JINDAL

JINDAL SAW LTD.

Ref: JSL/BHL/D-Mines/2019-20/ 179

Date: 05.11.2019

To,

The Secretary,
Ministry of Environment, Forest and Climate Change,
Government of India, Indra Paryavaran Bhawan,
Jor Bagh Road, New Delhi, Pin-110003

Sub: Six monthly compliance report ref. to conditions of environment clearance of Dhedwas Iron Ore, Copper and Associated Minerals Mine and Mineral Beneficiation Plant (ML No. 631/05) of M/s Jindal Saw Limited located near Village Dhedwas/ Pur, Tehsil & Distt. Bhilwara (Rajasthan).

Ref: Environment Clearance letter No. J-11015/176/2009-IA-II (M) dated 09.08.2010

Dear Sir,

With reference to the above subject matter and referred letter, we are submitting herewith Six monthly compliance report of above environment clearance conditions for the period of 1st Apr' 2019 to 30th Sep' 2019.

As a part of this compliance report we are enclosing summarized monitoring result which is based upon Environment Monitoring and analysis carried out by MoEF and NABL accredited lab. Original report (251 pages) has also been uploaded in company website on routine basis and will provide the same if required. The details of Summarized Monitoring reports enclosed as mentioned below:

1. **Summarized Quarterly Ambient Air Quality Monitoring Result – Annexure (I)**
2. **Summarized Fortnightly Ambient Air Quality Monitoring Result – Annexure (II)**
3. **Summarized Piezowell Water Quality & Level Monitoring Result- Annexure (III)**
4. **Summarized Ground and Surface Water Quality Analysis Result-Annexure (IV)**
5. **Summarized Process and Tailing Water Quality Analysis Result-Annexure (V)**
6. **Summarized Ambient Noise Level Monitoring Result-Annexure (VI)**
7. **Digital Processing Land Use/ Cover report is enclosed as Annexure (VII)**

This is for your kind information and record.

Thanking you,

Yours faithfully,
For: Jindal Saw Ltd.

Dinesh Patil
Agent –Dhedwas Iron Ore Mine

Encl: a/a

Copy to:

1. Regional Office, Ministry of Environment, Forest and Climate Change, Kendriya Bhawan, 5th Floor, Sector-H, Aliganj, Lucknow- 226024 (U.P.)
2. Zonal Office, Central Pollution Control Board (CPCB), Sahkar Bhawan, 3rd Floor, North TT Nagar, Bhopal-462003 (M.P.)
3. The Chairman, Rajasthan State Pollution Control Board, 4 Institutional Area, Jhalana Doongri, Jaipur-302004 (Rajasthan)
4. The Regional Officer, Rajasthan State Pollution Control Board 18, Azad Nagar, Pannadhai Circle, Bhilwara-Rajasthan, Pin-311001

Six monthly Reports on Status of Compliance of Stipulated Environment Clearance Conditions

Dhedwas Iron Ore Mine and Mineral Beneficiation Plant (ML No. 631/05) M/s Jindal Saw Ltd.

(EC granted vide letter No. J-11015/176/2009-IA.II (M) dated 09.08.2010 & Lease Deed executed on 08.12.2010)

Period of Compliance Report: 01st Apr' 2019 to 30th Sep' 2019

Date: 04/11/2019

	Specific Conditions		Compliance Status
i.	The project proponent shall obtain Consent to Establish and Consent to Operate from the Rajasthan State Pollution Control Board and effectively implement all the conditions stipulated therein.		a. The Consent to Establish was granted by RSPCB on 16.12.2010. b. The Consent to Operate the Mine was granted by RSPCB on 06th June'11 and renewed on 29th Oct 2014 which is valid from 01.06.2014 to 31.05.2017. Further CTO renewal permission has granted by RPCB which is valid upto to 31.05.2022.
ii.	Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India in Contempt Petition (C) 412/2004 in IA No. 833 in Writ Petition (C)No. 202 of 1995, as may be applicable to this project.		We shall abide by the final outcome of Hon'ble Supreme Court of India as may be applicable to this Project.
iii.	All the conditions stipulated by the Central Ground Water Authority while according NOC vide letter No.21-4(439/WR/CGWA/2010-795 dated 14.05.10 to be effectively implemented.		
	1. Ground water abstraction only for domestic use and limited to 12 m3/day.		1. Ground water is being abstracted to the extent of 12 m^3/day and used only for domestic purpose.
	2. Tube well to be fitted with water meter. Monitoring at least once/month. Ground Water quality to be monitored in Pre-monsoon and Post-monsoon periods.		2. Water meter has been installed in the bore well and routine flow meter monitoring is under practice. Ground water quality monitoring is being carried out by MoEF & GOI approved lab on quarterly basis. Water Quality monitoring report is enclosed as **Annexure-IV**
	3. Ground water recharge structure to be installed within six months with consultation with Regional Director, CGWB, Jaipur.		3. Three Nos. ground water recharge system have been made in plant and mines area. Balance ground water recharge structure construction job is under implementation.
	4. Photographs of recharge structures after completion to be furnished to The R.D, Jaipur under intimation to CGWA, New Delhi.		4. Photographs have been furnished to The Regional Director, CGWB, and Jaipur immediately after completion, under intimation to CGWA.

	5. Piezometers shall be installed at suitable locations and ground water regime monitoring programme in and around the project area shall be executed regularly in consultation with the Regional Director, CGWB, Jaipur 6. Ground water monitoring data shall be submitted to CGWB, Jaipur on regular basis at least once in a year. 7. The firm shall ensure proper recycling and reuse of waste water after adequate treatment. 8. Action taken in respect of S.No.1 to 7 shall be submitted to CGWA within one year period.		5. Piezometer installation has been completed as per CGWB recommendation and routine monitoring is under practice. 6. Ground water monitoring data of existing Piezowell is being submitted to CGWB, Jaipur on annual basis and also enclosed as **Annexure-III**. 7. Beneficiation process water is completely recycled through thickener and advanced filter press and reused within the plant. 8. Action taken report, photographs of Ground Water Recharge Structure and Piezometer installation has been submitted to MoEF& CC Regional Office Lucknow through letter No. JSL/BHL/D-Mines/2017-18/90 dated 03.08.2017.
iv.	The environmental clearance is subject to approval of the State Land use Department, Government of Rajasthan for diversion of agricultural land for non-agricultural use.		The application has been submitted on 08.02.2008 to the State Govt. The matter is under consideration of the State Govt. Pending the approval, no mining activity will be conducted in the agricultural land.
v.	Necessary prior permission from the Competent Authority as may be applicable for use of grazing land for mining purpose shall be obtained.		NOC for grazing land has been obtained vide Letter No. 3445 dated 30.07.10 of Distt. Collector, Bhilwara.
vi.	The project proponent shall develop fodder plots in the non-mineralised area in lieu of use of grazing land.		Work is confined within Government waste/barren land. We have developed fodder plots in 1.65 ha non-mineralised area. Apart from this, we are also providing fodder to nearby villagers/Gausala on routine basis. During the half year ended upto 30.09.2019 total 192700 Kg. of fodder were supplied to Samodi, Dariba, Suras and Pur villages.
vii.	The tailing ponds shall be provided with HDP lining		The bottom and the inner sides of the tailing pond have been covered by synthetic liner (HDP). Presently tailing is being recovered by advanced thickener & filter press technology. Generated tailing cake in dry form is stacked in earmarked place and will be recycled in future to recover the mineral present there.
viii.	The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept un-utilized for long. The topsoil shall be used for land reclamation and plantation.		No top soil was generated from the mines during compliance period from 1st Apr' 2019 to 30th Sep' 2019. Earlier generated top soil was completely utilized for plantation purpose within the lease area.

ix.	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. Adequate measures shall be taken for protection of the first order and second order seasonal nallahs emanating/passing through the mine lease and also the right main canal of the Meja dam passing through the mine lease during the course of mining operation.		No first order nallah exists within the lease area. The second order seasonal nallah lies far away from the mine workings and will not be obstructed. The right main canal of the Meja Dam passing through lease area is being protected by leaving adequately wide barrier between the working and the Canal.
x.	The over burden generated during the mining operation shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time and its phase-wise stabilization shall be carried out. There shall be four external over burden dumps. The maximum height of the dumps shall be maintained to 30m having three terraces of 10m each so that the overall slope of the dump shall be maintained to 27°. The over burden dump shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Lucknow on six monthly basis.		OB is being stacked only at earmarked places and compliance status is submitted to the Ministry of Environment and Forest and its Regional Office at Lucknow on six monthly basis. We assure that all conditions will be complied with, overall slope of the waste dump is being maintained at 27 degree and mature dumps will be vegetated. Total 1851043 Tonnes Over burden was generated during the period of 01.04.2019 to 30.09.2019 which has been stacked as external dump at earmarked place as per condition given in Mining Plan.
xi.	Catch drains and siltation ponds of appropriate size shall be constructed around the mineral and over burden dumps to prevent run off of water and flow of sediments directly into the agricultural fields, the Kothari River, first order and second order seasonal nallahs, canal, the Meja dam, the Meja Talav, the Mandai Talav and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after the monsoon and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mineral and over burden dumps to prevent run off of water and flow of sediments directly into the agricultural fields, the Kothari River, first order and second order seasonal nallahs, canal, the Meja dam, the Meja Talav, the Mandal Talav and other water bodies and sump capacity should be		The catch drains have been made around the stockyard. Siltation ponds of appropriate size have also been constructed and water is being utilized for watering the mine area, roads, green belt development etc. and drains are being regularly desilted, particularly after the monsoon and maintained properly. Garland drains, check dams and settling tanks have been constructed and maintained.

	designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.		
xii.	Dimension of the retaining wall at the toe of the OB dump(s) and the OB benches within the mine to check run-off and siltation should be based on the rain fall data.		As per mining plan external dumps of OB have been created within the mine lease area. The stipulation has been complied with by constructing retaining wall to check run off. Retaining walls are all around each dump. These are 1.5 mt in heights, 2.0 meter in width at base and 1.5 mt. Wide at top made by stone.
xiii.	The water recovery and spill way system shall be so designed that the natural water resources are not affected and that no spill water goes into the nearby Kothari River and other water bodies.		There is no spillage of water. Water recovery is through settling tank. Natural water resources are not affected.
xiv.	The project proponent shall carry out conditioning of the ore with water to mitigate fugitive dust emission, without affecting flow of ore in the ore processing and handling areas.		Water is being sprayed on ore stacks to suppress the dust before handling the same.
xv.	The effluent from the ore beneficiation plant shall be treated to conform to the prescribed standards and the tailings slurry shall be transported through a closed pipeline to the tailing dam.		No effluent is being discharged from the beneficiation plant. The tailing slurry is being transported through a closed pipeline to the tailing pond.
xvi.	The decanted water from the tailing ponds shall be re-circulated and there should be zero discharge from the tailing ponds. Acid mine water, if any, shall be neutralized and reused within the plant.		The decanted water from the tailing pond is being re-circulated and there is no discharge from tailing pond. There is no acid water in the mine and no acid is used in the process.
xvii.	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as crusher zone, loading and unloading point and all transfer points during handling of the ore. Extensive water sprinkling shall be carried out on roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.		The stipulation is being complied with to contain the Ambient Air Quality parameters within the norms prescribed by the Central Pollution Control Board in this regard. AAQ measurements were carried out by MoEF & GOI approved lab at 6 places on quarterly basis in Jun' 2019 and Sep' 2019 and noticed that AAQ is within permissible limits. Summarized AAQ reports are enclosed as **Annexure-I**

xviii.	Plantation shall be raised in an area of 491.388ha including a 7.5m wide green belt in the safety zone around the mining lease, over burden dumps, around beneficiation plant, around tailing ponds, roads etc. by planting the native species in consultation with the local DFO/ Agriculture Department. The density of the trees should be around 1500 plants per ha.		Stage-wise plantation programme has been raised as per mining plan. Plantation has been raised inside the mine lease area in 66.97 hectare area by the end of Sep' 2019. We have also carried out plantation outside the mine lease area, 22039 saplings have been planted over 22.7 hectare area by the end of Sep' 2019.
xix.	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.		The ground water recharge measures for augmenting the ground water resources of the area is being implemented as approved by the Central Ground Water Authority. Three nos. recharge structures have been constructed in mine and plant area for perseveration and recharge of ground water.
xx.	Regular monitoring of ground water level and quality shall be carried out in and around the project area (mine lease, beneficiation plant and tailing ponds) by establishing a network of existing wells and installing new piezometer during the operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Lucknow, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.		Regular monitoring of ground water level and quality is being carried out as stipulated and data thus collected is being sent to all the Authorities. Monitoring of ground water level and quality carried out by MoEF & GOI approved lab on quarterly basis of Piezowell installed near the plant office and mining lease area at 8 locations. Summarized Piezowell water quality reports for the period of Jun' 2019 and Sep' 2019 are enclosed as **Annexure-III.**
xxi.	The groundwater and surface water in and around the mine including tailing ponds shall be regularly monitored at strategic locations for heavy metals. The monitoring stations shall be established in consultation with the Regional Director, Central Ground Water Board and the State Pollution Control Board.		Regular Ground, Surface and Process water quality monitoring is being carried out by MoEF & GOI approved lab in and around the mining lease area including STP Reservoir, Filter Press and tailing pond. Summarized water quality monitoring reports for the period of Jun' 2019 and Sep' 2019 are enclosed as **Annexure - IV & V.**
xxii.	Appropriate mitigative measures shall be taken to prevent pollution of the Kothari River in consultation with the State Pollution Control Board.		There is no discharge of water from the mine. Kothari river is not being polluted due to mining activities.

xxiii.	Water requirement of the project shall be met from the treated sewage only. No water shall be drawn from the Kothari Dam.		Water requirement for the Project is being met from JSAW STP Plant. This STP is treating the sewage of Bhilwara city and the treated water is completely used for Mining, Mineral Beneficiations, Dust suppression and Horticulture /Plantation etc. $12m^3$ /day for drinking/domestic use is drawn from ground water as permitted by CGWA. No water is being drawn from Kothari Dam.
xxiv.	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.		We are in consultation with the Central Ground Water Board in this regard and as per their advice we have started construction of ground water recharge structures. Three structures have already been completed.
xxv.	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operation and in transportation of mineral. The vehicles carrying the mineral shall be covered with a tarpaulin and shall not be overloaded.		The stipulation is being complied with.
xxvi.	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.		Dry Fog system and continuous water sprinkling arrangement have been installed in crusher unit to control the fine dust in all transfer point. Routine maintenance of water spray nozzle is being carried out by operation and maintenance team.
xxvii.	The project authorities should undertake sample survey to generate data on pre-project community health status within a radius of 1 km from the proposed project.		The Pre-project community health status survey, within a radius of 1.0 km from the proposed project site, had been conducted and submitted to Rajasthan State Pollution Control Board. Pre-project community health status survey report submitted to MoEF& CC Regional Office Lucknow through letter No. JSL/BHL/D-Mines/2017-18/90 dated 03.08.17.
xxviii.	Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed. Health records of the workers shall be maintained.		Occupational health surveillance programme of the workers has been undertaken periodically as required under Mines Rules, 1955. No contraction has been detected. Health records of the workers have been maintained.
xxix.	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.		Pre-placement medical examination of JSAW employees is being carried out as required under Mines Rules, 1955. During 1st Apr' 2019 to 30th Sep' 2019 total 687 workmen has been examined by Competent Medical Officer. Schedule of Health examination has been drawn and is followed.

xxx.	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and the wastewater generated during mining operation.		No colony has been constructed as yet. No waste water is being generated during mining and in the Plant. The stipulation is being complied with.
xxxi.	The R&R of the project affected people shall be carried out as per the NPRR. The plan shall be prepared within three months in consultation with State Government and a copy submitted.		No person has been displaced from their house or village, therefore, there will be no need for resettlement and rehabilitation as mining will be done at places far away from the habitated areas.
xxxii.	Digital processing of the entire lease area using remote sensing technique should be done regularly once in three years for monitoring land use pattern and report submitted to MOEF and its Regional Office located at Lucknow.		Digital processing of the entire lease area using remote sensing technique has already been done and submitted with EIA & EMP report. Second digital processing was carried by M/s Armenge Engineering & Management Consultant Pvt. Ltd. Jaipur in 2013. Third digital processing study was carried by Mr. Sanjay Raj Environment Consultant Jaipur in July 2016. Fourth Digital Processing Study report of entire lease area Core Zone and Buffer Zone is enclosed as **Annexure-VII.**
xxxiii.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.		Construction work has been completed. Maximum workers were from nearby villages. After end of days work they used to go back to their houses. Therefore, need for temporary structures did not arise.
xxxiv.	The critical parameters such as RSPM (Particulate matter with size less than 10 micron i.e., PM_{10}) & NOx in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by MoEF&CC, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.		The Instructions contained in circular No. J-20012/12006-IA.II (M) dated 27.05.09 issued by MoEF&CC have been noted and are being complied with. As per circular fortnightly AAQ monitoring is being carried out by MoEF & GOI approved lab in mine lease area. The fortnightly Ambient Air Quality summarized monitoring reports for the period of 1st Apr' 2019 to 30th Sep' 2019 is enclosed as **Annexure- II**
xxxv.	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.		The Final Mine Closure Plan shall be submitted as per rules.

B. General Condition :			
i.	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.		No change will be made in mining technology and scope of working without prior approval of MoEF&CC.
ii.	No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.		No change will be made in the calendar plan.
iii.	Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife department.		Conservation measure detail for protection of flora and fauna in the core & buffer zone has been prepared with consultation of local forest department, copy of the same report has been submitted to MoEF& CC Regional Office Lucknow through JSAW letter No. JSL/BHL/D-Mines/2017-18/90 dated 03.08.2017. No endangered species of flora and fauna has been observed in core and buffer zone area.
iv.	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10micron i.e., PMIO) & NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board		Ambient air quality monitoring was carried out by MoEF & GOI approved lab from Apr' 2019 to Sep' 2019 and noticed that the AAQ is within permissible limits. Summarized reports are enclosed as **Annexure – I & II.** Four ambient air quality monitoring stations in each of Core zone and Buffer zone have been established as per approved plan for monitoring the AAQ.
v.	Data on ambient air quality RSPM (Particulate matter with size less than 10micron i.e., PM_{10}) & NOx should be regularly submitted to the Ministry of Environment and Forests including its Regional office located at Lucknow and the State Pollution Control Board / Central Pollution Control Board once in six months.		The Reports are enclosed as **Annexure – I & II.** The reports are submitted to MoEF&CC and its Regional Office located at Lucknow, RSPCB and CPCB on regular basis.
vi.	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.		The fugitive dust emissions from all the sources are being controlled regularly. Regular water sprays arrangement on haul roads, loading and unloading and transfer points been made and maintained properly.
vii.	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.		Proper measures are being taken for control of noise in the work environment area. The monitoring reports are enclosed as **Annexure-VI**. Proper PPEs are provided to the workers engaged in the operations.

viii.	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.		No industrial waste water has been generated till date. Proper arrangement will be made to collect the waste water whenever it will be generated.
ix.	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.		Proper compliance is being done. Pre-employment Medical Tests examination is under practice. It is being repeated periodically to observe any contractions due to exposure of dust.
x.	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.		The Cell has been set up under the control of a Senior Executive who reports directly to the President & Unit Head.
xi.	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Lucknow.		Separate Fund has been earmarked for environment protection measures.
xii.	The project authorities should inform to the Regional Office located at Lucknow regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.		The date of financial closure of the company is 31st March of every year. The final approval of the Project as Consent to Operate has been given by RSPCB on 6th June' 2011. The land development was started from 15.06.2011.
xiii.	The Regional Office of this Ministry located at Lucknow shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.		The instruction has been noted. The Regional Office, Lucknow has been provided with all the information asked by them.
xiv.	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by email) to the Ministry of Environment and Forests, its Regional Office Lucknow, the respective Zonal Office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the		The Compliance Report for the period from 01st Apr' 2019 to 30th Sep' 2019 is enclosed herewith. Earlier reports have been sent regularly to all authorities.

	status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Lucknow, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.		
xv.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.		The copy of the Clearance letter has been sent to all concerned and it has been put on the website of the Company on 23rd Sep. 2010.
xvi.	The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.		It has been done by RSPCB.
xvii.	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Lucknow by e-mail.		Environmental Statements in Form V for the period of 1st Apr' 2018 to 31th Mar 2019 has been sent to the RPCB and MoEF Regional office, Lucknow on 12.09.2019. The soft copy of the same was also sent to MoEF Lucknow through email and uploaded on company website.
xviii.	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the MoEF&CC at **http://envfor.nic.in** and a copy of the same should be forwarded to the Regional Office of this Ministry located at Lucknow.		It has been advertised in three Newspapers, namely The Hindu, Rajasthan Patrika and Dainik Bhaskar on 13.08.2010. The copies have been forwarded to the Regional Office, MoEF&CC, Lucknow vide our letter No. 923 dated 24.09.2010.

Dinesh Chandra Patil
Agent- Dhedwas Iron Ore Mine

Annexure-I

Summarized Quarterly Ambient Air Quality Monitoring Results (Apr 2019 to Sep 2019)
Dhedwas Iron Ore Mines & Beneficiations Plant, Jindal Saw Limited, Bhilwara

Sr. No.	MonitoringLocations	Tiranga Pit (Core Zone)		Samodi Village (Core Zone)		Dhulkheda Pit (Core Zone)	
	Monitoring Period/ Parameter	10.06.2019	02.09.2019	08.06.2019	06.09.2019	05.06.2019	03.09.2019
1	PM 10 [µg/m3]	80.50	64.83	79.55	53.24	76.78	62.09
2	PM 2.5 [µg/m3]	32.98	23.46	37.03	23.50	40.58	19.72
3	SPM [µg/m3]	271.98	146.85	234.56	125.25	245.60	142.99
4	SO2 [µg/m3]	6.32	6.89	5.18	3.25	6.89	5.48
5	Nox [µg/m3]	14.67	11.68	15.31	9.57	17.86	12.44
6	CO [µg/m3]	320.00	240.00	220.00	160.00	280.00	310.00
7	Ammonia [µg/m3]	BDL(<10.0)	BDL(<10.0)	BDL(<10.0)	BDL(<10.0)	BDL(<10.0)	BDL(<10.0)
8	Lead [µg/m3]	0.30	0.17	0.11	0.09	0.26	0.20
9	Ozone [µg/m3]	BDL(<20.0)	BDL(<20.0)	BDL(<20.0)	BDL(<20.0)	BDL(<20.0)	BDL(<20.0)
10	Benzene [µg/m3]	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)
11	Benzo-alfa-Pyrine [ng/m3]	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)
12	Arsenic [ng/m3]	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)
13	Nickel [ng/m3]	3.40	2.30	5.10	1.90	3.50	2.30

Sr. No.	MonitoringLocations	Suras Pit (Core Zone)		Near Benefication Plant (Core Zone)		Mine Workshop (Core Zone)	
	Monitoring Period/ Parameter	07.06.2019	05.09.2019	09.06.2019	07.06.2019	09.06.2019	07.06.2019
1	PM 10 [µg/m3]	88.26	72.18	89.79	67.15	90.45	65.69
2	PM 2.5 [µg/m3]	34.09	23.17	31.45	26.60	39.25	26.52
3	SPM [µg/m3]	265.80	164.88	290.22	154.38	272.18	163.36
4	SO2 [µg/m3]	6.97	8.99	6.70	5.99	7.81	3.39
5	Nox [µg/m3]	16.14	12.50	17.38	12.09	14.61	13.81
6	CO [µg/m3]	360.00	340.00	320.00	320.00	310.00	360.00
7	Ammonia [µg/m3]	BDL(<10.0)	BDL(<10.0)	BDL(<10.0)	BDL(<10.0)	11.40	BDL(<10.0)
8	Lead [µg/m3]	0.27	0.34	0.43	0.29	0.23	0.28
9	Ozone [µg/m3]	BDL(<10.0)	BDL(<10.0)	BDL(<20.0)	BDL(<20.0)	BDL(<20.0)	BDL(<20.0)
10	Benzene [µg/m3]	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)
11	Benzo-alfa-Pyrine [ng/m3]	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)
12	Arsenic [ng/m3]	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)
13	Nickel [ng/m3]	5.30	2.00	2.30	2.60	3.90	2.30

Sr. No.	MonitoringLocations	Pur Village (Buffer Zone)		Dariba Village (Buffer Zone)		Kanoli Village (Buffer Zone)	
	Monitoring Period/ Parameter	09.06.2019	06.09.2019	08.06.2019	06.09.2019	07.06.2019	06.09.2019
1	PM 10 [µg/m3]	79.13	63.42	77.97	53.08	68.40	55.82
2	PM 2.5 [µg/m3]	39.40	29.86	30.01	25.76	28.92	15.77
3	SPM [µg/m3]	282.55	156.89	169.98	117.00	230.04	120.17
4	SO2 [µg/m3]	8.09	6.79	4.56	4.29	5.13	4.41
5	Nox [µg/m3]	15.94	14.66	12.19	9.63	14.15	10.39
6	CO [µg/m3]	300.00	230.00	210.00	180.00	170.00	130.00
7	Ammonia [µg/m3]	BDL(<10.0)	BDL(<10.0)	BDL(<10.0)	BDL(<10.0)	BDL(<10.0)	BDL(<10.0)
8	Lead [µg/m3]	0.12	0.15	0.08	0.12	0.09	0.14
9	Ozone [µg/m3]	BDL(<20.0)	BDL(<20.0)	BDL(<20.0)	BDL(<20.0)	BDL(<20.0)	BDL(<20.0)
10	Benzene [µg/m3]	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)
11	Benzo-alfa-Pyrine [ng/m3]	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)
12	Arsenic [ng/m3]	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)	BDL(<2.0)
13	Nickel [ng/m3]	10.90	4.20	4.70	3.40	3.10	2.90

Sr. No.	MonitoringLocations	Gandhisager Village (Buffer Zone)	
	Monitoring Period/ Parameter	07.06.2019	04.09.2019
1	PM 10 [µg/m3]	83.10	61.22
2	PM 2.5 [µg/m3]	37.71	28.40
3	SPM [µg/m3]	305.56	137.77
4	SO2 [µg/m3]	7.59	5.16
5	Nox [µg/m3]	19.39	12.96
6	CO [µg/m3]	330.00	280.00
7	Ammonia [µg/m3]	BDL(<10.0)	BDL(<10.0)
8	Lead [µg/m3]	0.40	0.12
9	Ozone [µg/m3]	BDL(<20.0)	BDL(<20.0)
10	Benzene [µg/m3]	BDL(<1.0)	BDL(<1.0)
11	Benzo-alfa-Pyrine [ng/m3]	BDL(<0.5)	BDL(<0.5)
12	Arsenic [ng/m3]	BDL(<2.0)	BDL(<2.0)
13	Nickel [ng/m3]	5.10	3.70

Note: Above monitoring result is based upon Environment Monitoring carriedout by MoEF and NABL Approved Agency.
* All values in ug/m3

Annexure-II

Summarized Fortnightly Ambient Air Quality Monioring Results (Apr 2019 to Sep 2019)

Dhedwas Iron Ore Mines & Beneficiations Plant, Jindal Saw Limited, Bhilwara

Location/ Date of Monitoring	Tiranga Pit (Core Zone)					
	PM10	PM 2.5	SO2	Nox	CO	SPM
	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
10.04.2019	83.65	28.81	8.43	15.26	290.00	275.66
21.04.2019	72.39	25.04	5.66	14.14	240.00	250.34
03.05.2019	75.90	26.18	3.59	13.67	370.00	233.70
22.05.2019	80.88	29.51	4.57	16.50	350.00	243.97
10.06.2019	80.50	32.98	6.32	14.67	320.00	271.98
30.06.2019	81.50	31.28	5.10	10.27	320.00	239.21
04.07.2019	87.69	26.85	6.47	15.88	320.00	233.35
27.07.2019	60.64	26.14	6.23	10.63	260.00	204.38
02.08.2019	60.57	27.02	4.46	10.57	250.00	208.96
26.08.2019	61.27	27.30	5.59	10.51	290.00	154.99
02.09.2019	64.83	23.46	6.89	11.68	240.00	146.85
30.09.2019	74.58	28.79	6.44	13.04	360.00	163.70
Min	60.57	23.46	3.59	10.27	240.00	146.85
Max	87.69	32.98	8.43	16.50	370.00	275.66
Avg	**73.70**	**27.78**	**5.81**	**13.07**	**300.83**	**218.92**

Location/ Date of Monitoring	Samodi Village (Core Zone)					
	PM10	PM 2.5	SO2	Nox	CO	SPM
	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
10.04.2019	64.50	29.63	5.55	11.86	230.00	203.78
21.04.2019	71.33	30.69	6.26	13.42	230.00	243.82
03.05.2019	65.98	23.20	6.11	10.14	310.00	261.77
22.05.2019	77.91	28.74	4.10	15.87	320.00	211.32
08.06.2019	79.55	37.03	5.18	15.31	220.00	234.56
30.06.2019	81.84	36.30	4.71	14.07	280.00	203.11
06.07.2019	71.78	31.89	5.23	15.46	280.00	164.33
27.07.2019	60.68	20.01	3.57	10.54	220.00	145.85
03.08.2019	48.75	23.45	4.26	10.25	210.00	145.72
26.08.2019	40.39	23.49	7.76	8.97	170.00	122.31
06.09.2019	53.24	23.50	3.25	9.57	160.00	125.25
30.09.2019	56.33	26.06	3.34	8.27	220.00	117.60
Min	40.39	20.01	3.25	8.27	160.00	117.60
Max	81.84	37.03	7.76	15.87	320.00	261.77
Avg	**64.36**	**27.83**	**4.94**	**11.98**	**237.50**	**181.62**

Location/ Date of Monitoring	Suras (Core Zone)					
	PM10	PM 2.5	SO_x	NO_x	CO	SPM
09.04.2019	77.16	26.52	5.76	13.46	290.00	222.73
20.04.2019	79.77	36.30	6.08	14.71	280.00	287.80
02.05.2019	88.47	33.99	6.90	13.63	350.00	292.40
21.05.2019	81.14	40.96	5.47	14.72	330.00	222.04
07.06.2019	88.26	34.09	6.97	16.14	360.00	265.80
30.06.2019	80.65	34.93	5.42	9.92	290.00	235.99
06.07.2019	81.34	41.17	4.60	15.14	320.00	182.44
26.07.2019	62.93	26.64	4.62	11.74	240.00	162.74
02.08.2019	61.78	30.28	5.57	13.29	280.00	184.67
24.08.2019	53.06	26.32	5.59	13.52	320.00	120.35
05.09.2019	72.18	23.17	8.99	12.50	340.00	164.88
29.09.2019	87.56	32.80	4.62	10.97	320.00	205.22
Min	53.06	23.17	4.60	9.92	240.00	120.35
Max	88.47	41.17	8.99	16.14	360.00	292.40
Avg	76.19	32.26	5.88	13.31	310.00	212.26

Location/ Date of Monitoring	Dhulkheda (Core Zone)					
	PM10	PM 2.5	SO_x	NO_x	CO	SPM
08.04.2019	75.84	24.79	45.72	13.65	330.00	229.62
23.04.2019	82.11	28.04	9.17	14.95	310.00	370.19
07.05.2019	93.75	39.63	6.96	14.60	300.00	371.72
20.05.2019	75.29	30.48	6.13	15.51	290.00	258.70
05.06.2019	76.78	40.58	6.89	17.86	280.00	245.60
29.06.2019	73.93	39.51	3.59	10.94	310.00	211.90
01.07.2019	87.35	34.25	7.01	15.61	290.00	244.98
25.07.2019	64.51	27.22	5.08	12.13	230.00	165.67
02.08.2019	61.82	26.49	4.85	13.29	330.00	143.33
22.08.2019	57.57	20.48	5.62	11.62	180.00	140.71
03.09.2019	62.09	19.72	5.48	12.44	310.00	142.99
29.09.2019	61.28	22.82	6.06	13.15	340.00	129.51
Min	57.57	19.72	3.59	10.94	180.00	129.51
Max	93.75	40.58	45.72	17.86	340.00	371.72
Avg	**72.69**	**29.50**	**9.38**	**13.81**	**291.67**	**221.24**

Note: Above monitoring result is based upon Environment Monitoring carriedout by MoEF and NABL Approved Agency.

Summarized Piezowell Water Quality Monioring Results (Apr 2019 to Sep 2019)

Dhedwas Iron Ore Mines & Beneficiations Plant, Jindal Saw Limited, Bhilwara

Sr. No.	Parameters	Units	Piezowell No.1		Piezowe No.2		Piezowell No.3		Piezowell No.4	
			10.06.2019	10.09.2019	11.06.2019	10.09.2019	10.06.2019	10.09.2019	10.06.2019	10.09.2019
1	Color	Hazen	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5
2	Odour		Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste		Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.01)
5	pH		7.55	7.72	7.67	7.81	7.05	7.63	7	7.19
6	Total Hardness	mg/l	580	460	530	244	500	404	390	340
7	Iron	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
8	Chloride	mg/l	213.52	171.22	397.68	19.71	203.02	132.06	237.1	202.03
9	Total Dissolved Solids	mg/l	1423	1206	1722	508	1086	822	1246	1139
10	Calcium	mg/l	184	100	152	65.6	102.4	115.2	96	88
11	Copper	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
12	Magnesium	mg/l	30.21	51.03	34.02	19.44	25.27	28.19	36.45	29.16
13	Manganese	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
14	Sulphate	mg/l	231	161.1	190.62	72.22	150	88.88	152.11	138.45
15	Nitrate	mg/l	26.35	27.82	33.72	25.71	30.54	38.06	10.6	57.45
16	Fluoride	mg/l	1.32	0.42	1.2	0.72	0.5	0.63	0.51	0.54
17	Cadmium	mg/l	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
18	Arsenic	mg/l	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
19	lead	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
20	Zinc	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
21	Total Alkalinity	mg/l	250	200	370	328	300	308	280	240
22	Aluminium	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
23	Boron	mg/l	0.4	0.41	0.41	0.4	0.34	0.35	0.34	0.39
24	E Coli, MPN/100 ml	MPN/100 ml	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Total coliform, MPN/100ml	MPN/100 ml	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26	Total Chromium	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
27	Selenium	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.1)
28	Residual Free chlorine	mg/l	BDL(<0.1)	BDL(<0.01)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
29	Mercury	mg/l	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
30	Phenolic Compound	mg/l	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
31	Mineral Oil	mg/l	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)
32	Cyanide	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
33	Anionic surface ditergents	mg/l	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
34	Polynuclear aromatic hydrocarbon	mg/l	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)
35	Calcium Hardness	mg/l	460	250	380	164	256	288	240	220
36	Pesticides	mg/l	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Summarized Piezowell Water Quality Monioring Results (Apr 2019 to Sep 2019)

Dhedwas Iron Ore Mines & Beneficiations Plant, Jindal Saw Limited, Bhilwara

Sr. No.	Parameters	Units	Piezowell No. 5		Piezowell No. 6		Piezowell No. 7		Piezowell No. 8	
			10.06.2019	10.09.2019	10.06.2019	10.09.2019	10.06.2019	10.09.2019	10.06.2019	10.09.2019
1	Color	Hazen	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5
2	Odour		Agrreable	Agreeable	Agrreable	Agreeable	Agrreable	Agreeable	Agreeable	Agreeable
3	Taste		Agrreable	Agreeable	Agrreable	Agreeable	Agrreable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.01)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
5	pH		7.44	7.25	6.95	7.38	7.67	7.96	7.25	8.12
6	Total Hardness	mg/l	530	540	580	560	408	400	440	380
7	Iron	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.1)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
8	Chloride	mg/l	261.16	231.59	409.97	404.06	232.58	88.7	124.17	88.7
9	Total Dissolved Solids	mg/l	1844	1746	1722	1686	997	876	1021	868
10	Calcium	mg/l	128	128	147	156	94.4	104	96	88
11	Copper	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
12	Magnesium	mg/l	51.03	53.46	51.52	41.31	41.8	34.02	48.6	38.88
13	Manganese	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
14	Sulphate	mg/l	266.67	245.66	350	262.53	122.44	110.12	106.67	96.23
15	Nitrate	mg/l	31.2	32.49	38.82	33.18	13.15	29.65	15.4	30.61
16	Fluoride	mg/l	1.37	0.32	0.91	0.4	1.12	0.59	0.63	0.67
17	Cadmium	mg/l	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
18	Arsenic	mg/l	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
19	lead	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
20	Zinc	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
21	Total Alkalinity	mg/l	340	350	370	380	328	280	284	260
22	Aluminium	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
23	Boron	mg/l	0.43	0.32	0.43	0.41	0.43	0.34	0.35	0.36
24	E Coli, MPN/100 ml	MPN/100 ml	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Total coliform, MPN/100ml	MPN/100 ml	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26	Total Chromium	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
27	Selenium	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
28	Residual Free chlorine	mg/l	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
29	Mercury	mg/l	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
30	Phenolic Compound	mg/l	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
31	Mineral Oil	mg/l	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)
32	Cyanide	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
33	Anionic surface ditergents	mg/l	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
34	Polynuclear aromatic hydrocarbon	mg/l	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)
35	Calcium Hardness	mg/l	320	320	368	390	276	260	240	220
36	Pesticides	mg/l	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Note: Above monitoring result is based upon Environment Monitoring carriedout by MoEF and NABL Approved Agency.

Annexure - III

Summarized Piezowell Level (Apr 2019 to Sep 2019)

Sr. No.	Location Name	Jun-19	Sep-19
1	Piezowell No. 1 (Nr. Tailing Filter Press)	22.34	13.72
2	Piezowell No. 2 (OB Dump Yard Nr. Gate No. 5)	17.28	3.07
3	Piezowell No. 3 (Nr. Mines Office - Suras)	16.25	2.52
4	Piezowell No. 4 (Nr. OB Dump Yard - Suras Mines)	5.49	1.73
5	Piezowell No. 5 (Nr. Mines Office - Dhulkheda - N)	4.00	1.23
6	Piezowell No. 6 (Nr. OB Dump Yard - Dhulkheda - N)	18.15	9.27
7	Piezowell No. 7 (Nr. Vista Office - Dhulkheda - S)	6.60	4.15
8	Piezowell No. 8 (Nr. OB Dump Yard - Dhulkheda - S)	10.00	3.51

Annexure - IV

Summarized BFN Ground Water Quality Monioring Results (Apr 2019 - Sep 2019) Dhedwas Iron Ore Mines & Beneficiations Plant, Jindal Saw Limited, Bhilwara			
Sampling Location:		Ground Water BFN	
Sr. No.	Monitoring Period/ Parameters	Jun-19	Sep-19
	Date of Monitoring	11.06.2019	10.09.2019
1	Color [Hazen]	Less than 5	Less than 5
2	Odour	Agreeable	Agreeable
3	Taste	Agreeable	Agreeable
4	Turbidity [NTU]	BDL(<0.1)	BDL(<0.1)
5	pH	7.55	7.25
6	Total Hardness [mg/l]	580	470
7	Iron [mg/l]	BDL(<0.01)	BDL(<0.1)
8	Chloride [mg/l]	213.52	59.13
9	Total Dissolved Solids [mg/l]	1423	938
10	Calcium [mg/l]	184	100
11	Copper [mg/l]	BDL(<0.01)	BDL(<0.01)
12	Magnesium [mg/l]	30.21	53.46
13	Manganese [mg/l]	BDL(<0.01)	BDL(<0.01)
14	Sulphate [mg/l]	231	125.78
15	Nitrate [mg/l]	26.35	40.24
16	Fluoride [mg/l]	1.32	0.46
17	Cadmium [mg/l]	BDL(<0.001)	BDL(<0.001)
18	Arsenic [mg/l]	BDL(<0.001)	BDL(<0.001)
19	lead [mg/l]	BDL(<0.01)	BDL(<0.01)
20	Zinc [mg/l]	BDL(<0.01)	BDL(<0.01)
21	Total Alkalinity [mg/l]	250	72
22	Aluminium [mg/l]	BDL(<0.01)	BDL(<0.01)
23	Boron [mg/l]	0.4	0.34
24	E Coli, MPN/100 ml	BDL	BDL
25	Total coliform, MPN/100ml	BDL	BDL
26	Total Chromium [mg/l]	BDL(<0.01)	BDL(<0.01)
27	Selenium [mg/l]	BDL(<0.01)	BDL(<0.01)
28	Residual Free chlorine [mg/l]	BDL(<0.1)	BDL(<0.1)
29	Mercury [mg/l]	BDL(<0.001)	BDL(<0.001)
30	Phenolic Compound [mg/l]	BDL(<0.001)	BDL(<0.001)
31	Mineral Oil [mg/l]	BDL(<0.5)	BDL(<0.5)
32	Cyanide [mg/l]	BDL(<0.5)	BDL(<0.5)
33	Anionic surface ditergents [mg/l]	BDL(<0.1)	BDL(<0.1)
34	Polynuclear aromatic hydrocarbon [mg/l]	BDL(<0.0001)	BDL(<0.0001)
35	Calcium Hardness [mg/l]	460	350
36	Pesticides [mg/l]	Not Detected	Not Detected

Note: Above monitoring result is based upon Environment Monitoring carriedout by MoEF and NABL Approved

Annexure-IV

Summarized Ground Water Quality Monioring Results (Apr 2019 - Sep 2019)
Dhedwas Iron Ore Mines & Beneficiations Plant, Jindal Saw Limited, Bhilwara

Sampling Location:		Dhulkhera Village		Suras Village		Pur Village	
Sr. No.	Monitoring Period/ Parameters	Jun-19	Sep-19	Jun-19	Sep-19	Jun-19	Sep-19
	Date of Monitoring	10.06.2019	10.09.2019	10.06.2019	10.09.2019	09.06.2019	07.09.2019
1	Color [Hazen]	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity [NTU]	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
5	pH	6.82	7.1	7.34	7.23	7.9	7.82
6	Total Hardness [mg/l]	420	460	500	480	108	112
7	Iron [mg/l]	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
8	Chloride [mg/l]	214.84	180.03	260.17	228.95	55.19	49.98
9	Total Dissolved Solids [mg/l]	1282	1211	1103	1226	307	323
10	Calcium [mg/l]	116.8	136	168	140	28.8	27.2
11	Copper [mg/l]	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
12	Magnesium [mg/l]	31.1	29.16	19.44	31.59	8.75	10.69
13	Manganese [mg/l]	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
14	Sulphate [mg/l]	128.89	135	44.67	95.55	29.78	45.26
15	Nitrate [mg/l]	35.59	25.2	28.82	27.24	2.2	9.35
16	Fluoride [mg/l]	0.48	0.62	0.5	0.52	0.27	0.35
17	Cadmium [mg/l]	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
18	Arsenic [mg/l]	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
19	lead [mg/l]	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
20	Zinc [mg/l]	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
21	Total Alkalinity [mg/l]	272	262	280	296	104	96
22	Aluminium [mg/l]	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
23	Boron [mg/l]	0.44	0.33	0.34	0.34	0.35	0.35
24	E Coli, MPN/100 ml	BDL	BDL	BDL	BDL	BDL	BDL
25	Total coliform, MPN/100ml	BDL	BDL	BDL	BDL	BDL	BDL
26	Total Chromium [mg/l]	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
27	Selenium [mg/l]	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
28	Residual Free chlorine [mg/l]	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
29	Mercury [mg/l]	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
30	Phenolic Compound [mg/l]	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
31	Mineral Oil [mg/l]	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)
32	Cyanide [mg/l]	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
33	Anionic surface ditergents [mg/l]	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
34	Polynuclear aromatic hydrocarbon [mg/l]	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
35	Calcium Hardness [mg/l]	288	340	420	350	112	68
36	Pesticides [mg/l]	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Note: Above monitoring result is based upon Environment Monitoring carriedout by MoEF and NABL Approved Agency.

Summarized Ground Water Quality Monioring Results (Apr 2019 - Sep 2019)

Dhedwas Iron Ore Mines & Beneficiations Plant, Jindal Saw Limited, Bhilwara

Sampling Location:		Samodi Village		Gandhisagar Village		Kanoli Village		Dariba Village	
Sr. No.	Monitoring Period/ Parameters	Jun-19	Sep-19	Jun-19	Sep-19	Jun-19	Sep-19	Jun-19	Sep-19
	Date of Sampling	08.06.2019	07.09.2019	07.06.2019	07.09.2019	07.06.2019	07.09.2019	08.06.2019	07.09.2019
1	Color (Hazen)	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
5	pH	7.65	7.37	7.88	7.91	7.82	7.6	7.48	7.57
6	Total Hardness (mg/l)	336	330	530	490	192	120	448	480
7	Iron (mg/l)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
8	Chloride (mg/l)	153.74	151.66	349.86	144.96	118.26	19.99	175.42	127.19
9	Total Dissolved Solids (mg/l)	897	813	1230	1063	603	255	964	972
10	Calcium (mg/l)	100.8	84	128	152	49.6	32	134.4	139.2
11	Copper (mg/l)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
12	Magnesium (mg/l)	20.41	29.16	51.03	26.73	16.52	9.72	27.22	32.08
13	Manganese (mg/l)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
14	Sulphate (mg/l)	187.78	152.11	133.33	140.33	61.67	25.62	170	172.22
15	Nitrate (mg/l)	13.69	26.12	43.53	15.47	10.15	3.17	3.2	23.67
16	Fluoride (mg/l)	0.51	0.38	0.62	0.24	0.37	0.45	0.31	0.42
17	Cadmium (mg/l)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
18	Arsenic (mg/l)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
19	lead (mg/l)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
20	Zinc (mg/l)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
	Total Alkalinity (mg/l)	192	190	350	340	216	156	300	360
22	Aluminium (mg/l)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
23	Boron (mg/l)	0.41	0.32	0.44	0.41	0.37	0.23	0.45	0.41
24	E Coli, MPN/100 ml	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Total coliform, MPN/100ml	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26	Total Chromium (mg/l)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
27	Selenium (mg/l)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
28	Residual Free chlorine (mg/l)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
29	Mercury (mg/l)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
30	Phenolic Compound (mg/l)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
31	Mineral Oil (mg/l)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)	BDL(<0.5)
32	Cyanide (mg/l)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
33	Anionic surface ditergents (mg/l)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
34	Polynuclear aromatic hydrocarbon (mg/l)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)	BDL(<0.0001)
35	Calcium Hardness (mg/l)	252	210	320	380	124	80	336	348
36	Pesticides (mg/l)	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Note: Above monitoring result is based upon Environment Monitoring carriedout by MoEF and NABL Approved Agency.

Summarized Surface Water Quality Monioring Results (APR 2019 - SEP 2019)

Dhedwas Iron Ore Mines & Beneficiations Plant, Jindal Saw Limited, Bhilwara

Sampling Location:		Meja Dam		Samodi Pond		Kothari River	
Sr. No.	Monitoring Period/ Parameters	Jun-19	Sep-19	Jun-19	Sep-19	Jun-19	Sep-19
	Date of Sampling	11.06.2019	10.09.2019		07.09.2019		10.09.2019
1	Color [Hazen]	Less than 5	Less than 5		Less than 5		Less than 5
2	Odour	Agreeable	Agreeable		Agreeable		Agreeable
3	Taste	Agreeable	Agreeable		Agreeable		Agreeable
4	Turbidity [NTU]	BDL(<0.1)	BDL(<0.01)		BDL(<0.1)		BDL(<0.1)
5	pH	8.22	7.57		7.67		8.21
6	Total Hardness [mg/l]	270	52		80		248
7	Iron [mg/l]	BDL(<0.01)	BDL(<0.01)		BDL(<0.01)		BDL(<0.01)
8	Chloride [mg/l]	123.64	15.77		17.61		92.64
9	Total Dissolved Solids [mg/l]	514	110		166		437
10	Calcium [mg/l]	64	16		20.8		65.6
11	Copper [mg/l]	BDL(<0.01)	BDL(<0.01)		BDL(<0.01)		BDL(<0.01)
12	Magnesium [mg/l]	26.73	2.92		6.8		20.41
13	Manganese [mg/l]	BDL(<0.01)	BDL(<0.01)		BDL(<0.01)		BDL(<0.01)
14	Sulphate [mg/l]	33.46	13.44		30.88		70.12
15	Nitrate [mg/l]	10.52	28.53		29.39		31.55
16	Fluoride [mg/l]	0.74	0.54		0.46		0.93
17	Cadmium [mg/l]	BDL(<0.001)	BDL(<0.001)		BDL(<0.001)		BDL(<0.001)
18	Arsenic [mg/l]	BDL(<0.001)	BDL(<0.001)		BDL(<0.001)		BDL(<0.001)
19	lead [mg/l]	BDL(<0.01)	BDL(<0.01)	Dry	BDL(<0.01)	Dry	BDL(<0.01)
20	Zinc [mg/l]	0.02	BDL(<0.01)		BDL(<0.01)		BDL(<0.01)
21	Total Alkalinity [mg/l]	80	60		64		168
22	Aluminium [mg/l]	BDL(<0.01)	BDL(<0.01)		BDL(<0.01)		BDL(<0.01)
23	Boron [mg/l]	0.35	0.31		0.35		0.3
24	E Coli, MPN/100 ml	BDL	BDL		BDL		
25	Total coliform, MPN/100ml	BDL	BDL		BDL		
26	Total Chromium [mg/l]	BDL(<0.01)	BDL(<0.01)		BDL(<0.01)		BDL(<0.01)
27	Selenium [mg/l]	BDL(<0.01)	BDL(<0.01)		BDL(<0.01)		BDL(<0.01)
28	Residual Free chlorine [mg/l]	BDL(<0.1)	BDL(<0.01)		BDL(<0.1)		DBL(<0.1)
29	Mercury [mg/l]	BDL(<0.001)	BDL(<0.001)		BDL(<0.001)		BDL(<0.001)
30	Phenolic Compound [mg/l]	BDL(<0.001)	BDL(<0.001)		BDL(<0.001)		BDL(<0.001
31	Mineral Oil [mg/l]	BDL(<0.5)	BDL(<0.5)		BDL(<0.5)		BDL(<0.5)
32	Cyanide [mg/l]	BDL(<0.01)	BDL(<0.1)		BDL(<0.01)		BDL(<0.01)
33	Anionic surface ditergents [mg/l]	BDL(<0.1)	BDL(<0.1)		BDL(<0.1)		BDL(<0.1)
34	Polynuclear aromatic hydrocarbon [mg/l]	BDL(<0.0001)	BDL(<0.0001)		BDL(<0.0001)		BDL(<0.0001)
35	Calcium Hardness [mg/l]	160	40		52		
36	Pesticides [mg/l]	Not Detected	Not Detected		Not Detected		Not Detected
37	Suspended Solid [mg/l]	42	13		7		15

Note: Above monitoring result is based upon Environment Monitoring carriedout by MoEF and NABL Approved Agency.

Annexure-V

Process Water Quality Monitoring Results (Apr 2019 to Sep 2019)
Dhedwas Iron Ore Mines & Baneficiation Plant, Jindal Saw Limited, Bhilwara

Sr. No.	Parameter/ Date of Monitoring	Units	Tailing filter Press Recycling Water		Tailing Pond	
			11.06.2019	07.09.2019	11.06.2019	05.09.2019
1	Color	Hazen	10	Less than 5.0	10	Less than 5
2	pH Value		7.64	8.92	8.13	7.01
3	Total Suspended Solid	mg/L	32	16	38	15
4	Oil & Grees	Mg/L	6	3	5	
5	Biological Oxygen Demand (3 Days at 27o C)	Mg/L	4.55	10	6.45	2
6	Chemical Oxygen Demand	Mg/L	12.5	34.94	18.3	8.74
7	Disolve Oxygen	Mg/L	6.3	5.6	6.8	6
8	Ammonium Nitrogen as NH4-N	Mg/L	3.26	6.67	3.25	4.48
9	Total Kjeldehal Nitrogen as N	Mg/L	10.7	17.3	13.8	7.28
10	Free Ammonia as NH3	Mg/L	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	4.48
11	Nitrate Nitrogen as NO3-N	Mg/L	7.46	43.92	7.46	5.7
12	Total Residual chlorine	Mg/L	BDL(<0.1)	0.2	BDL(<0.1)	0.1
13	Fluoride	Mg/L	1.22	0.47	1.28	39
14	Total Dissolved Solids	Mg/L	1840	1163	1847	963
15	Total Phosphate as PO4-P	Mg/L	BDL(<0.1)	0.31	BDL(<0.1)	BDL(<0.1)
16	Sulphate (as SO4)	Mg/L	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)	BDL(<0.1)
17	Phenoilic Compound	Mg/L	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
18	Arsenic as S	Mg/L	BDL(<0.01)	BDL(<0.001)	BDL(<0.01)	BDL(<0.001)
19	Mercury as Hg	Mg/L	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
20	Lead (as Pb)	Mg/L	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
21	Cadmium (as Cd)	Mg/L	BDL(<0.01)	BDL(<0.001)	BDL(<0.01)	BDL(<0.001)
22	Copper (as Cu)	Mg/L	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
23	Zinc (as Zn)	Mg/L	BDL(<0.01)	BDL(<0.01)	0.28	0.06
24	Selenium as Se	Mg/L	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
25	Nickel (as Ni)	Mg/L	0.03	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
26	Cyanide (as CN)	Mg/L	BDL(<0.01)	Less than 0.05	BDL(<0.01)	Less than 0.05
27	Manganese as Mn	Mg/L	0.32	0.03	0.2	0.01
28	Iron as Fe	Mg/L	0.04	0.05	0.05	0.04
29	Total Chromium as Cr	Mg/L	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)

Sr. No.	Parameter/ Date of Monitoring	Units	STP Incoming/Reserviour Pond		Siltation Pond	
			11.06.2019	07.09.2019		07-Sep-19
1	Color	Hazen	20	Less than 5		Less than 5
2	pH Value		7.87	8.16		7.68
3	Total Suspended Solid	mg/L	33	26		14
4	Oil & Grees	Mg/L	6	5		3
5	Biological Oxygen Demand (3 Days at 27o C)	Mg/L	13.6	14.8		12
6	Chemical Oxygen Demand	Mg/L	35.2	52.42		46.59
7	Disolve Oxygen	Mg/L	5.8	4.8		5.2
8	Ammonium Nitrogen as NH4-N	Mg/L	8.47	9.6		1.96
9	Total Kjeldehal Nitrogen as N	Mg/L	16.8	23.6		3.92
10	Free Ammonia as NH3	Mg/L	0.68	BDL(<0.1)		BDL(<0.1)
11	Nitrate Nitrogen as NO3-N	Mg/L	8.52	8.55		4.55
12	Total Residual chlorine	Mg/L	BDL(<0.1)	0.2		0.2
13	Fluoride	Mg/L	1.22	1.25		0.42
14	Total Dissolved Solids	Mg/L	1932	1562		896
15	Total Phosphate as PO4-P	Mg/L	2.13	1.26	Dry	BDL(<0.1)
16	Sulphide as S	Mg/L	BDL(<0.01)	BDL(<0.1)		BDL(<0.1)
17	Phenoilic Compound	Mg/L	BDL(<0.01)	BDL(<0.001)		BDL(<0.001)
18	Arsenic as S	Mg/L	BDL(<0.01)	BDL(<0.001)		BDL(<0.001)
19	Mercury as Hg	Mg/L	BDL(<0.001)	BDL(<0.001)		BDL(<0.001)
20	Lead (as Pb)	Mg/L	BDL(<0.01)	BDL(<0.01)		BDL(<0.01)
21	Cadmium (as Cd)	Mg/L	BDL(<0.01)	BDL(<0.001)		BDL(<0.01)
22	Copper (as Cu)	Mg/L	BDL(<0.01)	BDL(<0.01)		BDL(<0.01)
23	Zinc (as Zn)	Mg/L	0.16	0.04		BDL(<0.01)
24	Selenium as Se	Mg/L	BDL(<0.01)	BDL(<0.01)		BDL(<0.01)
25	Nickel (as Ni)	Mg/L	BDL(<0.01)	BDL(<0.01)		BDL(<0.01)
26	Cyanide (as CN)	Mg/L	BDL(<0.01)	Less than 0.05		Less than 0.05
27	Manganese as Mn	Mg/L	BDL(<0.01)	0.01		BDL(<0.01)
28	Iron as Fe	Mg/L	0.06	0.05		BDL(<0.01)
29	Total Chromium as Cr	Mg/L	BDL(<0.01)	BDL(<0.01)		BDL(<0.01)

Note: Above monitoring result is based upon Environment Monitoring carriedout by MoEF and NABL Approved Agency.

Annexure-VI

Ambient Noise Level Monitoring Results (Apr 2019 to Sep 2019)
Dhedwas Iron Ore Mines & Benificiations Plant, Jindal Saw Limited, Bhilwara

Sr. No.	Location of Sampling/	Date of Monitoring	Tiranga Pit (Core zone)	
			Results in dB(A)	Results in dB(A)
1	Jun-19	11.06.2019	64.5	52.3
2	Sep-19	10.09.2019	67.3	59.4
	Min		64.50	52.30
	Max		67.30	59.40
	Avg.		65.90	55.85

Date of Monitoring	Samodi Village (Core zone)	
	Results in dB(A)	Results in dB(A)
08.06.2019	50.4	41.6
08.09.2019	52.7	42.2
Min	50.40	41.60
Max	52.70	42.20
Avg.	51.55	41.90

Sr. No.	Location of Sampling/ Month	Date of Monitoring	Suras Pit (Core zone)	
			Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
1	Jun-19	10.06.2019	65.3	56.3
2	Sep-19	10.09.2019	68.7	60.8
	Min		65.30	56.30
	Max		68.70	60.80
	Avg.		67.00	58.55

Date of Monitoring	Dhulkhera Pit (Core zone)	
	Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
10.06.2019	64.4	55.5
10.09.2019	64.9	58.4
Min	64.40	55.50
Max	64.90	58.40
Avg.	64.65	56.95

Sr. No.	Location of Sampling/ Month	Date of Monitoring	Near Raw material storage yard mine area (Core zone)	
			Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
1	Jun-19	11.06.2019	62.4	55.5
2	Sep-19	10.09.2019	67.5	58.3
	Min		62.40	55.50
	Max		67.50	58.30
	Avg.		64.95	56.90

Date of Monitoring	TATA Blue Scop Shed (Core zone)	
	Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
11.06.2019	65.8	57.4
08.09.2019	67.4	60.2
Min	65.80	57.40
Max	67.40	60.20
Avg.	66.60	58.80

Sr. No.	Location of Sampling/ Month	Date of Monitoring	Crusher working area near CCR building (Core zone)	
			Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
1	Jun-19	11.06.2019	72.4	61.2
2	Sep-19	08.09.2019	71	61.4
	Min		71.00	61.20
	Max		72.40	61.40
	Avg.		71.70	61.30

Date of Monitoring	BFN CCR Building (Core zone)	
	Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
11.06.2019	70.6	62.7
08.09.2019	71	61.4
Min	70.60	61.40
Max	71.00	62.70
Avg.	70.80	62.05

Note: Above monitoring result is based upon Environment Monitoring carriedout by MoEF and NABL Approved Agency.

Annexure-VI

Ambient Noise Level Monitoring Results (Apr 2019 to Sep 2019)
Dhedwas Iron Ore Mines & Benificiations Plant, Jindal Saw Limited, Bhilwara

Sr. No.	Location of Sampling/ Month	Date of Monitoring	Filter press building (Core zone)	
			Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
1	Jun-19	11.06.2019	70.4	62.4
2	Sep-19	08.09.2019	68.2	59.8
	Min		68.20	59.80
	Max		70.40	62.40
	Avg.		69.30	61.10

Sr. No.	Location of Sampling/ Month	Date of Monitoring	Dariba Village (Buffer Zone)	
			Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
1	Jun-19	08.06.2019	53.4	40.6
2	Sep-19	08.09.2019	51	41.9
	Min		51.00	40.60
	Max		53.40	41.90
	Avg.		52.20	41.25

Sr. No.	Location of Sampling/ Month	Date of Monitoring	Kanoli Village (Buffer Zone)	
			Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
1	Jun-19	07.06.2019	50.6	41.2
2	Sep-19	06.09.2019	51.4	40.2
	Min		50.60	40.20
	Max		51.40	41.20
	Avg.		51.00	40.70

Sr. No.	Location of Sampling/ Month	Date of Monitoring	Dhulkhera Village (Buffer Zone)	
			Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
1	Jun-19	10.06.2019	54.2	42.8
2	Sep-19	03.09.2019	51.7	40.7
	Min		51.70	40.70
	Max		54.20	42.80
	Avg.		52.95	41.75

Date of Monitoring	Pur Village (Buffer Zone)	
	Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
09.06.2019	52.6	41.9
06.09.2019	53.2	41.5
Min	52.60	41.50
Max	53.20	41.90
Avg.	52.90	41.70

Date of Monitoring	Suras Village (Buffer Zone)	
	Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
10.06.2019	53.4	42.1
06.09.2019	51.4	38.2
-Min	51.40	38.20
Max	53.40	42.10
Avg.	52.40	40.15

Date of Monitoring	Gandhi Sagar Village (Buffer Zone)	
	Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
08.06.2019	53.4	42.6
04.09.2019	53.6	42.5
Min	53.40	42.50
Max	53.60	42.60
Avg.	53.50	42.55

Note: Above monitoring result is based upon Environment Monitoring carriedout by MoEF and NABL Approved Agency.

M/S JINDAL SAW LTD. BHILWARA, RAJASTHAN

PROJECT REPORT

ON

LAND USE LAND COVER STUDY

OF

DHEDWAS IRON ORE MINES IN 10 KM BUFFER AREA

DHEDWAS, DISTRICT- BHILWARA

RAJASTHAN

Aug, 2019

DR. SANJAY RAJ, D-250 & 250, ANAND VIHAR, JAGATPURA, JAIPUR-302017

LAND USE LAND COVER STUDY OF DHEDWAS IRON ORE MINES

Village: Dhedwas, Tehsil & District- Bhilwara

Introduction:

Today, the study of earth and its changes in respect of time is very important for any diagnostic analysis and conservation plans to be proposed to protect the environment through change detection. For that the knowledge of land use and land cover is important for many planning and management activities as it is considered as an essential element for modeling and understanding the earth feature system. The term land use relates to the human activity or economic function associated with a specific piece of land, while the term land cover relates to the type of feature present on the surface of the earth. Land cover classification or image classification is the process used to produce thematic maps from satellite imagery. Land cover maps are presently being developed from local to national to global scales. Satellite images have been utilized for land use and land cover mapping. The satellite remote sensing technology has found its acceptance worldwide for rapid resource assessment & monitoring, particularly in the developing world. remote sensing technology and its application has undergone a tremendous change in terms of sensing development, aerial flights with improved sensors, satellite design development and operations including data reception, processing, interpretation, and utilization of satellite images. The main motive of satellite images is to know the current status of the earth's objects.

Digital image processing and classification of the satellite imageries and analysis of interpreted maps were carried out using ERADAS imagine 2014; Mapping and Geodatabase management system has been processed by ArcGIS 10.4.1. The Classified/Extracted Land use land cover information has been ground verified. If there is any update/modification required also implemented in Land use data.

Objective:

The objective of the present work is to prepare Land use land cover mapping from recent high resolution multispectral imagery. Present Land use Statistics is also to be analyzed. On Base of

Present land use any autonomous body can be proposed any kind of infrastructure/Educational/Health Facilities/Public Utilities projects. The main objective is to analyses the impact on Land use due to mining activity operation. The land use/ land cover map will depict the state of the land features and land use of the study area. In addition land cover/land use thematic map will also be used in studying the 10 km buffer from the Mine lease area boundary. The Land use/Land cover thematic map is also used for area distribution and distance of ecological zone from project site.

Study Area:

M/s Jindal Saw Ltd., Mine Site-N/V –Dhedwas. Tehsil- Bhilwara, District - Bhilwara, Rajasthan project site is spread between 25°18'42.62" N to 25°24'11.59" Latitudes and 74°31'37.33"E to 74°35'37.65"E Longitudes. The Project site is located at 1.44 Kilometer distance in NNW direction from village Pur.

Topography:

The terrain of Project site is hilly in nature. The Minimum elevation of project site is 435 Meter from Mean See level and Maximum elevation is 510 Meter from MSL. The drainage pattern has flow in south direction from point A and B as per drainage pattern map attached as annexure. Rest drainage pattern flows from south to north direction which is shown in Drainage Map. In 10 kilometer buffer there are six forest blocks (RF) in NE direction and SSW direction from Project Site. The main town and district head quarter is Bhilwara which is within in 10 kilometer buffer zone.

Soil Characteristics into Study Area

Mapping of Soil into Study area has been designed. Mainly the soil is divided into 4 type of soil that includes Loam Pebbly and Stony Soil, Sandy Loam Soil, Clay Loam Soil and Loam Soil.

DEM

SRTM Satellite imagery has been used for study the contour and terrain slope. A map has been attached as annexure. Through this study got the minimum elevation is 390 M from Mean sea level and Maximum elevation value is 500 M from MSL. Through DEM the drainage study has also been analyzed, that drainage flows from East to West direction from the Mine Site. From drainage flows in south from mine site also. For reference drainage map has been attached as annexure.

Database:

SENTINEL-2, launched as part of the European Commission's Copernicus program on June 23, 2015, was designed specifically to deliver a wealth of data and imagery. The satellite is equipped with an opto-electronic multispectral sensor for surveying with a sentinel-2 resolution of 10 to 60 m in the visible, near infrared (VNIR), and short-wave infrared (SWIR) spectral zones, including 13 spectral channels, which ensures the capture of differences in vegetation state, including temporal changes, and also minimizes impact on the quality of atmospheric photography.

The orbit is an average height of 785 km and the presence of two satellites in the mission allow repeated surveys every 5 days at the equator and every 2-3 days at middle latitudes.

The Sentinel-2 data provides GMES (Global Monitoring for Environment and Security) program, jointly implemented by the EC (European Commission) and ESA (European Space Agency) services related, for example, to land management, agricultural production and forestry, and monitoring of natural disasters and humanitarian operations. Sensor is used Multispectral Instrument (MSI).

Spectral Bands for Sentinel-2 sensors are listed below:

Sensor	Band number	Band name	Sentinel-2A		Sentinel-2B		Resolution (meters)
			Central wavelength (nm)	Bandwidth (nm)	Central wavelength (nm)	Bandwidth (nm)	
MSI	1	Coastal aerosol	443.9	27	442.3	45	60
MSI	2	Blue	496.6	98	492.1	98	10
MSI	3	Green	560.0	45	559	46	10
MSI	4	Red	664.5	38	665	39	10
MSI	5	Vegetation Red Edge	703.9	19	703.8	20	20
MSI	6	Vegetation Red Edge	740.2	18	739.1	18	20
MSI	7	Vegetation Red Edge	782.5	28	779.7	28	20
MSI	8	NIR	835.1	145	833	45	10
MSI	8a	Narrow NIR	864.8	33	864	32	20
MSI	9	Water vapour	945.0	26	943.2	27	60
MSI	10	SWIR – Cirrus	1373.5	75	1376.9	76	60

Sensor	Band number	Band name	Sentinel-2A		Sentinel-2B		Resolution (meters)
			Central wavelength (nm)	Bandwidth (nm)	Central wavelength (nm)	Bandwidth (nm)	
MSI	11	SWIR	1613.7	143	1610.4	141	20
MSI	12	SWIR	2202.4	242	2185.7	238	20

Applications:

Sentinel-2A will serve a wide range of applications related to Earth's land and coastal water.

The mission will provide information for agricultural and forestry practices and for helping manage food security. Satellite images will be used to determine various plant indices such as leaf area chlorophyll and water content indexes. This is particularly important for effective yield prediction and applications related to Earth's vegetation.

As well as monitoring plant growth, Sentinel-2 can be used to map changes in land cover and to monitor the world's forests. It will also provide information on pollution in lakes and coastal waters. Images of floods, volcanic eruptions and landslides contribute to disaster mapping and help humanitarian relief efforts.

Examples for applications include:

- Land use Land Cover Mapping
- Monitoring land cover change for environmental monitoring
- Agricultural applications, such as crop monitoring and management to help food security
- Detailed vegetation and forest monitoring and parameter generation (e.g. leaf area index chlorophyll concentration, carbon mass estimations)
- Observation of coastal zones (marine environmental monitoring, coastal zone mapping)
- Inland water monitoring

- Glacier monitoring, ice extent mapping, snow cover monitoring
- Flood mapping & management (risk analysis, loss assessment, disaster management during floods)

The Sentinel Monitoring web application offers an easy way to observe and analyze land changes based on archived Sentinel-2 data.

For Land Use Study, procured satellite data i.e.:

1. The Sentinel-2A satellite data is used for extraction of Land use Land Cover Ciasses. The acquisition date of Scene is June 22, 2019. The Sensor was used Multispectral Instrument (MSI)

2. For the secondary data, Survey of India (SOI) Toposheets No. 45K/11 on 1:50,000 scales were referred to for the preparation of base map.

3. SRTM DEM Satellite imagery is used to generate the existing drainage pattern and Contour.

Methodology:

Land use and land cover mapping of the Project site and its 10 kilometer buffer area was carried out by following standard methods of analysis of remotely sensed data, like digital image processing (DIP) supported by ground truth collection. For this purpose the Open Source satellite data Sentinel-2A is procured. Satellite image preprocessing activity has to be applied wiz. Band to Band image registration, Haze and noise removal, Band merge operation. Visible Range (Band-2, Band-3 and Band-4) & NIR Band (Band-8) are to be merged to each other. Nearest neighborhood re-sampling operation has been applied, for image fusion operation the bravery transformation algorithm has been applied. So after apply all these operations, the FCC imagery has been designed. This FCC imagery will be used for Digital Image Processing and Visual interpretation purpose. The main objective is to extract the Land Use objects on interpretation of satellite imagery. DIP of the satellite data, preparation of various thematic maps, and their interpretation were achieved. Before digitally processing of any image for image enhancement,

transformation or classification, pre processing was done for band separation. The images were checked for occasional shortcomings in the quality of radiometric and line dropouts. Band separation and windowing of the study area with the help of Survey of India (SOI) toposheets was performed. The registration of image was performed using the nearest neighbor resampling algorithm. The scene was geometrically corrected with toposheets using proper identification of GCPs with a root-mean-square (RMS) error of 0.0002 to 0.003 pixels. Indian Remote Sensing data was radiometrically corrected using dark pixel subtraction technique. They were then co-registered with SOI toposheets using UTM 43-N, WGS-84 projection system. Geo-referencing of the composite image was done using digital vector layer of road network, water bodies, and other permanent ground features extracted from SOI toposheets. Distinguishable Ground Control Points (GCPs) both on image and vector database were identified. By using these GCPs the image was resampled and geo-coded. Sub pixel image to map registration accuracy was achieved through repeated attempts. The image enhancement techniques like edge detection, filters, manipulation of contrast and brightness, histogram equalization etc. was performed by using different combinations for best image contrast. Standard false colour composite (FCC) image of the catchment area was prepared using bands 2, 3 4 and Band 8 of MSI and discrimination of features was made by visual interpretation on this image. The interpretation key was based on the relationships between ground features and image elements like texture, tone, shape, location, and pattern. In the preliminary analysis, image classification was done by unsupervised classification method by performing ISODATA training. It helped in assigning the classification of the image into land use categories. However, the boundaries of water bodies were separately mapped from SOI toposheets for image classification. The doubtful areas or wrongfully interpreted areas owing to various physical features controlling the study area were marked for ground truth collection. After ground truth collection, supervised classification was assigned for the final image classification. The classified map was regrouped and merged. The classified raster map thus prepared was then converted to vector format for GIS analysis and the preparation of required thematic maps using ArcGIS 10.4.1.

Classification Scheme: In supervised classification approach many of Classes are identified which are listed in Table no. 1.1 (10 Kilometer buffer)

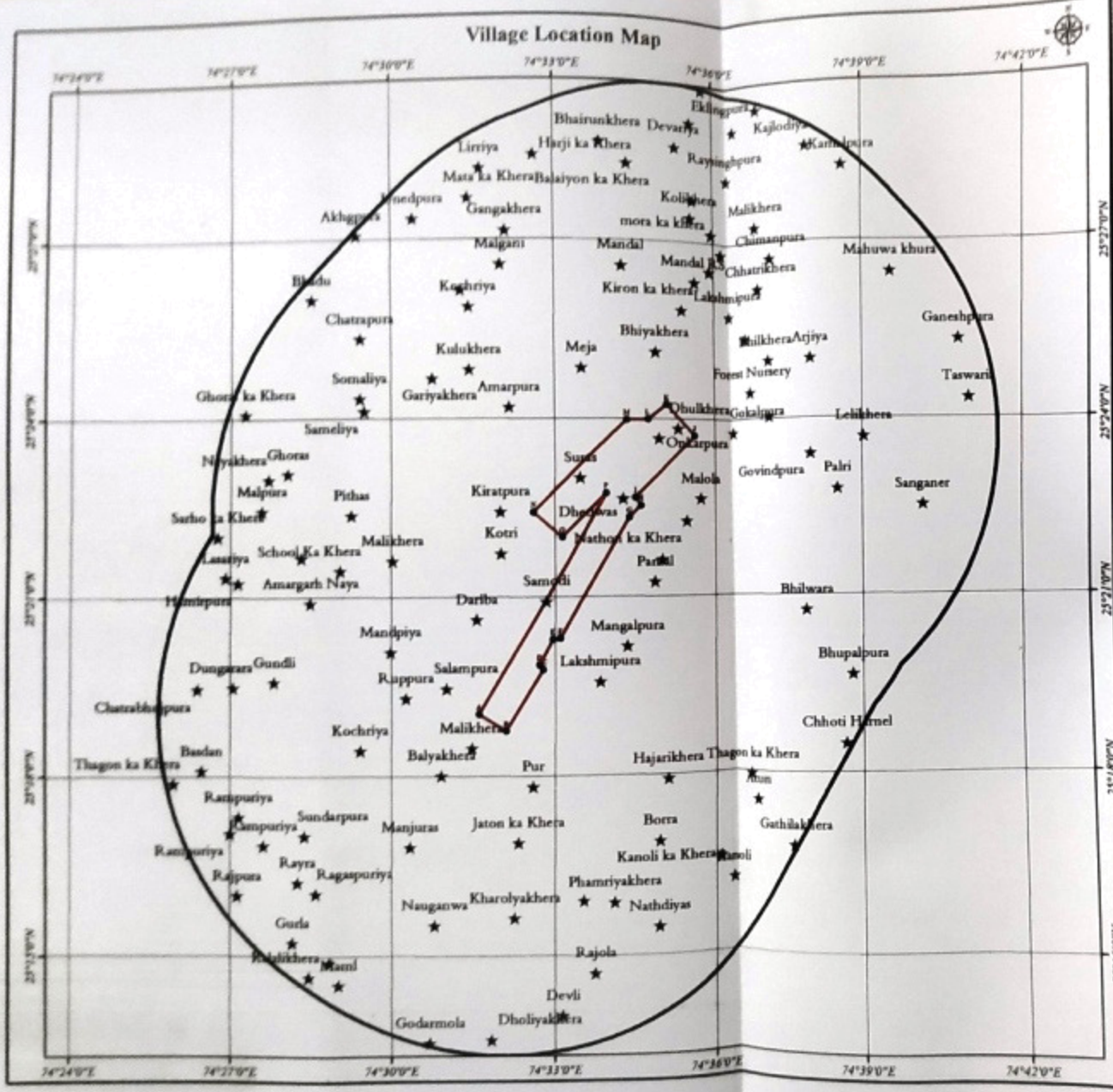
Table 1.1 Land Use/Land Cover Classifications.

Land Use Land Cover Statistics within 10 Km Buffer Area From Mining Lease Area Boundary (Dedwas Mine Bhilwara)			
Sr. No.	**Land Use Class**	**Area (Hectare)**	**Area (%)**
1	Agriculture Crop/Fallow Land	35019.33	59.88
2	Canal	153.50	0.26
3	Drain/Nala	39.19	0.07
4	Water Body/Dry Water Body	3113.91	5.32
5	Forest Area	284.26	0.49
6	Industrial Area	344.05	0.59
7	Mining Plant Area	26.33	0.05
8	Mine Site Area	1556.78	2.66
9	Open Jungle	38.20	0.07
10	Open Space	1.34	0.002
11	Mining Area	467.82	0.80
12	Railway Area	89.48	0.15
13	River	872.21	1.49
14	Road	683.84	1.17
15	Rocky Area	1359.95	2.33
16	Rural Area/Urban Area Settlements	6988.75	11.95
17	Land With/Without Scrub	7446.64	12.73
Total		**58485.59**	**100.00**

The Land Use statistics in Core Area listed in below table:

Land Use Land Cover Statistics within Mine Lease Core Area			
Sr. No.	**Land Use Class (Core Area)**	**Area (Hectare)**	**Area (%)**
1	Agriculture Crop/Fallow Land	701.09	45.03
2	Canal	2.42	0.16
3	Mining Area	98.73	6.34
4	Beneficiation Plant Area	33.15	2.13
5	Road	15.17	0.97
6	Rocky Area	311.27	19.99
7	Rural Area	78.12	5.02
8	Scrub Land	36.33	2.33
10	OB Dump Area	170.45	10.95
11	Water Body/Dry Water Body	43.08	2.77
12	Plantation Area	66.97	4.30
Total		**1556.78**	**100.00**

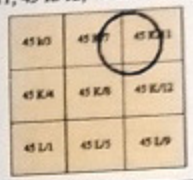
Village Location Map



Legend

- Mine Coordinate Points
- Village Location
- Lease Area
- Buffer Zone

Survey of India GT Sheet No.
45 K/11, 45 K/12, 45 K/7 and 45 K/8



Mine Lease Area Boundary Coordinates

Sr.No.	Point ID	Latitude	Longitude
1	A	25° 19' 2.638" N	74° 31' 36.851" E
2	B	25° 18' 45.443" N	74° 32' 6.443" E
3	C	25° 19' 46.985" N	74° 32' 47.094" E
4	D	25° 19' 51.875" N	74° 32' 42.817" E
5	E	25° 20' 17.467" N	74° 32' 57.770" E
6	F	25° 20' 18.266" N	74° 33' 5.718" E
7	G	25° 22' 20.030" N	74° 34' 21.105" E
8	H	25° 22' 32.196" N	74° 34' 34.412" E
9	I	25° 22' 40.177" N	74° 34' 27.851" E
10	J	25° 23' 43.074" N	74° 35' 35.811" E
11	K	25° 24' 14.464" N	74° 35' 3.034" E
12	L	25° 23' 59.438" N	74° 34' 42.062" E
13	M	25° 23' 58.854" N	74° 34' 18.484" E
14	N	25° 22' 25.652" N	74° 32' 36.845" E
15	O	25° 22' 0.201" N	74° 33' 8.182" E
16	P	25° 22' 44.729" N	74° 33' 56.022" E

Kilometers 0 0.5 1 2 3 4 5 6 7

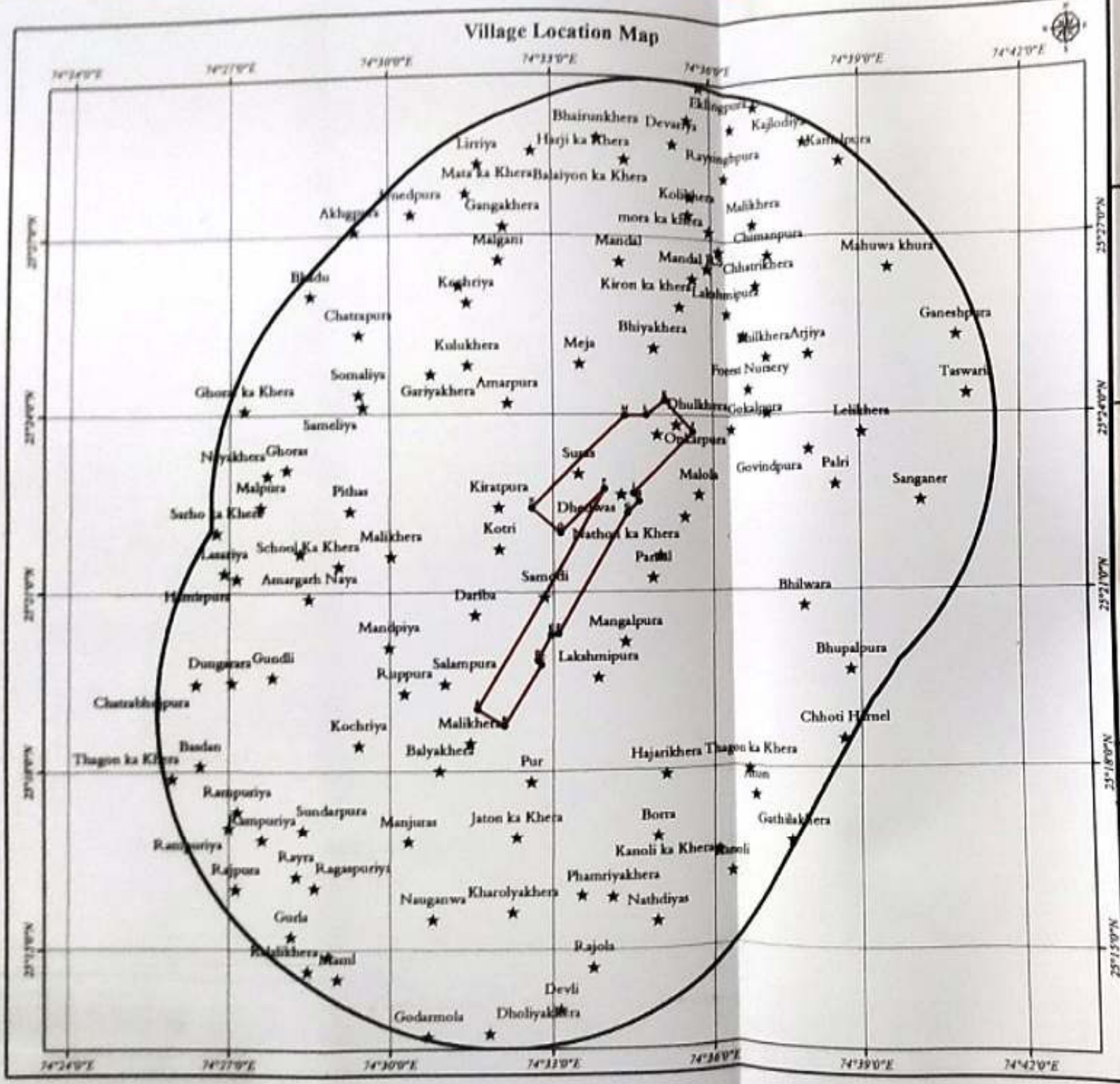
Checked and Approved By: Dr. Sanjay Raj

Designed and Approved By: Dr. Sanjay Raj
D-250 & 251, Anand Vihar, Jagatpura,
Jaipur-302017

Project Site:
Village-Pur, Tehsil- Bhilwara
District-Bhilwara
Rajasthan

Project Proponent:
M/S Jindal Saw Ltd.

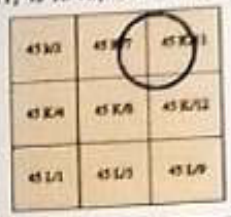
Village Location Map



Legend

- Mine Coordinate Points
- Village Location
- Lease Area
- Buffer Zone

Survey of India GT Sheet No.
45 K/11, 45 K/12, 45 K/7 and 45 K/8



Mine Lease Area Boundary Coordinates

Sr.No.	Point ID	Latitude	Longitude
1	A	25° 19' 2.638" N	74° 31' 36.85
2	B	25° 18' 45.443" N	74° 32' 6.44
3	C	25° 19' 46.985" N	74° 32' 47.09
4	D	25° 19' 51.875" N	74° 32' 42.81
5	E	25° 20' 17.467" N	74° 32' 57.77
6	F	25° 20' 18.266" N	74° 33' 5.71
7	G	25° 22' 20.030" N	74° 34' 21.19
8	H	25° 22' 32.196" N	74° 34' 34.41
9	I	25° 22' 40.177" N	74° 34' 27.85
10	J	25° 23' 43.074" N	74° 35' 35.81
11	K	25° 24' 14.464" N	74° 35' 3.07
12	L	25° 23' 59.438" N	74° 34' 42.0
13	M	25° 23' 58.854" N	74° 34' 18.4
14	N	25° 22' 25.652" N	74° 32' 36.8
15	O	25° 22' 0.201" N	74° 33' 8.1
16	P	25° 22' 44.729" N	74° 33' 56.0

Kilometers 0 0.5 1 2 3 4 5 6

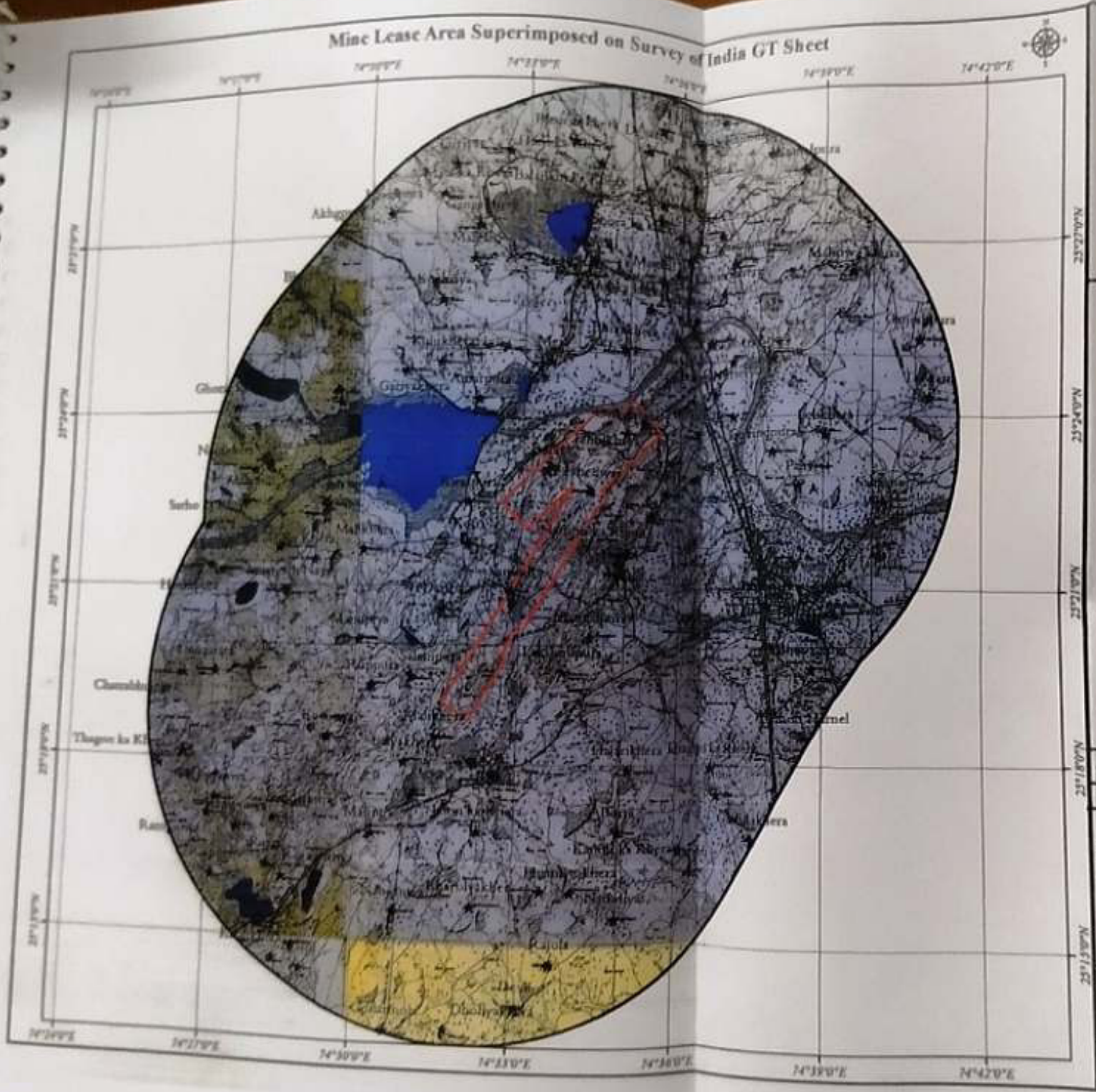
Checked and Approved By: Dr. Sanjay Raj

Designed and Approved By: Dr. Sanjay Raj
D-250 & 251, Anand Vihar, Jagatpura,
Jaipur-302017

Project Site:
Village-Pur, Tehsil- Bhilwara
District-Bhilwara
Rajasthan

Project Proponent:
M/S Jindal Saw Ltd.

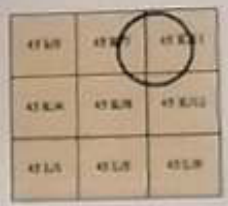
Mine Lease Area Superimposed on Survey of India GT Sheet



Legend

Lease Area

Survey of India GT Sheet No.
45 K/11, 45 K/12, 45 K/7 and 45 K/8



Kilometers 0 0.5 1 2 3 4 5 6 7

Checked and Approved By: Dr. Sanjay Raj

Prepared By:

Designed and Approved By: Dr. Sanjay Raj
D-250 & 251, Anand Vihar, Jagatpura,
Jaipur-302017

Project Site:
Village-Pur, Tehsil- Bhilwara
District-Bhilwara
Rajasthan

Project Proponent:
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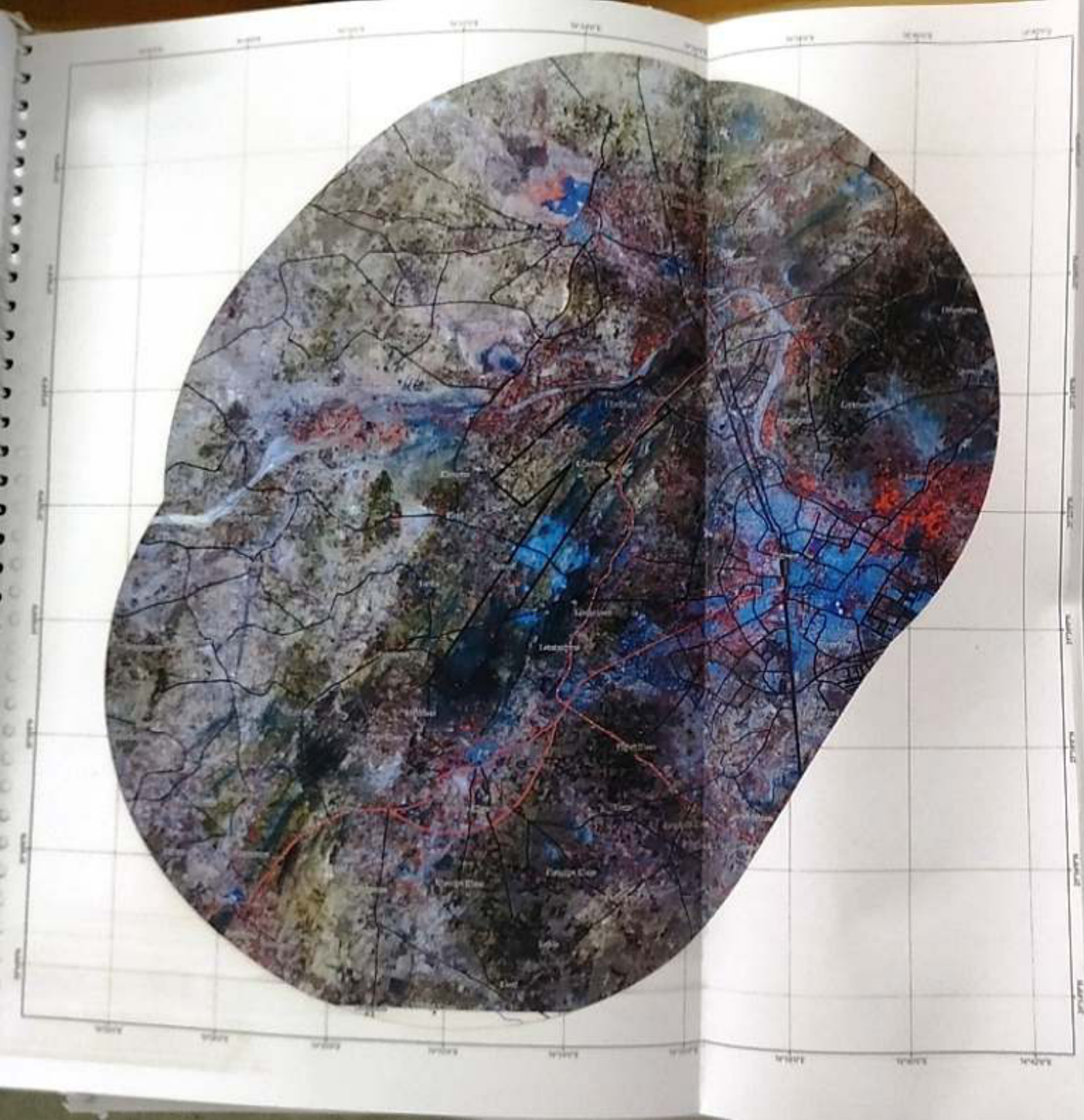


MINE LEASE AREA ON SATELLITE IMAGERY VILLAGE-PUR, TEHSIL-BHILWARA, DISTRICT-BHILWARA RAJASTHAN

Legend

- Village_Locations
- Drainage
- Canal
- NH-76B
- NH-79
- Road
- Rail
- Buffer2Km
- Lease Area Mine
- Buffer_10Km

Projected Coordinate System:
WGS_1984_UTM_Zone_43N
Projection:Transverse_Mercator
False_Easting:500000.00000000
False_Northing:0.00000000
Central_Meridian:75.00000000
Scale_Factor:0.99960000
Latitude_Of_Origin:0.00000000
Linear Unit: Meter

Geographic Coordinate System:
GCS_WGS_1984
Datum: D_WGS_1984
Prime Meridian: Greenwich
Angular Unit: Degree

Source: Survey of India GT Sheet No. 45K/11, 45K/12, 45K/7 and 45K/8 and Sentinel-2 Satellite Imagery
Acquestion Date: June 22, 2019

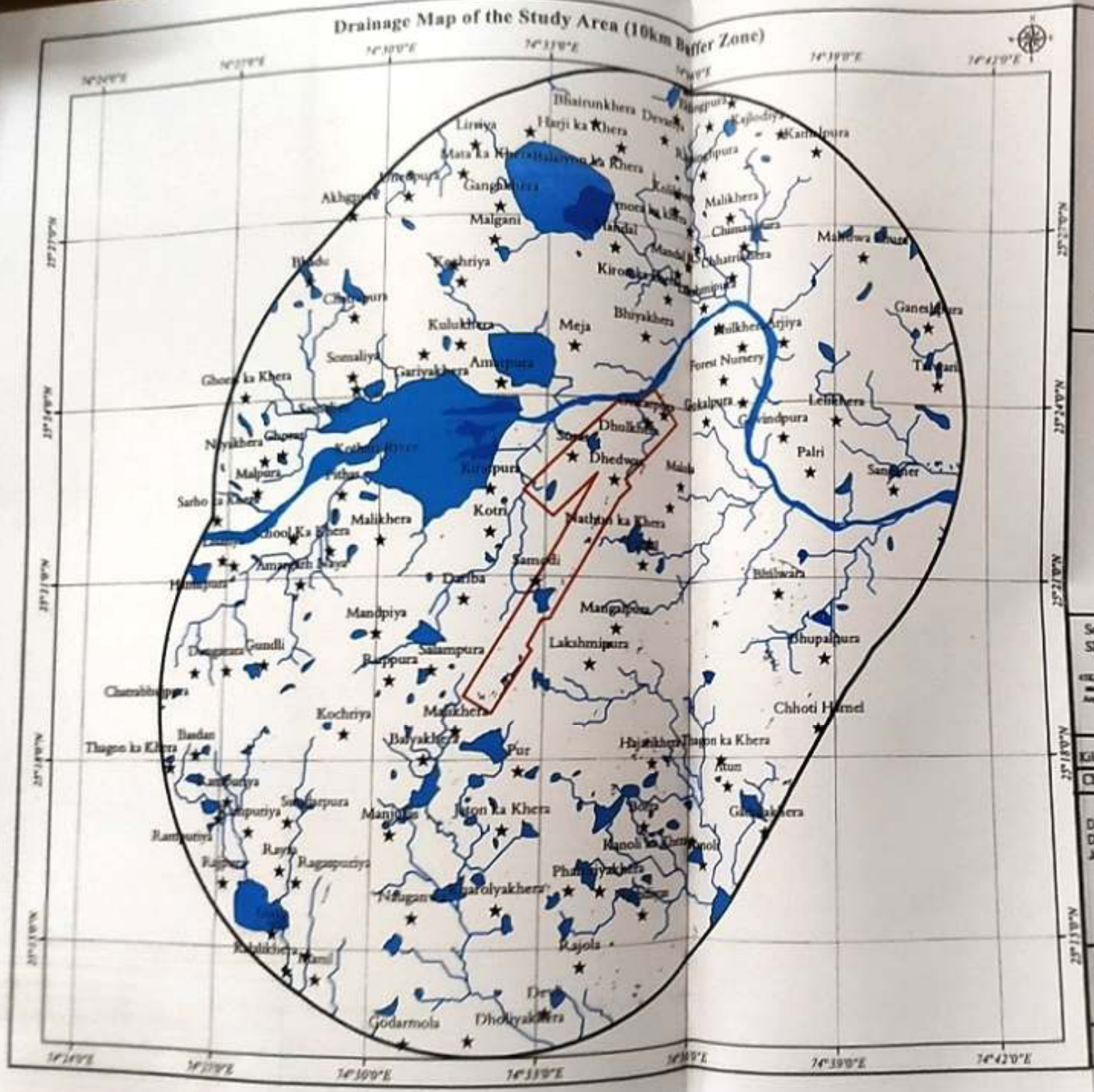
Project Proponent:
M/S Jindal Saw Ltd

Designed and Approved By: Dr. Sanjay Raj
D-250 & 251, Anand Vihar, Jagatpura, Jaipur-302017

Kilometers
0 1 2 4 6 8

1:55,000

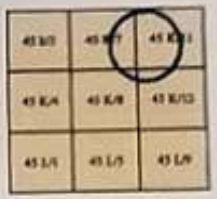
Drainage Map of the Study Area (10km Buffer Zone)



Legend

- ★ VillageLocation
- Lease Area
- River
- pond
- Pond/Water Body Dry
- Drainage
- Buffer Zone

Survey of India GT Sheet No.
45 K/11, 45 K/12, 45 K/7 and 45 K/8



Source:
SRTM Satellite Data

Survey of India GT Sheet No. 45K/11, 45K/12, 45K/7 and 45K/8 and Sentinel-2 Satellite Imagery Acquisition Date: June 22, 2019

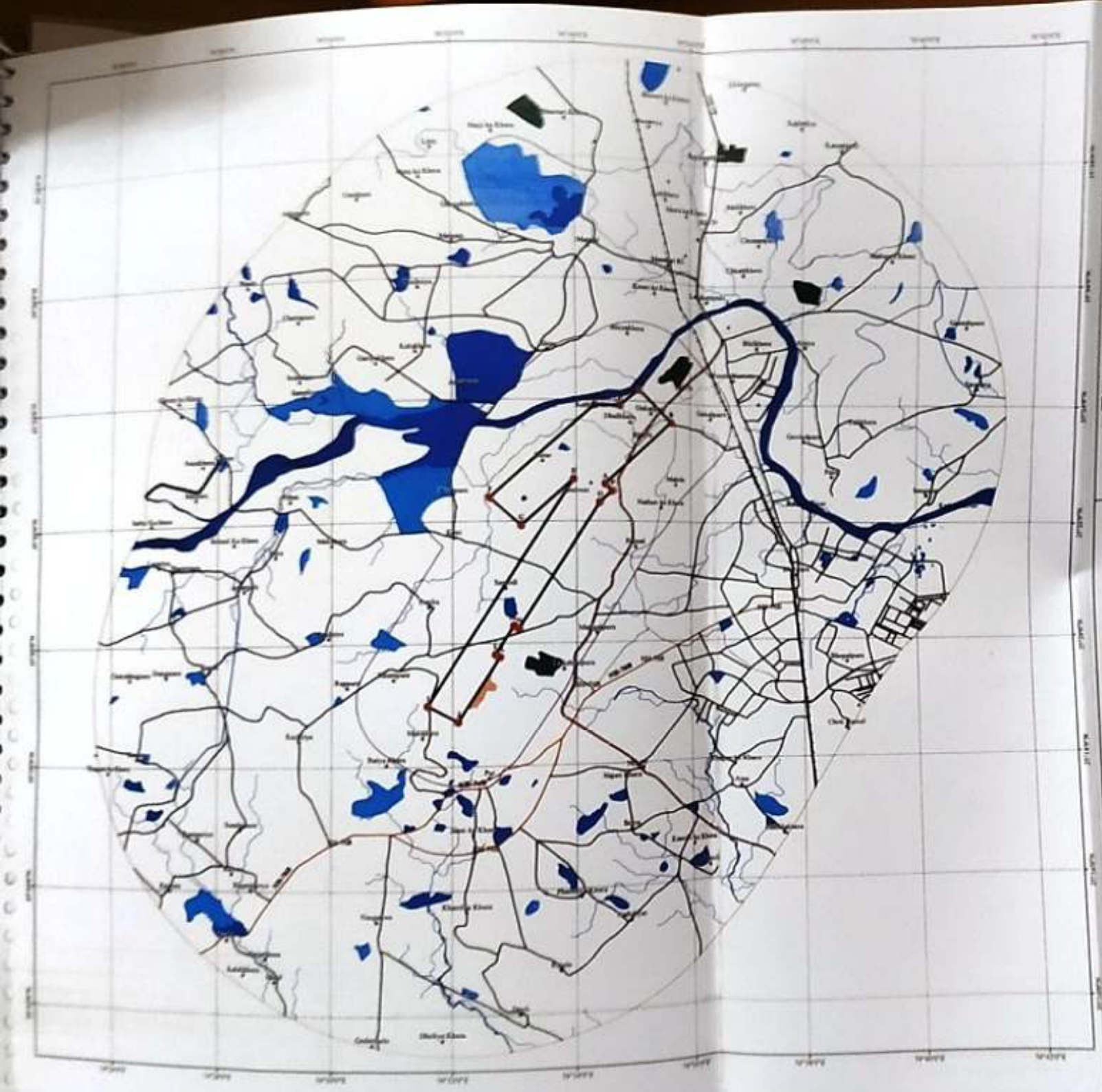
Kilometers 0 0.5 1 2 3 4 5 6 7

Checked and Approved By: Dr. Sanjay Raj

Prepared By:
Designed and Approved By: Dr. Sanjay Raj
D-250 & 251, Anand Vihar, Jagatpura,
Jaipur-302017

Project Site:
Village-Pur, Tehsil- Bhilwara
District-Bhilwara
Rajasthan

Project Proponent:
M/S Jindal Saw Ltd.



TOPOGRAPHICAL MAP
VILLAGE-PUR, TEHSIL-BHILWARA, DISTRICT-BHILWARA RAJASTHAN
(10 KM BUFFER AREA FROM LEASE AREA BOUNDARY)

Legend

- Pillar_Coordinate
- Village_Locations
- Drainage
- Canal
- NH-76B
- NH-79
- Road
- Rail
- Buffer2Km
- Lease Area Mine
- Buffer_10Km
- Water Body Dry
- Forest Area
- Mining Plant Area
- Railway Area
- River
- Road
- Water Body
- Canal
- Drain/Nala

Projected Coordinate System:
WGS_1984_UTM_Zone_43N
Projection: Transverse_Mercator
False_Easting: 500000.00000000
False_Northing: 0.00000000
Central_Meridian: 75.00000000
Scale_Factor: 0.99960000
Latitude_Of_Origin: 0.00000000
Linear Unit: Meter

Geographic Coordinate System:
GCS_WGS_1984
Datum: D_WGS_1984
Prime Meridian: Greenwich
Angular Unit: Degree

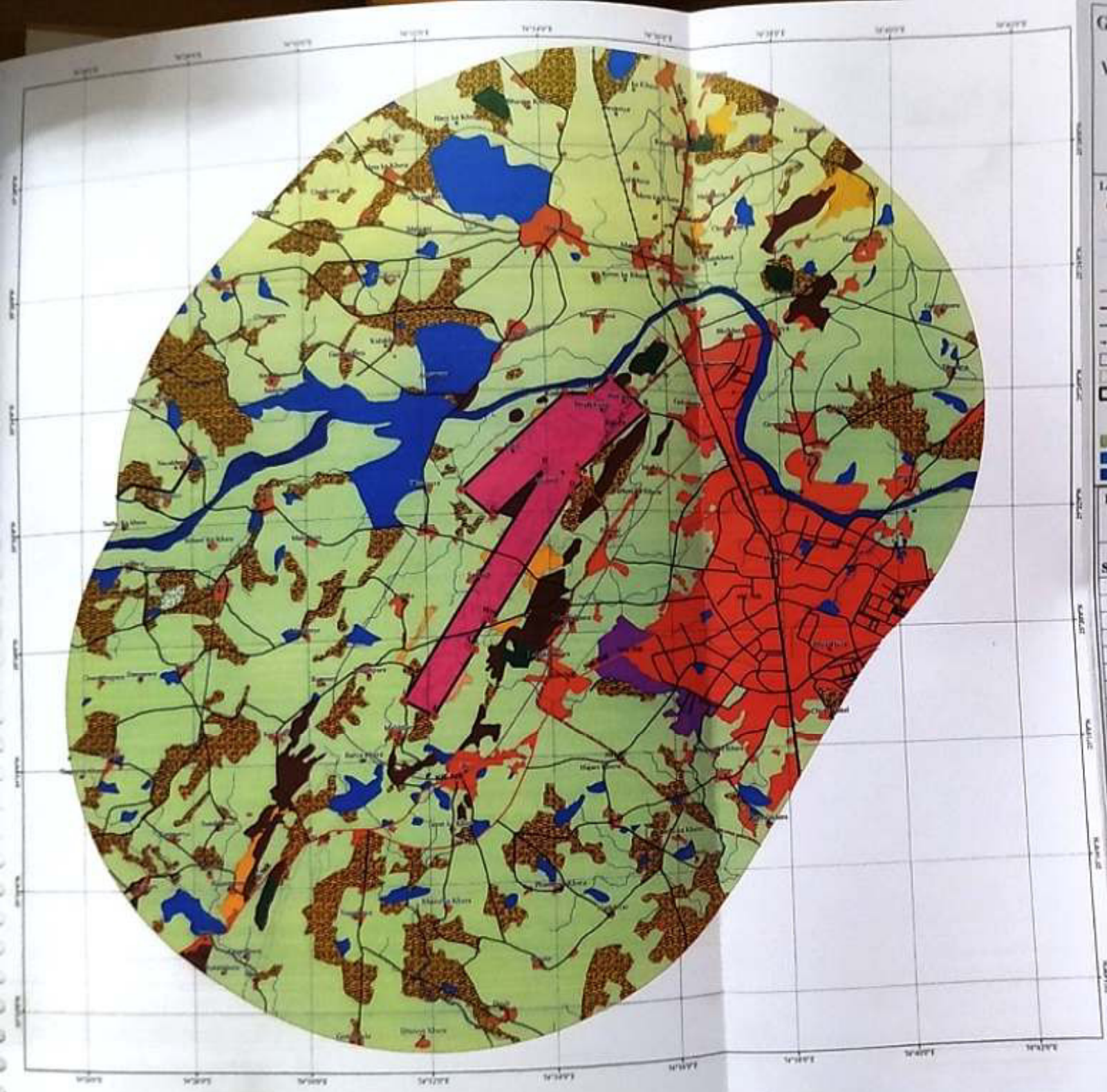
Source: Survey of India GT Sheet No. 45K/11, 45K/12, 45K/7 and 45K/8 and Sentinel-2 Satellite Imagery
Acquestion Date: June 22, 2019

Project Proponent:
M/S Jindal Saw Ltd

Designed and Approved By: Dr. Sanjay Raj
D-250 & 251, Anand Vihar, Jagatpura, Jaipur-302017

Kilometers
0 1 2 4 6 8

1:55,000



GENERALISED EXISTING LAND USE LAND COVER MAP VILLAGE-PUR, TEHSIL-BHILWARA, DISTRICT-BHILWARA RAJASTHAN (10 KM BUFFER AREA FROM LEASE AREA BOUNDARY)

Legend

- Pillar_Coordinate
- Village_Locations
- Drainage
- Canal
- NH-76B
- NH-79
- Road
- Rail
- Buffer2Km
- Buffer_10Km
- Lease Area Mine
- Agriculture Crop/Fallow Land
- Canal
- Drain/Nala
- Water Body Dry
- Forest Area
- Industrial Area
- Mine Site Area
- Mining Plant Area
- Open Jungle
- Open Space
- Mining Area
- Railway Area
- River
- Road
- Rocky Area
- Rural Area
- With/Without Scrub Land
- Urban Area
- Water Body/Dry Water Body

Land Use Land Cover Statistics within 10 Km Buffer Area From Mining Lease Area Boundary (Dedwas Mine Bhilwara)

Sr. No.	Land Use Class	Area (Hectare)	Area (%)
1	Agriculture Crop/Fallow Land	35019.33	59.88
2	Canal	153.50	0.26
3	Drain/Nala	39.19	0.07
4	Water Body/Dry Water Body	3113.91	5.32
5	Forest Area	284.26	0.49
6	Industrial Area	344.05	0.59
7	Mining Plant Area	26.33	0.05
8	Mine Site Area	1556.78	2.66
9	Open Jungle	38.20	0.07
10	Open Space	1.34	0.002
11	Mining Area	467.82	0.80
12	Railway Area	89.48	0.15
13	River	872.21	1.49
14	Road	683.84	1.17
15	Rocky Area	1359.95	2.33
16	Rural Area/Urban Area Settlements	6988.75	11.95
17	Land With/Without Scrub	7446.64	12.73
	Total	**58485.59**	**100.00**

Source: Survey of India GT Sheet No. 45K/11, 45K/12, 45K/7 and 45K/8 and Sentinel-2 Satellite Imagery
Acquestion Date: June 22, 2019

Project Proponent:
M/S Jindal Saw Ltd

Designed and Approved By: Dr. Sanjay Rai
D-250 & 251, Anand Vihar, Jagatpura, Jaipur-302017

Kilometers
0 1 2 4 6 8

1:55,000

GENERALISED EXISTING LAND USE LAND COVER MAP VILLAGE-PUR, TEHSIL-BHILWARA, DISTRICT-BHILWARA RAJASTHAN (CORE AREA)

Legend

- Pillar_Coordinate
- Village_Locations
- Drainage
- Canal
- NH-76B
- NH-79
- Road
- Rail
- Buffer2Km
- Lease Area Mine
- Agriculture Crop/Fallow Land
- Benification Plant Area
- Canal
- Mining Area
- OB Dump Area
- Plantation Area
- Road
- Rocky Area
- Rural Area
- Scrub Land
- Water Body/Dry Water Body

Land Use Land Cover Statistics within Mine Lease Core Area

Sr. No.	Land Use Class (Core Area)	Area (Hectare)	Area (%)
1	Agriculture Crop/Fallow Land	705.09	45.03
2	Canal	2.42	0.16
3	Mining Area	98.73	6.34
4	Beneficiation Plant Area	33.15	2.13
5	Road	15.17	0.97
6	Rocky Area	311.27	19.99
7	Rural Area	78.12	5.02
8	Scrub Land	36.33	2.33
10	OB Dump Area	170.45	10.95
11	Water Body/Dry Water Body	43.08	2.77
12	Plantation Area	60.97	4.70
	Total	**1556.78**	**100.00**

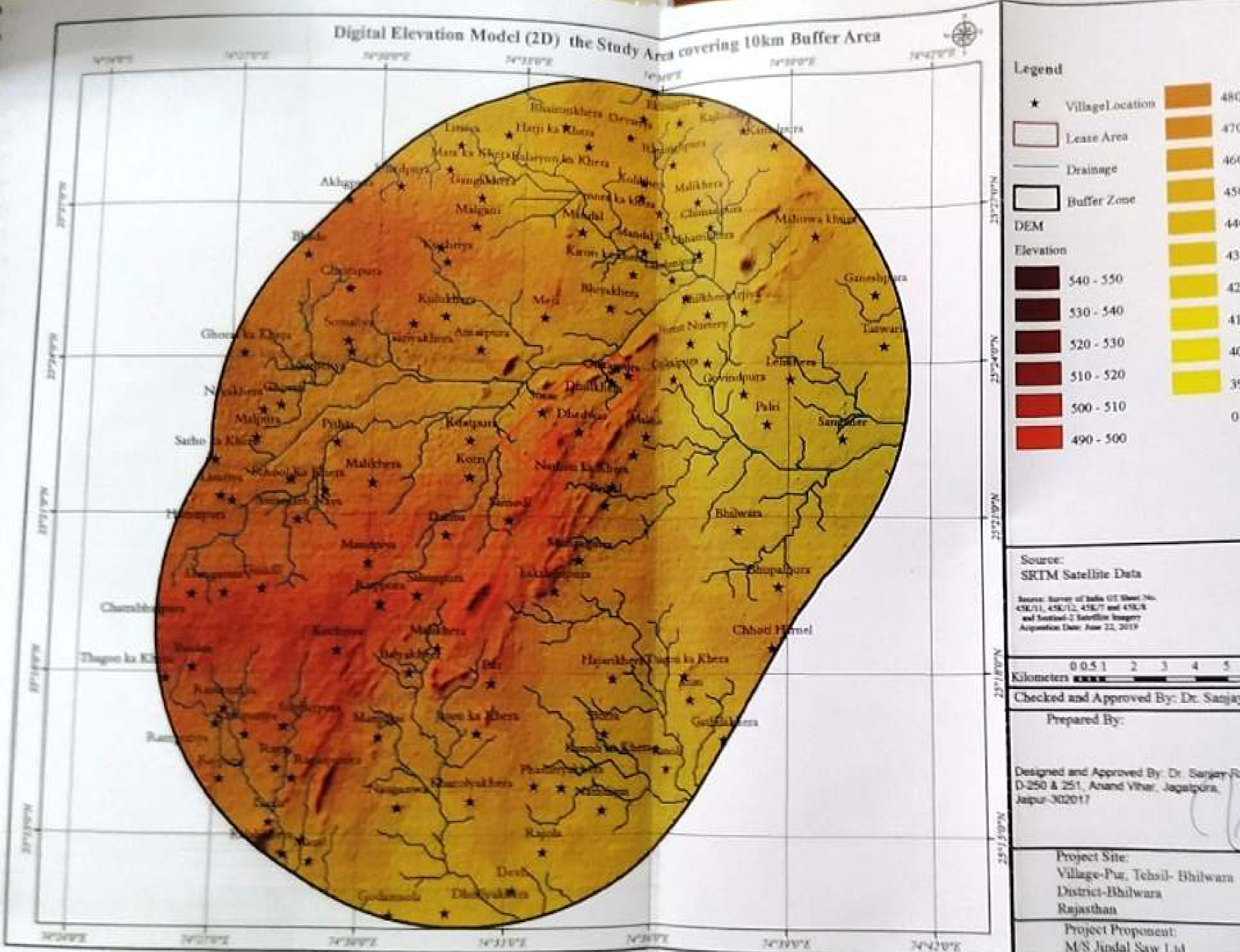
Source: Survey of India GT Sheet No. 45K/11, 45K/12, 45K/7 and 45K/8 and Sentinel-2 Satellite Imagery Acquisition Date: June 22, 2019

Project Proponent: M/S Jindal Saw Ltd

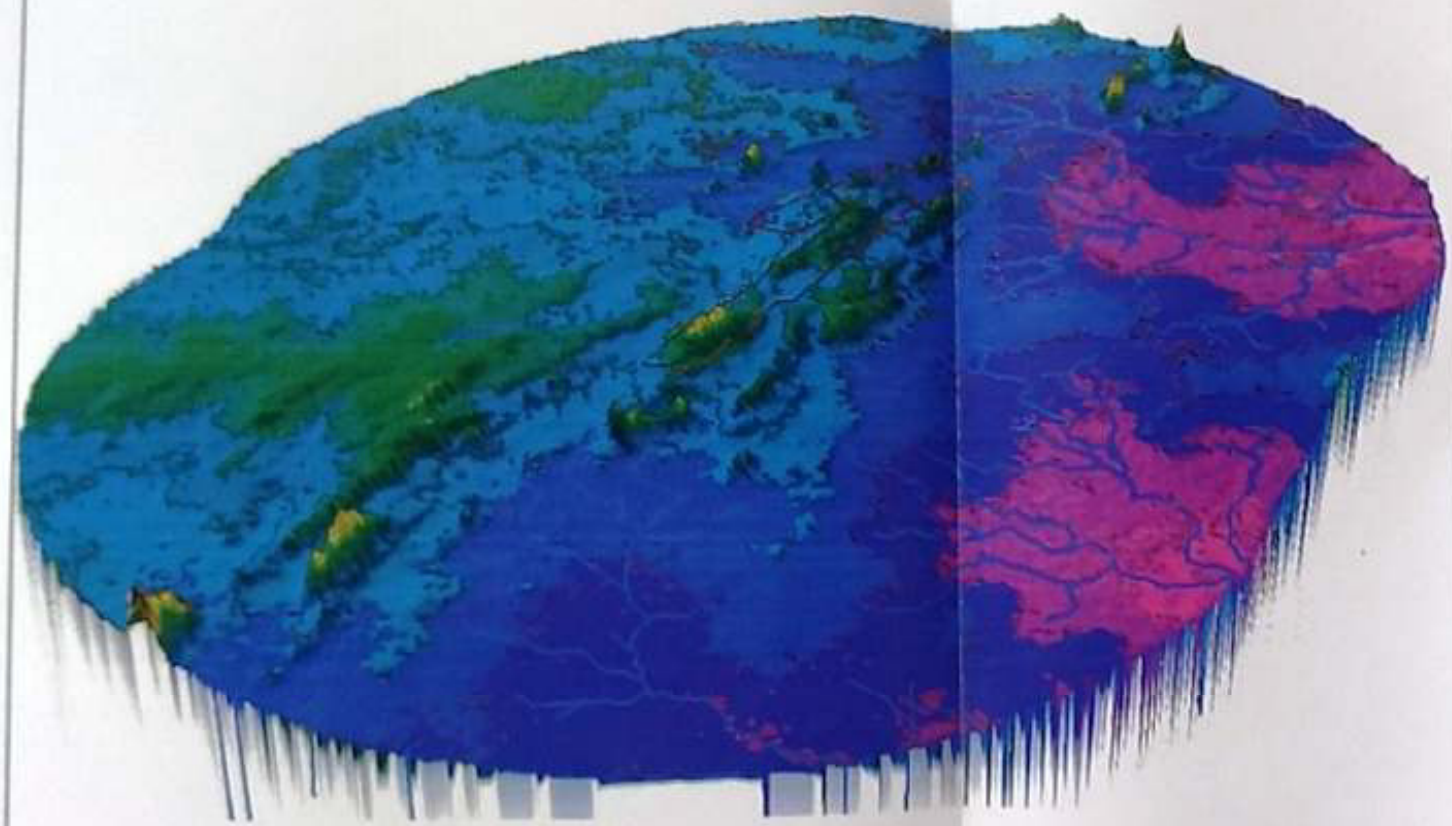
Designed and Approved By: Dr. Sanjay Raj
D-250 & 251, Anand Vihar, Jagatpura, Jaipur-302017

Kilometers
0 0.325 0.65 1.3 1.95 2.6

1:19,000


Digital Elevation Model (2D) the Study Area covering 10km Buffer Area
Legend
Village Location
Lease Area
Drainage
Buffer Zone
DEM
Elevation
540 - 550
530 - 540
520 - 530
510 - 520
500 - 510
490 - 500
Source:
SRTM Satellite Data
Kilometers
Checked and Approved By: Dr. Sanjay
Prepared By:
Designed and Approved By: Dr. Sanjay
D-250 & 251, Anand Vihar, Jagatpura,
Jaipur-302017
Project Site:
Village-Pur, Tehsil- Bhilwara
District-Bhilwara
Rajasthan
Project Proponent:
M/S Jindal Saw Ltd.

Digital Elevation Model (3D) the Study Area covering 10km Buffer Area



Legend

- Lease Area
- Contour
- Drainage

surface.img
Value

- 0 - 390
- 390 - 400
- 400 - 410
- 410- 420
- 420 - 430
- 430 - 440
- 440 - 450
- 450 - 460
- 460 - 470
- 470 - 480
- 480 - 490
- 490 - 500
- 500 - 510
- 510 - 520
- 520 - 530
- 530 - 540
- 540 - 550

Source:
SRTM Satellite Data
Survey of India GT Sheet No.
45 K/11, 45 K/12, 45 K/7 and 45 K/8
and Sentinel-2 Satellite Imagery
Aquestion Date: June 22, 2019

0 0.03 0.06 0.09 0.12 0.15 0.18 0.21
Kilometers

Checked and Approved By: Dr. Sanjay Raj

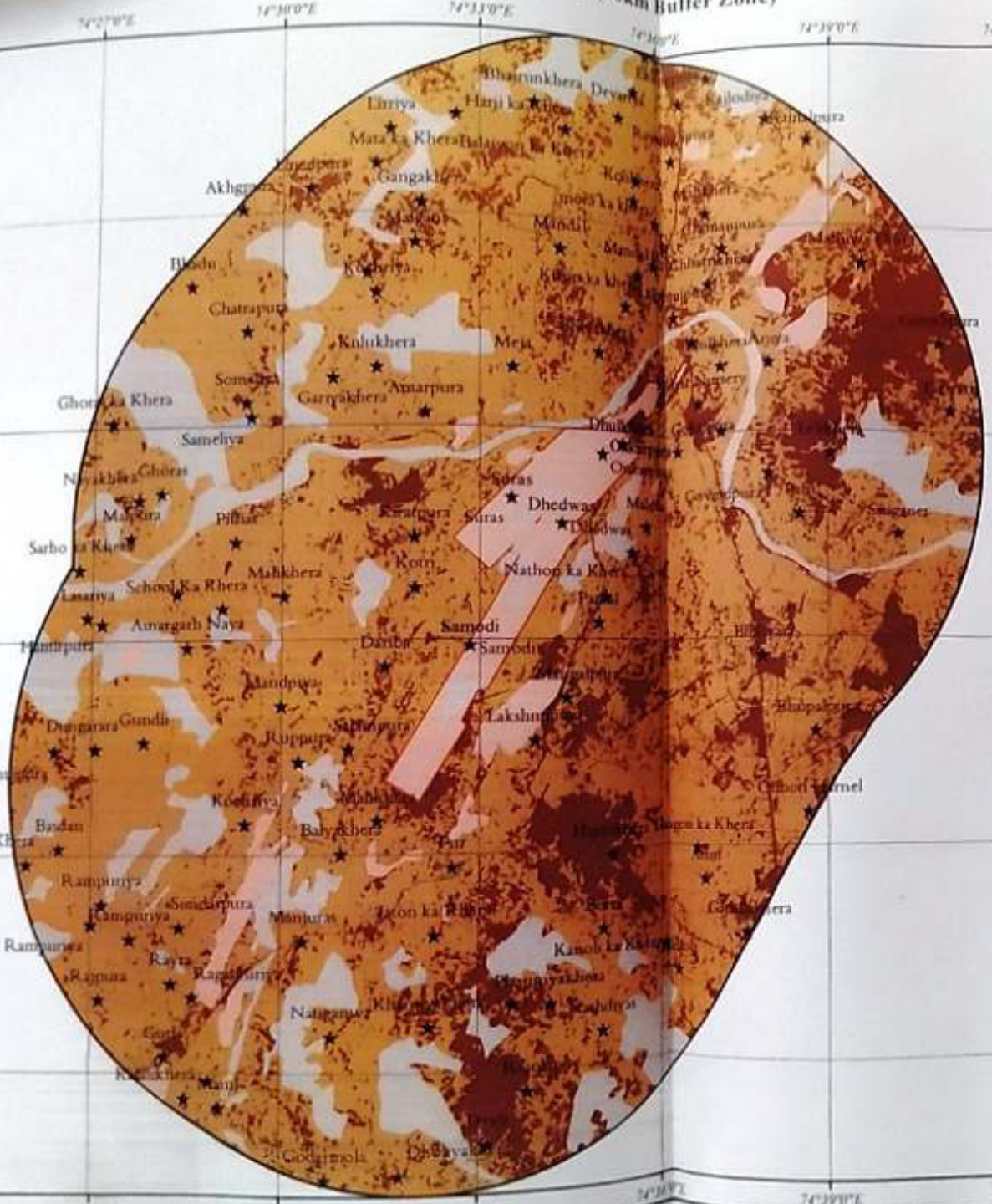
Prepared By:

Designed and Approved By: Dr. Sanjay Raj
D-258 & 251, Anand Vihar, Sanganer,
Jaipur-302017

Project Site:
Village-Pur, Tehsil- Bhilwara
District-Bhilwara
Rajasthan

Project Proponent:
M/S Jindal Saw Ltd.

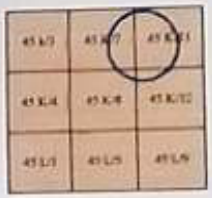
Soil Map of the Study Area (10km Buffer Zone)



Legend

- ★ Village Location
- Loam Pebbly and Stony Soil
- Sandy Loam Soil
- Clay Loam Soil
- Loam Soil
- Buffer Zone

Survey of India GT Sheet No.
45 K/11, 45 K/12, 45 K/7 and 45 K/8



Source: Survey of India GT Sheet No. 45K/11, 45K/12, 45K/7 and 45K/8 and Sentinel-2 Satellite Imagery
Acquestion Date: June 22, 2019

Kilometers 0 0.5 1 2 3 4 5 6 7

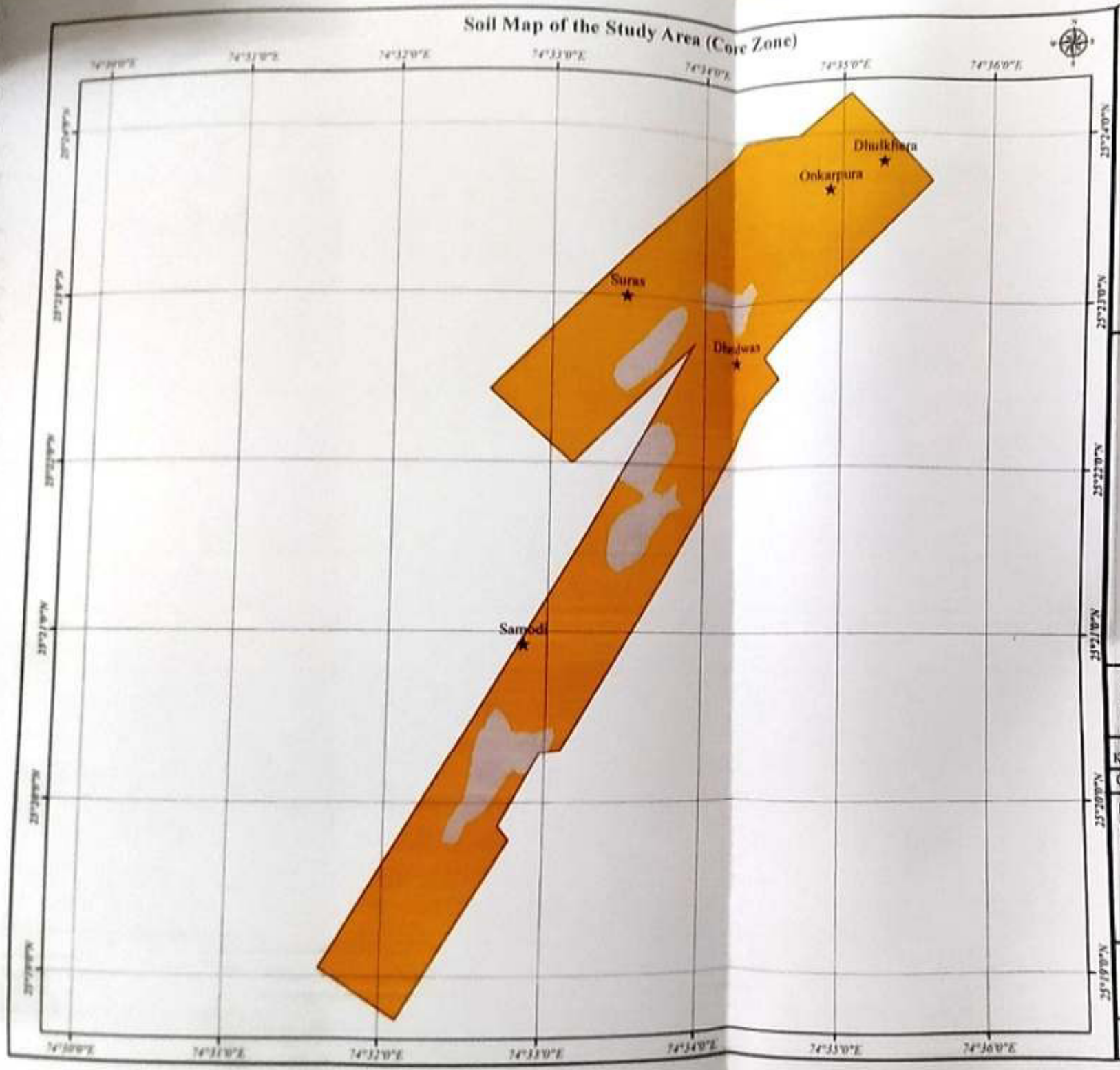
Checked and Approved By: Dr. Sanjay Raj

Designed and Approved By: Dr. Sanjay Raj
D-250 & 251, Anand Vihar, Jagatpura, Jaipur-302017

Project Site:
Village-Pur, Tehsil- Bhilwara
District-Bhilwara
Rajasthan

Project Proponent:
M/S Jindal Saw Ltd.

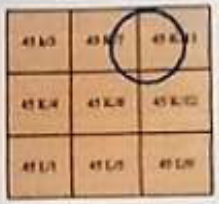
Soil Map of the Study Area (Core Zone)



Legend

- ★ Village Location
- Sandy Loam Soil
- Loam Pebbly and Stony Soil
- Lease Area

Survey of India GT Sheet No.
45 K/11, 45 K/12, 45 K/7 and 45 K/8



Source: Survey of India GT Sheet No. 45K/11, 45K/12, 45K/7 and 45K/8 and Sentinel-2 Satetllite Imagery Acquestion Date: June 22, 2019

Kilometers 0 0.15 0.3 0.6 0.9 1.2 1.5 1.8 2.1

Checked and Approved By: Dr. Sanjay Raj

Designed and Approved By: Dr.Sanjay Raj
D-250 & 251, Anand Vihar, Jagatpura, Jaipur-302017

Project Site:
Village-Pur, Tehsil- Bhilwara
District-Bhilwara
Rajasthan

Project Proponent:
M/S Jindal Saw Ltd.