GOVERNMENT OF ANDHRA PRADESH
GROUND WATER AND WATER AUDIT DEPARTMENT

From:
Sri.M.Srinivasa Rao, M.Sc (Tech).,
Deputy Director,
Ground Water and Water Audit Dept,
FRL Compound,
Kurnool-518002.
Phone No: 8333991261.
Mail: ddgwdknl@gmail.com.

To,
The Manging Director,
M/s Kalki Foods and Beverages,
E.Thandrapadu Village,
Kurnool Mandal,
Kurnool district.
Andhra Pradesh.

Letter No: 213/Industries/2025,Dated : 07-04-2025

Sir/Madam,

Sub: - Ground Water and Water Audit Department, Kurnool – Single desk portal Issue of Permission/No objection certificate and Feasibility report - Reg.
Ref: - Your Online Application No.CAE2404065.

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With reference to the above subject and reference cited, I am here with furnishing the Report on Ground water investigations carried out in the site of M/S Kalki Foods and Beverages, E.Thandrapadu village, Kurnool Mandal, Kurnool district.

The firm is here by permitted to draw 50.1 KLD (0.1KLD for Drinking and 50KLD for industrial purpose) only from the Borewell recommended at VES no.1 at Right of main gate of the plant(15°51'01.2"N, 78°02'46.1"E), Duly follow the terms and conditions as specified in the enclosed report.

Encl: 1) Report along with enclosures
2) NOC Letter

Deputy Director,
Ground water and water audit department,
Kurnool.

Copy to Director, Ground water and water audit department, Vijayawada, for information.

GOVERNMENT OF ANDHRA PRADESH
GROUND WATER AND WATER AUDIT DEPARTMENT

0/o Deputy Director, Ground Water and Water Audit Department, KURNOOL

PERMISSION / NO OBJECTION CERTIFICATE

NOC No: 1/2025 Purpose: Drinking,domestic and industrial use.

Date of Issue: 07/04/2025 Valid Upto:06/04/2028.

With reference to the application ID : CAE2404065, Dated:17/03/2025 .

NOC for extraction of Ground water is issued as per the details given under:

1. Name of proponent : SASHIDHAR ACHARI VADLA
2. Name of the Industry : M/s KALKI FOODS AND BEVERAGES
3. Location of the Industry : - 15°51'01.2"N, 78°02'46.1"E
4. R.S.No :194/3 Extent : 0.56 acres

Village : E.Thandrapadu

Mandal:Kurnool District: KURNOOL

Details of Ground Water extraction structures for which NOC is issued.

S.NO	Type of well	Location/ VES number	Geo coordinates Latitude / Longitude	Depth in mts/ Dia in mm	Expected Yield of the well (in LPH)	Permitted hours of pumping per day	Estimate Yield (in LPD)	Permitted Quantity (in KLD)
1	Borewell	At right side of main gate	15°51'01.2"N, 78°02'46.1"E	100 m/ 165 mm	7000 LPH	7 hrs	50100 LPD	50.1 KLD
2	Piezometer	At main gate	15°51'01.2"N, 78°02'46.8"E	100 m/ 165 mm	--	--	---	Monitoting purpose only

Permission/ NOC is hereby issued to draw 50.1 KLD of Ground Water from recommended bore well to meet the Drinking ,Domestic and Industrial purpose only.

PTO

Terms and conditions:

- The firm should drill the bore well at recommended location and depth only.
- The firm should pump for the recommended hours/day from the recommended new bore well point to be located at right side of main gate **(15°51'01.2"N, 78°02'46.1"E)** with recommended depth and discharges.
- The firm should drilled the bore well at recommended place(**15°51'01.2"N, 78°02'46.8"E**) for piezometer purpose for monitoring water level data regularly with Real Time Water Level Capturing i.e., Digital Water Level Recorder with telemetry with 4 data points of 6 hours interval per day also advised to maintain log for the readings .This bore well shall not be used for any other purpose, except monitoring
- The firm shall install the digital flow meters to the newly recommended borewell and should maintain the register for flow meter data, the data must be sent to the Deputy Director, Ground Water & Water Audit Department, Kurnool by 5th of every succeeding month. (ddgwdknl@gmail.com).
- The firm should monitor the water quality twice a year [pre (May) and post (Nov) monsoon period] and the data must be sent to the Deputy Director, Ground Water & Water Audit Department, Kurnool by 5th of every succeeding month. (ddgwdknl@gmail.com)
- The firm is recommended to construct artificial recharge structures to promote the ground water recharge though recharge pit for 1050 Cu.m in the suitable places in their premises.
- The effluents must be treated properly and must be free from all toxic materials, turbidity, colour, odour etc., and should not be let out into either surface or Ground water bodies.
- Injection of treated/untreated waste water into the aquifer system is strictly prohibited.
- The firm shall undertake periodic maintenance of artificial recharge structures at their own cost
- The officials of the State Ground Water and Water Audit Department (GW&WAD) must be allowed to inspect the plant area whenever necessary to monitor the implementations of above conditions.
- The Government of A.P/Ground Water & Water Audit Department reserves the right to stop the plant from using ground water during emergencies or whenever the plant deviates from the terms and conditions and recommendations.
- **The party has to give their consent to the above terms and conditions within a week and compliance regarding grounding of the recommendations within a month of receipt of the report/recommendations respectively**.
- The present permitted yields of the bore wells subjected to recharge conditions, rainfall and ground water utilization in the surrounding area. Hence the firm has to take alternate arrangements during the shortage of ground water

Deputy Director,
Ground water and water audit department,
Kurnool

7/4/25

REPORT ON INTEGRATED GROUNDWATER INVESTIGATIONS CARRIED OUT FOR ASSESSING THE GROUNDWATER AVAILABILITY UNDER SINGLE DESK POLICY IN THE PREMISES OF M/s KALKI FOODS AND BEVERAGES AT .E THANDRAPADU VILALGE, KURNOOL MANDAL, KURNOOL DISTRICT.

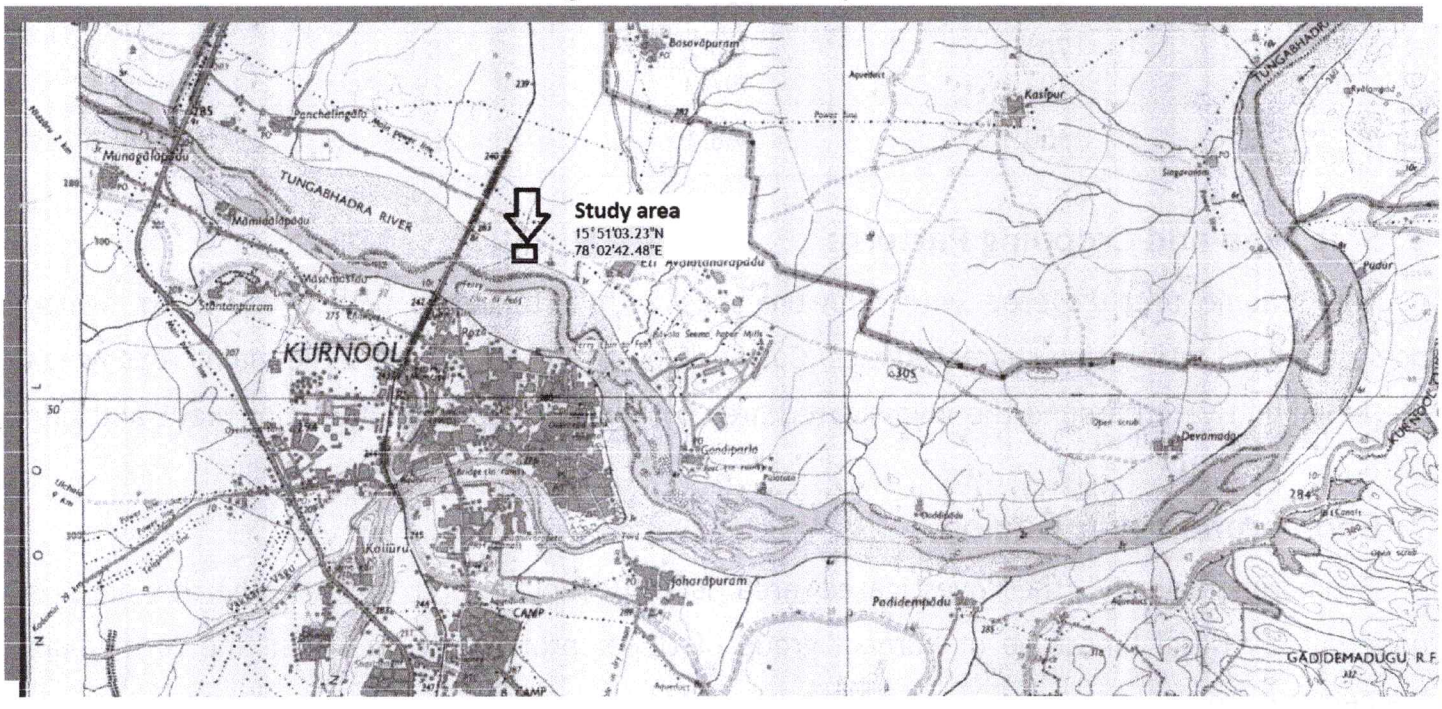
1. Introduction:

At the instance of M/s Kalki foods and beverages vide Online Application ID: CAE2404065 dated 17-03-2025, groundwater investigations were conducted to assess the quantum of Ground water available in the premises of M/s Kalki foods and beverages under single desk policy at E.Thandrapadu village, Kurnool Mandal, Kurnool District. The total groundwater requirement for drinking, domestic and industrial purpose as requested by the firm is 50.1 KLD to meet the requirements of the unit in the scheme area. On instructions of the Deputy Director, Ground water and water audit department, Kurnool the integrated Hydrogeological investigations were taken up by Sri R.Suvarna Kumar, Asst geophysicist and Sri B. Mohan Rao, Asst Hydrogeologist on 02/03/2025.The proposed scheme area shown by Sri.Sasidhar

2. Location:

The Investigated area situated about 0.7 km west direction of E.Thandrapadu Village, Kurnool Mandal with an extent of 0.56 acres bearing survey No 194/3. Geographically the scheme area is located in between North Latitudes of 15°51'03.23"N, 15°51'02.74"N, 15°51'01.40"N & 15°51'00.88"N and East longitudes of 78°02'42.48"E, 78°02'42.19"E, 78°02'46.59"E & 78°02'46.3"E and falls in survey of India Toposheet No.57 I/1. The location map is shown in the figure-1.

Figure:1 Location map



3. Aim of the study:

The aim of the survey is to study the performance of the existing and surrounding ground water extraction structures for issuance of No Objection Certificate to withdraw Ground water under single desk policy to meet the proposed quantity by unit M/s Kalki foods and beverages under single desk policy at E.Thandrapadu village, Kurnool Mandal, Kurnool District.

4. Physiography and Drainage:

The investigated area is having alluvium and plain topography and is having a gentle slope towards south direction, with an elevation of 283 m above mean seal level. The area is being drained by streams and tungabadhra river which is good sources for recharging the groundwater in the area.

5. Climate and Rainfall:

The investigated area experiences semi-arid climate conditions. The normal annual rainfall of the area is 703.1 mm and the area receives most of the precipitation during South-West Monsoon. The actual rainfall received in this area up to march 2025 (2024-25 Water Year) is 688.1 mm against the normal rainfall of 650.1 mm. Rainfall data of Kurnool Mandal for the last 7 Water years is as given in below.

Table-I Rainfall Data of Adoni Mandal for the Last 7 Years (2018-2025)

Year	Normal Rainfall (mm)	Actual Rainfall (mm)	% Deviation	Rainfall Status
2018-2019	703.1	383.9	-45.4%	Deficit
2019-2020	703.1	580.1	-17.5%	Normal
2020-2021	703.1	936.4	33.2%	Excess
2021-2022	703.1	526.4	-25.1%	Deficit
2022-2023	703.1	900.2	28.00%	Excess
2023-2024	703.1	497.3	-29.3%	Deficit
2024-2025 Upto Mar 2025	650.1	688.1	5.8%	Normal

6. Soil Type and Cropping Pattern:

The scheme area covered with alluvium soils with a thickness of 1.0 to 1.5 m, which possesses good infiltration characteristics. Cotton, Flowers, Vegetables are the main crops which are being cultivated around the investigated area by Filter points and infiltration wells and rain fed.

7. Geomorphology & Geology:

Geomorphologically, the investigated area is a floodplain and geologically the area is underlain by Nargi limestone of Kurnool group of Upper proterozoic age with fine to medium grained texture.

8. Hydrogeology:

The investigated area is covered with alluvium soils of 1.0 to 1.5 m thickness at the top followed by weathered zone of 6 to 10 m thickness followed Nargi limestone of Kurnool group of Upper proterozoic age in geological time scale. Around the scheme area the ground water is occurs under the alluvium and semi confined conditions in fractured zones below the weathered zone and is being utilized by means of Filter points and infiltration wells.

During the course of the survey, 2 Infiltration wells existing around the scheme area were inventoried. Reported the bore wells total depth ranges from 8 to 10 m bgl with 3.0 m dia and depth to water levels are in range of 0.2 m to 0.25 bgl. These infiltration wells are utilized for lift irrigation scheme for agriculture purpose in near by villages.

Table - II: The Details Of Well Inventory In and Around the Scheme Area

S. No	Name of the Owner/Location	Type of Well	Total Depth of Well(m)	Depth to Water Level(m)	Diameter	Mode Of Lift	Average Yield in LPH
1	Lift irrigation schem	Infiltration well	8	0.2	3.0 m	25 Hp Sub	50000 lph (Reported)
2	Lift irrigation schem	Infiltration well	10	0.25	3.0m	15 Hp Sub	50000 lph (Reported)

9. Water level data:

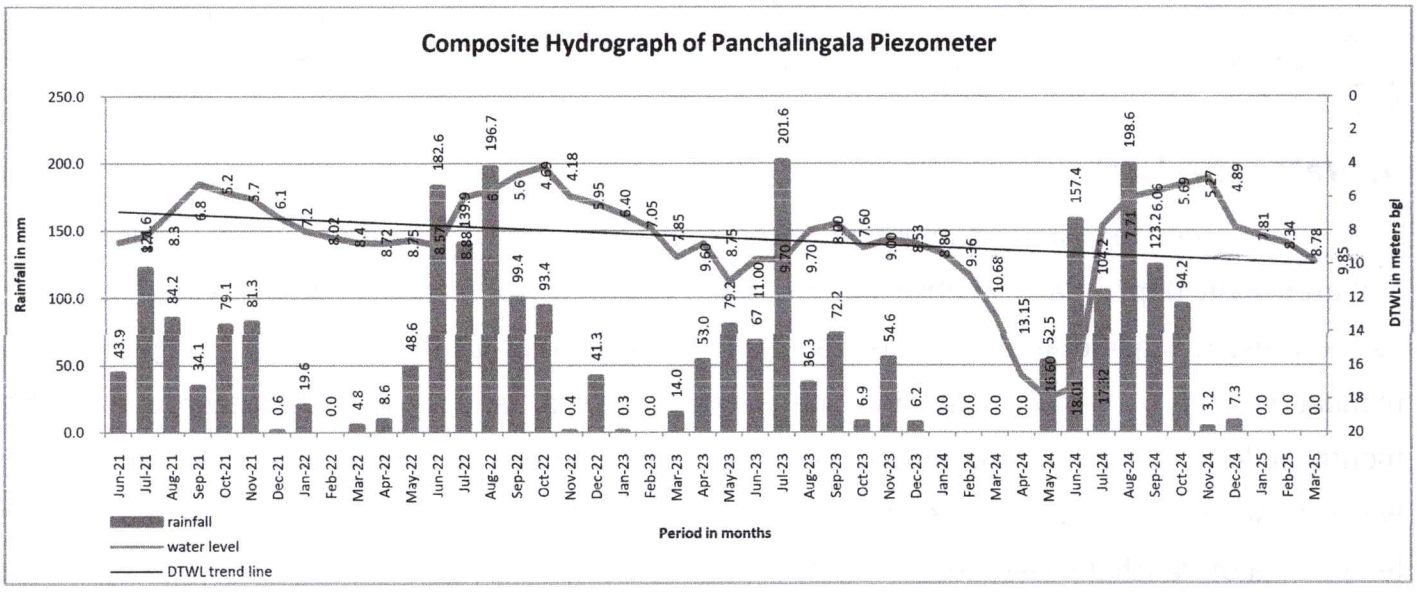
In order to monitor the groundwater level fluctuations and water quality Ground water & Water Audit Dept., has established 3 piezometers in Kurnool mandal. The nearest piezometer to the present scheme area is located at 33/11 KV substation at Panchalingala Village, Kurnool mandal which is 3.5 km in West direction of the scheme area. The depth to water level in the month of March -2025 is 9.85 m bgl. The shallowest and deepest water levels during the last water year (2023-24) are recorded as 7.60 m bgl and 18.01 m bgl respectively. Groundwater levels data of Panchalingala Piezometer for the past 3 years is as presented in below table.

Table-III: Historical Groundwater Level and Rainfall Data

Month	Kurnool Mandal Normal Rainfall (mm)	Kurnool Mandal Actual Rainfall (mm)	Ground water Levels in Panchali ngala pz (mbgl)	Month	Kurnool Mandal Normal Rainfall (mm)	Kurnool Mandal Actual Rainfall (mm)	Ground water Levels in Panchali ngala pz (mbgl)
Jun-21	3.2	43.9	8.7	May-23	7.3	79.2	11.00
Jul-21	2.1	121.6	8.3	Jun-23	3.2	67	9.70
Aug-21	8.9	84.2	6.8	Jul-23	2.1	201.6	9.70
Sep-21	16.6	34.1	5.2	Aug-23	8.9	36.3	8.00
Oct-21	36.8	79.1	5.7	Sep-23	16.6	72.2	7.60
Nov-21	80.4	81.3	6.1	Oct-23	36.8	6.9	9.00
Dec-21	121.3	0.6	7.2	Nov-23	80.4	54.6	8.53
Jan-22	149.3	19.6	8.02	Dec-23	121.3	6.2	8.80
Feb-22	128.8	0.0	8.4	Jan-24	149.3	0.0	9.36
Mar-22	104.6	4.8	8.72	Feb-24	128.8	0.0	10.68
Apr-22	44.2	8.6	8.75	Mar-24	104.6	0.0	13.15

May-22	7.3	48.6	8.57	Apr-24	44.2	0.0	16.60
Jun-22	3.2	182.6	8.88	May-24	7.3	52.5	18.01
Jul-22	2.1	139.9	6	Jun-24	3.2	157.4	17.32
Aug-22	8.9	196.7	5.6	Jul-24	2.1	104.2	7.71
Sep-22	16.6	99.4	4.69	Aug-24	8.9	198.6	6.06
Oct-22	36.8	93.4	4.18	Sep-24	16.6	123.2	5.69
Nov-22	80.4	0.4	5.95	Oct-24	36.8	94.2	5.27
Dec-22	121.3	41.3	6.40	Nov-24	80.4	3.2	4.89
Jan-23	149.3	0.3	7.05	Dec-24	121.3	7.3	7.81
Feb-23	128.8	0.0	7.85	Jan-25	149.3	0.0	8.34
Mar-23	104.6	14.0	9.60	Feb-25	128.8	0.0	8.78
Apr-23	44.2	53.0	8.75	Mar-25	104.6	0.0	9.85

A composite hydrograph has been prepared by using the last 3 years groundwater levels data measured in the Panchalingala piezometer to assess the long term groundwater level trend of the area. Based on the historical groundwater level data it is noticed that the groundwater levels are showing falling trend in response to the deficit rainfall received last year and normal rainfall in this year.



10. Quality Data:

The hydro chemical data of water sample collected from the Panchalingala Piezometer at 33/11 KV substation, during the Pre Monsoon period, i.e., Post-2024 is presented below. The data shows that the measured parameters of the water sample are within the permissible limits and the quality of groundwater is potable in and around that area.

Table IV: Groundwater Quality Data of Nearest Piezometer

S.No	Village and Location of the Piezometer	Electrical Conductivity Microsiemens/cm (µS/cm)	pH	Total Dissolved Solids (Mg/L)	Classification
1	Panchalingala Piezometer at 33/11 KV substation	2850	7.4	1824	Potable

11. Ground water Budget:

The Ground water and water audit department carried out estimation of ground water resources of Kurnool District 2023-24 as base year for assessement. The E.Thandrapadu Village, Kurnool mandal falls in the basin KU_D_TB_KURNOOL (C)_NC Groundwater micro basin. As per the GEC 2023-24 calculations the ground water availability, Draft and stage of Development area shown in table below.

Table-V : Groundwater Resource Assessment Details

S.No	Groundwater Assessment Unit	Net Groundwater Availability (in Ha.m)	Draft for all Uses (in Ha.m)	Balance (in Ha.m)	Stage of Development	Categorization of the Assessment Unit
1	Panchalingala village	33.47	15.12	18.35	45.17%	Safe
2	Kurnool mandal	1844.54	642.71	1201.83	34.84%	Safe

12.GEOPHYSICAL SURVEY RESULT:-

By using electrical resistivity method with schlumberger configuration 2 Vertical Electrical Soundings was conducted in the scheme area to know the sub-surface lithology, resulting VES data was interpreted in terms of resistivity (ohm-m) and thickness (m) of different geo-electrical layers. The details of Geophysical investigations are discussed below.

Table - VII : INTERPRETED DATA OF VERTICAL ELECTRICAL SOUNDING

VES No.	P1 ohm. m	H1 mts.	P2 ohm. m	H2 mts.	P3 ohm. m	H3 mts	P4 ohm. m	H4 mts	H mts	Remarks
1	15	1.8	25	9.8	49	30.2	∞	--	41.8	Recommended
2	10	1.4	15	9.2	28	70.3	∞	--	80.9	--

It is observed from the interpreted results, that the area under investigation is covered by Alluvium soil with 1.4-1.8 m thickness with resistivity value of 10-15 ohm.m. This top layer is underlain by 9.2 -9.8 m thickness of second layer with resistivity value of 15-25 ohm.m which represents weathered limestone is followed by 30.2 to 70.3 m thickness of third layer with resistivity value of 28-49 ohm.m which represents fractured limestone fallowed by hard Limestone.

13. QUANTUM OF RUNOFF AVAILABILITY IN THE PREMISES:

As per the reported roof top, Open land areas available in the firm premises, a total of **552.6 Cu.m/Year** of rain water can be harvested in response to the normal annual rainfall of 703.0 mm Kurnool mandal. Details of calculation of quantum of runoff availability in the premises are given in table below.

Table-VIII Quantum of runoff available in the premises:

S. No	Location	Area (in Sq.m)	Rainfall (in mm)	Runoff Coefficient	Quantity of available runoff (in Cu.m)

		(Approx)			
1	Buildings/Sheds (Proposed)	500	703.1	0.85	298.7
2	Open land	1806	703.1	0.20	253.9
	Total Rainwater that can be Harvested				**552.6 Cu.m**

14. RECHARGE COMPONENT:

To compensate the groundwater losses and enhance the groundwater recharge it recommended construction of rooftop harvesting structures in proposed plant area as recommended below.

Table-IX :

S.No	Type of Structure	Dimensions of Structure (L*W*D)	No. of Structures	No. of Fillings	Total Storage	Contributionto groundwater recharge (50% ofStorage)
1	Recharge Pits	7*5*3	1	10	1050 cu.m	525 cu.m
Total water that can be recharged from 1 recharge pit						525 cu.m

15. CONCLUSIONS AND RECOMMENDATIONS:

Based on the Hydrogeological and geophysical conditions of the study area and considering spacing norms as per the APWALTA, a new borewell is recommended is located to the Right side of the maingate **(15°51'01.2"N, 78°02'46.1"E).** It is concluded that the firm is hereby permitted to withdraw **only 50.1 KLD (50100 liters per day) for drinking,domestic and plant processing** requested by the firm from the newly recommended borewell. Therefore, it is recommended that a No Objection Certificate (NOC) can be issued from a groundwater perspective along with the following suggestions, terms and conditions.

S. No	Location	Type of Well	Dia (in mm)	Depth (in mm)	Motor (HP)	Expected Yield (in lph)	Permitted Yield (in Lpd)	Remarks
1	At Righ side of Main Gate **15°51'01.2"N, 78°02'46.1"E**	BW	165 mm	100 m	5 HP	7000 LPH	50100 LPD	Considering 7 hours pumping per day, restricted to 50100 lpd in two intervels
					Total	**50100 Litres /day or 50.1 KL / day**		

Terms and conditions:

- The firm should drill the bore well at recommended location and depth only.
- The firm should pump for the recommended hours/day from the recommended new bore well point to be located at right side of main gate **(15°51'01.2"N, 78°02'46.1"E)** with recommended depth and discharges.
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interval per day also advised to maintain log for the readings .This bore well shall not be used for any other purpose, except monitoring

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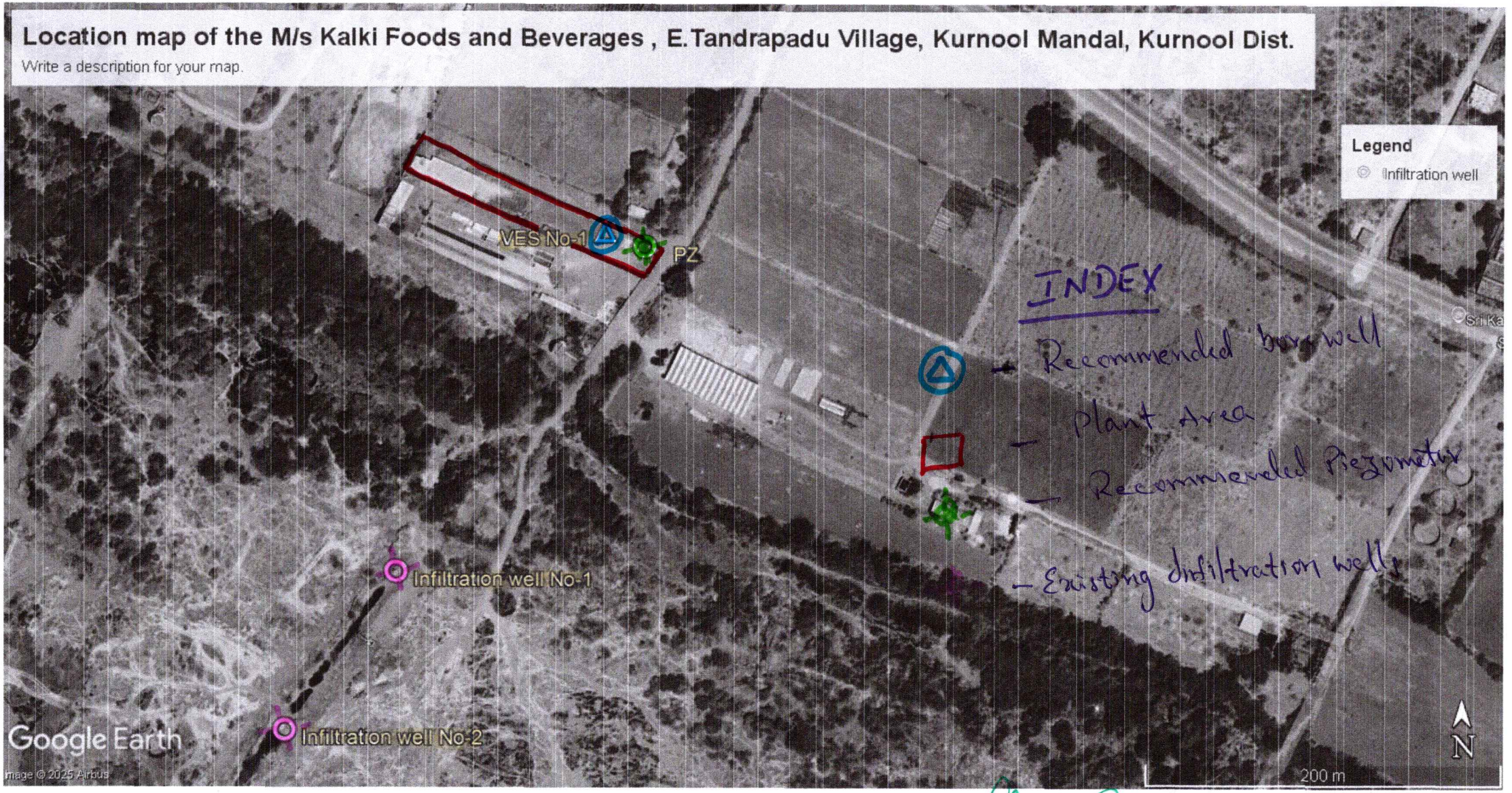
- The present permitted yields of the bore wells subjected to recharge conditions, rainfall and ground water utilization in the surrounding area. Hence the firm has to take alternate arrangements during the shortage of ground water

Surveyed

Approved by

DEPUTY DIRECTOR



Deputy Director 7/4/25
Ground Water and Water Audit Department
KURNOOL-518004