BEFORE THE NATIONAL GREEN TRIBUNAL
WESTERN BENCH, PUNE

Original application no. 27 of 2020

In the matter between:

Roshni B. Patel **.... Applicant**

Versus

Union of India and Ors. **...Respondents**

AFFIDAVIT-IN-REPLY ON BEHALF OF RESPONENT NO.3

I, S. J. Pandit, IFS (Retd.), Additional Secretary, Forest & Environment Department, Govt of Gujarat and Member Secretary, Gujarat Coastal Zone Management Authority aged: Adult, occupation: service, residing at: Ahmedabad, the Respondent No. 2 herein, do hereby state on solemn oath and make this affidavit as under: -

1. I have read and understood the Application filed by the Applicant herein and being conversant with the facts and circumstances of the present case, I am competent to file this affidavit as under.

2. At the outset I state that I deny all the averments made and contentions raised by the Applicant. My not dealing with any of the contentions raised by the Petitioners para-wise may not be construed to be an admission on my part and the same may

be considered to have been set out hereunder and denied seriatim.

3. The Respondent no.3 herein respectfully says and submits that an MOEF&CC approved professional third party entity, being M/s Institute of Remote Sensing, Anna University, Chennai was entrusted the CRZ mapping and demarcation of High Tide Line/Low Tide Line in Village Hazira (Suvali), Choryasi Taluka, Surat District, Gujarat. The said third party was appointed to determine whether the unit of Respondent no. 7 falls within the CRZ 1B Zone and further gauge if CRZ Clearance/consent was accordingly required to be sought.

4. The Report of Anna University categorically confirmed that the plot of the Respondent no. 7 falls outside the purview of CRZ Notification 2011. A copy of the Report of Anna University carried out in July 2018 is annexed herewith and marked as **Annexure-A.**

5. The GEC in its report has confirmed that the said area of the plot of Respondent no. 7 does not fall in the CRZ area. A copy of the report of GEC is annexed herewith and marked as **Annexure-B.**

6. In view thereof and placing reliance on the aforesaid report and letter, the Respondent no.3 humbly submits that since the unit of Respondents no. 7 is located outside the CRZ 1B Zone, it is not required for the said respondents to obtain CRZ clearance.

7. What is stated hereinabove is true to the best of my knowledge, information gathered from records and belief and I believe the same to be true and correct.

Solemnly affirmed at Gandhinagar on this 6th day of October 2021.

Date: 06.10.2021
Place: Ahmedabad

Deponent

Solemnly Affirmed
Before Me
(C. M. RAVAL)
NOTARY
Govt. of Gujarat
6 OCT 2021

NOTARIAL

NOTARY
GOVT. OF GUJARAT

ANNEXURE-B

55/c

Gujarat Ecology Commission
Government of Gujarat

No. GEC/GCZMA/T-6/1501 /2020
Date: 04/11/2020

To,
Director Environment &
MS - GCZMA,
Forest & Environment Depat
Block No. 14, 8th Floor, New Sachivalaya,
GANDHINAGAR

Sub. : Request to Opinion about CRZ applicability for Hajira Container Fright Station Pvt Ltd

Ref. : 1) Your office letter no. ENV-10-2020-174-T, dated 8th Oct-2020

Sir,

With reference to the letter as referred above issued by your office seeking our opinion to verify the CRZ applicability for Hajira Container Fright Station Pvt Ltd. In this regard, it is to state you that as per IRS-Chennai's CRZ report attached with your referred letter, it is clear that M/s. Hazira Container Freight Station Pvt. Ltd. situated at R.S. No. 434, paikee A/1, Hazira, Ta : Choryasi, Dist. Surat falls outside CRZ applicability. IRS Chennai is one of the authorized agency of MoEF & CC, GoI and as per their said report & CZMP maps prepared into 1:4000 scales questioned plot is falls outside CRZ.

However, as desired, we have superimposed the plot on the recently NCZMA approved CZMP Map Sheet No. F/43 M 12/NE [1:25000 scale]. Based on which, aforesaid plot of M/s. Hazira Container Freight Station Pvt. Ltd. falls outside the CRZ applicability. Copy of the 1:25000 scale maps is attached herewith for your ready reference.

Thanking you

Yours faithfully,

Sr. Manager - Projects
Encl. : As above

6/11/20
U.3.(T)

3/11/2020

REPORT ON

DEMARCATION OF HIGH TIDE LINE / LOW TIDE LINE AND CRZ AREA AT 1:4000 SCALE FOR THE PROPOSED PROJECT TO SETTING UP PORT BACK UP FACILITIES IN VILLAGE HAZIRA (SUVALI), CHORYASI TALUKA, SURAT DIST., GUJARAT.

FOR

M/S. HAZIRA CONTAINER FREIGHT STATION PVT. LTD.,
7/33-34, SHARADA SADAN BUILDING,
NEAR ALANKAR CINEMA,
STATION ROAD, SURAT - 395 003.

INSTITUTE OF REMOTE SENSING
ANNA UNIVERSITY, CHENNAI-25

July 2018

ABSTRACT

Based on the request of **M/s HAZIRA Container Freight Station Pvt. Ltd, Surat**, "Demarcation of High Tide Line / Low Tide Line and CRZ area at 1:4000 scale for the Proposed Project to Setting Up Port Back Up Facilities in Village Hazira (Suvali), Choryasi Taluka, Surat Dist., Gujarat", was taken up by Institute of Remote Sensing. Tide data collected from the various organizations were analyzed. The mean high tide line was delineated by the conjunctive use of modern mapping equipments like GPS capable of getting the accurate geographical locations, remote sensing images indicating the physical and associated tonal information on the tidal influence along the coast and bay, field equipments like salt meters to assess the pH value as indicator of tidal influence and the closer field inspection. The demarcation of High Tide Line and Low Tide line was carried out using differential GPS. The High Tide Line and Low Tide line has also been marked on the cadastral map of 1:4,000 scale for reference.

DEMARCATION OF HIGH TIDE LINE / LOW TIDE LINE AND CRZ AREA AT 1:4000 SCALE FOR THE PROPOSED PROJECT TO SETTING UP PORT BACK UP FACILITIES IN VILLAGE HAZIRA (SUVALI), CHORYASI TALUKA, SURAT DIST., GUJARAT

1.0 INTRODUCTION

Anthropological pressures and natural calamities put pressure on the existing ecosystem. Growing industrial areas along the coastlines and discharge of domestic and industrial sewage are polluting these areas. Conservation efforts are being considered and taken up by various control mechanism. Coastal zone regulation act is one such mechanism where legislation to preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone is being attempted. The coastal eco systems are to be preserved for sustenance of the flora and fauna specific to that region and the local population that depend on it. Therefore, it is of national importance and economic value. The development of a nation and the sustenance of the eco system are to be balanced for general prosperity by appropriate scrutiny of the prevailing eco system and proposed development plans.

1.1 Coastal regulation zone

The Ministry of Environment and Forestry has notified the regulation rules along the nation's coastline and the gist is presented below.

CRZ shall apply to the land from the high tide line up to 500m in the land -ward side along the sea front and CRZ shall apply to the land area between HTL to 100 mts or width of the bay whichever is less on the landward side along the tidal influenced water bodies that are

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connected to the sea and the distance up to which development along such tidal influenced water bodies is to be regulated shall be governed by the distance up to which the tidal effects are experienced and area between the low tide line and high tide line. In the case of rivers, bays and backwaters, the distance from the high tide level shall apply to both sides and this distance shall not be less than 100 meters or the width of the bay, river or backwater whichever is less. (Ministry of Environment and Forests Notification, Feb 1994 & MoEF revised CRZ notification dated 06.01.11). There are four type of category in coastal regulation zone.

i. Category - I (CRZ I)

Areas that is ecologically sensitive and important such as national parks, marine parks, sanctuaries, reserve forests, wildlife habitats, mangroves, corals/coral reefs, areas close to breeding and spawning grounds of fish and other marine life, areas of outstanding natural beauty. historically important and heritage areas, area rich in genetic diversity, areas likely to be inundated due to rise in sea level consequent upon global warming and such other areas as notified by government from time to time .

ii. Category - II (CRZ II)

Area that have already been developed up to or close to the shoreline. For this purpose, developed area is referred to as area within the municipal limits or other legally designated urban areas which is already substantially build up and which has been provided with drainage and approach roads and other infrastructure facilities such as water supply and sewerage lines.

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iii. Category - III (CRZ III)

Area that are relatively undisturbed ad those which do not belong to either I or II. These will include coastal zone in the rural areas developed or undeveloped and also areas within municipal limits or in other legally designated urban areas which are not substantially built up.

iv. Category - IV (CRZ IV)

The CRZ Iv consists of the water area from the Low Tide Line to twelve nautical miles on the seaward side and the water area of the tidal influenced water body from the mouth of the water body at the sea up to the influence of tide which is measured as five parts per thousand during the driest season of the year.

V. others

Areas requiring special consideration for the purpose of protecting the critical coastal environment and difficulties faced by local communities namely CRZ area falling within municipal limits of Surat, the CRZ areas of Kerala including the backwaters and backwater islands and CRZ areas of Goa.

1.2 Definitions

The accepted definitions of the terminology used in the context of coastal zone regulation are necessary to aid the planners.

i. High tide line:

The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics,

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vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

ii. Mean High Water Line/Mark (MHWL)

The line on the shore in tidal areas established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.

iii. Tidal Wetland:

A tidal wetland is a wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channel ward of the high tide line (i.e., spring high tide line) and are inundated by tidal waters two times per lunar month, during spring high tides.

iv. Spring tide

Burst of tide that happens two time during a lunar month due to the reinforced influences of Sun and moon when the sun, moon and earth are aligned. This tide happens around new moon and full moon days.

Govt. of India has issued a notification during January 2011 classifying the Coastal Regulation Zone in order to regulate the various

activities in the coastal zone. The Ministry of Environment and Forest, Govt. of India has approved Coastal Zone management Plan for Gujarat area in 1:25,000 scale which now is updated to 1:4,000 scale after appropriate resurvey, wherever applicable.

v. Mangroves

Mangroves are salt-tolerant plants of tropical and subtropical intertidal regions of the world. The specific regions where these plants occur are termed as 'mangrove ecosystem'. These are highly productive but extremely sensitive and fragile. Besides mangroves, the ecosystem also harbors other plant and animal species. Experiences have proved that the presence of mangrove ecosystems on coastline save lives and property during natural hazards such as cyclones, storm surges and erosion. They are breeding, feeding and nursery grounds for many estuarine and marine organisms. The ecosystem has a very large unexplored potential for natural products useful for medicinal purposes and also for salt production, apiculture, fuel and fodder, etc.

1.3 Geoinformatics in CRZ

It is important to ascertain the geographical location of a land area to be developed for a specific purpose along the coastline by appropriate technology. Especially because of the escalated land values in recent times, a very accurate assessment of the spatial disposition of the land area in relation to the coastal eco system at a suitably larger scale is warranted. This involves two tasks namely

a. Demarcation of the high tide lines accurately; and
b. Referencing the land to be developed to the high tide line.

The mean high tide line can be delineated by the conjunctive use of modern mapping equipments like GPS capable of getting the accurate

geographical locations, remote sensing images indicating the physical and associated tonal information on the stretches tidal influence along the coast and bay, field equipments like salt meters to assess the in-situ pH value as indicator of tidal influence and the closer field inspection. The strengths of these technologies are judiciously adopted by the expert survey team for a dependable demarcation of the coastal features. The strengths of tools used for HTL/LTL demarcation are explained below.

i. GPS: The Global Positioning System (GPS) system of satellites in space orbit and the ground based receivers used for finding out the position of a point anywhere on the unobstructed earth surface having sight of four or more GPS Satellites on continuous basis worldwide, day and night. Depending on the type of GPS receiver, it is possible to position a point with even sub cm accuracy.

ii. Remote Sensing: This is space borne resource Satellite technology whereby it is possible to map the earth surface in various ranges of EMR spectrum thereby facilitating the picture reading of the earth surfaces in different ways at different intervals of time. The physical characteristics, natural impressions/ land cover footprints and tonal/textural indications can be interpreted with these images for land cover mapping on factual basis.

iii. GIS: This is spatial map environment where the information derived about the topography and thematic information about the tidal influence, land cover, etc. are organized and their spatial relationship features can be represented and analyzed. The regulation zone such as 100m buffer from bay can be readily generated and presented to the user in an easily decipherable map form.

Institute of Remote sensing has vast and strong experience in the field modern mapping using the advanced data sources like remote sensing and the modern equipments like GPS. It has a very long experience in modern mapping in the form of field execution, training and the academics, as a result of which an expert team has been developed. IRS has so far executed more than 150 consultancy projects in coastal zone regulation mapping alone across the country.

The Govt. of India has approved the Institute of Remote Sensing, Anna University as one of the authorized agencies for demarcating the HTL/LTL line as per Lr.No.J17011/8/92-1A III, dated 10.05.99 of Ministry of Environment & Forest, Govt. of India. Guidelines have been issued by the Govt. of India for demarcating the HTL/LTL line. The guidelines are taken into consideration by IRS while demarcating the HTL/LTL.

2.0 DEMARCATION OF HTL LINE ON THE LOCAL LEVEL CZM MAP

Based on the request of **M/s HAZIRA Container Freight Station Pvt. Ltd, Surat**, "Demarcation of High Tide Line / Low Tide Line and CRZ area at 1:4000 scale for the Proposed Project to Setting up Port Back up Facilities in Village Hazira (Suvali), Choryasi Taluka, Surat Dist. Gujarat", was taken up by Institute of Remote Sensing.

2.1 Methodology

As indicated previously, the mean high tide line was delineated by the conjunctive use of modern mapping equipments like GPS capable of getting the accurate geographical locations, remote sensing images indicating the physical and associated tonal information on the tidal influence along the coast and bay, field equipments like salt meters to assess the ppt (part per thousands) value as indicator of tidal influence

and the closer field inspection. If the ppt exceeds 5, then the influence of tide is positive.

2.1.1 Field data

In order to prepare the local level map on 1:4,000 scale, the site has been inspected by IRS personnel during **28.06.2016 & 29.06.2016**. The project site is located in Hazira village near industrial belt having transportation infrastructure in the eastern side, i.e land ward side. Hazira Bird Sanctuary is about 4.5 km away from the site. Tapti River meets the sea of about 9 km from the site. The HTL was demarcated after the field inspection and consultation with the maps showing eco sensitive zones and shoreline changes generated by NCSCM, Chennai. Based on this, the site is at about 306m from the HTL (Creek) line. The distance from the seafront (Arabian Sea) is about 2.5km, the mangroves vegetation are seen on the western side of the project site. The distance of mangrove buffer from the nearest seaward point of the project site is 303m. The exact boundary of the site and the HTL lines were fixed based on intensive survey on the field and the same is presented in the map.

The field survey was undertaken during 28.06.2016 & 29.06.2016. The tide level observations for the last 19 years have been studied for Surat Port which is nearer to the site, from the Tide Tables. The tidal charts indicate maximum tidal difference of 5.39 m in Surat port in the nearest port of Project site.

2.1.2 Remote sensing analysis

The satellite imagery of the study area was studied.

2.1.3 GPS survey

The specification of the GPS instruments used for the survey is listed in annexure B.

The GPS survey was conducted for following tasks.

- For getting the Ground control points for georeferencing the Remote sensing images
- For collecting the position of the High Tide lines around the project site.
- For collecting points along the boundary of Mangroves and other vegetations

Uniformly distributed features in the vicinity of project site that can well distinguished on the RS images were identified around the project site and their position were found out using GPS instruments as control points. The type of GPS instruments their accuracy are found in the annexure A.

The observed GPS data were downloaded and processed in the Trimble Geomatics Office software. The processed GPS co-ordinates for the coastal stretch coming under the project site were feed in the ArcGIS software. The entire area has been georeferenced using the GPS control points and the corresponding Image also been rectified using the GPS points. The same were plotted using the same software at the scale of 1:4,000. The processed field GPS data are listed in Annexure B

2.1.4 MAP Compilation

The project site boundary and the remote sensing image were was georeferenced with control points collected with the GPS. The RMS of the georeferencing was reported to be 1.81 m in planimetry. In this map the HTL, 200 m from HTL and 500m from HTL and the proposed project site have been marked (Annexure C). The calculated co-ordinates of HTL and LTL line in WGS-84 co-ordinate systems are enclosed in for ready reference (Annexure B). The Features such as HTL and buffer lines in GIS environment with suitable color scheme and legends and is presented as maps.

3.0 Results and discussion

Based on the request of **M/s HAZIRA Container Freight Station Pvt. Ltd, Surat**, "Demarcation of High Tide Line / Low Tide Line And CRZ area at 1:4000 scale for the Proposed Project to Setting Up Port Back Up Facilities in Village Hazira (Suvali), Choryasi Taluka, Surat Dist.,Gujarat", was taken up by Institute of Remote Sensing.

Tide data collected from the various organizations were analyzed. The mean high tide line was delineated by the conjunctive use of modern mapping equipments like GPS capable of getting the accurate geographical locations, remote sensing images indicating the physical and associated tonal information on the tidal influence along the coast and bay, field equipments like salt meters to assess the pH value as indicator of tidal influence and the closer field inspection. The maps showing eco sensitive zones and shoreline changes generated by NCSCM, Chennai were also consulted to take decision. The High Tide Line and Low Tide line has also been marked on the cadastral map of 1:4,000 scale for reference.

In conclusion,

The project site is located in the Hazira Village, slightly off the bank of Hazira. The land use is predominantly rural Industrial area. The sea front is 2.5 km on the west of the project site. Hazira Bird Sanctuary is about 4.5 km away from the site. Tapti River meets the sea of about 9 km from the site. The details are present in the map. The nearest distance of the site from Tapti River is about 900m. NH6 runs on its eastern side of the site, leading to Essar group industries.

According to this, The proposed project site is falling completely outside the CRZ area as per NCSCM Map (Sheet No. F/43 M 12/NE). The mangroves vegetation are seen on the western side of the project site at the distance of about 303 m from mangrove buffer. However the project site is not affected by the mangrove vegetation.

ANNEXURE A

List of GPS Instruments used

GPS MODEL	Type	Accuracy
Trimble 4000 SSE	Dual frequency	± 0.5 mm ± 5mm ± 2 ppm
Trimble 5700	Dual frequency	± 0.5 mm ± 5mm ± 0.5 ppm
Trimble 4600	Single frequency	1 mm ± 1 ppm
Trimble Geo XM	Single frequency	_1 – 3 m

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ANNEXURE B

GPS coordinators of GPS Survey carried out for

DEMARCATION OF HIGH TIDE LINE / LOW TIDE LINE AND CRZ AREA AT 1:4000 SCALE FOR THE PROPOSED PROJECT TO SETTING UP PORT BACK UP FACILITIES IN VILLAGE HAZIRA (SUVALI), CHORYASI TALUKA, SURAT DIST., GUJARAT.

HTL_Pts	Latitude	Longitude
1	21°7' 59.616" N	72°38' 16.611" E
2	21°8' 6.634" N	72°38' 20.693" E
3	21°8' 10.940" N	72°38' 22.964" E
4	21°8' 19.347" N	72°38' 29.080" E
5	21°8' 23.879" N	72°38' 31.266" E
6	21°8' 27.211" N	72°38' 31.456" E
7	21°8' 30.689" N	72°38' 31.280" E
8	21°8' 30.916" N	72°38' 23.171" E
9	21°8' 22.008" N	72°38' 21.861" E
10	21°8' 16.324" N	72°38' 15.742" E

Director, IRS
Director
Institute of Remote Sensing
Anna University,
Chennai - 600 025

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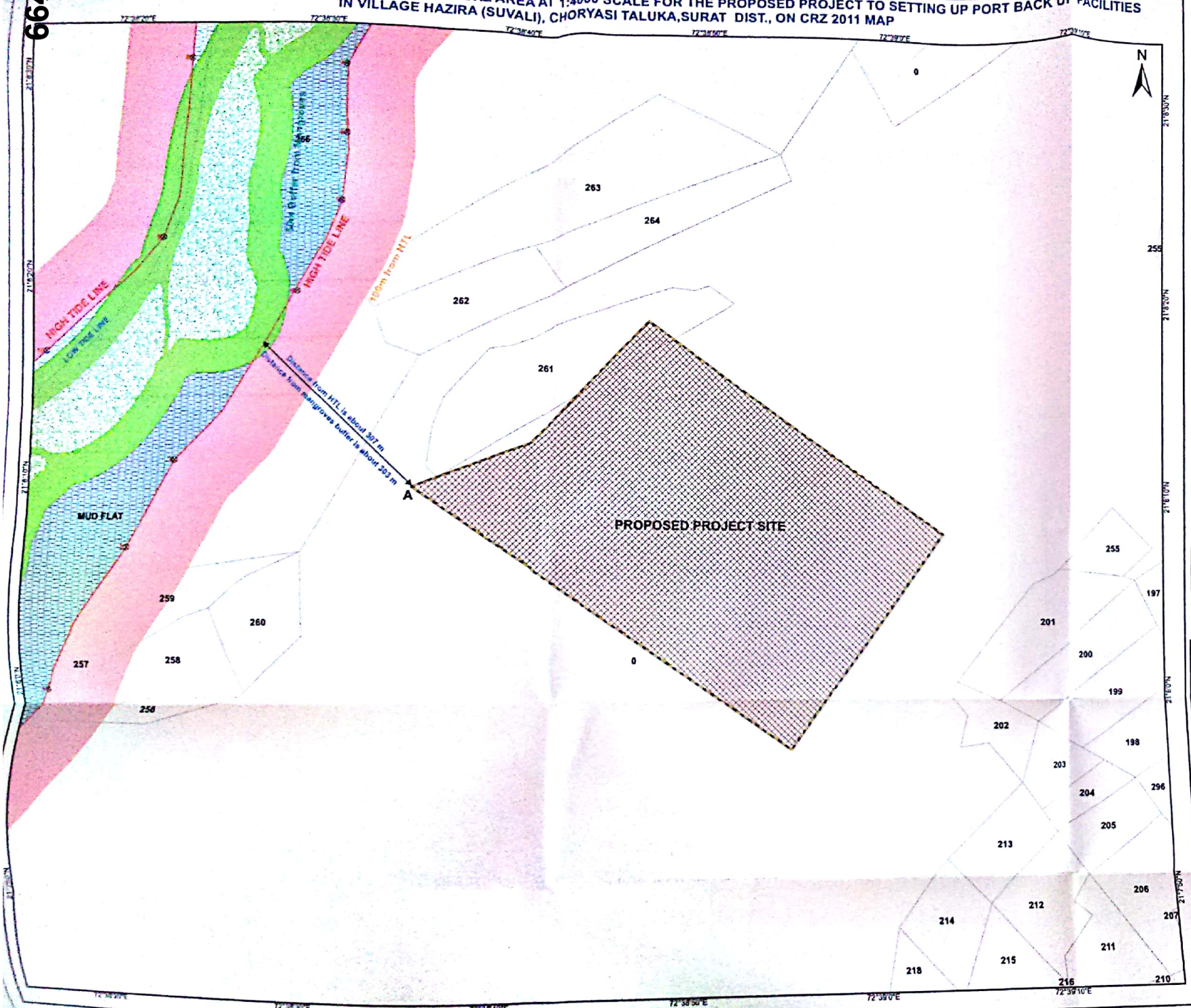
DEMARCATION OF HIGH TIDE LINE / LOW TIDE LINE AND CRZ AREA AT 1:4000 SCALE FOR THE PROPOSED PROJECT TO SETTING UP PORT BACK UP FACILITIES IN VILLAGE HAZIRA (SUVALI), CHORYASI TALUKA,SURAT DIST., ON CRZ 2011 MAP



LEGEND

(As per CRZ Notification 2011)

SOURCE: NCSCM (Sheet No F/43 M 12/NE)

- HTL Reference Points
- Low Tide Line (LTL)
- High Tide Line (HTL)
- 100m Buffer from HTL
- Mangroves CRZ-1A
- 50m Buffer from Mangroves (CRZ-1A)
- Mud Flat (CRZ 1A)
- CRZ III

SOURCE: Client

- Proposed Project site
- Survey Boundary

SCALE 1:4,000

0 37.5 75 150 225 300 Meters

Prepared by
Institute of Remote Sensing,
Anna University,
Chennai - 600 025.

AU/IRS/RV/185-2016 Dt: 28.07.2016;
CTDTProcs.No.6/CTDT-1/2016-73 Dt: 29.06.2016

For
M/s, HAZIRA CONTAINER FREIGHT STATION PVT. LTD.,
7/33-34, SHARADA SADAN BUILDING,
NEAR ALANKAR CINEMA,
STATION ROAD, SURAT - 395 003

PREPARED BY	P. +UBH.
VERIFIED BY	
APPROVED BY	Prof. S.S. Ramakrishnan, B.E.(Hons), M.Tech, Ph.D., Director, Institute of Remote Sensing, Anna University, Chennai-600 025