

**Assessment of status in the vicinity of Tuna Fish landing  
site at Ernavur, Thiruvottriyur kuppam Village, Ennore  
Taluk, Thiruvallur District, Tamil Nadu  
Between July 2019 – September 2020 using  
Time series Satellite Data**

*Report Prepared for*

**State Level Environment Impact  
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## EXECUTIVE SUMMARY

State Level Environment Impact Assessment Authority, Tamil Nadu has requested Anna University to nominate an Expert Member from Institute of Remote Sensing (IRS), Anna University to be an Additional Member in the expert committee as per the order of Honorable National Green Tribunal. This study was undertaken to assess the status in the vicinity of the Tuna Fish Landing site, Ernavur using time series satellite data between July 2019 to June 2020 downloaded from the Google earth open source service. Current condition was assessed during the field visit on 16.10.2020. The project includes survey No. 7/4, 39, 40, 41, 42 & 49 of Thiruvottriyur kuppam village of Ernavur Taluk. The interpretation of the time series satellite data and the field verification revealed that the ground base activities like erection of temporary shed and silo have happened around June 2019. The extension and strengthening of the groynes, a part of proposed Tuna Fish landing harbour was done after June 2019 only. The production of tetrapods for strengthening the groynes was undertaken after June 2019.

## 1. Back Ground

The Honourable National Green Tribunal (NGT) has passed an order to involve Institute of Remote Sensing by way of nominating an expert member to assist the committee appointed for assessing the status caused in the vicinity of the Tuna Fish landing site at Ernavur, Thiruvottriyur kuppam village, Ennore Taluk to the community with time series satellite data. State Level Environment Impact Assessment Authority, Tamil Nadu has requested Anna University to nominate an Expert Member from Institute of Remote Sensing (IRS), Anna University to be an Additional Member in the expert committee. It is stated in the order that “the expert collect data regarding the prior position of the area. Time series satellite data from July 19 till date can be procured for appearing the appropriate period of commencement of construction and to what extent at the project site has been done and the committee is directed to assess the environmental compensation based on the available data and submit the further report to this Tribunal”.

This study was done to assess the status of the site by using time series satellite data downloaded from the Google earth open source service as the procurement of satellite data product with comparable spatial resolution will

take time owing to the procedural formalities including MoD, GoI clearance. To meet the stipulated time frame for submission of the report, i.e 30.10.2020 given by Hon'ble NGT, the satellite data in Google earth service with  $\leq 1$  meter resolution which is by far the best available resolution from open source were used.

## **2. Study area and data**

The study area includes survey numbers 7/4, 39, 40, 41, 42 & 49 in the vicinity of Ernavur fish landing site in Thiruvottriyur kuppam village, Ennore Taluk, Thiruvallur District in Tamil Nadu. Area encompassed by longitude from  $80^{\circ}18'49.833''$  E to  $80^{\circ}18'38.827''$  E and by latitude from  $13^{\circ}10' 38.547''$  N to  $13^{\circ}9'34.089''$  N was studied using multi temporal satellite data.

## **3. Procurement of Satellite Data**

The procurement of the Satellite data from the “Google Earth Pro - open source server” was downloaded. The study to assess the status in the vicinity of Tuna Fish landing site by using time series satellite data was done from January 2019 to latest available image in June 2020 in Google earth open source server . The present condition was assessed during the field visit on 16.10.2020. The time series satellite data used for this study is listed as follows:

**Table.1 Dates of the satellite data used**

1. 5 <sup>th</sup> January 2019	5. 31 <sup>st</sup> March 2020
2. 14 <sup>th</sup> April 2019	6.7 <sup>th</sup> May 2020
3. 8 <sup>th</sup> June 2019	7.14 <sup>th</sup> June 2020
4. 14 <sup>th</sup> February 2020	

*Source: Google Earth Pro open source platform ( The dates are as given in the open source server)*

It may be noted that the displayed date stamp of the downloaded images may not be the same as the date of acquisition of the satellite. Hence, the acquisition date was verified with “Digital Globe” website, who are the distributors of the high resolution foreign satellite data especially IKONOS, Geo Eye, World View etc., (<https://discover.digitalglobe.com/>)

#### **4. Field Visit**

The aforesaid study area at Eranavur was visited by Institute of Remote Sensing (IRS), Anna University on 16.10.2020 along with other Committee Members and Officials. It has been clarified that the survey numbers mentioned in the order that is 7/4 is actually the plot having survey number 4 in the old revenue records and the 7 in the Town resurveyed record, whereas the other survey numbers namely 39, 40, 41, 42 and 49 are as per the old record. The new town map which was resurveyed by the revenue department for the study area is attached in *Annexure – I*.

During the field visit, it was observed that two temporary structure/shed along with one Silo were seen. The Silo is being used for producing the Tetrapods to be used for strengthening the groynes. The extension and strengthening of groynes A and C were observed. The photographs taken during the field visit is presented in *Annexure – II*.

### **5. Observation from the Time series Satellite data**

The findings from the time series satellite data are discussed below.

- There are 5 no. of Groynes in the area in which the study was done. For convenience sake, the groynes were named as A, B, C, D & E from south to north is shown and the length of each groynes were measured to be 152m, 144m, 164m, 200m and 250m respectively are presented *Map no.1*.
- No activities like construction, reclamation and dredging along the coast at the vicinity were noticed in data pertaining to January 2019 in the survey numbers 7/4, 39, 40, 41, 42 & 49 that is in *Figure.1*.
- A track/pathway is seen in satellite data pertaining to 14<sup>th</sup> April 2019 and drawn by the line symbol which is shown in *Figure.2*. The lengths of five groynes were unchanged.

- On 8<sup>th</sup> June 2019, a Silo and a temporary structure/shed were seen. Also, a crane is noticed in the site. The details are presented in *Figure.3*.
- Heaps of tetrapods are observed along the coastline of the above mentioned study area from the Satellite data dated 14<sup>th</sup> February 2020, indicating the production of tetrapods for strengthening of groynes A and C as a part of the proposed project. The lengths of groynes A and C towards sea is increased from 2019 to 2020 as tabulated in *Table.2*.

**Table. 2 Comparison the length of the Groynes**

Description	*Length in (m)		*Change of Length (m)
	Year - 2019	Year - 2020	
Groynes - A	152	387	235
Groynes - B	144	144	-
Groynes - C	164	317	153
Groynes - D	200	200	-
Groynes - E	250	250	-

\*Length is measured from satellite data

- The second temporary shed was observed in the data of 14 February, 2020 (*Figure.4*).
- An increase in the heaps of tetrapods is seen from images of 31<sup>st</sup> March, 7<sup>th</sup> May, 14<sup>th</sup> June of 2020, as shown in *Figure .5, 6 and 7* respectively.

- The change in coastline with respect to the HTL of approved CZMP (Map no. TN 110) as per CRZ 2011 notification due to wave action for the study period is presented in *Figure.8*. The seaward distance of the coastline from the HTL varies between 3.03m to 57.7m at different points as depicted in *Map No. 2*.

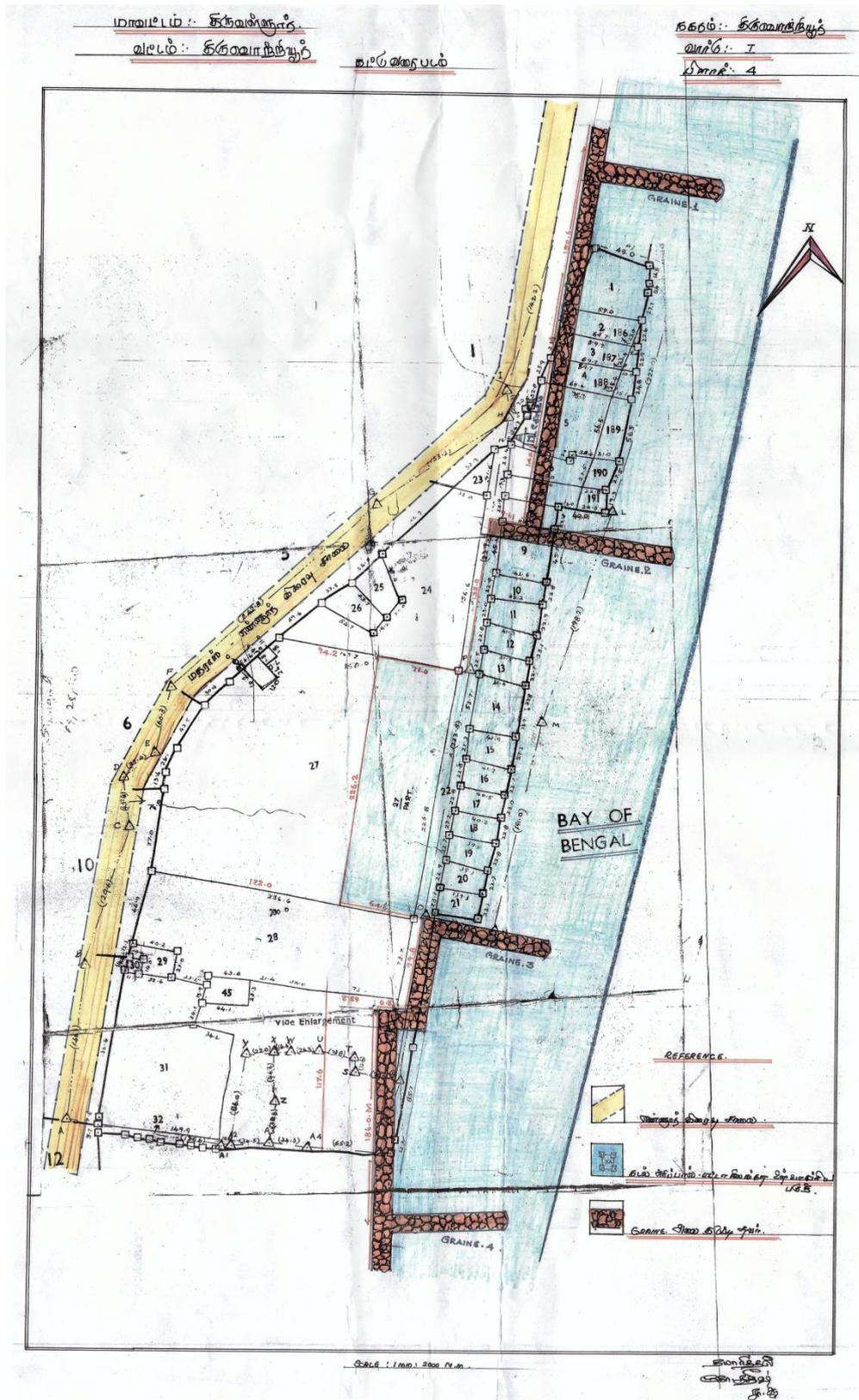
## **6. Conclusion from the Study**

The conclusions of the study are presented as below:

- A silo and one temporal structure has been erected around June 2019, No activities such as strengthening of groynes and other permanent structures are seen till June 2019.
- The groynes A and C, supposedly the part of proposed Tuna Fish landing harbour are strengthened after June 2019, whose lengths had been increased by 235m and 153m by Feb 2020.
- Production of tetrapods using the silo must have been started around June 2019 (*Plate. 4*).
- The seaward distance of the coastline from the HTL varies between 3.03 m to 57.7m at different points as depicted in the map.
- No evidence of other construction activity found during the field visit.

# Annexure - I

## Resurveyed Town Map of the project site



**Annexure – II**  
**Field Photographs**



*Plate. 1 Site Visit with Committee Members*



*Plate. 2 Heaps of Tetrapods near to the site*



*Plate. 3 Tetrapods installation by Crane along the Groyne A*



*Plate. 4 Date displayed in Tetrapod indicating the production of Tetrapods*



*Plate. 5 Groyne B at the site*



*Plate. 6 Silo and Crane on the site indicating production of Tetrapods*



Figure. 1 Satellite data pertaining to 5<sup>th</sup> January 2019

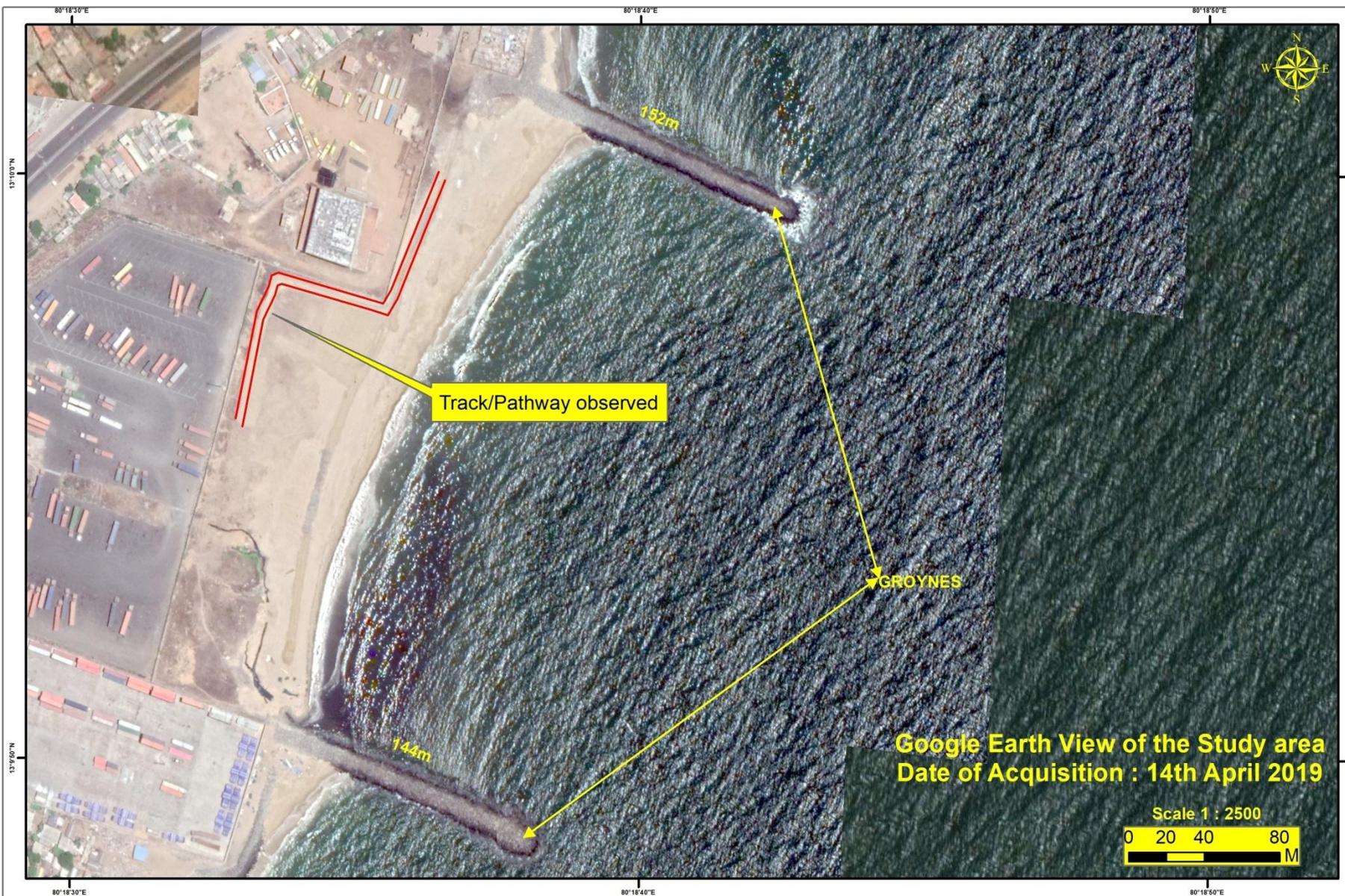


Figure. 2 Satellite data pertaining to 14<sup>th</sup> April 2019



Figure. 3 Satellite data pertaining to 8<sup>th</sup> June 2019

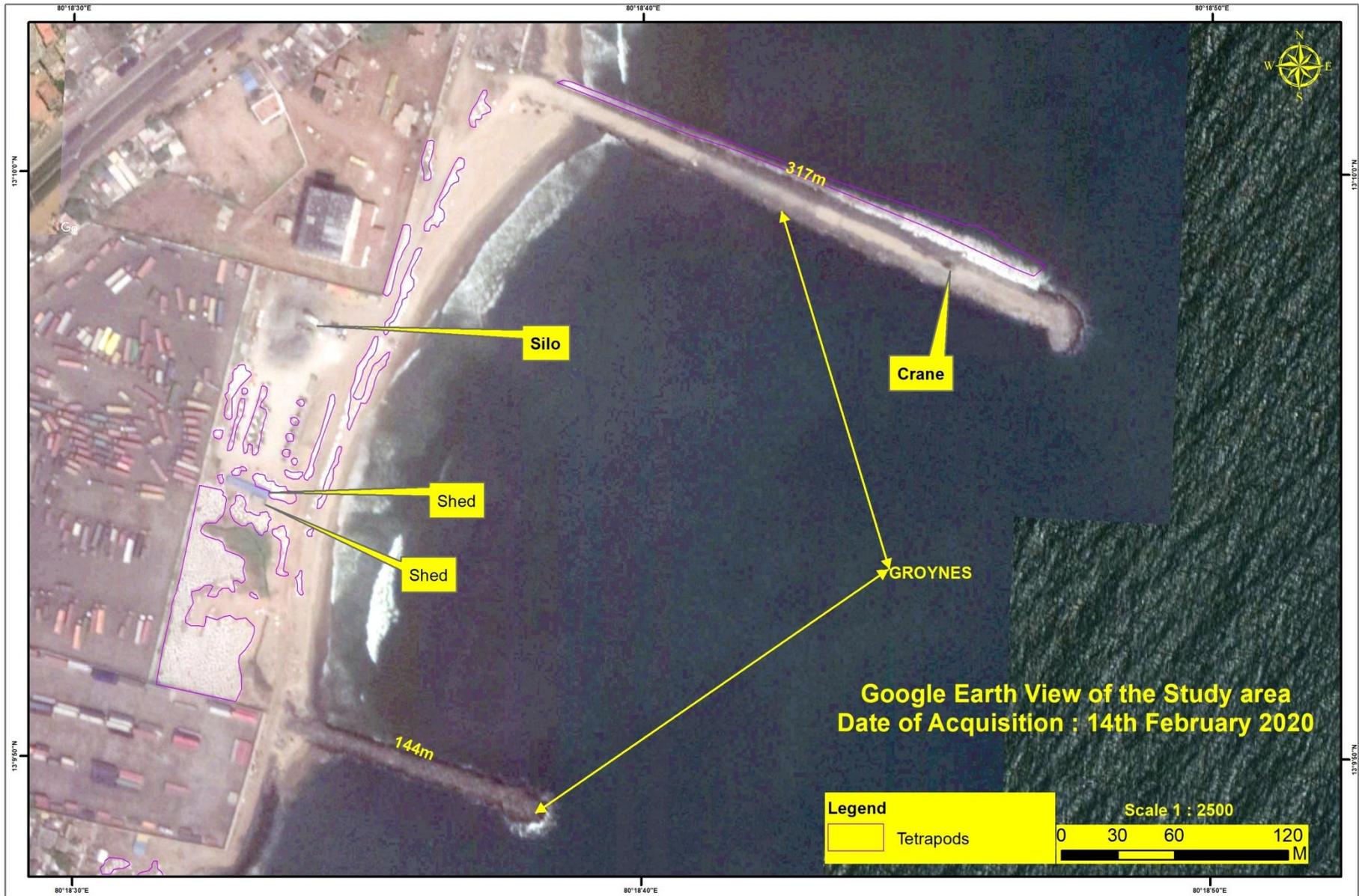


Figure. 4 Satellite data pertaining to 14<sup>th</sup> February 2019

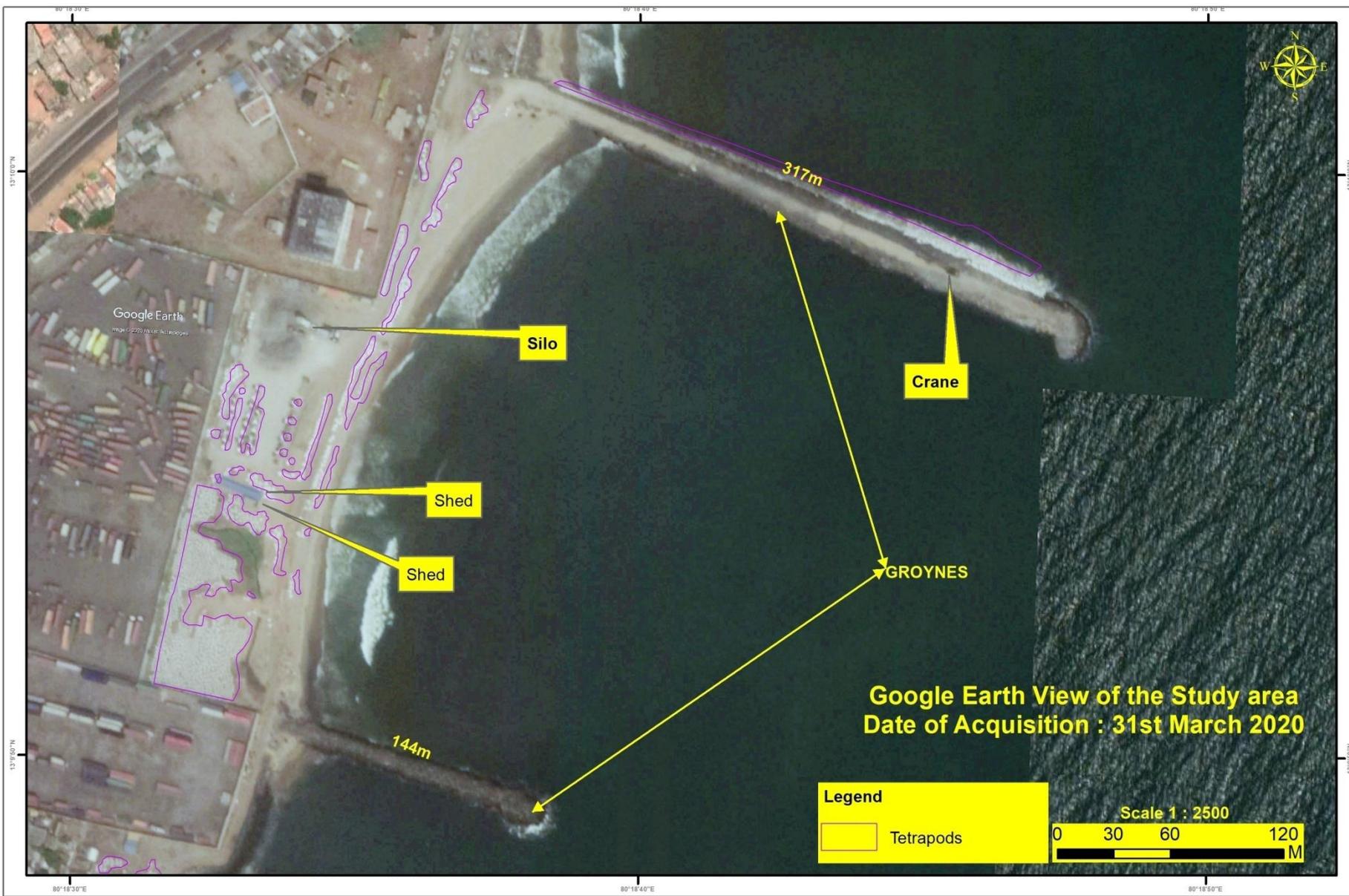


Figure. 5 Satellite data pertaining to 31<sup>st</sup> March 2020

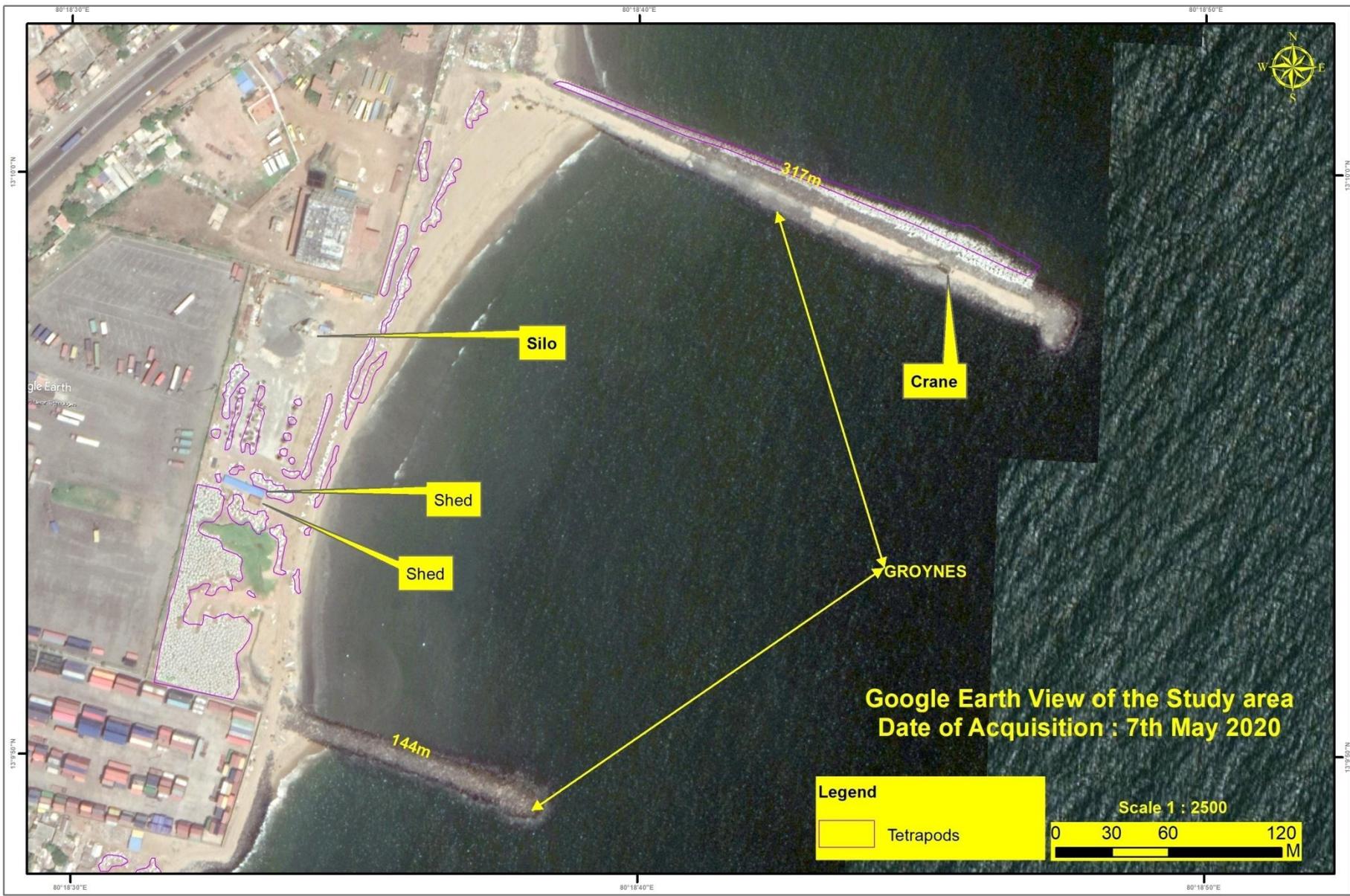


Figure. 6 Satellite data pertaining to 7<sup>th</sup> May 2020

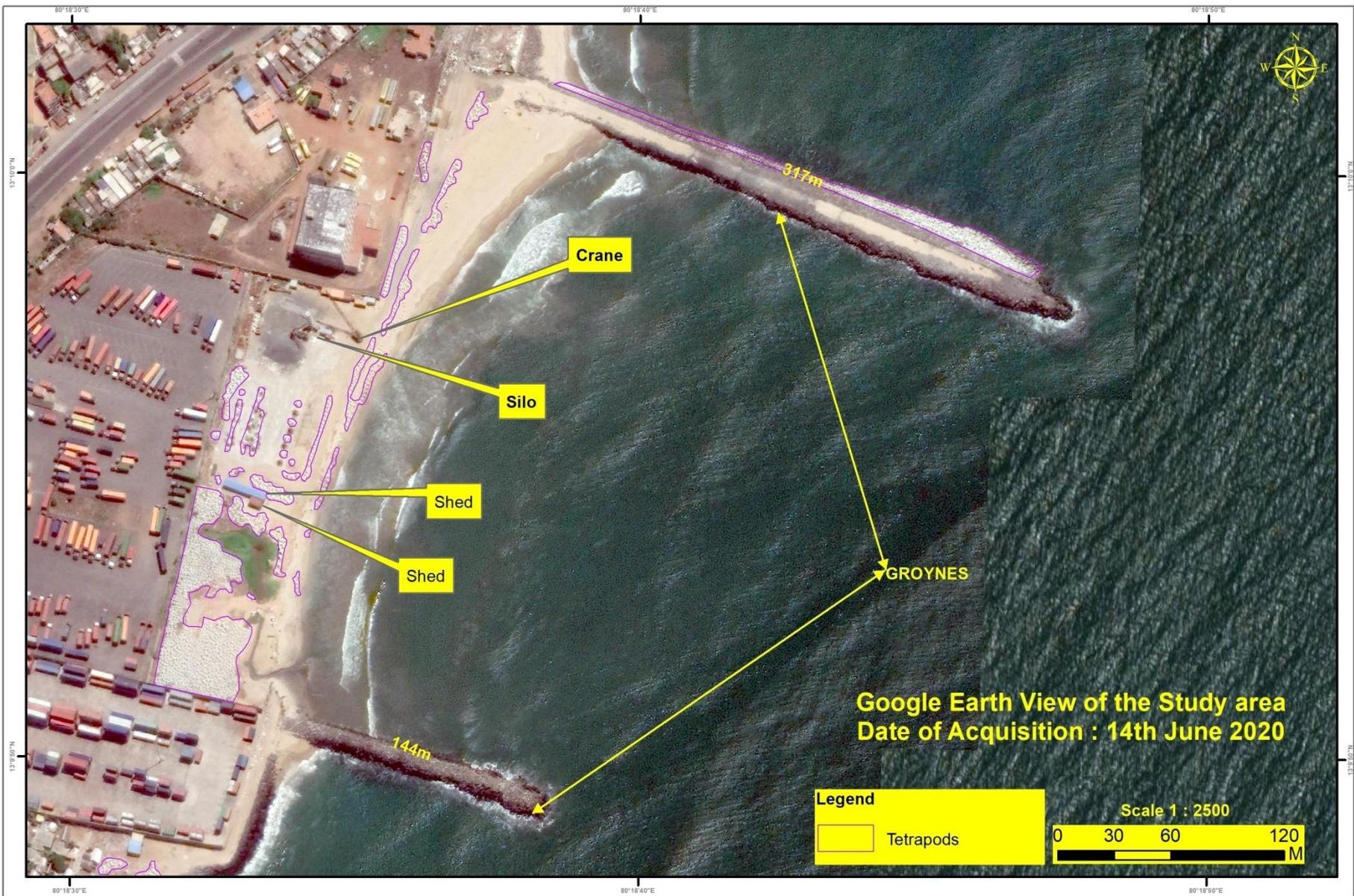
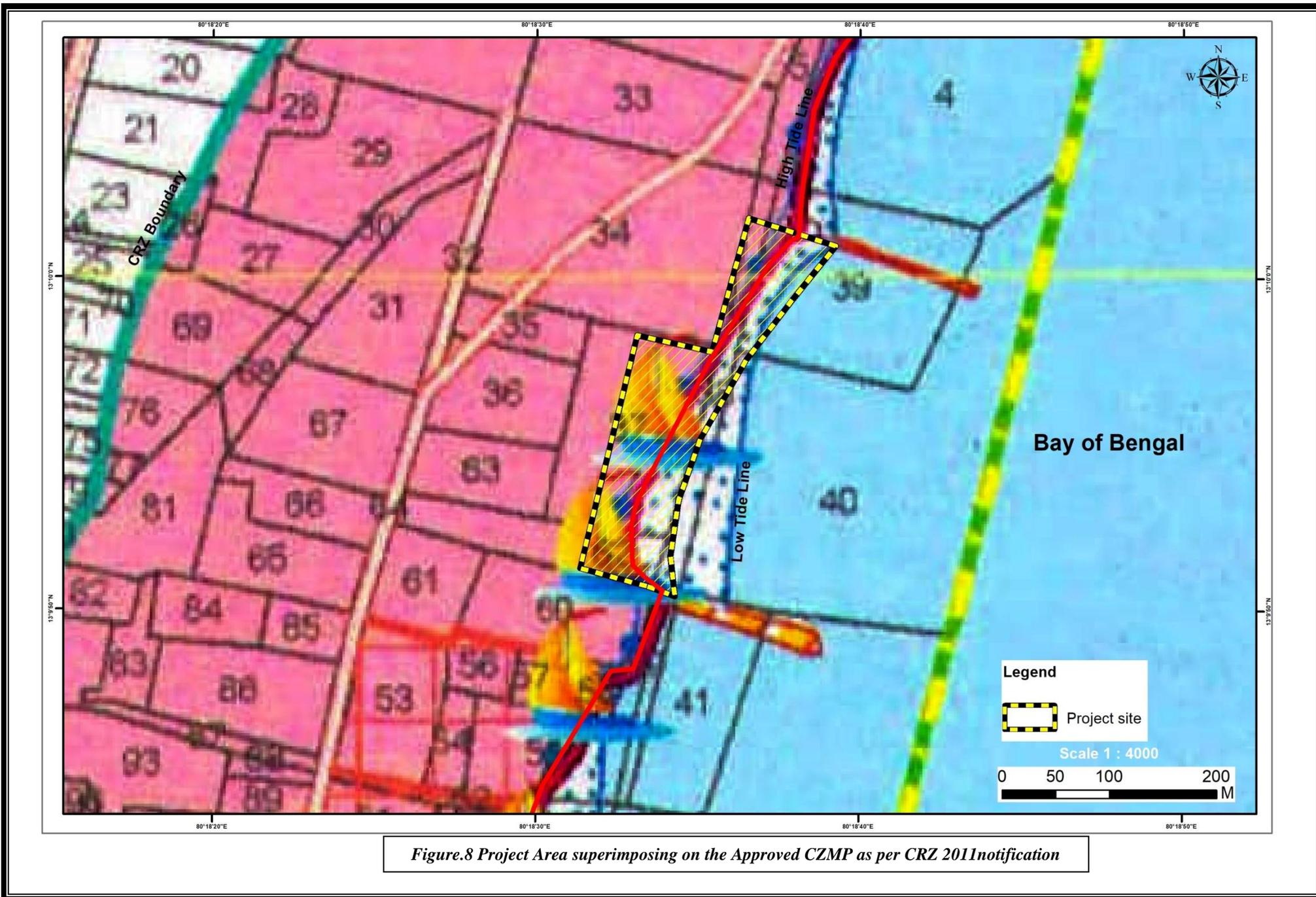


Figure.7 Satellite data pertaining to 14<sup>th</sup> June 2020



*Figure.8 Project Area superimposing on the Approved CZMP as per CRZ 2011 notification*



Map no.1 Study area on Satellite imagery



Map no.2 Coastline change Assessment