	0.77	29.99	0.005	0.078
70	MPD/12/1	4678	43.17	0.31	20.27	1.07	1.01	33.39	0.005	0.099
71	MPD/12/2	4679	43.09	0.27	20.32	1.11	0.99	33.49	0.012	0.096
72	MPD/12/3	4680	42.58	0.28	20.67	1.07	1.00	33.57	0.002	0.094
73	MPD/12/4	4681	38.27	0.23	28.57	1.35	0.85	29.85	0.047	0.131
74	MPD/12/5	4682	45.45	0.36	15.76	0.92	0.51	36.26	0.120	0.101
75	MPD/12/6	4683	45.88	0.38	15.28	0.94	0.50	36.32	0.100	0.096
76	MPD/12/7	4684	48.05	1.06	9.63	0.90	0.69	39.03	0.065	0.071
77	MPD/12/8	4685	45.97	0.32	13.77	1.63	1.37	35.77	0.095	0.062
78	MPD/12/9	4686	34.05	0.09	28.58	3.98	4.42	26.48	0.122	0.085
79	MPD/12/10	4687	34.11	0.08	27.99	3.99	4.51	26.61	0.155	0.089
80	MPD/13/1	4688	41.21	0.28	22.64	1.05	0.80	33.30	0.035	0.115
81	MPD/13/2	4689	41.71	0.27	22.65	1.00	0.55	33.12	0.025	0.110
82	MPD/13/3	4690	41.47	0.26	22.47	1.06	0.61	32.94	0.037	0.108
83	MPD/13/4	4691	41.78	0.35	21.97	1.04	0.58	33.16	0.022	0.108
84	MPD/14/1	4692	48.83	0.69	9.45	1.07	0.82	38.48	0.037	0.050
85	MPD/14/2	4693	48.15	0.35	10.38	1.22	1.00	37.89	0.205	0.050
86	MPD/14/3	4694	49.09	0.41	9.51	0.79	0.57	39.00	0.022	0.044
87	MPD/14/4	4695	36.12	0.08	25.89	3.43	3.92	28.13	0.045	0.082
88	MPD/14/5	4696	35.34	0.11	26.32	3.87	4.38	27.53	0.007	0.099
89	MPD/14/6	4697	9.25	0.43	50.12	15.13	11.07	9.51	0.005	0.073
90	MPD/15/1	4698	36.86	0.12	29.64	2.05	1.76	28.56	0.007	0.117
91	MPD/15/2	4699	36.85	0.03	29.50	2.39	1.18	28.88	0.002	0.115

92	MPD/15/3	4700	37.53	0.10	28.91	1.58	1.43	29.63	0.005	0.131
93	MPD/15/4	4701	49.64	0.47	8.49	0.78	0.66	39.33	0.027	0.048
94	MPD/15/5	4702	49.65	0.47	8.58	0.78	0.65	39.24	0.022	0.048
95	MPD/15/6	4703	34.47	0.14	28.58	3.74	4.01	26.82	0.030	0.096
96	MPD/16/1	4704	41.22	0.23	24.46	1.11	0.69	31.53	0.055	0.101
97	MPD/16/2	4705	41.15	0.22	24.40	1.11	0.73	31.63	0.057	0.099
98	MPD/16/3	4706	41.71	0.24	23.18	1.12	0.71	32.27	0.040	0.108
99	MPD/16/4	4707	41.28	0.23	24.22	1.12	0.71	31.68	0.050	0.103
100	MPD/16/5	4708	47.30	0.60	12.72	0.83	0.53	37.35	0.047	0.080
101	MPD/16/6	4709	47.46	0.61	12.63	0.82	0.53	37.32	0.062	0.089
102	MPD/16/7	4710	49.69	0.54	8.28	0.83	0.57	39.49	0.057	0.057
103	MPD/17/1	4711	38.75	0.15	28.13	1.26	0.67	30.21	0.005	0.076
104	MPD/17/2	4712	36.01	0.34	32.69	1.42	0.96	27.76	0.002	0.094
105	MPD/17/3	4713	36.97	0.32	32.41	1.41	0.95	27.13	0.005	0.144
106	MPD/17/4	4714	37.84	0.20	30.47	1.06	0.56	29.11	0.010	0.105
107	MPD/17/5	4715	36.51	0.10	33.07	1.29	0.57	27.58	0.002	0.110
108	MPD/17/6	4716	43.11	0.24	21.23	0.93	0.53	33.23	0.032	0.110
109	MPD/17/7	4717	46.52	0.39	14.69	0.84	0.43	36.42	0.025	0.110
110	MPD/18/1	4718	48.35	0.28	12.04	0.71	0.34	37.76	0.005	0.078
111	MPD/18/2	4719	47.54	0.42	12.77	0.95	0.55	37.13	0.015	0.119
112	MPD/18/3	4720	49.23	0.31	10.46	0.73	0.40	38.25	0.005	0.094
113	MPD/18/4	4721	47.14	0.36	14.09	0.79	0.44	36.60	0.002	0.089
114	MPD/18/5	4722	33.51	0.35	35.74	2.26	1.23	25.58	0.002	0.149
115	MPD/18/6	4723	42.51	0.22	21.93	1.07	0.57	32.94	0.090	0.062
116	MPD/18/7	4724	43.15	0.23	20.75	0.96	0.50	33.76	0.007	0.062
117	MPD/19/1	4725	48.57	0.36	12.08	0.73	0.36	37.36	0.005	0.099
118	MPD/19/2	4726	47.81	0.63	12.00	0.64	0.39	38.01	0.005	0.071
119	MPD/19/3	4727	46.83	0.79	13.19	0.87	0.56	37.13	0.005	0.110
120	MPD/19/4	4728	47.23	0.38	13.37	0.88	0.45	37.03	0.015	0.128
121	MPD/19/5	4729	47.16	0.52	13.21	0.80	0.54	37.19	0.007	0.085
122	MPD/19/6	4730	40.38	0.25	24.28	1.40	1.01	31.13	0.405	0.092
123	MPD/19/7	4731	41.58	0.20	24.94	0.91	0.47	31.24	0.007	0.076
124	MPD/20/1	4732	45.84	0.44	16.52	0.84	0.62	35.12	0.005	0.124
125	MPD/20/2	4733	46.75	0.28	14.20	0.72	0.77	36.58	0.167	0.103
126	MPD/20/3	4734	44.55	0.87	17.54	1.00	0.86	34.54	0.005	0.135
127	MPD/20/4	4735	48.41	0.27	12.54	0.66	0.37	37.22	0.002	0.073
128	MPD/20/5	4736	40.98	0.31	24.15	1.31	0.83	31.58	0.002	0.092
129	MPD/20/6	4737	44.52	0.17	18.88	0.85	0.43	34.49	0.042	0.066
130	MPD/20/7	4738	36.41	0.26	32.35	1.32	0.92	27.94	0.005	0.085
131	MPD/21/1	4739	41.72	0.28	23.37	1.04	0.56	32.30	0.005	0.087
132	MPD/21/2	4740	40.44	0.28	25.72	1.00	0.53	31.36	0.002	0.101
133	MPD/21/3	4741	48.19	0.38	12.19	0.84	0.44	37.28	0.007	0.108
134	MPD/21/4	4742	49.42	1.58	7.52	0.71	0.73	39.49	0.012	0.060
135	MPD/22/1	4743	45.91	0.26	16.09	0.84	0.46	35.76	0.005	0.099
136	MPD/22/2	4744	46.59	0.25	14.77	0.82	0.44	36.49	0.005	0.096
137	MPD/22/3	4745	48.80	1.23	7.94	0.76	0.70	40.02	0.002	0.057
138	MPD/22/4	4746	34.35	0.23	28.65	3.77	4.36	26.32	0.060	0.094

139	MPD/23/1	4747	35.84	0.36	33.67	1.49	1.21	26.60	0.005	0.101
140	MPD/23/2	4748	40.64	0.19	25.42	0.98	0.58	31.49	0.007	0.112
141	MPD/23/3	4749	45.76	0.31	16.39	0.84	0.49	35.55	0.002	0.105
142	MPD/23/4	4750	47.00	0.29	14.30	0.70	0.38	36.75	0.005	0.096
143	MPD/24/1	4751	34.32	0.14	31.59	2.22	2.84	27.94	0.002	0.073
144	MPD/24/2	4752	35.72	0.17	33.73	1.36	0.97	27.30	0.002	0.089
145	MPD/24/3	4753	39.53	0.19	27.57	1.09	0.58	30.29	0.005	0.121
146	MPD/24/4	4754	43.45	0.09	20.11	0.98	1.16	33.49	0.005	0.117
147	MPD/24/5	4755	19.95	0.11	53.94	4.39	4.08	16.06	0.002	0.321
148	MPD/24/6	4756	48.77	0.61	10.06	0.62	0.63	38.76	0.005	0.050
149	MPD/25/1	4757	46.07	0.25	16.66	0.86	0.47	35.05	0.002	0.096
150	MPD/25/2	4758	45.35	0.25	17.47	0.82	0.54	34.99	0.005	0.069
151	MPD/25/3	4759	42.48	0.20	23.11	0.88	0.47	32.25	0.002	0.080
152	MPD/25/4	4760	34.01	0.45	35.77	1.55	1.30	26.05	0.032	0.094
153	MPD/25/5	4761	34.90	0.33	34.30	1.70	1.09	26.67	0.007	0.163
154	MPD/25/6	4762	40.21	0.21	25.83	1.20	0.61	31.13	0.005	0.117
155	MPD/26/1	4763	44.86	0.21	19.47	0.87	0.50	33.45	0.002	0.071
156	MPD/26/2	4764	40.60	0.20	25.68	0.99	0.48	31.41	0.002	0.053
157	MPD/26/3	4765	43.41	0.14	20.75	0.83	0.45	33.81	0.017	0.069
158	MPD/26/4	4766	42.02	0.15	23.45	0.79	0.42	32.58	0.002	0.076
159	MPD/26/5	4767	34.62	0.34	35.31	1.51	1.04	26.32	0.005	0.119
160	MPD/26/6	4768	38.18	0.16	29.45	1.27	0.68	29.38	0.040	0.128
161	MPD/26/7	4769	38.90	0.22	28.52	1.09	0.58	29.94	0.020	0.112
162	MPD/27/1	4770	45.93	0.38	16.18	0.75	0.56	35.58	0.007	0.094
163	MPD/27/2	4771	46.19	0.31	15.83	0.75	0.48	35.84	0.015	0.057
164	MPD/27/3	4772	39.76	0.25	26.83	1.08	0.60	30.76	0.010	0.048
165	MPD/27/4	4773	42.26	0.18	22.90	0.89	0.45	32.67	0.015	0.073
166	MPD/27/5	4774	37.14	0.22	31.14	1.22	0.72	28.67	0.097	0.108
167	MPD/27/6	4775	41.72	0.21	23.45	0.90	0.63	32.40	0.037	0.105
168	MPD/27/7	4776	42.72	0.25	21.38	0.90	0.57	33.44	0.142	0.099
169	MPD/28/1	4777	41.83	0.20	23.97	0.93	0.55	31.85	0.040	0.112
170	MPD/28/2	4778	43.28	0.25	20.34	1.03	0.68	33.67	0.015	0.117
171	MPD/28/3	4779	42.68	0.22	21.41	0.91	0.50	33.58	0.017	0.105
172	MPD/28/4	4780	46.12	0.26	14.90	0.80	0.84	36.43	0.037	0.105
173	MPD/28/5	4781	47.45	0.33	13.07	0.86	0.60	37.03	0.017	0.103
174	MPD/28/6	4782	49.48	0.39	9.35	0.79	0.66	38.62	0.142	0.048
175	MPD/28/7	4783	47.96	0.31	10.91	1.14	0.87	37.94	0.067	0.048
176	MPD/29/1	4784	38.42	0.12	28.47	1.05	0.52	30.58	0.007	0.103
177	MPD/29/2	4785	42.38	0.27	21.72	0.95	0.62	33.41	0.005	0.112
178	MPD/29/3	4786	45.79	0.23	14.79	1.10	0.67	36.58	0.010	0.149
179	MPD/29/4	4787	46.85	0.19	11.74	1.28	0.90	37.94	0.007	0.057
180	MPD/29/5	4788	38.34	0.21	23.65	3.08	2.84	29.97	0.042	0.096
181	MPD/29/6	4789	27.07	0.16	36.98	5.75	6.07	21.13	0.052	0.121
182	MPD/30/1	4790	38.61	0.23	28.60	1.22	0.58	29.94	0.005	0.121
183	MPD/30/2	4791	41.52	0.21	23.71	0.99	0.61	32.21	0.015	0.117
184	MPD/30/3	4792	42.02	0.19	23.71	1.09	0.59	31.67	0.005	0.133
185	MPD/30/4	4793	40.20	0.21	25.77	0.93	0.59	31.54	0.137	0.101

186	MPD/30/5	4794	45.76	0.26	15.87	0.72	0.38	36.41	0.007	0.092
187	MPD/30/6	4795	45.07	0.42	17.58	0.83	0.42	35.05	0.007	0.092
188	MPD/31/1	4796	44.94	1.94	12.74	0.60	0.67	38.49	0.067	0.076
189	MPD/31/2	4797	45.34	0.72	15.69	1.07	0.51	35.85	0.002	0.133
190	MPD/31/3	4798	46.36	0.44	14.26	0.76	0.56	37.00	0.005	0.082
191	MPD/31/4	4799	44.11	0.22	18.74	0.86	0.46	34.94	0.030	0.076
192	MPD/31/5	4800	36.53	0.24	31.97	1.41	0.98	28.03	0.002	0.121
193	MPD/31/6	4801	41.96	0.22	22.62	0.88	0.47	33.24	0.010	0.101
194	MPD/31/7	4802	45.81	0.27	15.96	0.79	0.38	36.13	0.002	0.101
195	MPD/32/1	4803	46.48	1.30	12.88	0.66	0.46	37.62	0.002	0.105
196	MPD/32/2	4804	43.07	1.70	16.71	0.95	0.83	36.01	0.007	0.121
197	MPD/32/3	4805	47.31	0.42	13.34	0.85	0.57	36.85	0.007	0.076
198	MPD/32/4	4806	30.00	0.59	40.60	2.63	1.80	23.03	0.002	0.190
199	MPD/32/5	4807	37.34	0.19	31.14	1.18	0.59	28.76	0.002	0.115
200	MPD/32/6	4808	40.96	0.28	24.36	1.12	0.58	31.94	0.027	0.128
201	MPD/32/7	4809	43.87	0.24	19.54	0.83	0.46	34.42	0.005	0.096
202	MPD/33/1	4810	46.15	0.16	12.89	1.17	2.77	36.24	0.002	0.076
203	MPD/33/2	4811	43.27	0.20	21.12	1.16	0.79	32.67	0.007	0.080
204	MPD/33/3	4812	43.61	0.14	20.05	1.04	0.55	33.85	0.017	0.087
205	MPD/33/4	4813	35.21	0.31	34.18	1.42	1.09	27.01	0.002	0.108
206	MPD/33/5	4814	41.35	0.08	25.12	0.99	0.63	31.13	0.002	0.115
207	MPD/33/6	4815	39.53	0.10	27.41	0.93	0.70	30.56	0.185	0.101
208	MPD/33/7	4816	43.06	0.09	22.21	0.82	0.42	32.76	0.002	0.099
209	MPD/34/1	4817	36.07	0.07	32.52	1.35	1.22	27.98	0.002	0.108
210	MPD/34/2	4818	41.08	0.10	25.45	0.96	0.65	30.94	0.002	0.115
211	MPD/34/3	4819	40.57	0.22	25.01	1.04	0.56	31.85	0.027	0.112
212	MPD/34/4	4820	47.22	0.27	13.66	0.66	0.36	37.26	0.005	0.089
213	MPD/34/5	4821	45.62	0.41	13.91	1.65	1.24	36.07	0.005	0.055
214	MPD/34/6	4822	41.52	0.25	19.24	2.47	2.65	32.23	0.050	0.073
215	MPD/35/1	4823	12.69	0.10	75.53	0.91	1.21	9.06	0.005	0.121
216	MPD/35/2	4824	37.89	0.39	28.91	1.79	1.34	28.61	0.005	0.112
217	MPD/35/3	4825	37.44	0.09	31.25	0.91	0.44	29.02	0.002	0.099
218	MPD/35/4	4826	41.21	0.23	24.82	1.04	0.60	31.38	0.002	0.115
219	MPD/35/5	4827	45.05	0.24	17.86	0.84	0.42	34.94	0.002	0.096
220	MPD/35/6	4828	46.26	0.18	16.76	0.74	0.57	34.90	0.002	0.089
221	MPD/35/7	4829	49.93	0.47	8.84	0.65	0.70	38.85	0.002	0.050
222	MPD/36/1	4830	38.58	0.38	27.55	1.34	1.14	30.24	0.002	0.099
223	MPD/36/2	4831	28.10	0.42	43.86	2.76	1.79	21.63	0.002	0.204
224	MPD/36/3	4832	37.98	0.14	30.57	1.11	0.58	28.85	0.002	0.099
225	MPD/36/4	4833	41.84	0.18	23.25	0.94	0.51	32.58	0.005	0.108
226	MPD/36/5	4834	46.43	0.25	15.42	0.78	0.44	36.07	0.005	0.101
227	MPD/36/6	4835	46.86	0.25	14.84	0.70	0.37	36.36	0.007	0.089
228	MPD/36/7	4836	47.53	0.31	14.49	0.72	0.37	35.94	0.005	0.092

COMPARISON OF ORIGINAL AND CHECK SAMPLE RESULTS OF MADINAPADU LIMESTONE BLOCK

Sl. No	Sample Code	Sample No.	From	To	CaO (%)	MgO (%)	SiO ₂ (%)	Al ₂ O ₃ (%)	Fe ₂ O ₃ (%)	LOI (%)	SO ₃ (%)	P ₂ O ₅ (%)
	701	MP/1/10	9.00	10.00	36.21	0.27	32.89	1.04	0.69	27.56	0.019	0.121
1	4609	MPD/1/1	9.00	10.00	35.72	0.24	34.32	1.14	0.70	27.16	0.005	0.121
	708	MP/1/17	16.00	17.00	34.59	0.22	35.88	0.99	0.58	26.07	0.017	0.096
2	4610	MPD/1/2	16.00	17.00	34.35	0.20	36.89	1.13	0.57	26.13	0.002	0.094
	714	MP/1/23	22.00	23.00	39.85	0.31	26.35	1.10	0.56	30.17	0.016	0.131
3	4611	MPD/1/3	22.00	23.00	39.57	0.28	27.46	1.21	0.58	30.12	0.007	0.126
	729	MP/1/38	37.00	38.00	45.39	0.30	16.93	0.62	0.32	35.32	0.007	0.071
4	4612	MPD/1/4	37.00	38.00	45.02	0.29	17.82	0.77	0.33	35.20	0.005	0.076
	735	MP/1/44	43.00	44.00	48.03	0.40	12.38	0.61	0.39	37.08	0.004	0.094
5	4613	MPD/1/5	43.00	44.00	47.38	0.39	13.02	0.79	0.39	37.41	0.005	0.099
	746	MP/1/55	54.00	55.00	48.29	0.95	9.73	0.66	0.57	38.58	0.015	0.050
6	4614	MPD/1/6	54.00	55.00	48.31	0.87	10.01	0.79	0.61	38.80	0.040	0.050
	761	MP/1/70	69.00	70.00	48.66	0.57	11.10	0.74	0.55	37.39	0.003	0.055
7	4615	MPD/1/7	69.00	70.00	48.71	0.54	11.25	0.92	0.56	37.55	0.007	0.057
	766	MP/2/10	9.00	10.00	40.31	0.18	26.31	0.92	0.57	30.39	0.003	0.121
8	4616	MPD/2/1	9.00	10.00	40.09	0.15	27.22	1.13	0.62	30.01	0.005	0.124
	776	MP/2/20	19.00	20.00	42.06	0.19	23.47	0.86	0.55	31.60	0.003	0.126
9	4617	MPD/2/2	19.00	20.00	41.15	0.22	24.73	1.05	0.57	31.58	0.007	0.117
	788	MP/2/32	31.00	32.00	40.03	0.25	25.94	1.09	0.84	30.32	0.053	0.089
10	4618	MPD/2/3	31.00	32.00	39.51	0.22	26.95	1.19	0.88	30.37	0.197	0.085
	795	MP/2/39	38.00	39.00	39.89	0.20	25.78	0.85	1.04	30.85	0.043	0.103
11	4619	MPD/2/4	38.00	39.00	39.46	0.18	26.65	0.99	1.09	30.82	0.152	0.108
	799	MP/2/43	42.00	43.00	43.36	0.25	20.77	0.87	0.53	32.99	0.006	0.108
12	4620	MPD/2/5	42.00	43.00	43.06	0.21	21.41	0.99	0.51	33.13	0.002	0.108
	809	MP/2/53	52.00	53.00	46.35	0.27	15.32	0.53	0.35	36.07	0.005	0.089
13	4621	MPD/2/6	52.00	53.00	46.19	0.24	15.94	0.70	0.39	35.97	0.005	0.089
	825	MP/2/69	68.00	69.00	47.78	1.28	9.97	0.64	0.78	38.38	0.002	0.055
14	4622	MPD/2/7	68.00	69.00	47.62	1.19	10.54	0.79	0.81	38.43	0.005	0.062
	2120	MP/3/15	14.00	15.00	37.39	0.21	30.69	1.09	0.50	28.58	0.119	0.108
15	4623	MPD/3/1	14.00	15.00	37.16	0.16	31.38	1.19	0.54	28.32	0.005	0.101
	2129	MP/3/24	23.00	24.00	38.53	0.42	22.45	2.22	0.60	33.77	0.516	0.108
16	4624	MPD/3/2	23.00	24.00	39.63	0.26	23.06	1.90	0.60	33.78	0.002	0.108
	2143	MP/3/38	37.00	38.00	45.20	0.26	16.90	0.67	0.38	35.38	0.016	0.099
17	4625	MPD/3/3	37.00	38.00	45.16	0.26	17.45	0.83	0.40	35.24	0.010	0.099
	2154	MP/3/49	48.00	49.00	40.40	0.17	24.96	1.17	0.59	31.38	0.050	0.119
18	4626	MPD/3/4	48.00	49.00	40.35	0.22	25.82	0.95	0.52	31.42	0.005	0.115
	2163	MP/3/58	57.00	58.00	36.19	0.24	32.62	1.18	0.76	27.69	0.028	0.101
19	4627	MPD/3/5	57.00	58.00	35.87	0.19	33.66	1.20	0.80	27.55	0.002	0.096
	2174	MP/3/69	68.00	69.00	41.01	0.24	24.69	1.06	0.60	31.07	0.023	0.089
20	4628	MPD/3/6	68.00	69.00	40.65	0.21	25.64	1.08	0.59	31.08	0.005	0.089
	837	MP/4/16	15.00	16.00	45.00	0.33	17.75	0.86	0.59	34.24	0.010	0.069
21	4629	MPD/4/1	15.00	16.00	45.18	0.33	17.95	0.93	0.61	34.14	0.002	0.069
	846	MP/4/25	24.00	25.00	32.32	0.27	37.49	2.15	1.15	24.78	0.010	0.156
22	4630	MPD/4/2	24.00	25.00	31.32	0.25	39.31	2.16	1.17	24.58	0.002	0.156

	855	MP/4/34	33.00	34.00	44.93	0.27	18.57	0.79	0.52	33.74	0.005	0.069
23	4631	MPD/4/3	33.00	34.00	44.51	0.24	19.26	0.91	0.53	33.94	0.002	0.071
	869	MP/4/48	47.00	48.00	36.59	0.44	31.49	1.34	1.14	27.66	0.007	0.110
24	4632	MPD/4/4	47.00	48.00	36.48	0.41	32.21	1.39	1.13	27.53	0.005	0.110
	877	MP/4/56	55.00	56.00	41.74	0.24	23.20	0.96	0.61	31.94	0.007	0.121
25	4633	MPD/4/5	55.00	56.00	41.17	0.23	24.26	1.09	0.62	31.88	0.005	0.115
	888	MP/4/67	66.00	67.00	40.98	0.17	24.78	0.98	0.49	31.38	0.005	0.110
26	4634	MPD/4/6	66.00	67.00	40.67	0.21	25.54	0.99	0.51	31.34	0.007	0.110
	896	MP/5/10	9.00	10.00	46.49	0.27	15.33	0.79	0.45	35.48	0.010	0.108
27	4635	MPD/5/1	9.00	10.00	46.45	0.26	15.95	0.86	0.46	35.38	0.002	0.105
	904	MP/5/18	17.00	18.00	47.22	0.35	13.72	0.58	0.41	36.59	0.012	0.085
28	4636	MPD/5/2	17.00	18.00	47.26	0.29	14.26	0.73	0.41	36.47	0.002	0.089
	915	MP/5/29	28.00	29.00	49.53	1.23	6.56	0.62	0.71	40.16	0.020	0.064
29	4637	MPD/5/3	28.00	29.00	49.47	1.19	6.95	0.78	0.76	40.19	0.047	0.064
	919	MP/5/33	32.00	33.00	49.12	0.36	8.53	0.83	1.07	38.81	0.004	0.048
30	4638	MPD/5/4	32.00	33.00	49.14	0.37	9.26	1.01	1.15	38.32	0.002	0.053
	924	MP/6/8	7.00	8.00	45.29	0.29	15.55	1.26	0.58	35.88	0.020	0.096
31	4639	MPD/6/1	7.00	8.00	46.57	0.36	15.38	0.86	0.58	35.63	0.005	0.096
	935	MP/6/19	18.00	19.00	42.66	0.25	20.09	0.96	0.91	33.92	0.028	0.078
32	4640	MPD/6/2	18.00	19.00	43.78	0.22	20.01	0.88	0.54	33.91	0.002	0.076
	946	MP/6/30	29.00	30.00	34.01	0.49	34.65	1.83	1.21	26.29	0.019	0.151
33	4641	MPD/6/3	29.00	30.00	33.71	0.49	35.68	1.77	1.25	26.17	0.010	0.147
	955	MP/6/39	38.00	39.00	38.18	0.18	29.30	0.95	0.47	29.62	0.015	0.115
34	4642	MPD/6/4	38.00	39.00	37.98	0.17	30.28	1.10	0.49	29.21	0.007	0.108
	966	MP/6/50	49.00	50.00	42.18	0.26	23.23	0.83	0.44	32.33	0.014	0.115
35	4643	MPD/6/5	49.00	50.00	41.40	0.25	23.89	1.04	0.57	32.13	0.015	0.103
	974	MP/6/58	57.00	58.00	40.72	0.23	24.62	0.92	0.61	31.62	0.018	0.119
36	4644	MPD/6/6	57.00	58.00	40.56	0.19	25.62	1.06	0.59	31.27	0.020	0.108
	979	MP/6/63	62.00	63.00	47.13	0.41	14.71	0.53	0.37	35.70	0.018	0.082
37	4645	MPD/6/7	62.00	63.00	46.37	0.39	15.50	0.78	0.38	36.01	0.022	0.076
	1088	MP/7/5	4.00	5.00	46.41	0.44	14.27	0.61	0.52	36.58	0.010	0.133
38	4646	MPD/7/1	4.00	5.00	45.82	0.41	15.25	0.88	0.53	36.49	0.002	0.124
	1099	MP/7/16	15.00	16.00	46.36	0.46	13.24	0.81	1.31	36.69	0.010	0.099
39	4647	MPD/7/2	15.00	16.00	46.48	0.43	13.81	0.96	1.31	36.37	0.005	0.096
	1107	MP/7/24	23.00	24.00	46.22	0.24	15.09	0.58	0.49	36.29	0.013	0.060
40	4648	MPD/7/3	23.00	24.00	46.22	0.21	15.79	0.77	0.43	36.01	0.012	0.060
	1115	MP/7/32	31.00	32.00	40.87	0.32	23.39	1.40	0.87	31.77	0.012	0.099
41	4649	MPD/7/4	31.00	32.00	40.84	0.32	24.22	1.39	0.85	31.57	0.005	0.101
	1132	MP/7/49	48.00	49.00	42.80	0.22	21.45	0.92	0.56	32.80	0.012	0.080
42	4650	MPD/7/5	48.00	49.00	42.31	0.22	22.38	1.08	0.54	32.76	0.020	0.082
	1139	MP/7/56	55.00	56.00	39.81	0.20	25.49	1.09	0.65	31.47	0.015	0.073
43	4651	MPD/7/6	55.00	56.00	39.94	0.24	26.12	1.08	0.66	31.28	0.020	0.076
	1152	MP/7/69	68.00	69.00	39.66	0.17	26.18	1.16	0.61	30.83	0.014	0.110
44	4652	MPD/7/7	68.00	69.00	39.18	0.21	27.68	1.18	0.63	30.33	0.017	0.112
	1157	MP/8/10	9.00	10.00	38.15	0.22	29.46	1.18	0.70	28.92	0.007	0.115
45	4653	MPD/8/1	9.00	10.00	37.76	0.23	30.52	1.35	0.71	28.63	0.005	0.110
	1166	MP/8/19	18.00	19.00	42.64	0.15	21.37	1.23	0.65	32.48	0.024	0.133
46	4654	MPD/8/2	18.00	19.00	42.17	0.12	22.31	1.36	0.65	32.58	0.002	0.128
	1175	MP/8/28	27.00	28.00	47.29	0.18	13.56	0.62	0.40	36.76	0.007	0.096
47	4655	MPD/8/3	27.00	28.00	46.81	0.16	14.55	0.85	0.42	36.58	0.005	0.099

	1183	MP/8/36	35.00	36.00	48.19	1.34	8.53	0.52	0.61	39.70	0.016	0.050
48	4656	MPD/8/4	35.00	36.00	47.92	1.28	9.23	0.74	0.63	39.67	0.002	0.050
	1189	MP/9/8	7.00	8.00	41.06	0.37	24.11	1.33	0.99	30.84	0.015	0.080
49	4657	MPD/9/1	7.00	8.00	40.49	0.35	25.35	1.46	1.02	30.53	0.005	0.076
	1195	MP/9/14	13.00	14.00	38.10	0.21	30.27	0.90	0.55	28.77	0.015	0.110
50	4658	MPD/9/2	13.00	14.00	37.82	0.18	31.06	1.09	0.54	28.57	0.005	0.103
	1205	MP/9/24	23.00	24.00	46.61	0.28	14.81	0.58	0.44	36.24	0.019	0.089
51	4659	MPD/9/3	23.00	24.00	46.19	0.25	15.59	0.76	0.44	36.11	0.060	0.085
	1219	MP/9/38	37.00	38.00	48.61	0.42	9.41	0.80	0.65	38.87	0.035	0.048
52	4660	MPD/9/4	37.00	38.00	48.82	0.40	9.62	0.95	0.67	38.77	0.057	0.048
	1225	MP/9/44	43.00	44.00	47.97	0.39	10.61	1.03	0.73	37.96	0.022	0.053
53	4661	MPD/9/5	43.00	44.00	48.46	0.37	10.60	1.11	0.74	37.88	0.002	0.050
	1240	MP/9/59	58.00	59.00	50.17	0.71	8.47	0.55	0.61	38.46	0.012	0.046
54	4662	MPD/9/6	58.00	59.00	49.61	0.66	8.73	0.74	0.61	39.10	0.005	0.048
	1247	MP/9/66	65.00	66.00	48.63	0.43	9.31	0.98	0.78	38.54	0.026	0.046
55	4663	MPD/9/7	65.00	66.00	48.79	0.37	9.79	1.12	0.79	38.28	0.065	0.048
	1329	MP/10/8	7.00	8.00	46.26	0.37	14.69	1.07	0.61	35.58	0.021	0.124
56	4664	MPD/10/1	7.00	8.00	46.14	0.33	15.52	1.16	0.66	35.42	0.005	0.117
	1340	MP/10/19	18.00	19.00	47.02	0.24	14.47	0.60	0.48	36.00	0.021	0.055
57	4665	MPD/10/2	18.00	19.00	46.41	0.24	15.28	0.79	0.49	36.21	0.005	0.057
	1349	MP/10/28	27.00	28.00	37.78	0.34	28.42	1.75	1.10	28.91	0.021	0.137
58	4666	MPD/10/3	27.00	28.00	37.58	0.33	29.18	1.86	1.13	28.89	0.007	0.131
	1356	MP/10/35	34.00	35.00	42.41	0.24	22.23	0.79	0.51	32.58	0.016	0.071
59	4667	MPD/10/4	34.00	35.00	41.60	0.24	23.35	1.00	0.52	32.56	0.007	0.073
	1368	MP/10/47	46.00	47.00	43.06	0.25	21.10	0.71	0.53	33.10	0.015	0.103
60	4668	MPD/10/5	46.00	47.00	42.75	0.22	21.82	0.92	0.55	33.14	0.015	0.094
	1380	MP/10/59	58.00	59.00	42.54	0.27	22.08	0.77	0.54	32.51	0.032	0.110
61	4669	MPD/10/6	58.00	59.00	42.13	0.23	22.88	0.90	0.59	32.61	0.005	0.105
	1385	MP/10/64	63.00	64.00	40.88	0.24	24.97	0.96	0.60	30.96	0.028	0.115
62	4670	MPD/10/7	63.00	64.00	40.94	0.22	25.44	1.13	0.70	30.80	0.002	0.115
	1396	MP/11/9	8.00	9.00	48.42	0.37	11.21	0.46	0.36	38.10	0.016	0.096
63	4671	MPD/11/1	8.00	9.00	48.21	0.34	11.78	0.66	0.35	38.13	0.002	0.094
	1401	MP/11/14	13.00	14.00	49.49	0.29	9.59	0.36	0.32	38.89	0.013	0.080
64	4672	MPD/11/2	13.00	14.00	49.81	0.25	10.10	0.55	0.34	38.48	0.002	0.080
	1411	MP/11/24	23.00	24.00	47.92	0.49	12.36	0.60	0.47	36.97	0.015	0.101
65	4673	MPD/11/3	23.00	24.00	47.77	0.46	13.07	0.75	0.49	36.89	0.005	0.101
	1419	MP/11/32	31.00	32.00	47.20	0.40	13.82	0.54	0.42	36.44	0.009	0.103
66	4674	MPD/11/4	31.00	32.00	46.98	0.36	14.46	0.72	0.47	36.42	0.002	0.103
	1436	MP/11/49	48.00	49.00	35.49	0.37	31.47	2.24	1.23	26.94	0.044	0.202
67	4675	MPD/11/5	48.00	49.00	35.43	0.34	32.15	2.21	1.29	27.03	0.207	0.188
	1445	MP/11/58	57.00	58.00	41.82	0.27	23.32	0.86	0.62	31.92	0.011	0.080
68	4676	MPD/11/6	57.00	58.00	41.51	0.24	23.93	0.99	0.66	31.99	0.002	0.082
	1454	MP/11/67	66.00	67.00	39.70	0.29	26.93	1.00	0.75	30.02	0.012	0.073
69	4677	MPD/11/7	66.00	67.00	39.28	0.27	27.85	1.11	0.77	29.99	0.005	0.078
	6605	MP/12/8	7.00	8.00	42.19	0.34	21.02	1.12	1.01	33.56	0.120	0.094
70	4678	MPD/12/1	7.00	8.00	43.17	0.31	20.27	1.07	1.01	33.39	0.005	0.099
	6611	MP/12/14	13.00	14.00	42.21	0.36	20.97	1.13	0.87	33.72	0.098	0.092
71	4679	MPD/12/2	13.00	14.00	43.09	0.27	20.32	1.11	0.99	33.49	0.012	0.096
	6623	MP/12/26	25.00	26.00	41.60	0.41	21.43	1.30	0.89	33.60	0.173	0.096
72	4680	MPD/12/3	25.00	26.00	42.58	0.28	20.67	1.07	1.00	33.57	0.002	0.094

	6636	MP/12/39	38.00	39.00	37.51	0.29	29.39	1.38	0.83	29.75	0.085	0.133
73	4681	MPD/12/4	38.00	39.00	38.27	0.23	28.57	1.35	0.85	29.85	0.047	0.131
	6645	MP/12/48	47.00	48.00	45.36	0.45	15.63	0.95	0.49	36.45	0.165	0.108
74	4682	MPD/12/5	47.00	48.00	45.45	0.36	15.76	0.92	0.51	36.26	0.120	0.101
	6651	MP/12/54	53.00	54.00	45.33	0.44	15.74	0.88	0.51	36.42	0.203	0.103
75	4683	MPD/12/6	53.00	54.00	45.88	0.38	15.28	0.94	0.50	36.32	0.100	0.096
	6664	MP/12/67	66.00	67.00	48.68	1.16	9.16	0.75	0.67	39.02	0.065	0.062
76	4684	MPD/12/7	66.00	67.00	48.05	1.06	9.63	0.90	0.69	39.03	0.065	0.071
	6673	MP/12/76	75.00	76.00	45.17	0.31	14.32	1.82	1.36	35.88	0.163	0.053
77	4685	MPD/12/8	75.00	76.00	45.97	0.32	13.77	1.63	1.37	35.77	0.095	0.062
	6687	MP/12/90	89.00	90.00	33.11	0.05	29.13	4.71	4.09	26.48	0.148	0.092
78	4686	MPD/12/9	89.00	90.00	34.05	0.09	28.58	3.98	4.42	26.48	0.122	0.085
	6694	MP/12/97	96.00	97.00	33.30	0.06	28.59	4.66	4.20	26.69	0.358	0.087
79	4687	MPD/12/10	96.00	97.00	34.11	0.08	27.99	3.99	4.51	26.61	0.155	0.089
	6965	MP/13/7	6.00	7.00	41.37	0.45	22.11	0.98	0.58	33.49	0.088	0.110
80	4688	MPD/13/1	6.00	7.00	41.21	0.28	22.64	1.05	0.80	33.30	0.035	0.115
	6972	MP/13/14	13.00	14.00	41.69	0.47	21.86	0.96	0.56	33.43	0.080	0.105
81	4689	MPD/13/2	13.00	14.00	41.71	0.27	22.65	1.00	0.55	33.12	0.025	0.110
	6981	MP/13/23	22.00	23.00	42.11	0.45	21.59	0.88	0.57	33.37	0.045	0.112
82	4690	MPD/13/3	22.00	23.00	41.47	0.26	22.47	1.06	0.61	32.94	0.037	0.108
	6993	MP/13/35	34.00	35.00	40.99	0.49	22.28	1.12	0.59	33.45	0.170	0.110
83	4691	MPD/13/4	34.00	35.00	41.78	0.35	21.97	1.04	0.58	33.16	0.022	0.108
	5538	MP/14/4	3.00	4.00	48.61	0.85	9.17	1.28	0.80	38.73	0.083	0.046
84	4692	MPD/14/1	3.00	4.00	48.83	0.69	9.45	1.07	0.82	38.48	0.037	0.050
	5544	MP/14/10	9.00	10.00	48.26	0.54	9.94	1.50	0.93	37.89	0.283	0.044
85	4693	MPD/14/2	9.00	10.00	48.15	0.35	10.38	1.22	1.00	37.89	0.205	0.050
	5553	MP/14/19	18.00	19.00	49.40	0.51	8.95	0.76	0.54	39.29	0.060	0.050
86	4694	MPD/14/3	18.00	19.00	49.09	0.41	9.51	0.79	0.57	39.00	0.022	0.044
	5562	MP/14/28	27.00	28.00	35.28	0.66	25.65	4.95	3.58	28.11	0.085	0.009
87	4695	MPD/14/4	27.00	28.00	36.12	0.08	25.89	3.43	3.92	28.13	0.045	0.082
	5569	MP/14/35	34.00	35.00	34.14	0.69	25.71	5.66	4.19	27.58	0.055	0.007
88	4696	MPD/14/5	34.00	35.00	35.34	0.11	26.32	3.87	4.38	27.53	0.007	0.099
	5581	MP/14/47	46.00	47.00	9.54	0.99	49.32	15.36	11.99	9.22	0.015	BDL
89	4697	MPD/14/6	46.00	47.00	9.25	0.43	50.12	15.13	11.07	9.51	0.005	0.073
	5586	MP/15/6	5.00	6.00	36.15	0.24	29.94	2.39	1.80	28.62	0.115	0.030
90	4698	MPD/15/1	5.00	6.00	36.86	0.12	29.64	2.05	1.76	28.56	0.007	0.117
	5593	MP/15/13	12.00	13.00	36.11	0.23	29.99	2.35	1.75	28.74	0.085	0.021
91	4699	MPD/15/2	12.00	13.00	36.85	0.03	29.50	2.39	1.18	28.88	0.002	0.115
	5602	MP/15/22	21.00	22.00	36.27	0.21	29.72	2.26	1.67	29.06	0.043	0.034
92	4700	MPD/15/3	21.00	22.00	37.53	0.10	28.91	1.58	1.43	29.63	0.005	0.131
	5618	MP/15/38	37.00	38.00	49.66	0.58	8.17	0.79	0.63	39.61	0.075	0.048
93	4701	MPD/15/4	37.00	38.00	49.64	0.47	8.49	0.78	0.66	39.33	0.027	0.048
	5625	MP/15/45	44.00	45.00	49.90	0.57	8.12	0.77	0.62	39.45	0.055	0.046
94	4702	MPD/15/5	44.00	45.00	49.65	0.47	8.58	0.78	0.65	39.24	0.022	0.048
	5633	MP/15/53	52.00	53.00	33.37	0.79	27.82	5.36	3.89	26.83	0.038	BDL
95	4703	MPD/15/6	52.00	53.00	34.47	0.14	28.58	3.74	4.01	26.82	0.030	0.096
	2799	MP/16/9	8.00	9.00	40.09	0.22	25.45	0.96	0.70	31.44	0.072	0.094
96	4704	MPD/16/1	8.00	9.00	41.22	0.23	24.46	1.11	0.69	31.53	0.055	0.101
	2806	MP/16/16	15.00	16.00	39.85	0.23	25.61	1.02	0.79	31.43	0.135	0.094
97	4705	MPD/16/2	15.00	16.00	41.15	0.22	24.40	1.11	0.73	31.63	0.057	0.099

	2814	MP/16/24	23.00	24.00	40.77	0.20	24.08	0.96	0.79	32.16	0.120	0.094
98	4706	MPD/16/3	23.00	24.00	41.71	0.24	23.18	1.12	0.71	32.27	0.040	0.108
	2827	MP/16/37	36.00	37.00	39.88	0.20	25.18	1.10	0.78	31.80	0.122	0.096
99	4707	MPD/16/4	36.00	37.00	41.28	0.23	24.22	1.12	0.71	31.68	0.050	0.103
	2836	MP/16/46	45.00	46.00	46.60	0.56	13.55	0.55	0.52	37.32	0.062	0.080
100	4708	MPD/16/5	45.00	46.00	47.30	0.60	12.72	0.83	0.53	37.35	0.047	0.080
	2843	MP/16/53	52.00	53.00	46.65	0.54	13.63	0.58	0.54	37.15	0.062	0.078
101	4709	MPD/16/6	52.00	53.00	47.46	0.61	12.63	0.82	0.53	37.32	0.062	0.089
	2857	MP/16/67	66.00	67.00	48.73	0.51	9.34	0.66	0.60	39.28	0.120	0.053
102	4710	MPD/16/7	66.00	67.00	49.69	0.54	8.28	0.83	0.57	39.49	0.057	0.057
	2867	MP/17/9	8.00	9.00	39.29	0.12	27.69	1.15	0.68	29.92	0.022	0.073
103	4711	MPD/17/1	8.00	9.00	38.75	0.15	28.13	1.26	0.67	30.21	0.005	0.076
	2876	MP/17/18	17.00	18.00	36.46	0.32	32.50	1.22	0.98	27.54	0.007	0.089
104	4712	MPD/17/2	17.00	18.00	36.01	0.34	32.69	1.42	0.96	27.76	0.002	0.094
	2885	MP/17/27	26.00	27.00	35.79	0.42	32.97	1.40	1.19	27.03	0.012	0.133
105	4713	MPD/17/3	26.00	27.00	36.97	0.32	32.41	1.41	0.95	27.13	0.005	0.144
	2894	MP/17/36	35.00	36.00	37.71	0.26	30.35	1.07	0.58	28.95	0.092	0.099
106	4714	MPD/17/4	35.00	36.00	37.84	0.20	30.47	1.06	0.56	29.11	0.010	0.105
	2905	MP/17/47	46.00	47.00	36.64	0.14	32.83	1.19	0.60	27.42	0.050	0.112
107	4715	MPD/17/5	46.00	47.00	36.51	0.10	33.07	1.29	0.57	27.58	0.002	0.110
	2917	MP/17/59	58.00	59.00	43.49	0.28	20.77	0.80	0.54	33.04	0.102	0.105
108	4716	MPD/17/6	58.00	59.00	43.11	0.24	21.23	0.93	0.53	33.23	0.032	0.110
	2926	MP/17/68	67.00	68.00	47.10	0.39	14.11	0.68	0.45	36.28	0.080	0.105
109	4717	MPD/17/7	67.00	68.00	46.52	0.39	14.69	0.84	0.43	36.42	0.025	0.110
	2942	MP/18/17	16.00	17.00	48.53	0.37	11.62	0.65	0.34	37.64	0.085	0.085
110	4718	MPD/18/1	16.00	17.00	48.35	0.28	12.04	0.71	0.34	37.76	0.005	0.078
	2938	MP/18/13	12.00	13.00	47.64	0.39	12.69	0.80	0.57	36.92	0.035	0.112
111	4719	MPD/18/2	12.00	13.00	47.54	0.42	12.77	0.95	0.55	37.13	0.015	0.119
	2947	MP/18/22	21.00	22.00	49.73	0.30	9.90	0.55	0.40	38.23	0.125	0.089
112	4720	MPD/18/3	21.00	22.00	49.23	0.31	10.46	0.73	0.40	38.25	0.005	0.094
	2960	MP/18/35	34.00	35.00	47.14	0.37	13.91	0.74	0.47	36.47	0.047	0.082
113	4721	MPD/18/4	34.00	35.00	47.14	0.36	14.09	0.79	0.44	36.60	0.002	0.089
	2973	MP/18/48	47.00	48.00	33.75	0.33	35.53	2.21	1.22	25.32	0.035	0.147
114	4722	MPD/18/5	47.00	48.00	33.51	0.35	35.74	2.26	1.23	25.58	0.002	0.149
	2980	MP/18/55	54.00	55.00	42.83	0.22	21.37	0.85	0.86	32.82	0.097	0.057
115	4723	MPD/18/6	54.00	55.00	42.51	0.22	21.93	1.07	0.57	32.94	0.090	0.062
	2993	MP/18/68	67.00	68.00	43.78	0.23	20.20	0.74	0.48	33.64	0.007	0.060
116	4724	MPD/18/7	67.00	68.00	43.15	0.23	20.75	0.96	0.50	33.76	0.007	0.062
	3423	MP/19/5	4.00	5.00	48.59	0.37	11.92	0.64	0.37	37.24	0.007	0.096
117	4725	MPD/19/1	4.00	5.00	48.57	0.36	12.08	0.73	0.36	37.36	0.005	0.099
	3434	MP/19/16	15.00	16.00	48.04	0.65	11.79	0.51	0.40	37.79	0.005	0.069
118	4726	MPD/19/2	15.00	16.00	47.81	0.63	12.00	0.64	0.39	38.01	0.005	0.071
	3441	MP/19/23	22.00	23.00	47.20	0.80	12.77	0.72	0.56	37.04	0.005	0.110
119	4727	MPD/19/3	22.00	23.00	46.83	0.79	13.19	0.87	0.56	37.13	0.005	0.110
	3449	MP/19/31	30.00	31.00	47.34	0.37	13.26	0.81	0.45	36.78	0.005	0.128
120	4728	MPD/19/4	30.00	31.00	47.23	0.38	13.37	0.88	0.45	37.03	0.015	0.128
	3461	MP/19/43	42.00	43.00	47.08	0.52	12.94	0.60	0.54	36.96	0.007	0.082
121	4729	MPD/19/5	42.00	43.00	47.16	0.52	13.21	0.80	0.54	37.19	0.007	0.085
	3475	MP/19/57	56.00	57.00	40.49	0.27	24.50	1.26	1.03	30.96	0.387	0.085
122	4730	MPD/19/6	56.00	57.00	40.38	0.25	24.28	1.40	1.01	31.13	0.405	0.092

	3484	MP/19/66	65.00	66.00	41.06	0.22	24.47	0.83	0.48	31.96	0.017	0.071
123	4731	MPD/19/7	65.00	66.00	41.58	0.20	24.94	0.91	0.47	31.24	0.007	0.076
	3490	MP/20/6	5.00	6.00	45.70	0.45	16.71	0.71	0.61	34.97	0.005	0.115
124	4732	MPD/20/1	5.00	6.00	45.84	0.44	16.52	0.84	0.62	35.12	0.005	0.124
	3499	MP/20/15	14.00	15.00	47.08	0.28	13.99	0.58	0.75	36.38	0.170	0.101
125	4733	MPD/20/2	14.00	15.00	46.75	0.28	14.20	0.72	0.77	36.58	0.167	0.103
	3507	MP/20/23	22.00	23.00	44.64	0.90	17.55	0.83	0.89	34.32	0.010	0.126
126	4734	MPD/20/3	22.00	23.00	44.55	0.87	17.54	1.00	0.86	34.54	0.005	0.135
	3520	MP/20/36	35.00	36.00	48.50	0.31	12.40	0.47	0.38	37.08	0.007	0.069
127	4735	MPD/20/4	35.00	36.00	48.41	0.27	12.54	0.66	0.37	37.22	0.002	0.073
	3529	MP/20/45	44.00	45.00	41.05	0.31	24.28	1.12	0.88	31.44	0.007	0.087
128	4736	MPD/20/5	44.00	45.00	40.98	0.31	24.15	1.31	0.83	31.58	0.002	0.092
	3538	MP/20/54	53.00	54.00	43.92	0.22	18.82	0.82	1.03	34.34	0.100	0.060
129	4737	MPD/20/6	53.00	54.00	44.52	0.17	18.88	0.85	0.43	34.49	0.042	0.066
	3549	MP/20/65	64.00	65.00	36.49	0.26	32.33	1.15	0.93	27.71	0.007	0.080
130	4738	MPD/20/7	64.00	65.00	36.41	0.26	32.35	1.32	0.92	27.94	0.005	0.085
	3559	MP/21/17	16.00	17.00	42.37	0.30	23.10	0.95	0.58	32.07	0.032	0.080
131	4739	MPD/21/1	16.00	17.00	41.72	0.28	23.37	1.04	0.56	32.30	0.005	0.087
	3564	MP/21/22	21.00	22.00	41.02	0.32	25.28	0.84	0.54	31.18	0.030	0.096
132	4740	MPD/21/2	21.00	22.00	40.44	0.28	25.72	1.00	0.53	31.36	0.002	0.101
	3577	MP/21/35	34.00	35.00	48.39	0.41	12.01	0.67	0.45	37.07	0.007	0.105
133	4741	MPD/21/3	34.00	35.00	48.19	0.38	12.19	0.84	0.44	37.28	0.007	0.108
	3585	MP/21/43	42.00	43.00	49.06	1.53	7.85	0.55	0.74	39.46	0.015	0.050
134	4742	MPD/21/4	42.00	43.00	49.42	1.58	7.52	0.71	0.73	39.49	0.012	0.060
	2179	MP/22/11	10.00	11.00	45.78	0.20	15.79	0.99	0.46	35.58	0.012	0.101
135	4743	MPD/22/1	10.00	11.00	45.91	0.26	16.09	0.84	0.46	35.76	0.005	0.099
	2188	MP/22/20	19.00	20.00	46.10	0.31	14.57	0.97	0.43	36.35	0.063	0.096
136	4744	MPD/22/2	19.00	20.00	46.59	0.25	14.77	0.82	0.44	36.49	0.005	0.096
	2200	MP/22/32	31.00	32.00	48.79	1.31	7.58	0.67	0.67	39.89	0.051	0.050
137	4745	MPD/22/3	31.00	32.00	48.80	1.23	7.94	0.76	0.70	40.02	0.002	0.057
	2212	MP/22/44	43.00	44.00	34.49	0.22	27.93	3.98	4.29	26.02	0.093	0.092
138	4746	MPD/22/4	43.00	44.00	34.35	0.23	28.65	3.77	4.36	26.32	0.060	0.094
	3615	MP/23/14	13.00	14.00	35.28	0.32	34.49	1.49	1.21	26.38	0.005	0.101
139	4747	MPD/23/1	13.00	14.00	35.84	0.36	33.67	1.49	1.21	26.60	0.005	0.101
	3624	MP/23/23	22.00	23.00	41.08	0.18	25.21	0.98	0.58	31.27	0.010	0.112
140	4748	MPD/23/2	22.00	23.00	40.64	0.19	25.42	0.98	0.58	31.49	0.007	0.112
	3636	MP/23/35	34.00	35.00	45.17	0.37	16.85	1.07	0.48	35.35	0.095	0.101
141	4749	MPD/23/3	34.00	35.00	45.76	0.31	16.39	0.84	0.49	35.55	0.002	0.105
	3641	MP/23/42	41.00	42.00	46.72	0.32	14.48	0.79	0.38	36.66	0.115	0.092
142	4750	MPD/23/4	41.00	42.00	47.00	0.29	14.30	0.70	0.38	36.75	0.005	0.096
	3646	MP/24/7	6.00	7.00	34.07	0.15	32.20	2.20	2.75	27.76	0.008	0.064
143	4751	MPD/24/1	6.00	7.00	34.32	0.14	31.59	2.22	2.84	27.94	0.002	0.073
	3652	MP/24/13	12.00	13.00	35.89	0.20	33.74	1.38	0.92	27.07	0.010	0.092
144	4752	MPD/24/2	12.00	13.00	35.72	0.17	33.73	1.36	0.97	27.30	0.002	0.089
	3664	MP/24/25	24.00	25.00	39.74	0.20	27.37	1.07	0.58	30.24	0.083	0.115
145	4753	MPD/24/3	24.00	25.00	39.53	0.19	27.57	1.09	0.58	30.29	0.005	0.121
	3675	MP/24/36	35.00	36.00	43.56	0.11	20.15	0.98	1.17	33.29	0.055	0.112
146	4754	MPD/24/4	35.00	36.00	43.45	0.09	20.11	0.98	1.16	33.49	0.005	0.117
	3683	MP/24/45	44.00	45.00	19.64	0.15	54.89	4.50	4.12	15.82	0.010	0.316
147	4755	MPD/24/5	44.00	45.00	19.95	0.11	53.94	4.39	4.08	16.06	0.002	0.321

	3691	MP/24/53	52.00	53.00	48.75	0.62	10.15	0.63	0.62	38.67	0.010	0.050
148	4756	MPD/24/6	52.00	53.00	48.77	0.61	10.06	0.62	0.63	38.76	0.005	0.050
	3704	MP/25/16	15.00	16.00	46.15	0.28	16.73	0.85	0.47	34.84	0.040	0.094
149	4757	MPD/25/1	15.00	16.00	46.07	0.25	16.66	0.86	0.47	35.05	0.002	0.096
	3714	MP/25/26	25.00	26.00	45.11	0.26	17.74	0.88	0.55	34.81	0.005	0.073
150	4758	MPD/25/2	25.00	26.00	45.35	0.25	17.47	0.82	0.54	34.99	0.005	0.069
	3727	MP/25/39	38.00	39.00	42.54	0.22	23.09	0.90	0.49	32.13	0.028	0.076
151	4759	MPD/25/3	38.00	39.00	42.48	0.20	23.11	0.88	0.47	32.25	0.002	0.080
	3737	MP/25/49	46.00	49.00	33.88	0.45	36.03	1.72	1.34	25.68	0.025	0.119
152	4760	MPD/25/4	46.00	49.00	34.01	0.45	35.77	1.55	1.30	26.05	0.032	0.094
	3748	MP/25/60	59.00	60.00	35.38	0.37	33.88	1.73	1.11	26.51	0.063	0.156
153	4761	MPD/25/5	59.00	60.00	34.90	0.33	34.30	1.70	1.09	26.67	0.007	0.163
	3754	MP/25/66	65.00	66.00	40.37	0.22	25.72	1.22	0.62	31.00	0.028	0.112
154	4762	MPD/25/6	65.00	66.00	40.21	0.21	25.83	1.20	0.61	31.13	0.005	0.117
	4018	MP/26/12	11.00	12.00	44.66	0.26	19.78	0.92	0.49	33.22	0.015	0.066
155	4763	MPD/26/1	11.00	12.00	44.86	0.21	19.47	0.87	0.50	33.45	0.002	0.071
	4030	MP/26/24	23.00	24.00	40.54	0.26	25.78	1.04	0.49	31.22	0.005	0.048
156	4764	MPD/26/2	23.00	24.00	40.60	0.20	25.68	0.99	0.48	31.41	0.002	0.053
	4038	MP/26/32	31.00	32.00	43.38	0.18	20.93	0.87	0.46	33.56	0.040	0.066
157	4765	MPD/26/3	31.00	32.00	43.41	0.14	20.75	0.83	0.45	33.81	0.017	0.069
	4045	MP/26/39	38.00	39.00	42.21	0.16	23.45	0.81	0.43	32.35	0.023	0.069
158	4766	MPD/26/4	38.00	39.00	42.02	0.15	23.45	0.79	0.42	32.58	0.002	0.076
	4054	MP/26/48	47.00	48.00	34.35	0.36	35.63	1.55	1.01	26.20	0.003	0.119
159	4767	MPD/26/5	47.00	48.00	34.62	0.34	35.31	1.51	1.04	26.32	0.005	0.119
	4063	MP/26/57	56.00	57.00	38.61	0.24	29.08	1.29	0.69	29.15	0.078	0.133
160	4768	MPD/26/6	56.00	57.00	38.18	0.16	29.45	1.27	0.68	29.38	0.040	0.128
	4073	MP/26/67	66.00	67.00	39.03	0.23	28.56	1.09	0.57	29.70	0.005	0.108
161	4769	MPD/26/7	66.00	67.00	38.90	0.22	28.52	1.09	0.58	29.94	0.020	0.112
	4080	MP/27/7	6.00	7.00	46.12	0.39	16.28	0.75	0.57	35.30	0.025	0.092
162	4770	MPD/27/1	6.00	7.00	45.93	0.38	16.18	0.75	0.56	35.58	0.007	0.094
	4087	MP/27/14	13.00	14.00	46.62	0.33	15.69	0.71	0.46	35.59	0.033	0.050
163	4771	MPD/27/2	13.00	14.00	46.19	0.31	15.83	0.75	0.48	35.84	0.015	0.057
	4096	MP/27/23	22.00	23.00	40.22	0.25	26.61	1.06	0.59	30.55	0.033	0.046
164	4772	MPD/27/3	22.00	23.00	39.76	0.25	26.83	1.08	0.60	30.76	0.010	0.048
	4108	MP/27/35	34.00	35.00	42.77	0.18	22.63	0.83	0.45	32.49	0.005	0.076
165	4773	MPD/27/4	34.00	35.00	42.26	0.18	22.90	0.89	0.45	32.67	0.015	0.073
	4120	MP/27/47	46.00	47.00	37.15	0.22	31.38	1.20	0.74	28.46	0.093	0.103
166	4774	MPD/27/5	46.00	47.00	37.14	0.22	31.14	1.22	0.72	28.67	0.097	0.108
	4132	MP/27/59	58.00	59.00	41.98	0.23	23.52	0.88	0.52	32.20	0.003	0.103
167	4775	MPD/27/6	58.00	59.00	41.72	0.21	23.45	0.90	0.63	32.40	0.037	0.105
	4138	MP/27/65	64.00	65.00	43.01	0.24	21.30	0.87	0.58	33.24	0.090	0.094
168	4776	MPD/27/7	64.00	65.00	42.72	0.25	21.38	0.90	0.57	33.44	0.142	0.099
	4150	MP/28/13	12.00	13.00	40.65	0.20	25.20	1.06	0.53	31.59	0.050	0.108
169	4777	MPD/28/1	12.00	13.00	41.83	0.20	23.97	0.93	0.55	31.85	0.040	0.112
	4156	MP/28/19	18.00	19.00	43.21	0.27	20.48	1.08	0.66	33.47	0.035	0.117
170	4778	MPD/28/2	18.00	19.00	43.28	0.25	20.34	1.03	0.68	33.67	0.015	0.117
	4165	MP/28/28	27.00	28.00	42.95	0.26	21.44	0.98	0.51	33.20	0.008	0.103
171	4779	MPD/28/3	27.00	28.00	42.68	0.22	21.41	0.91	0.50	33.58	0.017	0.105
	4176	MP/28/39	38.00	39.00	46.39	0.28	15.12	0.85	0.44	36.21	0.020	0.103
172	4780	MPD/28/4	38.00	39.00	46.12	0.26	14.90	0.80	0.84	36.43	0.037	0.105

	4184	MP/28/47	46.00	47.00	47.51	0.36	13.24	0.84	0.43	36.89	0.013	0.103
173	4781	MPD/28/5	46.00	47.00	47.45	0.33	13.07	0.86	0.60	37.03	0.017	0.103
	4196	MP/28/59	58.00	59.00	49.51	0.38	9.37	0.82	0.66	38.52	0.108	0.053
174	4782	MPD/28/6	58.00	59.00	49.48	0.39	9.35	0.79	0.66	38.62	0.142	0.048
	4203	MP/28/66	65.00	66.00	47.84	0.34	11.16	1.21	0.84	37.71	0.083	0.044
175	4783	MPD/28/7	65.00	66.00	47.96	0.31	10.91	1.14	0.87	37.94	0.067	0.048
	12541	MP/29/14	13.00	14.00	37.37	0.19	29.63	1.25	0.51	30.14	0.025	0.080
176	4784	MPD/29/1	13.00	14.00	38.42	0.12	28.47	1.05	0.52	30.58	0.007	0.103
	12549	MP/29/22	21.00	22.00	41.64	0.29	22.59	0.88	0.61	33.21	0.026	0.080
177	4785	MPD/29/2	21.00	22.00	42.38	0.27	21.72	0.95	0.62	33.41	0.005	0.112
	12561	MP/29/34	33.00	34.00	45.08	0.27	15.20	1.28	0.67	36.34	0.158	0.112
178	4786	MPD/29/3	33.00	34.00	45.79	0.23	14.79	1.10	0.67	36.58	0.010	0.149
	12575	MP/29/48	47.00	48.00	45.77	0.25	12.74	1.48	0.89	37.71	0.083	0.043
179	4787	MPD/29/4	47.00	48.00	46.85	0.19	11.74	1.28	0.90	37.94	0.007	0.057
	12578	MP/29/51	50.00	51.00	38.12	0.78	22.85	3.33	2.85	29.75	0.258	0.077
180	4788	MPD/29/5	50.00	51.00	38.34	0.21	23.65	3.08	2.84	29.97	0.042	0.096
	12594	MP/29/67	66.00	67.00	26.92	0.27	35.88	6.25	6.06	20.94	0.208	0.098
181	4789	MPD/29/6	66.00	67.00	27.07	0.16	36.98	5.75	6.07	21.13	0.052	0.121
	4219	MP/30/18	17.00	18.00	39.20	0.22	28.27	1.17	0.58	29.74	0.015	0.119
182	4790	MPD/30/1	17.00	18.00	38.61	0.23	28.60	1.22	0.58	29.94	0.005	0.121
	4226	MP/30/25	24.00	25.00	41.59	0.25	23.76	1.02	0.65	31.97	0.023	0.121
183	4791	MPD/30/2	24.00	25.00	41.52	0.21	23.71	0.99	0.61	32.21	0.015	0.117
	4232	MP/30/31	30.00	31.00	42.10	0.22	23.62	1.10	0.57	31.54	0.003	0.133
184	4792	MPD/30/3	30.00	31.00	42.02	0.19	23.71	1.09	0.59	31.67	0.005	0.133
	4246	MP/30/45	44.00	45.00	40.58	0.25	25.63	0.95	0.56	31.27	0.135	0.103
185	4793	MPD/30/4	44.00	45.00	40.20	0.21	25.77	0.93	0.59	31.54	0.137	0.101
	4259	MP/30/58	57.00	58.00	46.32	0.25	15.66	0.69	0.38	36.11	0.010	0.089
186	4794	MPD/30/5	57.00	58.00	45.76	0.26	15.87	0.72	0.38	36.41	0.007	0.092
	4265	MP/30/64	63.00	64.00	45.32	0.43	17.55	0.78	0.41	34.89	0.020	0.099
187	4795	MPD/30/6	63.00	64.00	45.07	0.42	17.58	0.83	0.42	35.05	0.007	0.092
	2218	MP/31/7	6.00	7.00	44.74	1.92	12.58	0.63	0.65	38.30	0.087	0.076
188	4796	MPD/31/1	6.00	7.00	44.94	1.94	12.74	0.60	0.67	38.49	0.067	0.076
	2226	MP/31/15	14.00	15.00	45.74	0.79	15.10	0.91	0.51	35.62	0.030	0.147
189	4797	MPD/31/2	14.00	15.00	45.34	0.72	15.69	1.07	0.51	35.85	0.002	0.133
	2237	MP/31/26	25.00	26.00	45.88	0.49	14.16	0.94	0.53	36.78	0.080	0.080
190	4798	MPD/31/3	25.00	26.00	46.36	0.44	14.26	0.76	0.56	37.00	0.005	0.082
	2249	MP/31/38	37.00	38.00	43.96	0.27	18.37	0.90	0.47	34.74	0.087	0.066
191	4799	MPD/31/4	37.00	38.00	44.11	0.22	18.74	0.86	0.46	34.94	0.030	0.076
	2256	MP/31/45	44.00	45.00	36.80	0.24	31.15	1.46	0.96	27.89	0.032	0.131
192	4800	MPD/31/5	44.00	45.00	36.53	0.24	31.97	1.41	0.98	28.03	0.002	0.121
	2270	MP/31/59	58.00	59.00	42.65	0.23	21.63	0.80	0.46	33.00	0.012	0.108
193	4801	MPD/31/6	58.00	59.00	41.96	0.22	22.62	0.88	0.47	33.24	0.010	0.101
	2280	MP/31/69	68.00	69.00	45.73	0.31	15.44	0.89	0.38	35.97	0.050	0.108
194	4802	MPD/31/7	68.00	69.00	45.81	0.27	15.96	0.79	0.38	36.13	0.002	0.101
	2284	MP/32/5	4.00	5.00	46.56	1.42	12.42	0.51	0.46	37.48	0.037	0.108
195	4803	MPD/32/1	4.00	5.00	46.48	1.30	12.88	0.66	0.46	37.62	0.002	0.105
	2292	MP/32/13	12.00	13.00	43.43	1.75	16.07	0.86	0.79	35.79	0.022	0.126
196	4804	MPD/32/2	12.00	13.00	43.07	1.70	16.71	0.95	0.83	36.01	0.007	0.121
	2304	MP/32/25	24.00	25.00	47.47	0.43	12.87	0.74	0.55	36.73	0.015	0.073
197	4805	MPD/32/3	24.00	25.00	47.31	0.42	13.34	0.85	0.57	36.85	0.007	0.076

	2313	MP/32/34	33.00	34.00	30.32	0.65	39.57	2.77	1.75	22.83	0.052	0.204
198	4806	MPD/32/4	33.00	34.00	30.00	0.59	40.60	2.63	1.80	23.03	0.002	0.190
	2326	MP/32/47	46.00	47.00	37.89	0.20	30.13	1.18	0.57	28.60	0.040	0.115
199	4807	MPD/32/5	46.00	47.00	37.34	0.19	31.14	1.18	0.59	28.76	0.002	0.115
	2335	MP/32/56	55.00	56.00	41.40	0.28	23.66	0.95	0.57	31.80	0.017	0.128
200	4808	MPD/32/6	55.00	56.00	40.96	0.28	24.36	1.12	0.58	31.94	0.027	0.128
	2344	MP/32/65	64.00	65.00	44.23	0.28	18.77	0.78	0.41	34.25	0.030	0.096
201	4809	MPD/32/7	64.00	65.00	43.87	0.24	19.54	0.83	0.46	34.42	0.005	0.096
	4272	MP/33/5	4.00	5.00	46.34	0.18	12.91	1.16	2.69	36.08	0.033	0.078
202	4810	MPD/33/1	4.00	5.00	46.15	0.16	12.89	1.17	2.77	36.24	0.002	0.076
	4284	MP/33/17	16.00	17.00	43.17	0.20	21.26	1.22	0.77	32.51	0.038	0.082
203	4811	MPD/33/2	16.00	17.00	43.27	0.20	21.12	1.16	0.79	32.67	0.007	0.080
	4291	MP/33/24	23.00	24.00	43.81	0.16	20.02	1.09	0.55	33.59	0.050	0.082
204	4812	MPD/33/3	23.00	24.00	43.61	0.14	20.05	1.04	0.55	33.85	0.017	0.087
	4299	MP/33/32	31.00	32.00	35.38	0.34	34.24	1.41	1.09	26.71	0.005	0.117
205	4813	MPD/33/4	31.00	32.00	35.21	0.31	34.18	1.42	1.09	27.01	0.002	0.108
	4309	MP/33/42	41.00	42.00	41.19	0.11	25.40	1.02	0.62	30.94	0.015	0.115
206	4814	MPD/33/5	41.00	42.00	41.35	0.08	25.12	0.99	0.63	31.13	0.002	0.115
	4318	MP/33/51	50.00	51.00	39.60	0.13	27.53	0.96	0.69	30.28	0.183	0.103
207	4815	MPD/33/6	50.00	51.00	39.53	0.10	27.41	0.93	0.70	30.56	0.185	0.101
	4326	MP/33/63	62.00	63.00	43.24	0.10	22.29	0.79	0.43	32.53	0.035	0.096
208	4816	MPD/33/7	62.00	63.00	43.06	0.09	22.21	0.82	0.42	32.76	0.002	0.099
	2351	MP/34/11	10.00	11.00	36.83	0.09	31.47	1.28	1.18	27.74	0.012	0.112
209	4817	MPD/34/1	10.00	11.00	36.07	0.07	32.52	1.35	1.22	27.98	0.002	0.108
	2359	MP/34/19	18.00	19.00	41.54	0.04	25.02	0.86	0.63	30.71	0.010	0.115
210	4818	MPD/34/2	18.00	19.00	41.08	0.10	25.45	0.96	0.65	30.94	0.002	0.115
	2371	MP/34/31	30.00	31.00	41.05	0.25	24.27	0.93	0.56	31.61	0.027	0.115
211	4819	MPD/34/3	30.00	31.00	40.57	0.22	25.01	1.04	0.56	31.85	0.027	0.112
	2384	MP/34/44	43.00	44.00	47.49	0.29	13.12	0.51	0.32	37.13	0.007	0.092
212	4820	MPD/34/4	43.00	44.00	47.22	0.27	13.66	0.66	0.36	37.26	0.005	0.089
	2397	MP/34/57	56.00	57.00	45.66	0.45	13.42	1.64	1.22	35.84	0.082	0.048
213	4821	MPD/34/5	56.00	57.00	45.62	0.41	13.91	1.65	1.24	36.07	0.005	0.055
	2403	MP/34/63	62.00	63.00	41.58	0.28	18.52	2.56	2.60	32.07	0.102	0.076
214	4822	MPD/34/6	62.00	63.00	41.52	0.25	19.24	2.47	2.65	32.23	0.050	0.073
	4367	MP/35/9	8.00	9.00	13.65	0.11	74.76	0.84	1.21	8.93	0.033	0.121
215	4823	MPD/35/1	8.00	9.00	12.69	0.10	75.53	0.91	1.21	9.06	0.005	0.121
	4377	MP/35/19	18.00	19.00	37.86	0.41	29.06	1.82	1.34	28.45	0.003	0.110
216	4824	MPD/35/2	18.00	19.00	37.89	0.39	28.91	1.79	1.34	28.61	0.005	0.112
	4386	MP/35/28	27.00	28.00	38.99	0.11	29.97	0.94	0.45	28.82	0.010	0.103
217	4825	MPD/35/3	27.00	28.00	37.44	0.09	31.25	0.91	0.44	29.02	0.002	0.099
	4392	MP/35/34	33.00	34.00	41.33	0.25	24.84	1.04	0.59	31.19	0.023	0.121
218	4826	MPD/35/4	33.00	34.00	41.21	0.23	24.82	1.04	0.60	31.38	0.002	0.115
	4406	MP/35/48	47.00	48.00	45.18	0.24	17.76	0.82	0.45	34.87	0.005	0.099
219	4827	MPD/35/5	47.00	48.00	45.05	0.24	17.86	0.84	0.42	34.94	0.002	0.096
	4413	MP/35/55	54.00	55.00	46.20	0.18	16.97	0.73	0.55	34.77	0.033	0.085
220	4828	MPD/35/6	54.00	55.00	46.26	0.18	16.76	0.74	0.57	34.90	0.002	0.089
	4426	MP/35/68	67.00	68.00	49.82	0.48	9.03	0.68	0.71	38.70	0.023	0.048
221	4829	MPD/35/7	67.00	68.00	49.93	0.47	8.84	0.65	0.70	38.85	0.002	0.050
	4431	MP/36/6	5.00	6.00	38.77	0.35	27.57	1.35	1.16	30.06	0.035	0.103
222	4830	MPD/36/1	5.00	6.00	38.58	0.38	27.55	1.34	1.14	30.24	0.002	0.099

	4435	MP/36/10	11.00	12.00	27.63	0.39	44.44	2.78	1.79	21.51	0.035	0.209
223	4831	MPD/36/2	11.00	12.00	28.10	0.42	43.86	2.76	1.79	21.63	0.002	0.204
	4444	MP/36/19	20.00	21.00	37.97	0.15	30.46	1.10	0.59	28.97	0.030	0.096
224	4832	MPD/36/3	20.00	21.00	37.98	0.14	30.57	1.11	0.58	28.85	0.002	0.099
	4457	MP/36/32	33.00	34.00	41.68	0.20	23.33	0.99	0.57	32.51	0.010	0.115
225	4833	MPD/36/4	33.00	34.00	41.84	0.18	23.25	0.94	0.51	32.58	0.005	0.108
	4468	MP/36/43	44.00	45.00	46.24	0.28	15.69	0.80	0.43	35.91	0.020	0.089
226	4834	MPD/36/5	44.00	45.00	46.43	0.25	15.42	0.78	0.44	36.07	0.005	0.101
	4476	MP/36/51	52.00	53.00	46.61	0.26	14.99	0.71	0.36	36.45	0.010	0.087
227	4835	MPD/36/6	52.00	53.00	46.86	0.25	14.84	0.70	0.37	36.36	0.007	0.089
	4489	MP/36/64	65.00	66.00	47.19	0.32	14.62	0.75	0.36	36.14	0.015	0.089
228	4836	MPD/36/7	65.00	66.00	47.53	0.31	14.49	0.72	0.37	35.94	0.005	0.092

**Chemical Analysis of Na₂O & K₂O of 208 Samples from
Madinapadu Limestone Block**

MADINAPADU LIME STONE BLOCK						
S.No	Sample No.	Lab Code	From	To	Na₂O (%)	K₂O (%)
1	MPD/1/1	4958	4	14	0.053	0.412
2	MPD/1/2	4959	14	24	0.055	0.390
3	MPD/1/3	4960	24	34	0.054	0.268
4	MPD/1/4	4961	34	44	0.054	0.220
5	MPD/1/5	4962	44	54	0.049	0.183
6	MPD/1/6	4963	54	64	0.052	0.262
7	MPD/1/7	4964	64	70	0.049	0.205
8	MPD/2/1	4965	6	16	0.056	0.338
9	MPD/2/2	4966	16	26	0.055	0.337
10	MPD/2/3	4967	26	36	0.055	0.304
11	MPD/2/4	4968	36	46	0.055	0.279
12	MPD/2/5	4969	46	56	0.055	0.220
13	MPD/2/6	4970	56	70	0.054	0.208
14	MPD3/1	4971	9	19	0.062	0.379
15	MPD3/2	4972	19	29	0.057	0.293
16	MPD3/3	4973	29	39	0.065	0.215
17	MPD3/4	4974	39	49	0.065	0.288
18	MPD3/5	4975	49	59	0.065	0.358
19	MPD3/6	4976	59	70	0.066	0.309
20	MPD/4/1	4977	9	19	0.053	0.247
21	MPD/4/2	4978	19	29	0.057	0.578
22	MPD/4/3	4979	29	39	0.054	0.286
23	MPD/4/4	4980	39	49	0.056	0.380
24	MPD/4/5	4981	49	59	0.056	0.341
25	MPD/4/6	4982	59	70	0.055	0.275
26	MPD/5/1	4983	6	16	0.052	0.237
27	MPD/5/2	4984	16	26	0.050	0.217
28	MPD/6/1	4985	7	17	0.048	0.312
29	MPD/6/2	4986	17	27	0.049	0.293
30	MPD/6/3	4987	27	37	0.051	0.464
31	MPD/6/4	4988	37	47	0.053	0.249
32	MPD/6/5	4989	47	57	0.052	0.332
33	MPD/6/6	4990	57	70	0.048	0.212
34	MPD/7/1	4991	4	14	0.046	0.171
35	MPD/7/2	4992	14	24	0.045	0.169
36	MPD/7/3	4993	24	34	0.048	0.407
37	MPD/7/4	4994	34	44	0.048	0.907
38	MPD/7/5	4995	44	54	0.049	0.292
39	MPD/7/6	4996	54	65	0.053	0.431
40	MPD/7/7	4997	65	70	0.053	0.526
41	MPD/8/1	4998	6	16	0.055	0.329

42	MPD/8/2	4999	16	26	0.052	0.297
43	MPD/8/3	5000	26	36	0.052	0.225
44	MPD/9/1	5001	4	14	0.053	0.397
45	MPD/9/2	5002	14	24	0.054	0.326
46	MPD/9/3	5003	24	34	0.052	0.239
47	MPD/9/4	5004	34	44	0.051	0.286
48	MPD/9/5	5005	44	54	0.052	0.480
49	MPD/9/6	5006	54	65	0.052	0.298
50	MPD/9/7	5007	64	70	0.053	0.463
51	MPD/10/1	5008	6	16	0.052	0.206
52	MPD/10/2	5009	16	26	0.053	0.252
53	MPD/10/3	5010	26	36	0.054	0.372
54	MPD/10/4	5011	36	46	0.055	0.365
55	MPD/10/5	5012	46	56	0.052	0.242
56	MPD/10/6	5013	56	70	0.054	0.314
57	MPD/11/1	5014	3	13	0.052	0.211
58	MPD/11/2	5015	13	23	0.053	0.184
59	MPD/11/3	5016	23	33	0.052	0.197
60	MPD/11/4	5017	33	43	0.052	0.233
61	MPD/11/5	5018	43	53	0.053	0.576
62	MPD/11/6	5019	53	63	0.054	0.365
63	MPD/11/7	5020	63	70	0.055	0.369
64	MPD/12/1	5021	3	13	0.055	0.336
65	MPD/12/2	5022	13	23	0.055	0.339
66	MPD/12/3	5023	23	33	0.052	0.332
67	MPD/12/4	5024	33	43	0.052	0.378
68	MPD/12/5	5025	43	53	0.054	0.268
69	MPD/12/6	5026	53	63	0.054	0.237
70	MPD/12/7	5027	63	73	0.053	0.174
71	MPD/12/8	5028	73	83	0.055	0.769
72	MPD/12/9	5029	83	93	0.050	1.761
73	MPD/12/10	5030	93	100	0.053	1.763
74	MPD/13/1	5031	4	14	0.053	0.285
75	MPD/13/2	5032	14	24	0.053	0.281
76	MPD/13/3	5033	24	38	0.053	0.286
77	MPD/14/1	5034	1	11	0.032	0.312
78	MPD/14/2	5035	11	21	0.050	0.287
79	MPD/14/3	5036	21	30	0.048	0.879
80	MPD/15/1	5037	3	13	0.041	0.452
81	MPD/15/2	5038	13	23	0.052	0.433
82	MPD/15/3	5039	23	33	0.057	0.430
83	MPD/15/4	5040	33	43	0.054	0.349
84	MPD/15/5	5041	43	52	0.056	0.573
85	MPD/16/1	5042	6	16	0.068	0.323
86	MPD/16/2	5043	16	26	0.069	0.322
87	MPD/16/3	5044	26	36	0.069	0.328

88	MPD/16/4	5045	36	46	0.069	0.233
89	MPD/16/5	5046	46	56	0.068	0.207
90	MPD/16/6	5047	56	70	0.066	0.174
91	MPD/17/1	5048	6	16	0.069	0.430
92	MPD/17/2	5049	16	26	0.070	0.411
93	MPD/17/3	5050	26	36	0.067	0.393
94	MPD/17/4	5051	36	46	0.069	0.499
95	MPD/17/5	5052	46	56	0.071	0.405
96	MPD/17/6	5053	56	70	0.067	0.253
97	MPD/18/1	5054	4	14	0.068	0.177
98	MPD/18/2	5055	14	24	0.064	0.171
99	MPD/18/3	5056	24	34	0.066	0.209
100	MPD/18/4	5057	34	44	0.065	0.241
101	MPD/18/5	5058	44	54	0.066	0.649
102	MPD/18/6	5059	54	64	0.067	0.578
103	MPD/18/7	5060	64	70	0.067	0.670
104	MPD/19/1	5061	2	12	0.065	0.176
105	MPD/19/2	5062	12	22	0.065	0.161
106	MPD/19/3	5063	22	32	0.065	0.210
107	MPD/19/4	5064	32	42	0.066	0.214
108	MPD/19/5	5065	42	52	0.067	0.317
109	MPD/19/6	5066	52	62	0.068	0.497
110	MPD/19/7	5067	62	70	0.065	0.359
111	MPD/20/1	5068	4	14	0.066	0.176
112	MPD/20/2	5069	14	24	0.068	0.204
113	MPD/20/3	5070	24	34	0.068	0.229
114	MPD/20/4	5071	34	44	0.068	0.224
115	MPD/20/5	5072	44	54	0.069	0.593
116	MPD/20/6	5073	54	64	0.069	0.343
117	MPD/20/7	5074	64	70	0.066	0.416
118	MPD/21/1	5075	13	23	0.069	0.319
119	MPD/21/2	5076	23	38	0.068	0.237
120	MPD/22/1	5077	7	17	0.064	0.349
121	MPD/22/2	5078	17	27	0.062	0.261
122	MPD/22/3	5079	27	37	0.061	0.291
123	MPD/22/4	5080	37	43	0.066	1.481
124	MPD/23/1	5081	9	19	0.046	0.337
125	MPD/23/2	5082	19	29	0.044	0.255
126	MPD/23/3	5083	29	39	0.041	0.245
127	MPD/23/4	5084	39	48	0.038	0.233
128	MPD/24/1	5085	4	14	0.045	0.303
129	MPD/24/2	5086	14	24	0.046	0.364
130	MPD/24/3	5087	24	34	0.044	0.270
131	MPD/24/4	5088	34	44	0.046	0.303
132	MPD/24/5	5089	44	50	0.045	0.308
133	MPD/25/1	5090	9	19	0.044	0.203

134	MPD/25/2	5091	19	29	0.044	0.300
135	MPD/25/3	5092	29	39	0.045	0.428
136	MPD/25/4	5093	39	49	0.046	0.355
137	MPD/25/5	5094	49	59	0.045	0.426
138	MPD/25/6	5095	59	70	0.043	0.431
139	MPD/26/1	5096	6	16	0.049	0.291
140	MPD/26/2	5097	16	26	0.049	0.364
141	MPD/26/3	5098	26	36	0.050	0.416
142	MPD/26/4	5099	36	46	0.050	0.269
143	MPD/26/5	5100	46	56	0.049	0.448
144	MPD/26/6	5101	56	70	0.048	0.319
145	MPD/27/1	5102	3	13	0.048	0.229
146	MPD/27/2	5103	13	23	0.050	0.387
147	MPD/27/3	5104	23	33	0.049	0.312
148	MPD/27/4	5105	33	43	0.050	0.421
149	MPD/27/5	5106	43	53	0.050	0.335
150	MPD/27/6	5107	6	63	0.049	0.273
151	MPD/27/7	5108	63	70	0.048	0.302
152	MPD/28/1	5109	7	17	0.069	0.311
153	MPD/28/2	5110	17	27	0.069	0.282
154	MPD/28/3	5111	27	37	0.068	0.275
155	MPD/28/4	5112	37	47	0.068	0.245
156	MPD/28/5	5113	47	57	0.067	0.239
157	MPD/28/6	5114	57	70	0.067	0.421
158	MPD/29/1	5115	10	20	0.044	0.342
159	MPD/29/2	5116	20	30	0.048	0.297
160	MPD/29/3	5117	30	40	0.046	0.293
161	MPD/29/4	5118	40	50	0.045	0.473
162	MPD/29/5	5119	50	60	0.102	1.722
163	MPD/29/6	5120	60	70	0.103	2.472
164	MPD/30/1	5121	7	17	0.058	0.354
165	MPD/30/2	5122	17	27	0.058	0.262
166	MPD/30/3	5123	27	37	0.056	0.260
167	MPD/30/4	5124	37	47	0.057	0.251
168	MPD/30/5	5125	47	57	0.058	0.243
169	MPD/30/6	5126	57	70	0.058	0.215
170	MPD/31/1	5127	3	13	0.059	0.201
171	MPD/31/2	5128	13	23	0.060	0.266
172	MPD/31/3	5129	23	33	0.061	0.484
173	MPD/31/4	5130	33	43	0.062	0.480
174	MPD/31/5	5131	43	53	0.065	0.407
175	MPD/31/6	5132	53	63	0.064	0.269
176	MPD/31/7	5133	63	70	0.063	0.225
177	MPD/32/1	5134	2	12	0.060	0.204
178	MPD/32/2	5135	12	22	0.062	0.240
179	MPD/32/3	5136	22	32	0.063	0.508

180	MPD/32/4	5137	32	42	0.060	0.475
181	MPD/32/5	5138	42	52	0.064	0.468
182	MPD/32/6	5139	52	62	0.062	0.300
183	MPD/32/7	5140	62	70	0.064	0.217
184	MPD/33/1	5141	4	14	0.053	0.202
185	MPD/33/2	5142	14	24	0.054	0.411
186	MPD/33/3	5143	24	34	0.054	0.413
187	MPD/33/4	5144	34	44	0.053	0.312
188	MPD/33/5	5145	44	54	0.054	0.245
189	MPD/33/6	5146	54	64	0.054	0.230
190	MPD/33/7	5147	64	70	0.051	0.204
191	MPD/34/1	5148	9	19	0.067	0.404
192	MPD/34/2	5149	19	29	0.065	0.276
193	MPD/34/3	5150	29	39	0.064	0.230
194	MPD/34/4	5151	39	49	0.061	0.217
195	MPD/34/5	5152	49	64	0.060	0.676
196	MPD/35/1	5153	6	16	0.057	0.284
197	MPD/35/2	5154	16	26	0.053	0.421
198	MPD/35/3	5155	26	36	0.056	0.299
199	MPD/35/4	5156	36	46	0.052	0.267
200	MPD/35/5	5157	46	56	0.053	0.206
201	MPD/35/6	5158	56	70	0.050	0.188
202	MPD/36/1	5159	3	13	0.054	0.445
203	MPD/36/2	5160	13	23	0.054	0.312
204	MPD/36/3	5161	23	33	0.053	0.328
205	MPD/36/4	5162	33	43	0.053	0.309
206	MPD/36/5	5163	43	53	0.052	0.220
207	MPD/36/6	5164	53	63	0.050	0.231
208	MPD/36/7	5165	63	70	0.052	0.219