F.No. MoES/36/OOIS/OON/2017
Government of India
Ministry of Earth Sciences
Prithivi Bhawan, Lodhi Road,
New Delhi – 110003

Date: 12/12/2017

Administrative Order

In continuation of Administrative Order No. MoES/36/OOIS/OON/2012 dated 31st August 2012, Sanction of the President is hereby accorded under the Rule 18 of the Delegation of Financial Power Rules, 1978 for implementation of the project on "**Ocean Observation Network**", jointly by Indian National Centre for Ocean Information Services (INCOIS), Hyderabad and National Institute of Ocean Technology(NIOT), Chennai, as a continuing scheme for 3 years (2017-18 to 2020), at a total cost of **Rs. 228.92 Crores (Two hundred and twenty eight Crores and ninety two lakhs only)** on the terms and conditions as detailed here under:

2.0 **Project Title: "Ocean Observation Network (OON)"**

2.1 **Implementation:** The project will be implemented jointly by **Indian National Center for Ocean Information Services (INCOIS), Hyderabad** and **National Institute of Ocean Technology (NIOT), Chennai**, autonomous bodies under the Ministry of Earth Sciences (MoES).

2.2 **Project Objectives:**

INCOIS-OON:

1) To establish a wide range of ocean observing networks for acquisition of marine meteorological and oceanographic data from offshore and coastal Indian Sea, Viz., Argo floats, expendable bathythermograph/expendable conductivity temperature depth (XBTs/XCTDs), satellite-tracked surface drifting buoys (drifters), Bay of Bengal observatory, ship-board Automated Weather Stations (AWSs), equatorial current meter array, open ocean Tsunami monitoring buoys (or Bottom Pressure Recorder; BPR), coastal Acoustic Doppler Current Profiler (ADCP) network, wave rider buoys (WRBs) and sea level gauges (or Tide Gauges) network.
2) To set up a real-time and delayed mode coastal and offshore observational system for understanding the boundary currents and to facilitate data assimilation and real time validation of operational now cast/forecast of ocean variables in and around Indian Ocean Region.
3) To cater to the ocean observational need of both operational (real and near real-time) and to understand (mainly delayed mode or process) studies.
4) To conduct R&D projects, Capacity Building, Education & Training and inter institutional projects.

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NIOT-OON (MOON):

1) To maintain Moored Ocean Observation Network comprising of met-ocean, CALVAL and tsunami buoy for data collection and to disseminate data to INCOIS and to support RAMA programme under the Indo-US collaboration transferred from INCOIS.
2) Ocean observational tools proto type technology development.
3) To conduct collaborative R&D projects, capacity building with National and International Institutes / Organizations.

NIOT-OON (HF Radar):

1) Procurement, installation and operation of new HF radar system (9 pair), which includes site selection, land acquisition and getting permission, procurement of new HF radar systems, installation at site and validation of data.
2) Up-gradation of existing HF radar (5 pairs).
3) Operation and maintenance of existing HF radar network (14 pair), which includes preventive maintenance and breakdown maintenance.

2.3 (i) List of components (Activities): The following existing observation system would be sustained and strengthened in terms of more parameters and numbers:

INCOIS components of OON:

<table>
<tr><th colspan="3">Individual platforms (targets or deliverable) under future observation network during 2017-2020 (INCOIS component)</th></tr>
<tr><th>Sl. No.</th><th>Platforms (or targets) under OON (INCOIS-Component)</th><th>Plan for 2017-20
(Year-wise deployment plan has been summarized for the platforms 4,5,6 and 7)</th></tr>
<tr><td>1.</td><td>Argo floats*</td><td>2017-2020: Deployment of 50 Argo floats/per year (33 Argo with Temperature and salinity sensor and 17 Argo with enhanced biogeochemical sensors).</td></tr>
<tr><td>2.</td><td>Drifters*</td><td>2017-2020: Deploy 50 indigenously developed drifters/per year with INSAT communication.</td></tr>
<tr><td>3.</td><td>XBT/XCTD*</td><td>2017-2020: Maintain 5 XBTs/XCTDs lines**
Bi-weekly transects along: Kochi-Lakshadweep.
Monthly transects along: Chennai-Port Blair and Port Blair-Kolkata.
Bi-monthly transects along: Mumbai – Mauritius and Chennai – Singapore transects.
**subject to availability of cargo/passenger ship.</td></tr>
<tr><td>4</td><td>Coastal ADCP moorings</td><td>2017-20: Deploy and maintain ADCP mooring in every 2.5-3 degrees of the Indian coast (~22 mooring)
<table>
<tr><td>Year</td><td>2017-18</td><td>18-19</td><td>19-20</td></tr>
<tr><td>New</td><td>18</td><td>4</td><td>0</td></tr>
<tr><td>Total</td><td>18</td><td>22</td><td>22</td></tr>
</table></td></tr>
</table>

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<table>
<tr><td>5.</td><td>Equatorial current meter Array</td><td>2017-20: Deploy and maintain 2/3 mooring in the Equatorial Indian Ocean.</td></tr>
<tr><td>6.</td><td>Wave rider buoys network</td><td>2017-2020: Maintain existing 15 WRB network along the Indian coast and 1 WRB at Seychelles. Deploy 3 new WRB along the coast of India and 4 in the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) countries. (Total 18 WRB along Indian coast and 5 in RIMES countries.)
<table>
<tr><td>Year</td><td>2017-18</td><td>18-19</td><td>19-20</td></tr>
<tr><td>New</td><td>3</td><td>2</td><td>2</td></tr>
<tr><td>Total</td><td>19</td><td>2</td><td>2</td></tr>
</table></td></tr>
<tr><td>7.</td><td>AWS onboard research vessels and Wave measurements onboard ships</td><td>2017-20: Maintain existing 34 AWS network and deploy 5 new AWS. Incorporate pCO_2 sensors in 2 research vessels (Total 39 AWS and 2 pCO_2 sensors).
<table>
<tr><td>Year</td><td>2017-18</td><td>18-19</td><td>19-20</td></tr>
<tr><td>New</td><td>0</td><td>5 AWS + 2 pCO_2</td><td>0</td></tr>
<tr><td>Total</td><td>34 AWS</td><td>39 AWS + 2 pCO_2</td><td>39 AWS +2 pCO_2</td></tr>
</table></td></tr>
<tr><td>8.</td><td>Bay of Bengal Observatory</td><td>2017-2020: Maintain existing mooring in the northern Bay of Bengal with addition of direct covariance flux measurements sensors, ADCP, ASIMET sensors and biogeochemical sensor measurements.</td></tr>
<tr><td>9.</td><td>Tsunami Buoys (BPR)</td><td>2017-2020: Service and maintain the existing network of 5 STB systems with the help of NIOT.</td></tr>
<tr><td>10.</td><td>Tide gauges</td><td>2017-20: Up-gradation and maintenance of the existing 36 tide gauges.</td></tr>
<tr><td colspan="3">*Argo floats, satellite based drifters and XBT/XCTD's are expendable instruments and hence not recoverable. However, data from these instruments are transmitted in real time to onboard or inland ground stations through satellite communication until it is abandoned.</td></tr>
</table>

NIOT OON (Moored Ocean Observation Network (MOON)):

<table>
<tr><td colspan="3">Individual platforms (targets or deliverable) under future observation network during 2017-2020 (NIOT component-1)</td></tr>
<tr><td>Sl. No.</td><td>Platforms (or targets) under OON (NIOT-Component)</td><td>Plan for 2017-20 (Year-wise deployment plan has been summarized)</td></tr>
<tr><td>1</td><td>To maintain Moored Ocean Observation Network comprising of met-ocean, CALVAL and tsunami buoy for data collection and to</td><td>2017-20: Deploy and maintain Met Ocean, tsunami and CALVAL moorings in Indian Seas
<table>
<tr><td>2017-18</td><td>18-19</td><td>19-20</td></tr>
<tr><td>19</td><td>19</td><td>19</td></tr>
</table></td></tr>
</table>

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	disseminate data to INCOIS and to support RAMA programme under the Indo-US collaboration to be transferred from INCOIS.	
2	Ocean observational tools proto type technology development	**2017-20:** Develop cutting edge proto type technology systems, autonomous devices for ocean observation and exploration.
3	To conduct collaborative R&D projects, capacity building with national and international Institutes/ Organizations.	**2017-20:** To collaborate on R&D projects, capacity building both at National and International level to evolve robust observational systems.

Moored buoy systems deployed at sea left unattended to collect data in real time, and are moored with anchor. These are located far away from shore and cannot be physically monitored at site. Vandalism affected the buoy programme, which was also reported globally. Project Review Board recommended such buoy systems are to be treated as consumable.

NIOT OON (HF Radars):

	Individual platforms (targets or deliverable) under future observation network during 2017-2020 (NIOT component-2)			
Sl.No	**Components**	**2017-18**	**2018-19**	**2019-20**
1	Upgradation of existing 5 pairs of HF radar	x		
2	Operation, Maintenance, spares and AMC Existing 5 pair of HF radar	x	x	x
3	Procurement of new systems 9 pair	x	x	
4	Site selection, preparation and Installations of proposed New systems (9 pair)	x		
5	Operation, Maintenance, spares and AMC (new 9 pair of HF radar)			
6	Site clearance, frequency clearance etc.	x		
7	Installation at sites		x	x
8	Operation and maintenance(new systems - 9 pair)		x	x
9	Data analysis and reports	x	x	

x – Indicates targets of deliverable during particular year.

2.4 **Time Schedule:** The duration of the project is 3 years (2017-18 to 2019-20).

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2.5 **Key Personnel/Staff:** The details of manpower and other items required for the projects are given in **Annexure II.** However, the creation of new permanent manpower and expenditure thereon shall be subject to the prior approval of the Government (Ministry of Finance, Dept. of Expenditure as per their OM No F.7 (1)/E.Coord.1/2012 dated 31/03/2017).

2.6 **Equipment:** The expenditure for the purchase and maintenance of equipment may be met from the funds indicated in para 2.7 of this Administrative Order.

2.7 **Project Cost:** Rs. 228.92 Crores (Two hundred and twenty eight Crores and ninety two lakhs only). This amount is indicative and subject to availability of funds in the annual Budget of MoES. All non-recurring expenditure requires to be processed for approval of Competent Authority. The budget outlay as per the previous A.O. was 298.68 Crore (128.45 Crore for INCOIS and 170.23 for NIOT) and the total expenditure incurred was Rs.207.15 Crore (78.95 Crore for INCOIS & 128.20 for NIOT).

A brief summary of the financial requirement is as under : Detailed Budget is given at **Annexure –I.**

(Amount in Crore.)

S.No.	Component	Heads	2017-18	2018-19	2019-20	TOTAL
I.	**INCOIS Component of OON**	Rec.	8.00	12.00	15.81	35.81
		Non-Rec.	15.68	31.51	25.92	73.11
	Sub-total		**23.68**	**43.51**	**41.73**	**108.92**
II.	**OON: NIOT Component-I**	Rec.	27.00	26.00	29.00	82.00
		Non-Rec.	4.50	7.50	8.00	20.00
	Sub-total		**31.50**	**33.50**	**37.00**	**102.00**
III.	**OON: NIOT Component-II**	Rec.	1.00	3.00	4.00	8.00
		Non-Rec.	2.50	4.00	3.50	10.00
	Sub-total		**3.50**	**7.00**	**7.50**	**18.00**
	Grand total (I+II+III)		**58.68**	**84.01**	**86.23**	**228.92**

2.8 **Project Monitoring:** The Project Management Council (**Annexure -III**) constituted under the chairmanship Secretary, MoES will monitor the progress of the project. Besides, the progress of the projects as a part of INCOIS activities will continue to be monitored by Governing Council of INCOIS under the Chairmanship of Secretary, MoES and Finance Committee under the Chairmanship of the Financial Advisor, MoES.

2.9 **The expenditure under the project would be met from the following Head of Account:**
Major Head – 3403 Oceanographic Research
Minor Head - 00.101 Researches and Development
08 Ocean Services, Technology, Observations, Resources Modelling and Science (O-STORMS)
08.00.30 Other Contractual Services
08.00.31 Grants-in-aid General
08.00.36 Grants-in-aid Salary

3.0 **Other Terms and Conditions:** The general and other Specific Terms and Conditions are given at **Annexure-VI** and **Annexure V** respectively.

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4.0 This issues under the powers delegated to this ministry and with the concurrence of IFD vide Dy.No. 1061/AS&FA/2017 dated 11/10/2017 and with the approval of Secretary, MoES vide Dy.No.3300/Secy/2017 dated 23/10/2017.

12.12.17
(Archana Srivastava)
Under Secretary to the Government of India.

To

Director
Indian National Center for Ocean Information Services (INCOIS),
"Ocean Valley", Pragathinagar (BO), Nizampet (SO), Hyderabad – 500 090, India

Director,
National Institute of Ocean Technology (NIOT), NIOT Campus,
Velachery, Tambaram Main Road, Pallikaranal, Chennai-60010

Copy to:

1. The Pay and Accounts Officer, Ministry of Earth Sciences, Prithvi Bhawan, Lodhi Road, New Delhi 110 003.
2. Director of Audit (Scientific Departments), AGCR Building, New Delhi
3. Dir (F) /US (A) / Adv (KS)/Sci-F (PKS)/Sci-C (EH)/PC-IV/ Guard File.
4. Accounts Section, MoES

(Archana Srivastava)
Under Secretary to the Government of India.

Annexure – I

Detailed budget is as under:

INCOIS component (Rs. in Crore)

Sl No.	Head	2017-18	2018-19	2019-20	TOTAL
1	Manpower*	1.76	2.19	2.36	6.31
2	Domestic Travel	0.10	0.10	0.10	0.30
3	Foreign Travel	0.05	0.05	0.05	0.15
4	Office Expenditure	0.05	0.05	0.10	0.20
5	Publications	0.05	0.01	0.10	0.16
6	Other Administrative expenses	0.89	0.50	1.00	2.39
7	Supplies and Materials	5.00	9.00	12.00	26.00
8	Advertisement and publicity	0.00	0.00	0.00	0.00
9	Minor Works	0.05	0.05	0.05	0.15
10	Professional Services	0.05	0.05	0.05	0.15
	TOTAL RECURRING	**8.00**	**12.00**	**15.81**	**35.81**
11	Machinery & Equipment	15.68	31.51	25.92	73.11
12	Major Works	0.00	0.00	0.00	0.00
	TOTAL NON-RECURRING **	**22.68**	**31.51**	**18.92**	**73.11**
	GRAND TOTAL	**30.97**	**45.23**	**32.72**	**108.92**

**Include Manpower for MoES Hq. also. (Details at Annexure-I)*

*** All non recurring expenditure required to be processed for approval of the Competent Authority*

NIOT (MOON) : (Rs. In Crores)

Sl No.	Head	2017-18	2018-19	2019-20	TOTAL
1	Manpower*	1.70	1.87	2.05	5.62
2	Domestic Travel	0.30	0.30	0.30	0.90
3	Foreign Travel	0.05	0.05	0.05	0.15
4	Office Expenditure	0.10	0.10	0.10	0.30
5	Publications	0.10	0.10	0.25	0.45
6	Other Administrative expenses	2.50	1.48	2.00	5.98
7	Supplies and Materials	20.00	20.00	22.00	62.00
8	Advertisement and publicity	0.00	0.00	0.00	0.00
9	Minor Works	0.25	0.10	0.25	0.60
10	Professional Services	2.00	2.00	2.00	6.00
	TOTAL RECURRING	**27.00**	**26.00**	**29.00**	**82.00**
11	Machinery & Equipment	3.00	5.00	5.00	13
12	Major Works	1.50	2.50	3.00	7
	TOTAL NON-RECURRING **	**4.50**	**7.50**	**8.00**	**20**
	GRAND TOTAL	**31.50**	**33.50**	**37.00**	**102.00**

**Include Manpower for MoES Hq. also. (Details at Annexure-I)*

*** All non recurring expenditure required to be processed for approval of the Competent Authority*

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NIOT (HF Radar): (Rs. In Crores)

Sl No.	Head	2017-18	2018-19	2019-20	TOTAL
1	Manpower	0.9	0.99	1.09	2.98
2	Domestic Travel	0.05	0.05	0.05	0.15
3	Foreign Travel	0.00	0.10	0.10	0.2
4	Office Expenditure	0.01	0.10	0.10	0.21
5	Publications	0.00	0.00	0.00	0.00
6	Other Administrative expenses	0.01	0.05	0.05	0.11
7	Supplies and Materials	0.01	1.50	2.46	3.97
8	Advertisement and publicity	0.00	0.00	0.00	0.00
9	Minor Works	0.02	0.21	0.15	0.38
10	Professional Services	0.00	0.00	0.00	0.00
	TOTAL RECURRING	**1.00**	**3.00**	**4.00**	**8.00**
11	Machinery & Equipment	2.25	3.00	3.00	8.25
12	Major Works	0.25	1.00	0.50	1.75
	TOTAL NON-RECURRING **	**2.50**	**4.00**	**3.50**	**10.00**
	GRAND TOTAL	**3.50**	**7.00**	**7.50**	**18.00**

*** All non recurring expenditure requires to be processed for approval of the Competent Authority*

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Annexure – II

The details of project manpower proposed under various components of the program are as given below:

1. Manpower requirement under OON (INCOIS)

Year	Requirement in each year		Cumulative strength	
	Scientists/ Project scientists	Research Fellows/ Project Assistants	Scientists/ Project scientists	Research Fellows/ Project Assistants
2017-18	4-Sc(B)/P.Sc(B)	3-RF/2 PA	4-Sc(B)/P.Sc(B)	3-RF/2-PA
2018-19	3-Sc(B)/P.Sc(B)	0-RF/6-PA	7-Sc(B)/P.Sc(B)	3-RF/8-PA
2019-20	-	-	7-Sc(B)/P.Sc(B)	3-RF/8-PA
TOTAL			07	11*

The 3 RFs are for Agro, Drifters and Bay of Bengal Observatory programs of INCOIS. The other manpower projected here is only for those platforms which will be maintained by INCOIS.

**includes 2 Project Assistant for MoES Headquarters under Project Mode to handle the work related to INCOIS Project/sub-projects.*

2. Manpower requirement under OON (NIOT Component-1 for MOON)

Sl. No.	Name of the Post	No. of regular staff required	No. of Project staff required
1.	**Scientist - C**	2	3
2.	**Scientist - B**	8	9
3.	**Scientific Asst.**	8	9
4.	**Sr. Research Fellow**	-	3
5.	**Junior Assistant**	2	7*
6.	**Sr. Executive**	-	2
7.	**Executive**	-	1
8.	**Technician**		3
	TOTAL	**20**	**37**

**includes 2 Junior Assistant for MoES Headquarters under Project Mode to handle the work related to NIOT Project/sub-projects.*

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3. **Manpower requirement under OON (NIOT Component-2 for HF Radars)**

Year	Requirement in each year		Cumulative strength	
	Scientists/ Project scientists	**Research Fellows/ Project Assistants**	**Scientists/ Project scientists**	**Research Fellows/ Project Assistants**
2017-18	2-Sc'C'(Reg.) 2-Sc 'C' (Proj.) 3-Sc 'B' (Reg.) 5-Sc 'B' (Proj.)	2-Sci. Asst 2-Proj. Asst	2-Sc'C'(Reg.) 2-Sc 'C' (Proj.) 3-Sc 'B' (Reg.) 5-Sc 'B' (Proj.)	2-Sci. Asst 2-Proj. Asst
2018-19	-	-	12	04
2019-20	-	-	12	04
TOTAL			**12**	**04**

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Annexure III

Project Management Council

The composition of Project Management Council of Ocean Observation System and the Terms of Reference are as follows:

1.	Dr. M Rajeevan Nair, Secretary, MoES	-	Chairman
2.	Director, Space Applications Centre (SAC),	-	Member
3.	Director, NIO, Goa	-	Member
4.	Director, IITM, Pune	-	Member
5.	Director, NIOT, Chennai	-	Member
6.	Director, INCOIS	-	Member
7.	Director, NCAOR, Goa	-	Member
8.	Director, NRSC, Hyderabad	-	Member
9.	Chief Hydrographer, NHO, Dehra Dun	-	Member
10.	Director, GRB, Survey of India (SOI) Member	-	Member
11.	Nominee CAOS, Indian Institute of Science	-	Member
12.	The Director General, Fishery Survey of India	-	Member
13.	The Director, NPOL, Kochi	-	Member
14.	Director, DNOM, Delhi,	-	Member
15.	Programme Officer, MoES,	-	Member Secretary

Terms of Reference:

(i) To periodically review the progress made under Ocean Observation networks including suggesting changes, amendments, if any.

(ii) To define and approve observational needs, both in situ and satellite for the above projects.

(iii) The Committee shall meet at least once in a year.

(iv) To monitor the expenditure and suggest modification/changes etc.

(v) The chair can co-opt additional members/experts as and when required.

(vi) Expenditure on TA/Sitting fees etc. in respect of Non-Official members shall be borne by NIOT/INCOIS depending on the agenda and location of the meeting.

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Annexure-IV

TERMS AND CONDITIONS:

- Grant being releases for the specific project sanctioned and should be exclusively spent on the project within the stipulated time. The Institute is not permitted to seek or utilize funds from any other organization (Government, Semi-Government, Autonomous and Private Bodies) for the concerned project.

- Grants released by the Ministry to be kept in interest bearing account.

- Allocation of budget is tentative and subject to changes after review of progress, both physical and financial as recommended by the committee of experts.

- A list of equipments procured and other assets created for this project from the funds released shall be provided to MoES in the prescribed format as per GFR. The ownership in the physical and intellectual assets created or acquired out of MoES funds shall vest in MoES.

- All equipments/assets procured from MoES funds shall be maintained in the stock register of the grantee institute and should not treat such assets as their own assets in their Books of Accounts but should disclose their holding and using such assets in the Notes to Accounts specifically. No asset/equipment shall be diverted and/or disposed off without prior approval of the competent authority in MoES.

- Codal provisions as conveyed in GFR, Manual on Policies and Procedures for purchase of Goods and GOI instructions issued from time to time for services and requisition of research personnel shall be ensured.

- MoF instructions issued vide OM dated 05/01/2016 relating to International travel are to be strictly adhered to while attending workshops/meeting abroad.

- While implementing the programme all relevant procedures will be followed and the Ministry shall be apprised of the progress of the project from time to time.

- Utilization Certificate and Statement of Expenditure for the expenditure incurred on the project shall be submitted periodically in the prescribed format as per GFR 19-A and DBT details of the manpower as per the prescribed performa.

- All the assets acquired from the grant will be property of Government of India and should not be disposed off or encumbered or utilized for purpose other than those for which the grant had been sanctioned, without the prior sanction of this Department.

- This sanction is subject to the condition that the grantee organisation will furnish to the Ministry of Earth Sciences, financial year wise Utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date progress report at the end of each financial year duly reflecting the interest earned / accrued on the grants received under the project. This is also subject to the condition of submission of the final statement of expenditure,

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utilization certificate and project completion report within one year from the scheduled date of completion of the project.

- The MoES reserves the right to terminate the project at any stage if it is convinced that the grant has not been properly utilized or appropriate progress is not being made.

- At the time of seeking further installment of grant, the Institute/PI has to furnish the following documents.

  (a) Utilization Certificate (UC) and Statement of Expenditure (SoE) for the previous financial year (in original or copy if sent earlier)

  (b) Latest authenticated Statement of Expenditure including Committed Expenditure, for expenditure since 1st April of that financial year till the previous month; and

  (c) Technical Annual Progress Report, if not sent earlier.

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ANNEXURE V

SPECIFIC TERMS AND CONDITIONS:

i. The best possible specifications/norms developed by the Ministry of Urban Development may be used for construction.

ii. The design of houses and office space should follow Green Building norms e.g. Energy Conservation Building Code (ECBC) or GRIHA Rating or LEED system. The structure design should be National Building Code (NBC) compliant in respect of seismic safety.

iii. The building should be disabled friendly features, such as ramps at the entrances, supporting rods in the toilets and bathroom, skid free floorings, and supporting rails in the corridors and stairs etc., with proper Signage at appropriate places.

iv. Create a pleasant neighbourhood by providing features, such as aesthetic, landscaping, street furniture, jogging track, sports facilities etc.,

v. The Community Hall may be also be designed so as to serve as a Badminton hall also.

vi. Make provision for rainwater harvesting and water cycling for horticulture proposes.

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