



ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

Karnataka State Pollution Control Board

“ಪರಿಸರ ಭವನ”, 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ. 49, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ ರಾಜ್ಯ, ಭಾರತ

“Parisara Bhavan”, 1st to 5th Floor, # 49, Church Street, Bangalore - 560 001, Karnataka State, India

No. PCB/CNP/41/GEN/18

366A

Date:

23 SEP 2019

ರವಾನಿಸಲಾಗಿದೆ

To,
The Registrar,
National Green Tribunal,
Principal Bench
Faridkot House, Copernicus Mark,
New Delhi – 110 001.

Respected Sir,

Sub: Furnishing Joint inspection report of Kaikondarahalli Lake Bengaluru, Karnataka State in respect of Original Application No. 281/2019.

Ref: 1. Representation given by Sri. Subramanian Sankaran-Manging trustee, Mahadevpura Parisara Samrakshane Mattu Abhivrudhi Samiti, Bangalore on 18.6.2019.

2. Committee Joint inspection report vide No. 453 dated 18.09.2019.



As directed by the Hon'ble NGT, Principal Bench, New Delhi in OA No. 281 of 2019 vide reference (1) Joint inspection report of the committee along with documents in respect of Kaikondarahalli Lake, Bengaluru, herewith attached for your kind perusal and with a request to place the same before the Hon'ble NGT, Principal Bench, New Delhi.

Regards,

Sincerely,

Sd/-

MEMBER SECRETARY

Copy to:

1. The Legal Section, for information and needful action.

2. The Regional Director, CPCB, Nisarga Bhavan, Bengaluru, for information.

MEMBER SECRETARY

Office of the Senior Environmental Officer
Karnataka State Pollution Control Board
Bangalore - South
"NISARGA BHAVAN", 3rd Floor,
Thimmaiah Road, 7th 'D' Cross,
Shivanagar, Bangalore - 560 010
Phone : 23228862

ಹಿರಿಯ ಪರಿಸರ ಅಧಿಕಾರಿಯವರ ಕಛೇರಿ
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
ಬೆಂಗಳೂರು ದಕ್ಷಿಣ
"ನಿಸರ್ಗ ಭವನ", 3ನೇ ಮಹಡಿ,
ತಿಮ್ಮಯ್ಯ ರಸ್ತೆ, 7ನೇ "ಡಿ" ಮುಖ್ಯರಸ್ತೆ,
ಶಿವನಗರ, ಬೆಂಗಳೂರು- 560 010.
ಫೋನ್ : 23228862

ಕರ್ನಾಟಕ ರಾಜ್ಯ
ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ



towards a cleaner Karnataka

Urgent-NGT Matter

No.PCB/SEO-Bng/South/2019-20/

453

Date:18.09.2019.

To,

The Member Secretary,
KSPCB,
Bengaluru.

Kind atten:SEO (Infra)

Sir,

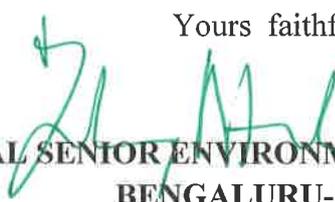
Sub: Revised Report of the joint inspection dated 26.07.2019, by the joint committee, as per NGT orders in the matter of O. A. 281 of 2019 (Mahadevpura parisara samrakshane mattu abhivrudhi samti v/s. union of India & others) with respect to violation of buffer zone

Ref:B.O. letter No.2610 dt;22.07.2019.

With reference to the above, please find herewith enclosed the revised report of joint inspection along with annexures by the joint committee conducted on 26.07.2019 as per the B.O directions cited above. The previous report dated:07.09.2019 shall not be considered.

This is for your kind information and further needful.

Yours faithfully,


ZONAL SENIOR ENVIRONMENTAL OFFICER
BENGALURU-SOUTH.

Copy submitted to:SEO, Infra for kind information and further needful.

19/9/19



BEFORE THE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH, NEW DELHI
REPORT OF JOINT COMMITTEE, AS PER HON'BLE NGT ORDERS IN THE
MATTER OF O. A. 281 OF 2019 (MAHADEVPURA PARISARA SAMRAKSHANE
MATTU ABHIVRUDHI SAMTI V/s. UNION OF INDIA & OTHERS) WITH RESPECT
OF VIOLATION OF BUFFER ZONE

1.0. PREAMBLE

Kainkondrahalli Lake is having total area of 48 acres 23 Guntas, perimeter of about 2.17 km, located on Sarjapura Road close to Kaikondrahalli Village. The lake area has two survey numbers i.e. 18 acres 18 guntas comes under the Sy. No 8 of Kaikondrahalli village and 30 acres and 5 guntas comes under Sy. No 70 of Kasavanahalli village limits.

Karnataka State pollution Control Board (KSPCB) being a nodal agency as per the Hon'ble NGT order dated 11.3.2019, KSPCB has submitted interim report including inspection report of Joint committee indicating that once the Assistant Director of Land Revenue (ADLR) submits the details survey report of Kaikondarahalli lake and the final report will be submitted for placing it before the Hon'ble Green Tribunal, Principal Bench, New Delhi.

Upon verification of the interim report, Hon'ble NGT in their order dated 09.05.2019, further directed as follows:

- The issue for consideration is the remedial action against violation of environment norms in the fragile buffer zone of Kaikondarahalli Lake at Bangalore.
- In view of the acknowledged fact that the project has been illegally constructed, the KSPCB may take further necessary action which may include recovery of compensation for the damage caused for *restitution* of environment and prosecution of the persons responsible for violating the law.

- Prayer of the applicant for closure order may also be considered. The applicant will be at liberty to give an updated representation of the action which is required to be focused for restoration of the environment which may be expressly adverted to in the report.

2.0. KSPCB DIRECTIONS AND ENVIRONMENTAL COMPENSATION

Based on the survey report submitted by the Revenue Department on 04.05.2019 to KSPCB a meeting of Joint Committee was conducted on 22.05.2019, the proceeding of the meeting is submitted for kind reference as **Annexure 1**, where in KSPCB directed as follows:

- ADLR to complete the survey of the entire fragile Eco-System of Kainkondrahalli Lake including its buffer requiring remedial action against the violation of environmental norms.
- Joint Commissioner, Bruhat Bengaluru Mahanagara Palike (BBMP) to take immediate action to remove the illegal structures and to restore the environment in the fragile ecosystem. Construction debris to be removed from the site at the cost of the person responsible for violating the law.
- The Bangalore Electricity Supply Company Limited (BESCOM) officials to disconnect the electricity to the buildings illegally constructed by the person violating the law.
- Bangalore Water Supply and Sewerage Board (BWSSB) officials to co-ordinate with BBMP & ADLR for identifying the storm water drains discharging water into Kaikondrahalli Lake.

- Regional Senior Environmental Officer- Bangalore South and Regional Officer Bommanhalli, KSPCB to bring out the data for computing the environmental damage.
- KSPCB instructed the officer of CPCB and SPCB to estimate the Environmental Compensation by convening the meeting at RSEO level vide O.M. No 2073 dated 29.06.2019 and submit the same. Accordingly, the Environmental Compensation is estimated for a period of 11.03.2019 to 06.07.2019 (129 days) i.e. Rs. 16,12,500/ - (Rupees sixteen lakhs twelve thousand and five hundred only) and the same is submitted to KSPCB on 08.07.2019 for filing to Hon'ble NGT. Copy of the estimate on Environmental compensation is submitted for kind reference as **Annexure 2.**

3.0. VERIFICATION OF BUFFER ZONE OF KAIKONDRAHALLI LAKE

Before the verification, the Joint Committee gone through the definition of Buffer Zone as per Hon'ble NGT, Hon'ble Supreme Court and as per Revised Master Plan (RMP) - 2015 which are detailed below:

A. Buffer area as per Hon'ble NGT order dated 04.05.2016 (O.A. 125 / 2007)

- a) Minimum 75 m buffer zone to be maintained from the Lake Boundary and minimum 50 m, 35 m and 25 m buffer zone is to be maintained from Primary Rajakaluve, Secondary Rajakaluve and Tertiary Rajakaluve respectively.

B. Buffer area as per Hon'ble Supreme Court order in respect of CA No.5016 dated: 05.03.2019

Direction /Condition No.1 of Hon'ble NGT Order dated: 04.05.2016 (OA 125/2007) has been set aside except the direction issued against respondent Nos. 9 and 10 and buffer area as per revised master plan of the BDA prevails which is detailed below:

- b) Revised Master Plan (RMP) 2015 Bangalore 2007, Volume – III on Zoning of Land use and Regulations (Approved by Govt. vide G.O. No UDD 540 BEM AA SE 2004, Dated: 22.06.2007 as part of the Revised Master Plan 2015)

4.12.2 Regulations as per RMP 2015

i) Permissible land uses

- a) Uses permissible include: Sports grounds, stadium, playgrounds, parks, swimming pools, cemeteries, garden land and crematoria.
- b) Uses permissible under special circumstances by the authority: Open air theatres, indoor recreational uses, dwelling for watch and ward, sports clubs, libraries, milk booths, HOPCOMS, the area of such use shall not exceed 5% of the total area and shall not be more than G+ 1 floor in any case.
- c) Setbacks for the above will be decided by the Authority taking into account the surrounding development and traffic scenario in that area.

ii) Valley / drain within the demarcated buffer for the valley the following uses are allowed:

- a. Sewerage Treatment Plants and Water treatment plants
- b. Roads, pathways, formation of drains, culverts, bridges, etc which will not obstruct the water course, run offs, channels.

- c. In case of water bodies a 30 m buffer of 'no development zone' is to be maintained around the lake (as per revenue records) with exception of activities associated with lake and this buffer may be taken into account for reservation of park while sanctioning plans.
- d. If the valley portion is a part of the layout/ development plan, then that part of the valley zone could be taken into account for reservation of parks and open spaces both in development plan and under subdivision regulations subject to fulfilling section 17 of KTCP Act, 1961 and sec 32 of BDA Act, 1976.
- e. Any land falling within the valley for which permission has been accorded either by the Authority or Government, and then such permission shall be valid irrespective of the land use classification in the RMP 2015. Fresh permissions for developments shall not be accorded in valley zone.

The Department of Survey, Settlement and Land Records, Revenue Department submitted the detailed survey report of the Kaikondrahalli Lake buffer area (30 meters) to KSPCB on 11.07.2019, the copy of the report is enclosed as **Annexure 3**. Meeting was convened by the KSPCB on 19.07.2019 and decided to conduct inspection of the Kaikondrahalli Lake buffer area by the Joint Committee as per the survey report submitted by the Department of Land Records. Accordingly, as per the detailed survey report submitted by Revenue Department, the activities in the Kaikondrahalli Lake buffer area were inspected by the Joint Committee on 26.07.2019.

Detailed survey carried out by Department of Survey, Settlement and Land Records indicates that the following Survey numbers are adjoining the Kaikondrahalli Lake.

S. No.	Village	Survey Numbers
1.	Kaikondrahalli, Varthur Hobli, Bangalore east Taluk	Sy. Nos 3, 5, 6, 7, 9, 10, 11 and 14
2.	Kasavanahalli, Varthur Hobli, Bangalore east Taluk	Sy Nos 39, 40, 62, 63, 68, 69, 71, 72, and 73



**KMZ file superimposed on Google map showing the Sy Nos of adjoining to
Kaikondrahalli Lake**

Existing properties in Kaikondrahalli Lake buffer area and violation, if any noticed are tabulated below:

S. No.	Village	Sy No.	Activity	Violation of Buffer
A	Kaikondrahalli	3	Vacant site	No violation
		5	Vacant site	No violation
		6	Grave yard	Not a permitted activity
		7	Vacant site	No violation
		8	Establishing cross road, Commercial buildings where Ananda Sweet and Nanda's Multicusine, Sri Rajrajeshwari condiments shop, 3M Car Care and Bengaluru fruits and vegetables shop	Portion of lake area is encroached
		9	Renuka High School with play ground and toilet, Sports Centre, Raksha Car service, Residential building and Private car service garage in buffer zone.	Not a permitted activity
		10/3	Private grocery shops and commercial establishment in the buffer area.	Not a permitted activity
		11	Kidzee School and cross road established	Not a permitted activity
		11/2	Sri Mitra Builders & Developers, established residential apartment by name " Sri Mitra Spring Valley"	The project authorities have established, swimming pool, club house and approach road in the lake buffer area, which is not permitted activity.
		11/2	ALPS Prime Spaces Pvt Ltd, established residential apartment by name " Alps estate	South east portion of the project area where STP and Exit gate situated is in buffer area, which is not permitted activity.
B	Kasavanahalli	14	Private building and commercial establishment in the buffer area.	Not a permitted activity
		39	C & D wastes are dumped and used for Solid Waste segregation by BBMP contractor.	C& D waste debris shall be removed and Solid waste segregation has to be stopped by BBMP. Not a permitted activity

S. No.	Village	Sy No.	Activity	Violation of Buffer
		40	There is no construction activity except establishment of temporary labour shed after some distance	BBMP has to verify whether these shed falling under buffer or not.
		62	Godrej by name "Wonder Projects Development Pvt Ltd" have obtained Environmental Clearance from SEIAA and consent for establishment from KSPCB and for establishment of residential apartment in Sy Nos 61/2, 62 and 63/2. There is Nala within the project area which connects Kasavanahalli tank to Kaikondrahalli Tank. Project under construction.	Sy No 62 and 63 falls under Lake buffer area. As there is separate O.A 602/2019 on this project, the same will be inspected by the committee as per the order dated 19.7.2019 and separate report will be submitted by the committee.
		63/1	Vacant site	No violation
		68	SJR Enterprises Pvt. Ltd., established Residential Apartment by name SJR Water Mark	Project authorities have established rain water harvesting tank, park, tennis court and portion of driveway in 1 acre 17 guntas falling under the buffer area.
		69	There are some residential building and establishment of park and road in the lake buffer area.	Not a permitted activity
		71/2	Residential sheet houses constructed in the area of 1 acre 4 guntas and 1	Not a permitted activity
		72/2	acre 6 guntas is vacant. Further, the owner of the Sy No 72/2 is started leveling land adjoin to the lake.	
		73	Sheet building construction in Sy No 73 still exists.	
	Kasavanahalli	71/1 71/2 72/1 72/2 73 74/5B	Nala Kharab of Sy No 71/1 of 1 gunta, 71/2 of 1 gunta, 72/1 of 1 gunta, 72/2 of 2 guntas, 73 of 01 guntas, 74/5B of 3 guntas and 74/5B of 4 guntas of Halla Kharab is encroached and nala area is being used for approach road.	Not a permitted activity

On above listed properties, the following properties have obtained Environmental Clearance from SEIAA and Consent to Establishment & Operation from the KSPCB.

- a) Sy No 68: SJR Enterprises Pvt. Ltd., established Residential Apartment by name SJR Water Mark
- b) Sy No 11/2: Sri Mitra Builders & Developers, established residential apartment by name " Sri Mitra Spring Valley"
- c) Sy No 11/2: ALPS Prime Spaces Pvt Ltd, established residential apartment by name " Alps estate "
- d) Sy Nos 61/2, 62 and 63/2 : Godrej by name "Wonder Projects Development Pvt Ltd" - under construction

The relevant photographs on Violation of Buffer are attached as **Annexure 4**.

4.0. OBSERVATION OF COMMITTEE ON THE REPRESENTATION SUBMITTED BY THE MAHADEVAPURA PARISARA SMRAKSHNE MATTU ABHIRUDHI SAMITI (MPSMAS)

The Mahadevapura Parisara Smrakshne Mattu Abhirudhi Samiti (MPSMAS) through Managing Trustee Sri Subramanian Sankaran submitted updated representation to Karnataka State Pollution Control Board (KSPCB). The pointwise observation of the Joint Committee is given as **Annexure 5**.

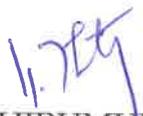
Further, as noticed by the committee during the restoration work under taken by BBMP, BBMP established walkway by rising the lake bed around the periphery of the lake and constructed toilet and amphitheater within the lake area.

5.0: OVERALL OBSERVATION AND SUGGESTION OF THE COMMITTEE

The observations of the committee are:

- There are three main feeder drains to the Kainkondrahalli Lake, one on South Eastern side, second on Western Side and third one towards Southern Side of the lake. The total lake area is 48 acres 23 Guntas.
- The Lake is rejuvenated jointly by BBMP & MPSMAS in the year 2011 with two sewage diversion lines to restrict & stop the entry of untreated sewage, one on the western side and another from southern side towards east. The manhole chambers provided in the diversion line i.e. from southern to eastern side was found overflowing and untreated sewage is entering to the lake. Other than this, there is no sewage entry into the lake as the diversion pipe line provided towards eastern and western side of the lake. BWSSB has to clear the diversion line to avoid the overflowing of sewage from the manhole into the Lake and plan to have a terminal Sewage Treatment Plant to treat the entire sewage and only to allow the storm water to the lake through wetland.
- BBMP storm water drain, Mahadevapura Zone marked the drain area which is originating from Kasavanahalli Road to the lake from eastern side and work pertaining to restoration of the drain is in progress.
- BESCOM authorities have disconnected the power supply to residential houses in Sy No 71/1, 71/2, 72/1, 72/2, 74/5B and 73 of Kasavanahalli Village, Varthur Hobli, Bengaluru East Taluk, Bengaluru urban district.
- The residential sheet houses constructed at Sy No 72/2 coming under the lake buffer area are demolished. But, residential houses constructed in Sy No 73 are still exists, the same need to be removed. Vacant area of the Sy. No. 71/2 & 72/2 adjoining to lake is being filled with new soil for leveling.

- Sy No 71/2: The land adjoining to lake is being used for solid waste segregation by BBMP, the same need to be stopped and segregation of waste are to be done at the generation and collection point itself. The dumping and segregation of solid waste at the lake belt to be stopped and cleared.
- Sy No. 39: The land adjoining to lake is being used for dumping of C& D waste, BBMP shall be directed to take appropriate steps to clear the same.
- The temporary labour sheds constructed and existing in Sy No 40 need to be verified by the BBMP whether the sheds are within Lake Buffer or not and to take appropriate action.
- The concern authorities shall be directed to take appropriate action to clear the violations / encroachment noticed in the existing properties & activities in the buffer area.


(G. THIRUMURTHY)
Additional Director
CPCB


(DR. DOLA
BHATTACHARJEE)
Research Officer,
MoEF & CC.


(MALATHI. R)
Executive Engineer
BBMP, *Sud MD Pur*


(K. MAHADEVEGOWDA)
Executive Engineer,
East Division, BDA


(SADIQ AHAMED)
Senior Env't. Officer,
BNG-SOUTH, KSPCB


Deputy Conservator of Forest
Lakes, BBMP

ಫ್ಯಾಕ್ಸ್ / Fax : 080-25586321
ಈಮೇಲ್ / E-mail : ho@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್ / Website : http://kspcb.gov.in



Annexure A A-1

25581383, 25589112
25588151, 25588270
25588142, 25586520

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board

"ಪರಿಸರಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ಸಂ.49, ಚರ್ಚ್‌ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

Kainondarahalli NGT preliminary meeting proceedings.

NO. PCB/CNP/41/GEN/19 1386

Date : 28 MAY 2019

Proceedings of the meeting held on 22.5.2019 vide Hon'ble NGT Order dated: 9.5.2019 in respect of OA No. 281/2019 pertaining to Kainondarahalli Lake

Presided by		Sri C.Jayaram, IFS (Rtd), Chairman , KSPCB
Members of the Committee & Officers Present		
1	Representative from – CPCB	Sri G.Thirumurthy, Addl. Director of CPCB Regional Director (South)
2	Representative from – BBMP	Smt.Shobha, Joint Commissioner, Mahadevapura Zone. Smt Malathi, Executive Engineer, Storm Water Division. Sri H.N.Jayasimha, Asst. Executive Engineer, Storm Water Division, Mahadevapura Zone.
3	Representative from – BDA	Sri K.M.Mahadeve Gowda, Executive Engineer, BDA
4	Representative from BWSSB	Sri M.Devaraju, Additional Chief Engineer.
5	Representative from BESCO	Sri Mahalingappa D, Deputy General Manager. Sri K.Shivanna, Executive Engineer, HSR Layout. Sri Nataraj, Asst.Executive Engineer,HSR Layout.
6	Representative from Revenue Dept (Land Records)	Sri Manjunath Taval, Asst. Director of Land Records, K.R.Puram.
7	Representative from Minor Irrigation Dept.	Sri C.Mruthunjaya Swamy, Secretary to Minor Irrigation Dept.



8	Member Convener. RSEO, Bengaluru South – KSPCB	Sri Sadiq Ahamed, Senior Environmental Officer, KSPCB, Bangalore(South)
9	Regional Officer-Bommanahalli – KSPCB	Sri Anil Kumar, Regional Officer-Bommanahalli.

Preamble:

Hon'ble NGT has issued an Order in OA No.281 of 2019 directing the constitution of a Joint Committee consisting of Officers from Central Pollution Control Board, Karnataka State Pollution Control Board, Bruhath Bangalore Mahanagara Palike & Bangalore Development Authority to look into the issue of encroachment of two canals/Rajakaluves leading to Kaikondarahalli Lake. M/s. Parisara Samrakshana Mattu Abhivrudhi Samiti filed an application before NGT for the restoration of Ecology of Kaikondanahalli lake. The applicant further alleged that Sri. Ramesh Kumar is constructing a building in the Prohibited fragile buffer zone of Kaikondarahalli Lake on the eastern side comprising Sy. No. 71/1, 72/1, 72/2, 74/5B & 73 of Kasavanahalli village measuring 5 Acres 29 Guntas. The area falls in the jurisdiction of Ward No.150 of BBMP.

Based on the Joint Committee report, an interim report was submitted to Hon'ble NGT on 7.4.2019 pending the receipt of the detail survey by ADLR, K.R.Puram, Bangalore. Further, on 27.4.2019 Board has issued Show Cause Notice to the project proponent for the violation of Section 24 of Water (Prevention & Control of Pollution) Act, 1974 and also a letter to Executive Engineer, BESCOM for disconnecting power supplied to the building which is constructed by fabricating the documents.

In view of the interim report submitted by KSPCB, the Hon'ble NGT in its Order dated 9.5.2019 has directed to furnish the action taken report within two months by e-mail. The Hon'ble NGT directed KSPCB to co-ordinate with BBMP & BDA. In view of these, directions, a meeting of the Joint Committee was convened on 22.5.2019 and the following directions were issued as per the directions issued by Hon'ble NGT in its order dated 9.5.2019.

- i) The ADLR, KR Puram, Bangalore was informed to resubmit the survey report submitted by him on 4.5.2019 received on 9.5.2019 by translating the entire text in English as the report would form a part of report to be submitted to the Hon'ble NGT. Further, ADLR was informed to survey the entire fragile eco-system of Kaikondanahalli lake including its buffer requiring remedial action against the violation of environmental norms. The ADLR has agreed to submit the survey report within 20 days from the date of this meeting. The ADLR sought the presence of the official representatives of BBMP, BDA & BESCOM at the time of survey. Accordingly, the officials of the above organization were informed to be present at the time of survey.
- ii) As directed by Hon'ble NGT in its order dated 9.5.2019, the Joint Commissioner, BBMP to take immediate action to remove the illegal structures and to restore the environment in the fragile ecosystem of Kaikondanahalli lake. The construction debris to be removed from the site at the cost of the person responsible for violating the law.
- iii) The BESCOM officials were informed to take action of disconnecting the electricity to the buildings illegal constructed by the person violating the law. As per the directions issued by KSPCB under section 33(A) of Water (Prevention and Control of Pollution) Act, 1974.
- iv) BWSSB officials were directed to coordinate with BBMP & ADLR for identifying the storm water drains discharging water into Kaikondanahalli lake.
- v) KSPCB officials RSEO-Bangalore South and RO-Bommanahalli to bring out the data for computing the environmental damage and to pass prosecution orders against the persons responsible for violating the laws in the fragile ecosystem of Kaikondanahalli lake.

The Presiding Officer while concluding the meeting, instructed all the officials present to submit the action taken report within the stipulated time for placing a detailed report before the Hon'ble NGT, Principle Bench, New Delhi.

Sd/-
(Presiding Officer)
Chairman, KSPCB

To,

1. The Regional Director,
CPCB, Nisarga Bhavan,
Bengaluru.
2. The Commissioner,
Bruhat Bangalore Mahanagara Palike,
(BBMP), Hudson Circle, Bengaluru.
3. The Commissioner,
Bangalore Development Authority,
Bangalore.
4. The Managing Director
BESCOM,
Bangalore.
5. The Asst. Director of Land Records
Revenu Department, K.R.Puram.
Bangalore.
6. Regional Senior Environmental Officer,
Karnataka State Pollution Control Board,
Bengaluru South,
Bengaluru.

Copy to:

1. RSEO, Bengaluru South for information and to follow up action.
- ✓ 2. R.O-Bommanahalli for information and instructed to co-ordinate with the RSEO to calculate the EC for the damage caused by the illegal construction authorities.
3. Office copy.


Member Secretary

Office of the Senior Environmental Officer
Karnataka State Pollution Control Board
Bangalore - South

"NISARGA BHAVAN", 3rd Floor,
Thimmaiah Road, 7th 'D' Cross,
Shivanagar, Bangalore - 560 010
Phone : 23228862

ಹಿರಿಯ ಪರಿಹರ ಅಧಿಕಾರಿಯವರ ಕಛೇರಿ
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
ಬೆಂಗಳೂರು ದಕ್ಷಿಣ
"ನಿಸರ್ಗ ಭವನ", 3ನೇ ಮಹಡಿ,
ತಿಮ್ಮಯ್ಯ ರಸ್ತೆ, 7ನೇ "ಡಿ" ಮುಖ್ಯರಸ್ತೆ,
ಶಿವನಗರ, ಬೆಂಗಳೂರು- 560 010.
ಫೋನ್ : 23228862



towards a cleaner Karnataka
8th July 2019

NO. Pcb/SEO/Bng-South/2019-20/331

To

The Member secretary,
Karnataka State Pollution Control Board,
"PartisaraBhavan"
Church Street,
Bengaluru-560001.

Sub: Calculation of Environmental Compensation w.r.t OA No.281/2019 dated 9.5.2019.
Ref: Board office, OM No 2073 dated 29.6.2019.

Sir,

With reference to above subject, Board vide OM cited under reference entrusted to calculate the Environmental Compensation as per NGT order dated 9.5.2019 by forming the committee headed by Zonal Senior Environmental Officer, representative from CPCB, Regional Directorate (South) and Regional office,(Bommanahalli) as Member convener.

Committee after going into the details based on the guidelines prepared by CPCB, calculated the compensation w.r.t to the recovery of compensation for environmental damage caused by the Owner of the property situated at Sy No 71/1, 72/1, 72/2, 74/5B and 73.

The interim Environmental Compensation is calculated for the period of 129 days from the date of the NGT order dt 9.5.2019 up to 06.07.2019 and for further period as follows:

Period of levy of compensation	Environmental Compensation amount in lakhs	Basis
9.5.2019 to 6.7.2019	16.125	As the said activity in the premises generates 0.042MLD of waste water (42KLD) and as per categorization of the units which falls under Orange category and formula considered is $EC=PI \times N \times R \times S \times LF$
7.7.2019 onwards	0.125 per day	

The details of the calculation is enclosed as **Annexure-1**.

This is for your kind information and further needful.

Yours faithfully

CHAIRMAN OF THE COMMITTEE &
ZONAL ENVIRONMENTAL OFFICER,
BENGALURU SOUTH

Copy to RO, Bommanahalli, he is directed to follow-up with SEO (Info).



Handwritten note: Bommanahalli NGT file

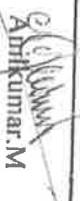
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Calculations as per the CPCB guidelines :

ANNEXURE-I

City		By considered it as orange category as per the Categorization activity No. KSPCB/717/COC/2016-17/1473, dated: 17-06-2016
Class		EC=PI*NRxSILF
Sewage Generation (MLD) (as per the latest data available with CPCB)		50x129x250x0.5x2
Installed Treatment Capacity (MLD) (as per the latest data available with CPCB)		1612500
Operational Capacity (MLD) (as per the latest data available with CPCB)		
Treatment Capacity Gap (MLD)		
Calculated EC (capital cost component for STPs) in Lacs Rs.		
Calculated EC (capital cost component for Conveyance System) in Lacs. Rs.		
Calculated EC (Total capital cost component) in Lacs Rs.		
Minimum and Maximum values of EC (Total Capital Cost Component) recommended by the Committee (Lacs Rs.)		
Final EC (Total Capital Cost Component) in Lacs Rs.		
Calculated EC (O&M Component in Lacs Rs./day		
Minimum and Maximum values of EC (O&M Cost Component) recommended by the Committee (Lacs Rs./day)		
Final EC (O&M Component) in Lacs. Rs./Day		
Calculated Environmental Externality (Lacs Rs. Per Day)		
Minimum and Maximum value of Environmental Externality recommended by the Committee (Lacs Rs. Per Day)		
Final Environmental Externality (Lacs Rs. Per day)		
EC (from 11.3.19 to 6.7.19) In lakhs	16.125	
EC for each day:- In lakhs	0.1250	

Dr Madhusudhan
Additional Director
Additional Directorate, CPCB Bengaluru


Adhikumar.M
Regional Officer, KSPCB
Bommanahalli


Sadiq Anwar
Zonal Senior Environmental Officer, KSPCB
Bengaluru- South

ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಸಂ. ಭೂ.ಸ.ನಿ/ಪೋಡಿ/ಇತರೆ/114/2019-20.

ಭೂದಾಖಲೆಗಳ ಸಹಾಯಕ ನಿರ್ದೇಶಕರವರ ಕಛೇರಿ
ಬೆಂಗಳೂರು ಪೂರ್ವ ತಾಲ್ಲೂಕು, ಕೆ.ಆರ್.ಪುರ.
ಬೆಂಗಳೂರು, ದಿನಾಂಕ: 10-07-2019.

ಹಿರಿಯ ಪರಿಸರ ಅಧಿಕಾರಿಯವರ ಕಛೇರಿ,
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ,
"ಪರಿಸರಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು,
ನಂ. 49, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು-560 001.

ಮಾನ್ಯರೇ,

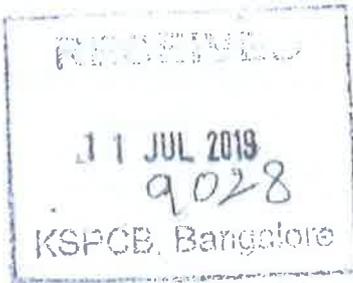
ವಿಷಯ: ಬೆಂಗಳೂರು ಪೂರ್ವ ತಾಲ್ಲೂಕು, ವರ್ತೂರು_ಹೋಬಳಿ, ಕೈಕೊಂಡ್ರಹಳ್ಳಿ ಗ್ರಾಮದ ಕೆರೆ ಸ.ನಂ. 8 ಹಾಗೂ ಕಸವನಹಳ್ಳಿ ಗ್ರಾಮದ ಕೆರೆ ಸ.ನಂ. 70 ಗಳ ಕೆರೆಯ ಬಫರ್ ಜೋನ್‌ನ್ನು ಅಳತೆಗೊಳಪಡಿಸಿ ನಕ್ಷೆ ಸಲ್ಲಿಸುವ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ: ತಮ್ಮ ಕಛೇರಿ ಪತ್ರದ ಸಂಖ್ಯೆ: PCB/CNP/41/GEN-Kaikondrahalli NGT/18 , 1205, Dated: 20-05-2019.

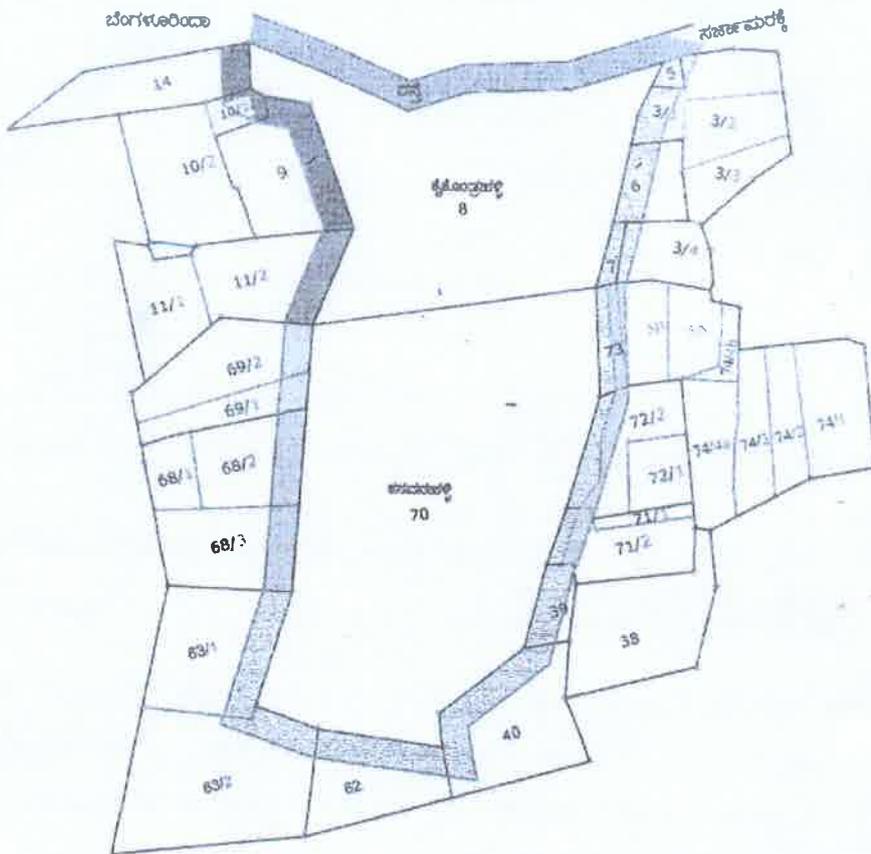
ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಬೆಂಗಳೂರು ಪೂರ್ವ ತಾಲ್ಲೂಕು, ವರ್ತೂರು ಹೋಬಳಿ, ಕೈಕೊಂಡ್ರಹಳ್ಳಿ ಗ್ರಾಮದ ಕೆರೆ ಸ.ನಂ. 8 ಹಾಗೂ ಕಸವನಹಳ್ಳಿ ಗ್ರಾಮದ ಕೆರೆ ಸ.ನಂ. 70 ರಲ್ಲಿ ಕೆರೆಯ ಬಫರ್ ಜೋನ್‌ನ್ನು ಅಳತೆಗೊಳಪಡಿಸಿ ಒತ್ತುವರಿಯಾಗಿರುವ ಬಗ್ಗೆ ಅಳತೆಮಾಡಿ ನಕ್ಷೆಯೊಂದಿಗೆ ವಿವರವಾದ ವರದಿ ಸಲ್ಲಿಸಲು ಮೇಲ್ಕಂಡ ಉಲ್ಲೇಖದಂತೆ ಸೂಚಿಸಲಾಗಿರುತ್ತದೆ.

ಮೇಲ್ಕಂಡ ಗ್ರಾಮಗಳ ಸ.ನಂಬರುಗಳ ಕೆರೆ ಅಳತೆ ಮಾಡಿ ನಕ್ಷೆಯೊಂದಿಗೆ ವಿವರವಾದ ವರದಿ ಸಲ್ಲಿಸಲು ಭೂಮಾಪಕರಿಗೆ ಪ್ರಕರಣ ಹಂಚಿಕೆ ಮಾಡಲಾಗಿರುತ್ತದೆ. ಭೂಮಾಪಕರು ಮೇಲ್ಕಂಡ ಗ್ರಾಮಗಳ ಸ.ನಂಬರುಗಳ ಕೆರೆ ಒತ್ತುವರಿಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಅಳತೆ ಮಾಡಿ ನಕ್ಷೆಯೊಂದಿಗೆ ವರದಿಯನ್ನು ಈ ಕಛೇರಿಗೆ ಸಲ್ಲಿಸಿರುತ್ತಾರೆ. ಭೂಮಾಪಕರು ಸಲ್ಲಿಸಿರುವ ಸದರಿ ನಕ್ಷೆಗಳನ್ನು ಈ ಕೂಡ ಲಗತ್ತಿಟ್ಟು ತಮ್ಮ ಮುಂದಿನ ಕ್ರಮಕ್ಕಾಗಿ ಸಲ್ಲಿಸಿದೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ
ಭೂದಾಖಲೆಗಳ ಸಹಾಯಕ ನಿರ್ದೇಶಕರು
ಬೆಂಗಳೂರು ಪೂರ್ವ ತಾಲ್ಲೂಕು
ಬೆಂಗಳೂರು



ಗ್ರಾಮ:-ಕಸವನಹಳ್ಳಿ ಕೈಕೊಂಡ್ರಹಳ್ಳಿ ಪೊಲೀಸ್ ಠಾಣೆ:-ವರ್ತೂರು ತಾಲ್ಲೂಕು:-ಬೆಂಗಳೂರು ಪೂರ್ವ
 ರೀ.ಸ.ನಂ.ಕಸವನಹಳ್ಳಿ ಕೆರೆ ಸ.ನಂ.70 ಮತ್ತು ಕೈಕೊಂಡ್ರಹಳ್ಳಿ ಕೆರೆ ಸ.ನಂ.8 ರ ಬಾಬು ನಕ್ಷೆ.



1. ಮಾನ್ಯ ಭೂದಾಖಲೆಗಳ ಸಹಾಯಕ ನಿರ್ದೇಶಕರವರ ಪತ್ರದ ಸಂಖ್ಯೆ ಭೂ.ಸ.ವಿ(ಪೋ)ಇಸಿ:114/19-20, ಮಾನ್ಯ ಕಾರ್ಪೊರೇಷನ್ ಕಛೇರಿ ಪತ್ರದ ಸಂಖ್ಯೆ ಎಸ್.ಸಿ.ಆರ್/ಸಿ.ಆರ್/30/18-19 ದಿನಾಂಕ:28-03-2019 ರ ಮೇರೆಗೆ ಮತ್ತು ಮಾನ್ಯ ಹಿರಿಯ ಪರಿಣಿತ ಅಧಿಕಾರಿಗಳು ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲೀಕತ್ವ ವಿಭಾಗದವರಿಂದ ಬೆಂಗಳೂರು ದಕ್ಷಿಣದವರ ಪತ್ರದ ಸಂಖ್ಯೆ PCB/CNP/41/GEN-KaikondrahalliNGT/18-1205 ದಿನಾಂಕ:20-05-2019 ರ ಮೇರೆಗೆ ಕೈಕೊಂಡ್ರಹಳ್ಳಿ/ಕಸವನಹಳ್ಳಿ ಕೆರೆಗಳ ಬಾಬು ನಕ್ಷೆ ನಂಬರುಗಳ ಕೆರೆ ಬಫರ್ ಜೋನ್ ಅಳತೆಗಳ ಒಳಪಡಿಸಿ(ಕೆರೆಯ ಗಡಿಯಿಂದ 30 ಮೀಟರ್) ನಕ್ಷೆ ತುಂಬಿಸಲು ಮಾನ್ಯ ಹಿರಿಯ ಪರಿಣಿತ ಅಧಿಕಾರಿಗಳು ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲೀಕತ್ವ ನಿರೀಕ್ಷಾ ಅಧಿನಿಯಮದಡಿ ಬಿಡಿಬಿಡಿ ಅಧಿಕಾರಿಗಳು,ರಾಜ್ಯ ನಿಯೋಜಿತ ಹಾಗೂ ಗ್ರಾಮೀಣಾಧಿಕಾರಿಗಳಿಂದ ಅಳತೆಗಳ ಒಳಪಡಿಸಿ ಮೂಲ ನಕ್ಷೆ ದಾಖಲೆಗಳಂತೆ ಅಳತೆ ಮಾಡಿ ನಕ್ಷೆ ತುಂಬಿಸಿದೆ.
2. ಈ ಬೆಂಚ್ಚಿಯಿಂದ ತೋರಿಸಿರುವ ಪ್ರದೇಶಕ್ಕೆ ಕಾವಲುಗಾರ ಅಧಿನಿಯಮದಡಿ ಕೆರೆ ಗಡಿಯಿಂದ 30 ಮೀಟರ್ ಕೆರೆಯ ಬಫರ್ ಜೋನ್ ಪ್ರದೇಶವಾಗಿರುತ್ತದೆ.
3. ಈ ಬಣ್ಣದಿಂದ ತೋರಿಸಿರುವ ಪ್ರದೇಶಕ್ಕೆ ಸರ್ಕಾರಿ ಉದ್ದೇಶಗಳಿಗಾಗಿ 6 ರಲ್ಲಿ ಕೆರೆಯ ಬಫರ್ ಜೋನ್ ಪ್ರದೇಶದ ಒಳಗಡೆ 0-25 ಗುಂಡಿ ವಿಸ್ತೀರ್ಣವಿದ್ದು ಸ್ಥಾಪಿಸಿರುತ್ತದೆ.
4. ಈ ಬಣ್ಣದಿಂದ ತೋರಿಸಿರುವ ಪ್ರದೇಶಕ್ಕೆ ಕೆರೆಯ ಬಫರ್ ಜೋನ್ ಪ್ರದೇಶದ ಒಳಗಡೆ 1-04 ಗುಂಡಿ ವಿಸ್ತೀರ್ಣವಿದ್ದು ಸ.ನಂ. 71/2,72/2,73,74/5 ರ ಹಿಡುವಳಿದಾರರಿಂದ ಕೆರೆ ಮನಗಾಣೆ ನಿರ್ಮಿಸಿರುತ್ತಾರೆ. ಸರ್ಕಾರಿ ನಂಬರಿನ ಮಾಲೀಕತ್ವ ಮತ್ತು ಯೋಜನೆಗಳ ಮಾಹಿತಿಯನ್ನು ಸಂಬಂಧಿಸಿದ ಅಧಿಕಾರಿಗಳಿಂದ ಪಡೆಯ ಬಹುದಾಗಿರುತ್ತದೆ.ಮತ್ತು ಇದೇ ಸರ್ಕಾರಿ ನಂಬರುಗಳಲ್ಲಿ ಬಣ್ಣದಿಂದ ತೋರಿಸಿರುವ ಪ್ರದೇಶಕ್ಕೆ ಕೆರೆಯ ಬಫರ್ ಜೋನ್ ಪ್ರದೇಶದ ಒಳಗಡೆ 1-06 ಗುಂಡಿ ವಿಸ್ತೀರ್ಣವಿದ್ದು ಹಾಲಿ ಖಾಲಿ ಇರುತ್ತದೆ.
5. ಈ ಬಣ್ಣದಿಂದ ತೋರಿಸಿರುವ ಪ್ರದೇಶಕ್ಕೆ ಕಸವನಹಳ್ಳಿ ಗ್ರಾಮದ ಸ.ನಂ.39 ರಲ್ಲಿ 0-27 ಗುಂಡಿ,ಸ.ನಂ.40 ರಲ್ಲಿ 1-15 ಗುಂಡಿ,ಸ.ನಂ.62 ರಲ್ಲಿ 1-01 ಗುಂಡಿ, ಸ.ನಂ.63/2 ರಲ್ಲಿ 0-25 ಗುಂಡಿ,ಸ.ನಂ.67/1 ರಲ್ಲಿ 1-02 ಗುಂಡಿ & ಕೈಕೊಂಡ್ರಹಳ್ಳಿ ಗ್ರಾಮದ ಸ.ನಂ.3/1 ರಲ್ಲಿ 0-22 ಗುಂಡಿ,ಸ.ನಂ.3/4 ರಲ್ಲಿ 0-09 ಗುಂಡಿ, ಸ.ನಂ.5 ರಲ್ಲಿ 0-05 ಗುಂಡಿ,ಸ.ನಂ.7 ರಲ್ಲಿ 0-11 ಗುಂಡಿ ಕೆರೆಯ ಬಫರ್ ಜೋನ್ ಪ್ರದೇಶದ ಒಳಗಡೆ ವಿಸ್ತೀರ್ಣವಿದ್ದು ಹಾಲಿ ಖಾಲಿ ಇರುತ್ತದೆ.
6. ಈ ಬಣ್ಣದಿಂದ ತೋರಿಸಿರುವ ಪ್ರದೇಶಕ್ಕೆ ಕಸವನಹಳ್ಳಿ ಗ್ರಾಮದ ಸ.ನಂ.68/2 ರಲ್ಲಿ 0-30 ಗುಂಡಿ, ಸ.ನಂ.68/3 ರಲ್ಲಿ 0-27 ಗುಂಡಿ,ಕೆರೆಯ ಬಫರ್ ಜೋನ್ ಪ್ರದೇಶದ ಒಳಗಡೆ ವಿಸ್ತೀರ್ಣವಿದ್ದು ಸ.ನಂ.68/2,68/3 ರ ಹಿಡುವಳಿದಾರರು ವಾರ್ಡ್.ನಿರೀಕ್ಷಾ ತಿಳಿಸಿ ನಿರ್ಮಿಸಿರುತ್ತಾರೆ. ಸರ್ಕಾರಿ ನಂಬರಿನ ಮಾಲೀಕತ್ವ ಮತ್ತು ಯೋಜನೆಗಳ ಮಾಹಿತಿಯನ್ನು ಸಂಬಂಧಿಸಿದ ಅಧಿಕಾರಿಗಳಿಂದ ಪಡೆಯ ಬಹುದಾಗಿರುತ್ತದೆ.
7. ಈ ಬಣ್ಣದಿಂದ ತೋರಿಸಿರುವ ಪ್ರದೇಶಕ್ಕೆ ಕಸವನಹಳ್ಳಿ ಗ್ರಾಮದ ಸ.ನಂ.69/1 ರಲ್ಲಿ 0-11 ಗುಂಡಿ, ಸ.ನಂ.69/2 ರಲ್ಲಿ 0-16 ಗುಂಡಿ,ಕೆರೆಯ ಬಫರ್ ಜೋನ್ ಪ್ರದೇಶದ ಒಳಗಡೆ ವಿಸ್ತೀರ್ಣವಿದ್ದು ಸ.ನಂ.69/1,69/2 ರ ಹಿಡುವಳಿದಾರರು ವಾರ್ಡ್.ನಿರೀಕ್ಷಾ ತಿಳಿಸಿ ನಿರ್ಮಿಸಿರುತ್ತಾರೆ. ಸರ್ಕಾರಿ ನಂಬರಿನ ಮಾಲೀಕತ್ವ ಮತ್ತು ಯೋಜನೆಗಳ ಮಾಹಿತಿಯನ್ನು ಸಂಬಂಧಿಸಿದ ಅಧಿಕಾರಿಗಳಿಂದ ಪಡೆಯ ಬಹುದಾಗಿರುತ್ತದೆ.
8. ಈ ಬಣ್ಣದಿಂದ ತೋರಿಸಿರುವ ಪ್ರದೇಶಕ್ಕೆ ಕೈಕೊಂಡ್ರಹಳ್ಳಿ ಗ್ರಾಮದ ಸ.ನಂ.11/2 ರಲ್ಲಿ 0-32 ಗುಂಡಿ ಕೆರೆಯ ಬಫರ್ ಜೋನ್ ಪ್ರದೇಶದ ಒಳಗಡೆ ವಿಸ್ತೀರ್ಣವಿದ್ದು ಸ.ನಂ.11/2 ರ ಹಿಡುವಳಿದಾರರು ಕ್ಲರ್ಕ್.ಪಿ.ಎಸ್.ಈ.ಬಿ.ಎಸ್, ಕೆ.ಎಸ್.ಎಲ್.ಪಿ.ಎಸ್ ಕಟ್ಟಡಗಳನ್ನು ನಿರ್ಮಿಸಿರುತ್ತಾರೆ. ಸರ್ಕಾರಿ ನಂಬರಿನ ಮಾಲೀಕತ್ವ ಮತ್ತು ಯೋಜನೆಗಳ ಮಾಹಿತಿಯನ್ನು ಸಂಬಂಧಿಸಿದ ಅಧಿಕಾರಿಗಳಿಂದ ಪಡೆಯ ಬಹುದಾಗಿರುತ್ತದೆ.
9. ಈ ಬಣ್ಣದಿಂದ ತೋರಿಸಿರುವ ಪ್ರದೇಶಕ್ಕೆ ಕೈಕೊಂಡ್ರಹಳ್ಳಿ ಗ್ರಾಮದ ಸ.ನಂ.9 ರಲ್ಲಿ 1-09 ಗುಂಡಿ ಕೆರೆಯ ಬಫರ್ ಜೋನ್ ಪ್ರದೇಶದ ಒಳಗಡೆ ವಿಸ್ತೀರ್ಣವಿದ್ದು ಹಾಲಿ ಗ್ಯಾಜೆಟ್ ಸ್ಥಳೀಯ ಸೆಟರ್ (ಬೆಂಗಳೂರು)ರೇಖಾ ಪರಿಷತ್ತಿನ(ಅನುದಾನಿತ ಸರ್ಕಾರಿ ಖಾಸಗಿ) ಮತ್ತು ಕಟ್ಟಡಗಳಿರುತ್ತದೆ. ಸರ್ಕಾರಿ ನಂಬರಿನ ಮಾಲೀಕತ್ವ ಮತ್ತು ಯೋಜನೆಗಳ ಮಾಹಿತಿಯನ್ನು ಸಂಬಂಧಿಸಿದ ಅಧಿಕಾರಿಗಳಿಂದ ಪಡೆಯ ಬಹುದಾಗಿರುತ್ತದೆ.
10. ಈ ಬಣ್ಣದಿಂದ ತೋರಿಸಿರುವ ಪ್ರದೇಶಕ್ಕೆ ಕೈಕೊಂಡ್ರಹಳ್ಳಿ ಗ್ರಾಮದ ಸ.ನಂ.10/3 ರಲ್ಲಿ 0-11 ಗುಂಡಿ ಕೆರೆಯ ಬಫರ್ ಜೋನ್ ಪ್ರದೇಶದ ಒಳಗಡೆ ವಿಸ್ತೀರ್ಣವಿದ್ದು ಕಟ್ಟಡ ಮತ್ತು ಅಂಗಡಿ ಮನಗಾಣೆ ಇರುತ್ತದೆ. ಸರ್ಕಾರಿ ನಂಬರಿನ ಮಾಲೀಕತ್ವ ಮತ್ತು ಯೋಜನೆಗಳ ಮಾಹಿತಿಯನ್ನು ಸಂಬಂಧಿಸಿದ ಅಧಿಕಾರಿಗಳಿಂದ ಪಡೆಯ ಬಹುದಾಗಿರುತ್ತದೆ.
11. ಈ ಬಣ್ಣದಿಂದ ತೋರಿಸಿರುವ ಪ್ರದೇಶಕ್ಕೆ ಕೈಕೊಂಡ್ರಹಳ್ಳಿ ಗ್ರಾಮದ ಸ.ನಂ.14 ರಲ್ಲಿ 0-15 ಗುಂಡಿ ಕೆರೆಯ ಬಫರ್ ಜೋನ್ ಪ್ರದೇಶದ ಒಳಗಡೆ ವಿಸ್ತೀರ್ಣವಿದ್ದು ಕಟ್ಟಡ ಮತ್ತು ಅಂಗಡಿ ಮನಗಾಣೆ ಇರುತ್ತದೆ. ಸರ್ಕಾರಿ ನಂಬರಿನ ಮಾಲೀಕತ್ವ ಮತ್ತು ಯೋಜನೆಗಳ ಮಾಹಿತಿಯನ್ನು ಸಂಬಂಧಿಸಿದ ಅಧಿಕಾರಿಗಳಿಂದ ಪಡೆಯ ಬಹುದಾಗಿರುತ್ತದೆ.

L.H.L.

ಆರಕ್ಷಕ ನಿರೀಕ್ಷಾ ತಿಳಿಸಿ ಬೆಂಗಳೂರು ಪ್ರಾದೇಶಿಕ ಅಧಿಕಾರಿ
 ಕೆ. ಆರ್. ಕುರಿ

Relevant Photographs relevant photographs on Violation of Buffer as on 26.07.2019



Members of Joint committee visiting the Kiankondrahalli Lake buffer area



Status of the Sy No 73, 72/2 & 71/2 on 28.3.2019



Status of Sy No 73, 72/2 & 71/2 on 26.7.2019

Status of Sy No 73, 72/2 & 71/2 adjoining to the Kiakondrahalli Lake presently above shown area is filled with soil and some portion of shed constructed in Sy No 72/2 were demolished and leveled



Sewage over flow from the chamber as noticed during the earlier inspection



Sewage over flow from the chamber of diversion pipeline towards southern side of lake as noticed during 26.7.2019



Establishment of Park in buffer area of lake by SJR water Mark project



Driveway and water tank in buffer area of lake by SJR water mark project



Removal of drain Encroachment in Sy No 75 in progress



Godrej project site material storage



Godrej properties foundation work



Development work of Nala in Godrej project



Waste weir of Kasavanahalli Lake

JOINT COMMITTEE OBSERVATIONS WITH RESPECT TO THE UPDATED REPRESENTATION SUBMITTED BY THE MAHADEVAPURA PARISARA SMRAKSHNE MATTU ABHIRUDHI SAMITI (MPSMAS).

The MahadevapuraParisaraSmrakshneMattuAbhirudhiSamiti (MPSMAS) through Managing Trustee Sri Subramanian Sankaran submitted updated representation to Karnataka State Pollution Control Board (KSPCB). The pointwise observations of the Joint Committee are as follows:

1. *The issue for consideration is the remedial action against violation of environment norms in the fragile buffer zone of Kaikondarahalli Lake at Bangalore.*

As per the direction of Hon'ble NGT, entire buffer area of Kaikondrahalli Lake was surveyed by the Department of Survey, Settlement and Land Records and survey report of the same submitted. The submitted survey report is verified by the Joint Committee and detail observation submitted accordingly for the further consideration in the Joint Committee Report.

Also the Joint Committee estimated the Environmental Compensation for a period of 11.03.2019 to 06.07.2019 (129 days) and the same is submitted to KSPCB on 08.07.2019 for filing to Hon'ble NGT for further consideration.

Further, with respect to the prayer on issue of closure order, it is submitted that the residential sheds in the Sy.No 71/1, 71/2, 72/1, 72/2, 74/5B and 73 of Kasavanahalli Village, VarthurHobli, Bengaluru East Taluk, Bengaluru Urban district does not attract EIA notification and even in Classification of industries which are required to be covered by Pollution Control Board, however the construction for dwelling needs to be obtained from the Town planning, BBMP, it was directed them to take immediate action on unauthorized constructions.

2. *Buffer area of lake on Eastern, Western and Southern side.*

- i) Survey of the buffer area is already carried out and demarcations need to be carried out by Revenue Department / BBMP.
- ii) Same as above.
- iii) There is a nala which connects the Kasavanahalli Lake to Kaikondrahalli Lake, the nala marking and development work is being carried out by BBMP, storm water drain and nala portion in Godrej Lake gardens is being done by the project proponent as per the approved drawing from BBMP. The copy of the BBMP approval is given as **Appendix 1**.
- iv) Only excavated top soil from the construction site is being stored and adjoining to the construction site.

- v) No comment
- vi) With respect to consideration of wet land with respect to Kaikondrahalli Lake, the definition of the Wet land is:

International Union for the Conservation of Nature and Natural Resources (IUCN) : "Submerged or water saturated lands, both natural and man-made, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6 meters".

Ramsar Convention: "Areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters".

Further, wet land is classified based on Wetland hydrology, i.e. manifestation of water on the satellite imagery. Wetland vegetation - mainly hydrophytes and other aquatic vegetation in a part or whole of the wetland as observed on satellite data.

It is clear from the above definition that, in the present case only lake area falls under the wet land definition. The image of the Kaikondrahalli Lake and its surround area development & changes from 2002 to till date is given as Appendix 2, it clearly shows that the area between Kasavanahalli Lake and Kainkondrahalli Lake was agricultural land, not a wet land.

- vii) Action will be initiated as per the provision of the Karnataka State Government Gazette Notification No. FEE 316 EPC 2015 Bengaluru dated 19.01.2016.
- viii) SJR Prime Corporation Pvt Ltd (SJR Water Mark) has applied for renewal of consent after expiry on 30.09.2017, the said application has been returned by the KSPCB as there is an appeal before Hon'ble NGT Principal Bench. The Hon'ble NGT has disposed the case on 04.09.2018 as the respondent has approached Hon'ble High Court of Karnataka and Hon'ble Supreme Court on the subject matter. Since the case is pending before the court the Board has not initiated action, as this will amount to prejudice.
- ix) Since the case is pending before the court, the Board has not initiated action as this will amount to prejudice.

- x) Construction in the Sy.No 71/1, 71/2, 72/1, 72/2, 74/5B and 73 of Kasavanahalli Village, VarthurHobli, Bengaluru East Taluk, Bengaluru Urban district not falling under EIA notification and even in Classification of industries which are required to be covered by Pollution Control Board, however the construction for dwelling needs to be obtained from the Town planning, BBMP, it was directed them to take immediate action on unauthorized constructions.
 - xi) With respect to restoration of the feeder canal towards northern side of Sy No. 76 BBMP storm water drain initiated action for restoration. Further, with respect to the drain adjoining to Sy No 76 towards southern side as reported by BBMP storm water drain division survey work is still pending.
 - xii) As noticed during the joint inspection construction debris in Sy no. 39 not cleared, it was instructed to BBMP official to immediately look into the solid waste dumping and to stop the solid waste segregation activity at Sy No 71/2 and Sy No39.
 - xiii) Will be adhering to the direction on revised Standards for new construction projects.
 - xiv) As noticed during the Joint Committee inspection no such activity observed at Godrej Lake gardens.
3. The Chairman, Karnataka State Pollution Control Board during the meeting conducted on 22.05.2019 in view of Hon'ble NGT order dated 09.05.2019 in respect of OA No 281/2019 directed Joint commissioner, BBMP to initiate action as per the provision of the law to remove encroachments.
 4. Corrigendum to the letter No.PCB/CNP/41/NGT-Kaikondarahalli/18/701 dated 27th April, 2019 was issued incorporating Sy No 72/1 of Kasavanahalli village vide order No PCB/CNP/41/NGT-Kaikondarahalli/18/2400 dated 12.7.2019. Copy of the same is attached as **Appendix 3**.
 5. No comments
 6. Environmental Compensation calculated and same was already submitted for kind consideration of Hon'ble NGT.



ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ

ಸಂ:ಮು.ಅ/ಬೃ.ಮ.ನೀ.ಗಾ/ಬಿ.ಆರ್/17-18

ಮುಖ್ಯ ಅಭಿಯಂತರರ ಕಛೇರಿ
ಬೃ.ಮ.ನೀ.ಗಾ. ಬಿ.ಬಿ.ಎಂ.ಪಿ
9ನೇ ಮಹಡಿ ಜಯನಗರ ವಾಣಿಜ್ಯ ಸಂಕೀರ್ಣ
4ನೇ ಬ್ಲಾಕ್ ಜಯನಗರ ಬೆಂ-11
ದಿನಾಂಕ 2-08-2017

ಹಿಂಬರಹ

- ವಿಷಯ: ಬಿಬಿವೆಂಪಿ ವ್ಯಾಪ್ತಿಯ ಬೆಂಗಳೂರು ಪೂರ್ವ ತಾಲೂಕು, ವರ್ತೂರು ಹೋಬಳಿಯ ಕಸವನಹಳ್ಳಿ ಗ್ರಾಮದ ಸರ್ವೆ ನಂ 63/2 ರಲ್ಲಿ ಆರ್.ಸಿ. ಸಿ ಡ್ರೈನ್ ಮತ್ತು ಆರ್. ಸಿ.ಸಿ. ಕಲ್ಟರ್ವ್ ನಿರ್ಮಿಸಲು ಅನುಮತಿ ಕೋರಿರುವ ಬಗ್ಗೆ
- ಉಲ್ಲೇಖ: 1.ನಿಮ್ಮ ಪತ್ರದ ದಿನಾಂಕ 13-6-2017.
2.ಆಯುಕ್ತರವರು ಬಿ. ಬಿ.ಎಂ.ಪಿ ರವರ ಅನುಮೋದನೆ ಕಂಡಿಕೆ 15 ದಿನಾಂಕ 26-7-2017

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ಮೇಲಿನ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಹಾಗೂ ಉಲ್ಲೇಖಿತ ಪತ್ರದಲ್ಲಿ ಬೆಂಗಳೂರು ಪೂರ್ವ ತಾಲೂಕು, ವರ್ತೂರು ಹೋಬಳಿಯ ಕಸವನಹಳ್ಳಿ ಗ್ರಾಮದ ಸರ್ವೆ ನಂ 63/2 ರಲ್ಲಿ ಹರಿಯುತ್ತಿರುವ ಮಳೆನೀರುಗಾಲುವೆಗೆ ಆರ್.ಸಿ.ಸಿ ಡ್ರೈನ್ ಮತ್ತು ಆರ್.ಸಿ.ಸಿ ಬಾಕ್ಸ್ ಮಾದರಿಯ ಕಲ್ಟರ್ವ್ ಅನ್ನು ನಿರ್ಮಿಸಲು M/s Agamy Engineering Services LLP., ರವರು ನೀಡಿರುವ 5.40ಮೀx3.0ಮೀ ಅಳತೆಯ ಆರ್.ಸಿ.ಸಿ U ಮಾದರಿಯ ಡ್ರೈನ್ ಮತ್ತು 12ಮೀಟರ್‌ಗಳ ಆರ್.ಸಿ.ಸಿ ಬಾಕ್ಸ್ ಮಾದರಿಯ ಎರಡು ಕಲ್ಟರ್ವ್ ಅನ್ನು 5.4ಮೀx3.40ಮೀ ಅಳತೆಗೆ ತಮ್ಮ ಸ್ವಂತ ಖರ್ಚಿನಲ್ಲಿ ನಿರ್ಮಿಸಿಕೊಳ್ಳಲು ಅನುಮತಿ ಕೋರಿರುವ ಮೇರೆಗೆ ಮಾನ್ಯ ಆಯುಕ್ತರವರ ಅನುಮೋದನೆ ಹಾಗೂ ಆದೇಶದಂತೆ ಈ ಕೆಳಕಂಡ ಷರತ್ತುಗಳಿಗೆ ಒಳಪಟ್ಟು ಅನುಮತಿ ನೀಡಿದೆ.

1. ಹಾಲಿ ಇರುವ ಮಳೆ ನೀರು ಕಾಲುವೆಯ Alignment ಮತ್ತು ಮೂಲ ಅಳತೆಗಳನ್ನು ಯಾವುದೇ ಕಾರಣಕ್ಕೂ ಬದಲಿಸಿದಂತೆ ಆರ್.ಸಿ. ಸಿ U ಮಾದರಿಯ ಡ್ರೈನ್ ಮತ್ತು 12ಮೀಟರ್‌ಗಳ ಆರ್.ಸಿ.ಸಿ ಬಾಕ್ಸ್ ಮಾದರಿಯ ಎರಡು ಕಲ್ಟರ್ವ್ ಅನ್ನು ನಿರ್ಮಿಸುವುದು.
2. ಸದರಿ ಕಾಲುವೆ ಅದರ ಸ್ಥಳವು ಪಾಲಿಕೆ ಸ್ವತ್ತಾಗಿರುವುದರಿಂದ ಇದರ ಮಾಲಿಕತ್ವದ ಬಗ್ಗೆ ಸ್ಪಷ್ಟನೆಯ ಮಾಲೀಕರಿಗೆ ಯಾವುದೇ ಹಕ್ಕು ಇರುವುದಿಲ್ಲ.
3. ಆರ್.ಸಿ. ಸಿ U ಮಾದರಿಯ ಡ್ರೈನ್ ಮತ್ತು ಆರ್.ಸಿ.ಸಿ ಬಾಕ್ಸ್ ಕಲ್ಟರ್ವ್‌ಗಳನ್ನು ನಿರ್ಮಿಸುವಾಗ ಪಾಲಿಕೆಯ ಸಂಬಂಧಪಟ್ಟ ಇಂಜಿನಿಯರ್ ರವರ ಮಾರ್ಗದರ್ಶನದ ಪ್ರಕಾರ ನಿರ್ಮಿಸುವುದು.
4. ಕಾಮಗಾರಿ ಪೂರ್ಣಗೊಂಡ ನಂತರ ಆರ್.ಸಿ.ಸಿ U ಮಾದರಿಯ ಡ್ರೈನ್ ಮತ್ತು ಆರ್.ಸಿ.ಸಿ ಬಾಕ್ಸ್ ಕಲ್ಟರ್ವ್‌ಗಳ ಮೇಲ್ಭಾಗದಲ್ಲಾಗಲೀ ಅಥವಾ ಪಕ್ಕದಲ್ಲಾಗಲೀ ಯಾವುದೇ ಕಟ್ಟಡ ನಿರ್ಮಾಣ ಮಾಡುವಂತಿಲ್ಲ.
5. ಸದರಿ ಆರ್.ಸಿ.ಸಿ U ಮಾದರಿಯ ಡ್ರೈನ್ ಮತ್ತು ಆರ್.ಸಿ.ಸಿ ಬಾಕ್ಸ್ ಕಲ್ಟರ್ವ್‌ಗಳ ಮೇಲೆ ಬಿಬಿಎಂಪಿ ಎಂಬ ನಾಮಫಲಕ ಪ್ರದರ್ಶಿಸಬೇಕು.
6. ಮಳೆ ನೀರು ಸರಾಗವಾಗಿ ಹರಿಯುವಂತೆ ಆಗಾಗ್ಗೆ ಶುಚಿಗೊಳಿಸಲು ಸೂಚಿಸಲಾಗಿದೆ.
7. ಯಾವುದೇ ಸಮಯದಲ್ಲಿ ಪಾಲಿಕೆ ಅಧಿಕಾರಿಗಳು/ ಸಿಬ್ಬಂದಿ, ಸ್ಥಳವನ್ನು ಪರೀಶೀಲಿಸುವ ಹಾಗೂ ಅವಶ್ಯಕ ಕ್ರಮ ತೆಗೆದುಕೊಳ್ಳುವ ಅಧಿಕಾರ ಹೊಂದಿದ್ದು ಇದಕ್ಕೆ ಅಡ್ಡಿ ಪಡಿಸುವಂತಿಲ್ಲ.

8. ನಿರ್ಮಾಣಕ್ಕೆ ತಗುಲುವ ಸಂಪೂರ್ಣ ವೆಚ್ಚವನ್ನು ಮತ್ತು ನಂತರದ ದುರಸ್ತಿ /ನಿರ್ವಾಹಣೆ ವೆಚ್ಚವನ್ನು ಅರ್ಜಿದಾರರೇ ಭರಿಸತಕ್ಕದ್ದು.
9. ನಿರ್ಮಾಣ ಸಮಯದಲ್ಲಿ ಮುನ್ನೆಚ್ಚರಿಕೆ ಕ್ರಮ ವಹಿಸುವುದು ಹಾಗೂ ಯಾವುದೇ ತರಹದ ಅವಘಡ ಸಂಭವಿಸಿದ್ದಲ್ಲಿ ಅದಕ್ಕೆ ಅರ್ಜಿದಾರರೇ ನೇರ ಹೊಣೆಗಾರರಾಗಿರುತ್ತಾರೆ. ಪಾಲಿಕೆ ವತಿಯಿಂದ ಯಾವುದೇ ರೀತಿಯ ಆರ್ಥಿಕ ವೆಚ್ಚ ಅಥವಾ ನಷ್ಟ ಪರಿಹಾರ ಭರಿಸಲಾಗುವುದಿಲ್ಲ.
10. ಯಾವುದೇ ಕಾರಣ ನೀಡದೆ ಯಾವುದೇ ಸಮಯದಲ್ಲಿ ಅನುಮತಿಯನ್ನು ರದ್ದುಪಡಿಸುವ ಅಧಿಕಾರ ಪಾಲಿಕೆಗೆ ಇರುತ್ತದೆ. ಈ ಬಗ್ಗೆ ಅರ್ಜಿದಾರರು ಯಾವುದೇ ಹಕ್ಕು ಚಲಾಯಿಸುವಂತಿಲ್ಲ.
11. ಸದರಿ ಆರ್.ಸಿ. ಸಿ U ಮಾದರಿಯ ಡ್ರೈನ್ ನಿರ್ಮಾಣದ ನಂತರ ಮಳೆನೀರು ಹರಿಯುವ ಉದ್ದೇಶಕ್ಕಲ್ಲದೇ ಬೇರೆ ಯಾವುದೇ ಉದ್ದೇಶಕ್ಕಾಗಿ ಉಪಯೋಗಿಸುವಂತಿಲ್ಲ.
12. ಕಾಮಗಾರಿ ನಿರ್ವಹಿಸುವ ಸಮಯದಲ್ಲಿ ಯಾವುದೇ ರೀತಿಯ ಬದಲಾವಣೆ ಮಾಡಬೇಕಾದ ಸಂದರ್ಭ ಒದಗಿದ್ದಲ್ಲಿ ಮಹಾನಗರ ಪಾಲಿಕೆ ಪೂರ್ವನುಮತಿ ಪಡೆದುಕೊಳ್ಳಬೇಕಾಗಿರುತ್ತದೆ.
13. ಮಹಾನಗರ ಪಾಲಿಕೆಯಿಂದ ಅನುಮೋದಿಸಲ್ಪಟ್ಟ ನಕ್ಷೆ ಹಾಗೂ ವಿನ್ಯಾಸದಂತೆ ಆರ್.ಸಿ. ಸಿ U ಮಾದರಿಯ ಡ್ರೈನ್ ಮತ್ತು ಆರ್.ಸಿ.ಸಿ ಬಾಕ್ಸ್ ಕಲ್ಟರ್‌ಗಳನ್ನು ನಿರ್ಮಿಸುವುದು.


 ಮುಖ್ಯ ಅಭಿಯಂತರರು
 ಬೃಹತ್ ನೀರುಗಾಲುವೆ
 ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ

ಇವರಿಗೆ,

Wonder Projects Development Pvt. Ltd.
 # 80, Hulkul Ascent, 2nd Cross,
 Lavelle Road,
 Bangalore-560001

ಪ್ರತಿಯನ್ನು,

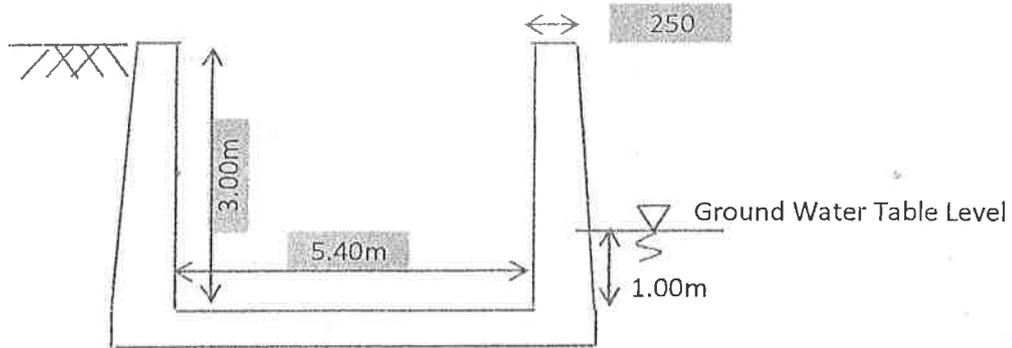
1. ಮಾನ್ಯ ಆಯುಕ್ತರು ಜಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು ರವರ ಮಾಹಿತಿಗಾಗಿ.

DESIGN DOCUMENT

DESIGN DOCUMENT		
CLIENT:	 Bruhat Bengaluru Mahanagara Palike	Bruhat Bengaluru Mahanagara Palike
CONSULTANT	 AGAMYA	M/s Agamy Engineering Services LLP Bangalore
DOCUMENT	Design Calculation of Construction Of RCC Bridge & U Shape Drain To Swd Near Kasavanahalli Lake To Kaigondanahalli Lake Ward No.150	
DOC No		
BBMP-AES-WARD.150-DD-001		

Bruhat Bengaluru Mahanagara Palike		
CLIENT	CONSULTANT	NAME OF THE WORK : CONSTRUCTION OF RCC U-SHAPE DRAIN & RCC BRIDGE TO SWD NEAR KASAVANAHALLI LAKE TO KAIGONDANAHALLI LAKE WARD NO - 150
	 AGAMYA	Document No : BBMP-AES-WARD.150-DD-001
Design of U-Shape & Culvert		

1.0 Introduction:-

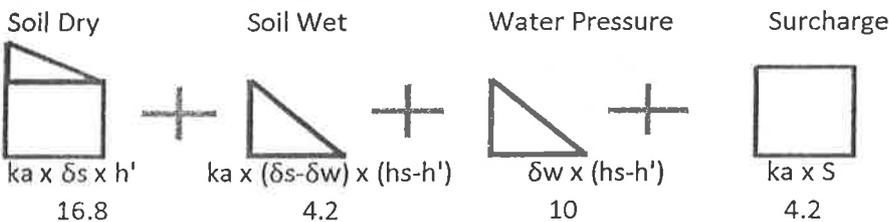


Drain is designed for Critical condition; drain is empty with back fill

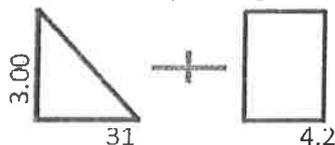
2.0 Design of Drain Wall

Angle of internal friction	Φ	=	24	$^{\circ}$
Active coefficient of earth pressure	k_a	=	$1 - \sin\Phi / 1 + \sin\Phi$	= 0.42
Density of soil	δ_s	=	20	kN/m ³
Density of water	δ_w	=	10	kN/m ³
Surcharge Pressure	S	=	10	kN/m ²
Height of soil retention	h_s	=	3.00	m
Height of water table	h_w	=	1.00	m
Height of dry retention	h'	=	2.00	m

Pressure distribution diagram



Conservatively adding soil and water pressure



$$\begin{aligned} \text{Moment } M &= 0.500 \times 31 \times 3.00 + 4.2 \times 4.5 = 65.40 \text{ kN-m} \\ \text{Shear force } V &= 0.500 \times 31.00 \times 3.00 + 4.20 \times 3.00 = 59.10 \text{ kN} \end{aligned}$$

Pressure distribution diagram (without backfill)

Height of water storage	H	=	2.70	m
Pressure due to water storage	$\delta_w \times h$	=	27.0	kN/m ²

Pressure distribution diagram for tank wall

	M	=	$0.5 \times 50 \times 5^2 / 3$	= 32.8	kN-m
	V	=	$0.5 \times 50 \times 5$	= 36.45	kN

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Design of U-Shape & Culvert		

27 kN/m²

2.1 Design for Flexure

Factored moment	Mu	=	98.10	kN-m
Characteristic strength of concrete	fck	=	25	N/mm ²
Characteristic strength of steel	fy	=	500	N/mm ²
Considering the width	b	=	1000	mm
Depth required	Mu = 0.36 fck b d ² (Xumax/d) (1 - 0.42 x (Xumax/d))			
	Xumax/d	=	0.46	(0.0035/(0.0055 + 0.87fy / Es))
Depth required	dreq	=	156.8	mm
Depth provided	D	=	300	mm
Effective cover		=	58	mm
Effective depth provided	d	=	242	mm > 156.8 mm Hence Ok

Area of steel required

$$Mu = 0.87 fy Ast d (1 - Ast x fy / bdfck)$$

Area of steel required	Astr	=	1017.4	mm ²
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Min. steel required 0.12% of D		=	360.0	mm ²
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Ast provided	Y 16 - 150	=	1340.4	mm ² > 1017.4 mm ² Hence Ok
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Provide wall of 300 mm thk with Y16 @ 150 as vertical bars and Y10 @ 200 as horizontal bars at soil face

2.2 Design for Flexure (Water face reinforcement)

Factored moment	Mu	=	49.21	kN-m
Characteristic strength of concrete	fck	=	25	N/mm ²
Characteristic strength of steel	fy	=	500	N/mm ²
Considering the width	b	=	1000	mm
Depth required	Mu = 0.36 fck b d ² (Xumax/d) (1 - 0.42 x (Xumax/d))			
	Xumax/d	=	0.46	(0.0035/(0.0055 + 0.87fy / Es))
Depth required	dreq	=	111.1	mm
Depth provided	D	=	300	mm
Effective cover		=	56	mm
Effective depth provided	d	=	244	mm > 111.1 mm Hence Ok

Area of steel required

$$Mu = 0.87 fy Ast d (1 - Ast x fy / bdfck)$$

Area of steel required	Astr	=	482.7	mm ²
------------------------	------	---	-------	-----------------

Minimum steel required	Astmin	=	360.0	mm ²
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Ast provided	Y 12 - 150	=	754.0	mm ² > 482.7 mm ² Hence Ok
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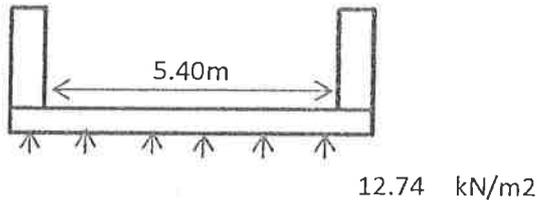
Provide wall of 300 mm thk with Y12 @ 150 as vertical bars and Y10 @ 200 as horizontal bars at water face

2.3 Design for shear

Shear Force		=	59.10	kN
Design shear force		=	88.7	kN
Acting shear stress	τ_c	=	0.37	N/mm ²
Percentage of steel provided	Pt	=	0.55	$\beta = 5.3$
Permissible shear stress	τ_p	=	0.51	N/mm ² > 0.37 N/mm ² Hence Ok

Bruhat Bengaluru Mahanagara Palike		
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		Document No : BBMP-AES-WARD.150-DD-001
Design of U-Shape & Culvert		

3.0 Design of Base Slab



Load due to self weight of wall	$(3 \times 0.3 \times 2 \times 25)$	=	41.25	kN
Base pressure	$41.25 / (5.70 \times 1.00)$	=	7.24	kN/m ²
Assuming Thickness of base slab		=	0.30	m
Ground Water table level		=	1.00	m
Uplift head		=	1.30	m
Uplift pressure		=	13	kN/m ²
Self weight of base slab		=	7.5	kN/m ²
Net upward pressure	$7.2 + 13.00 - 7.5$	=	12.74	kN/m ²
Moment calculation,	$12.74 \times 5.70^2 / 8$	=	51.74	kN-m

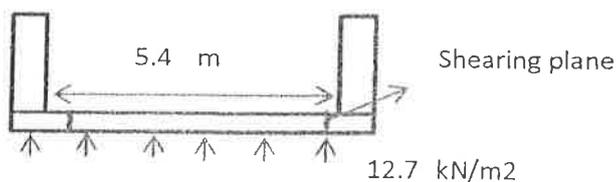
3.1 Design for Flexure

Factored moment	M_u	=	77.6	kN-m
Characteristic strength of concrete	f_{ck}	=	25	N/mm ²
Characteristic strength of steel	f_y	=	500	N/mm ²
Considering the width	b	=	1000	mm
Depth of slab required				
$M_u = 0.36 f_{ck} b d^2 (X_{u,max}/d) (1 - 0.42 \times (X_{u,max}/d))$	$X_{u,max}/d$	=	0.46	$(0.0035 / (0.0055 + 0.87 f_y / E_s))$
Depth required	d_{req}	=	139.5	mm
Depth provided	D	=	300	mm
Effective cover		=	58.0	mm
Effective depth provided	d	=	242.0	mm > 139.5 mm
Area of steel required				
$M_u = 0.87 f_y A_{st} d (1 - A_{st} \times f_y / b d f_{ck})$	A_{st}	=	788.7	mm ²
Area of steel required		=	788.7	mm ²
Min. steel required 0.12% of D		=	360.0	mm ²
Ast provided	$Y 16 - 200$	=	1005.3	mm ² > 788.7 mm ² Hence Ok

3.3 Design for shear

The possible shear failure is the punching shear failure as shown below.

Shear force	12.7×2.85	=	36.3	kN
Design shear	1.5×36.3	=	54.5	kN



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Design of U-Shape & Culvert		

Effective depth	=	242	mm	
Acting shear stress	τ_c	=	0.23	N/mm ²
Percentage of steel provided	Pt	=	0.42	$\beta = 6.9$
Permissible shear stress	τ_p	=	0.45	N/mm ² > 0.23 N/mm ² , Hence safe

4.0 Check for Base Pressure

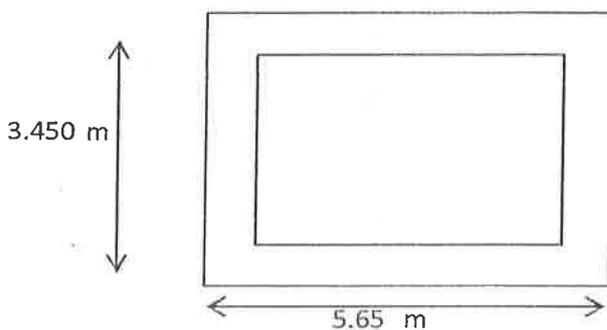
The Net SBC is considered as 5.0 T/m² at founding level.

Total weight of wall	=	41.3	kN	
Weight of the base 0.3 x 6 X 25	=	45.0	kN	
Weight of water in drain 2.5 x 5.4 x 10	=	135	kN	(considering 0.5m as free board)
Total downward load	P	=	221.3	kN
Base area of slab	A	=	6.00	m ²
Base pressure due to axial load	P/A	=	36.88	kN/m ² < 50 kN/m ² , hence safe

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Design of U-Shape & Culvert		

6.0 DESIGN OF CULVERT (5.3 X 3)

Span of culvert (L)	= 5.3 m
Height of culvert (H)	= 3 m
Unit weight of dry earth	= 20 kN/m ³
Unit weight of saturated earth	= 10 kN/m ³
Unit weight of water	= 10 kN/m ³
Unit weight of concrete	= 25 kN/m ³
Unit weight of wearing course	= 22 kN/m ³
Surcharge	= 10 kN/m ²
Angle of internal friction	= 24 degree
coefficient of earth pressure at rest	= 0.59
Grade of steel	= 500 N/mm ²
Grade of concrete	= 35 N/mm ²
Nominal cover	= 50 mm
Thickness of wearing course	= 0.075 m
Thickness of top slab/bottom slab	= 0.45 m
Road width	= 7.5 m
Thickness of side wall	= 0.35 m
The effective length of horizontal member	= 5.65 m
The effective length of vertical member	= 3.45 m
Effective depth (d)	= 390 mm



Load calculation:

a) DL of Slab

Self weight of slab	= 11.25 kN/m ²
Self weight of wearing course	= 1.65 kN/m ²

b) Water pressure

Pressure at bottom	= 30.00 kN/m ²
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c) Soil pressure

Pressure at bottom	= 40.94 kN/m ²
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Design of U-Shape & Culvert		

d) LL Calculation

Type of vehicle considered is CLASS AA TRACKED VEHICLE

Load on each wheel (W)	= 350 kN (From IRC 6 Fig 1)
Impact factor considered (I)	= 1.25 (From IRC 6 pg 21)
Length of contact area of wheel	= 3.60 m (From IRC 6 Fig 1)
Width of contact area of wheel	= 0.85 m (From IRC 6 Fig 1)
Length of dispersion (ld)	= 4.65 m
Width of dispersion (bd)	= 1.90 m
Intensity of Live load	= 49.5 kN/m ²

LL Calculation (IRC Class A vehicle)

Load on each wheel (W)	= 114 kN (From IRC 6 Fig 1)
Impact factor considered (I=4.5/(6+L))	= 1.39 (From IRC 6 pg 21)
Length of contact area of wheel	= 0.25 m (From IRC 6 Fig 1)
Width of contact area of wheel	= 0.50 m (From IRC 6 Fig 1)
Distance between two adjacent loads	= 1.20 m (From IRC 6 Fig 1)
Length of dispersion (ld)	= 2.50 m
Width of dispersion (bd=kx(1-x/L)+bw)	= 4.70 m (From IRC 21 Pg 52)

Where,

bw = 0.65 m

x = 2.23 m

L = 5.65 m

k is the value depending on B/L

B/L = 1.33

Based on B/L, the value of K = 3 (From IRC 21 page 53)

Since effective width of dispersion exceeds the width of slab, width of dispersion shall be considered as 7.5 m

Intensity of Live load = 33.71 kN/m²

Considered Live load = 50 kN/m²

e) Surcharge

Surcharge load on side walls = 5.93 kN/m²

5.1 Design of top slab

Design for flexure (Bottom Rebar)

	Load case	102	PL No	632	
Factored moment	Mu	= 280.4	kN-m	186.79	+ 0.12 = 186.91 kN-m
Characteristic strength of concrete	fck	= 35	N/mm ²		
Characteristic strength of steel	fy	= 500	N/mm ²		
Considering the width	b	= 1000	mm		
Depth of slab required					
Mu = 0.36 fck b d ² (Xumax/d) (1 - 0.42 x (Xumax/d))					
	Xumax/d	= 0.46	(0.0035/(0.0055 + 0.87fy / Es))		
Depth required	dreq	= 324.7	mm		
Depth provided	D	= 450	mm		
Clear Cover		= 50	mm		

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Document No : BBMP-AES-WARD.150-DD-001		

Design of U-Shape & Culvert

Effective cover	=	60	mm	
Effective depth provided	d	= 390.0	mm	> 324.7 mm, Hence safe
Area of steel required				
Mu = 0.87 fy Ast d (1 - Ast x fy / bdfck)				
Area of steel required	Astr	= 1767.0	mm ²	
Minimum steel required	Astmin	= 540.0	mm ²	
Ast provided	Y 20 - 150	= 2094.4	mm ²	> 1767.0 mm ² , Hence safe

Design for flexure(Top Rebar)

		Load case	102	PL No	621	
Factored moment	Mu	= 94.4	kN-m	61.97	+	0.96 = 62.94 kN-m
Characteristic strength of concrete	fck	= 35	N/mm ²			
Characteristic strength of steel	fy	= 500	N/mm ²			
Considering the width	b	= 1000	mm			

Depth of slab required

$$Mu = 0.36 fck b d^2 (X_{umax}/d) (1 - 0.42 x (X_{umax}/d))$$

	X _{umax} /d	= 0.46	(0.0035/(0.0055 + 0.87fy / Es))
Depth required	d _{req}	= 188.4	mm
Depth provided	D	= 450	mm
Clear Cover		= 50	mm
Effective cover		= 58.0	mm
Effective depth provided	d	= 392.0	mm
			> 188.4 mm, Hence safe

Area of steel required

$$Mu = 0.87 fy Ast d (1 - Ast x fy / bdfck)$$

Area of steel required	Astr	= 565.3	mm ²	
Minimum steel required	Astmin	= 540.0	mm ²	
Ast provided	Y 16 - 150	= 1340.4	mm ²	> 565.3 mm ² , Hence safe

Design for shear

Acting shear stress	τ_c	= 0.37	N/mm ²	Load Case	104
Design shear stress		= 0.56	N/mm ²	PL No	621
Percentage of steel provided	Pt	= 0.34	β	=	12.0
Permissible shear stress	τ_p	= 0.43	N/mm ²	<	0.56 N/mm ² , Hence Unsafe

Therefore, additional safety haunch is provided.

Haunch thickness		= 300	mm
Design shear stress		= 0.34	N/mm ²
		<	0.43 N/mm ² , Hence safe

5.2 Design of side Walls

Design for flexure(Soil face rebar)

			PL No	479
Factored moment	Mu	= 146.4	kN-m	95.59 + 2.04 = 97.63 kN-m
Characteristic strength of concrete	fck	= 35	N/mm ²	
Characteristic strength of steel	fy	= 500	N/mm ²	
Considering the width	b	= 1000	mm	
Depth of slab required				
Mu = 0.36 fck b d^2 (X _{umax} /d) (1 - 0.42 x (X _{umax} /d))				
	X _{umax} /d	= 0.46	(0.0035/(0.0055 + 0.87fy / Es))	
Depth required	d _{req}	= 234.6	mm	

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Design of U-Shape & Culvert

Depth provided	D	=	450	mm	
Clear Cover		=	50	mm	
Effective cover		=	58.0	mm	
Effective depth provided	d	=	392.0	mm	> 210.4 mm, Hence safe

Area of steel required

$$Mu = 0.87 f_y A_{st} d (1 - A_{st} x f_y / b d f_{ck})$$

Area of steel required	A _{str}	=	708.7	mm ²	
Minimum steel required	A _{stmin}	=	540.0	mm ²	
Ast provided	Y 16 - 150	=	1340.4	mm ²	> 708.7 mm ² , Hence safe

Design for shear

Acting shear stress	τ_c	=	0.43	N/mm ²	
Design shear stress		=	0.65	N/mm ²	
Percentage of steel provided	P _t	=	0.34	β = 12.0	
Permissible shear stress	τ_p	=	0.43	N/mm ²	< 0.65 N/mm ² , Hence unsafe

Therefore, additional safety haunch is provided.

Haunch thickness		=	300	mm	
Design shear stress		=	0.39	N/mm ²	< 0.43 N/mm ² , Hence safe

Image of the Kaikondrahalli Lake and its surround area during 2002 and 2019

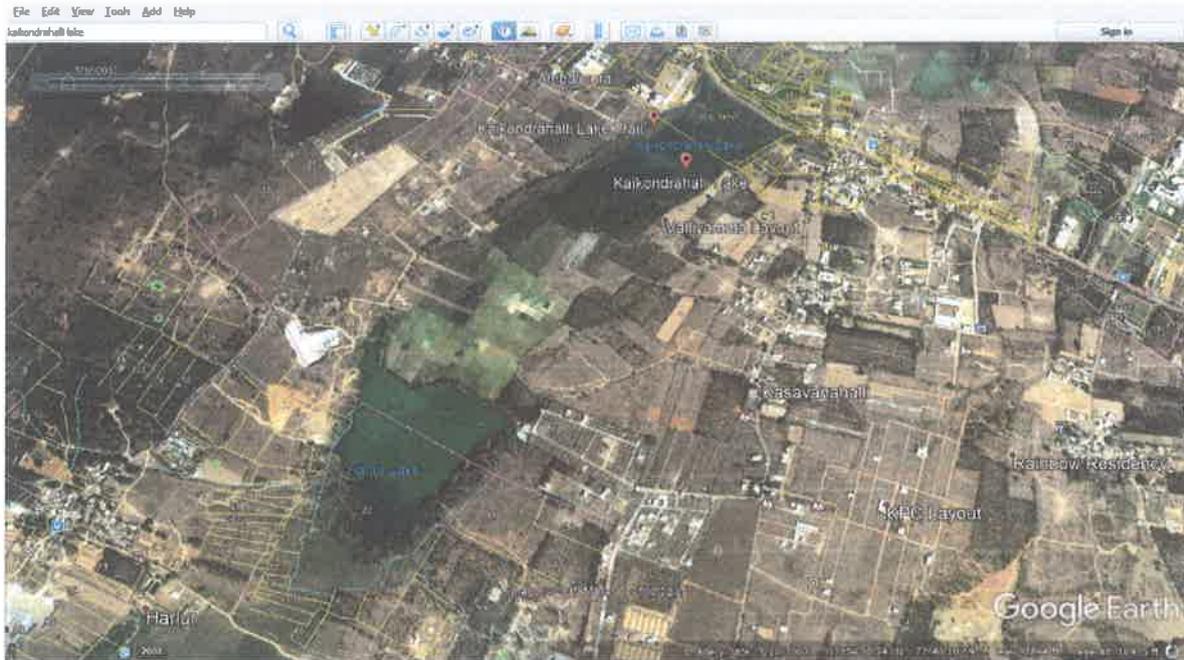


Image of the Lake & its surrounding during 2002

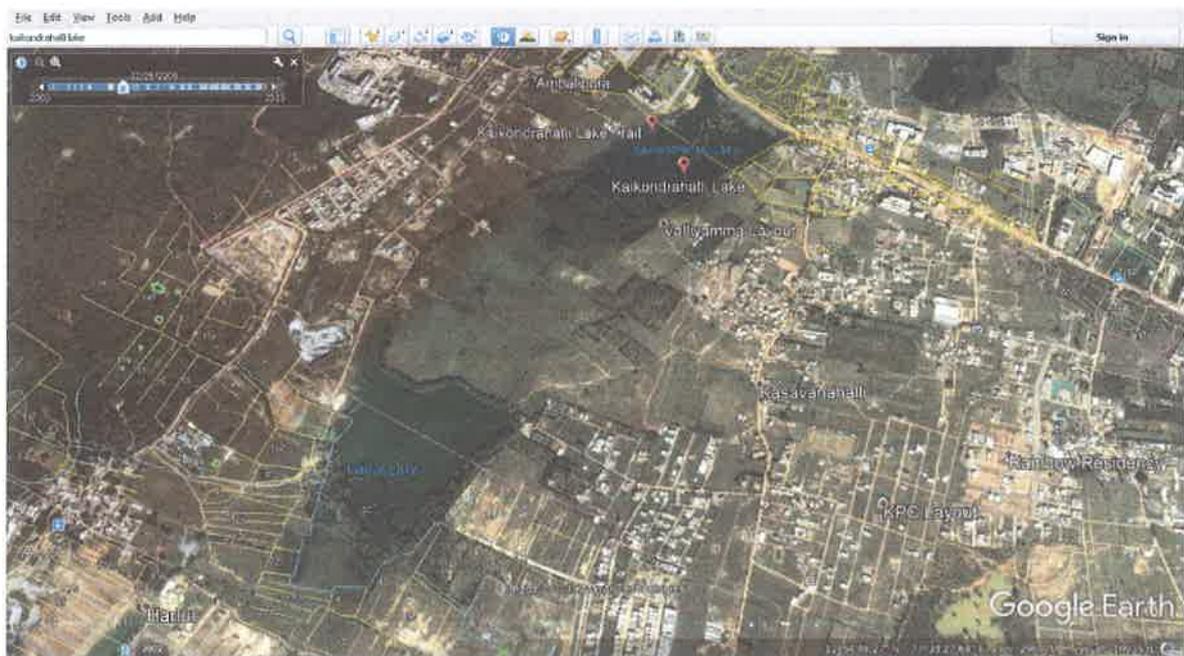


Image of the Lake & its surrounding during 2006

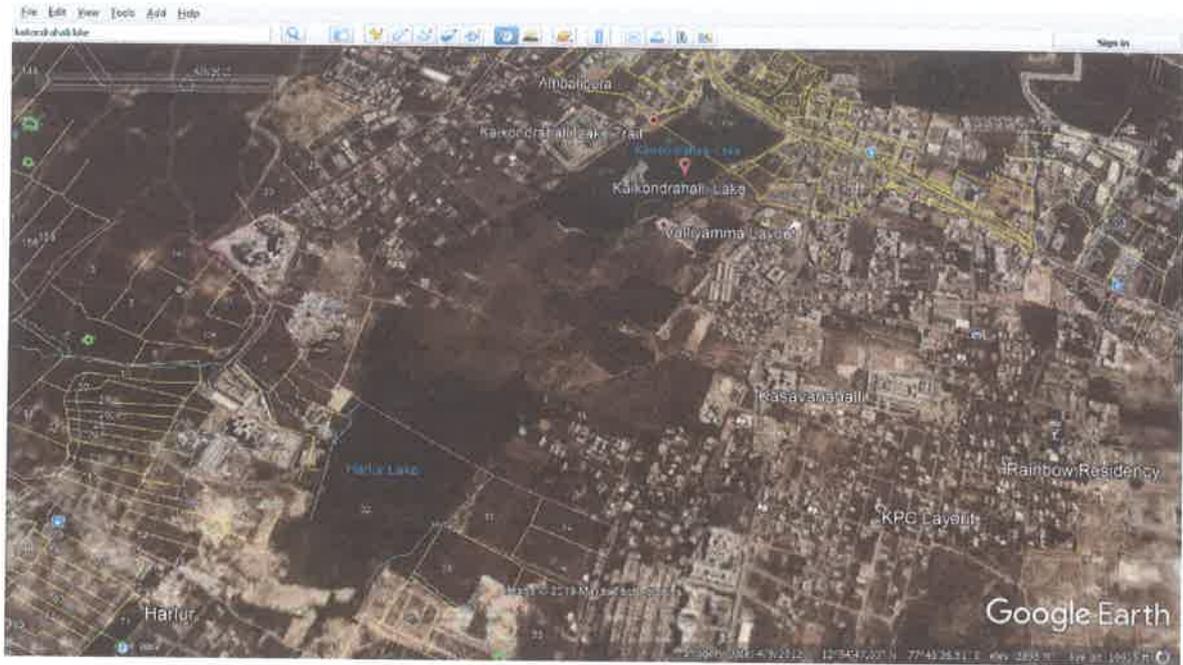


Image of the Lake & its surrounding during 2012

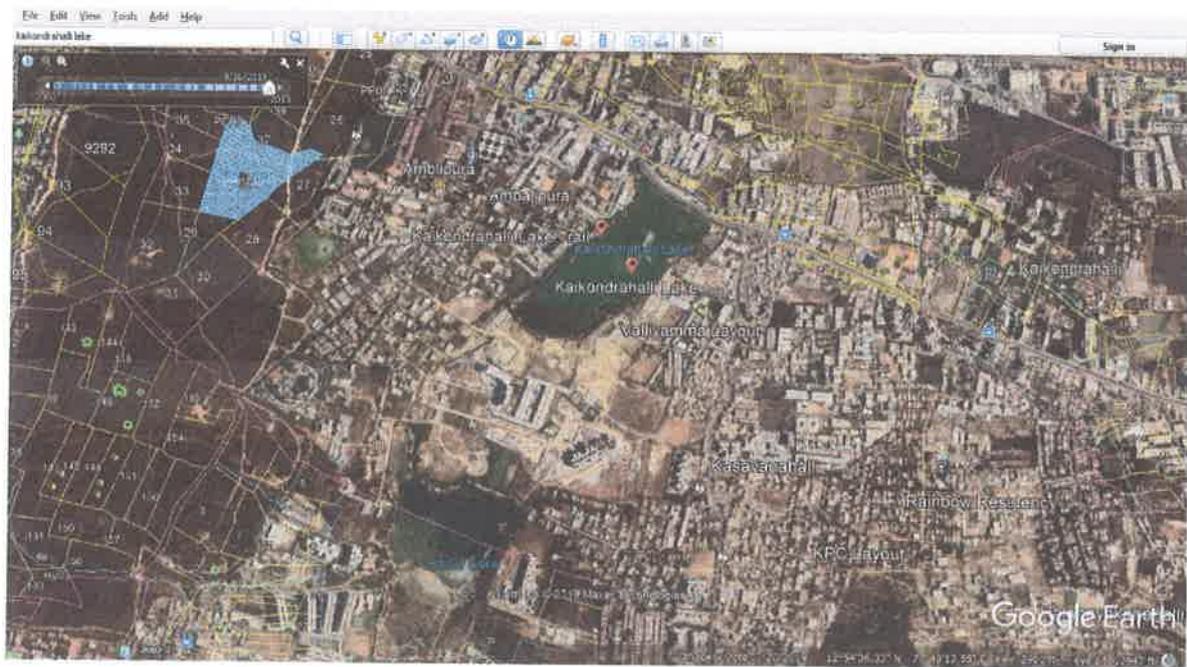


Image of the Lake & its surrounding during 2019