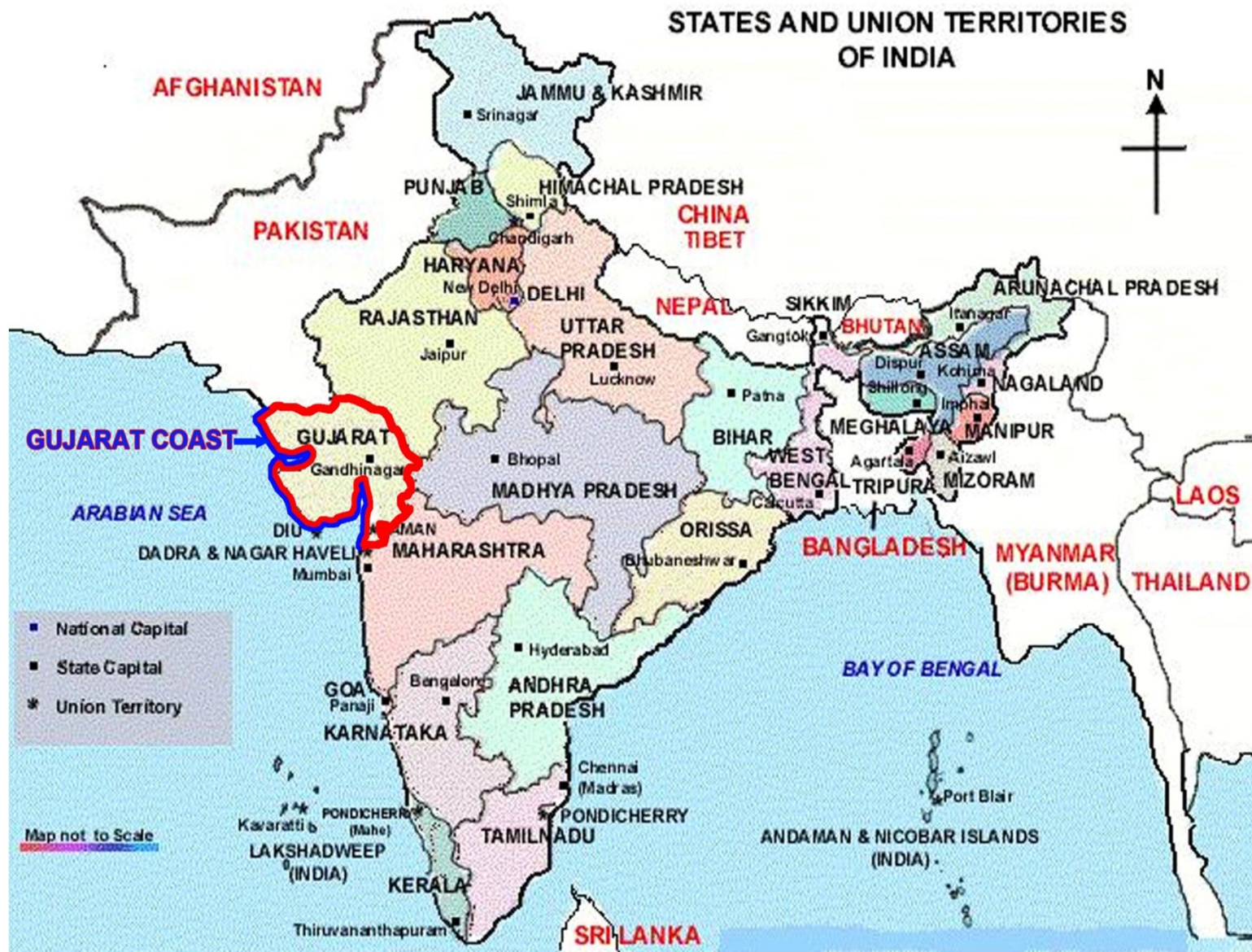


Coastal erosion problems in Gujarat

***Narmada, Water
Resources, Water Supply
& Kalpsar Department***

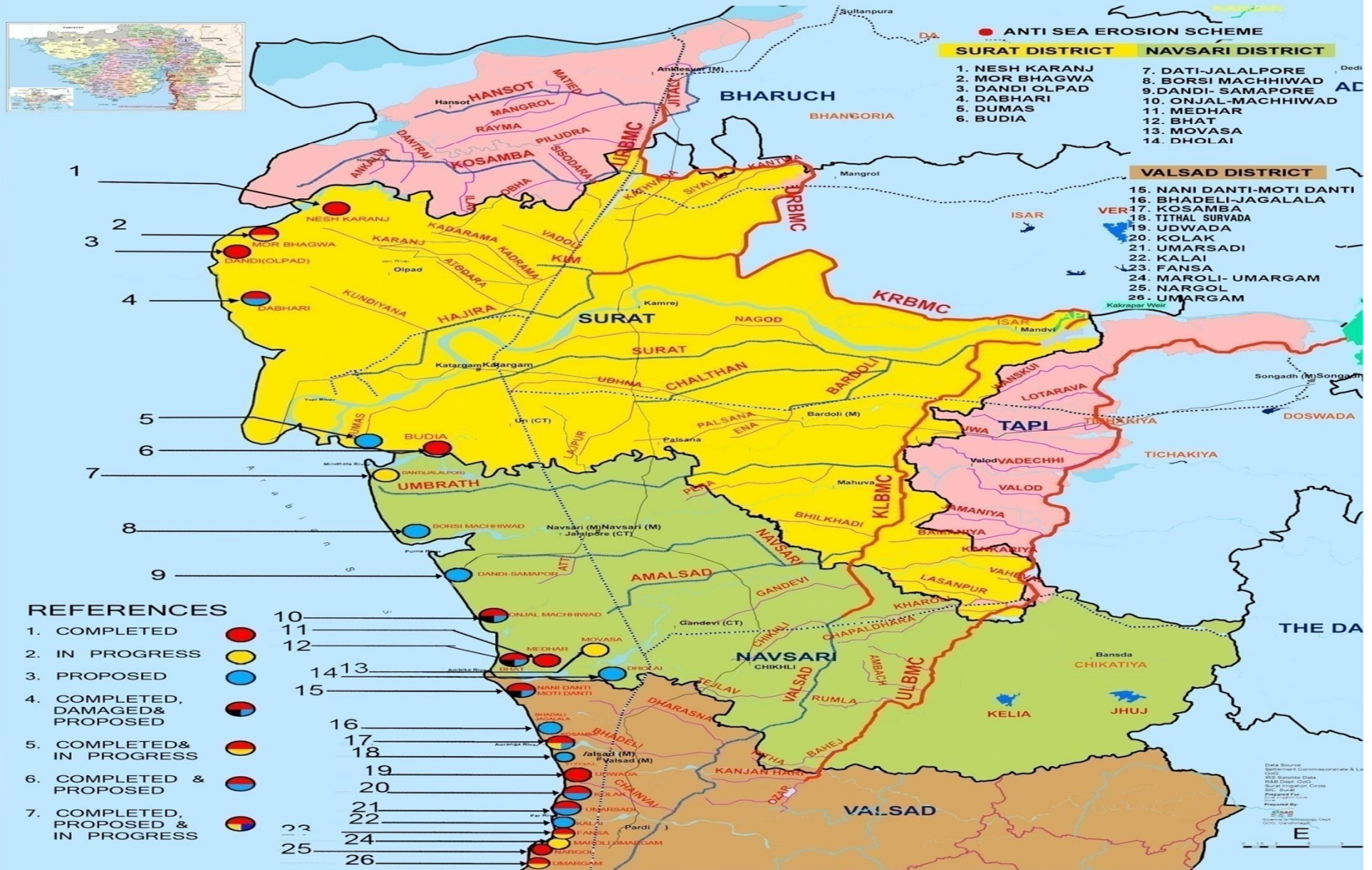
MAP OF INDIA





Coastal Details

➤ Gujarat Coastal length	1291 Km.
➤ South Gujarat Coastal length	200 Km.
➤ South Gujarat Vulnerable Coastal length.....	120 Km.
➤ Works completed in Vulnerable length of South Gujarat.	21.61 Km.
➤ Works in progress in Vulnerable length of South Gujarat	6.89 Km.
➤ Works proposed in Vulnerable length of South Gujarat.....	19.07 Km.
➤ Damaged coastal work.....	5.70 Km.
➤ Works Remaining to be proposed in Vulnerable length of South Gujarat.....	72 Km.



ANTI SEA EROSION SCHEMES IN SOUTH GUJARAT COAST

[illegible]

**Village : Dandi, Taluka : Olpad, Dist. : Surat
Completed**



**Village : Dandi, Taluka : Olpad, Dist. : Surat
Completed**



**Village : Kolak, Taluka : Pardi Dist. : Valsad.
Completed**



**Village : Umarsadi, Taluka : Pardi, Dist. : Valsad.
Completed**



**Village : Nargol, Taluka : Umargam Dist. - Valsad.
Completed**

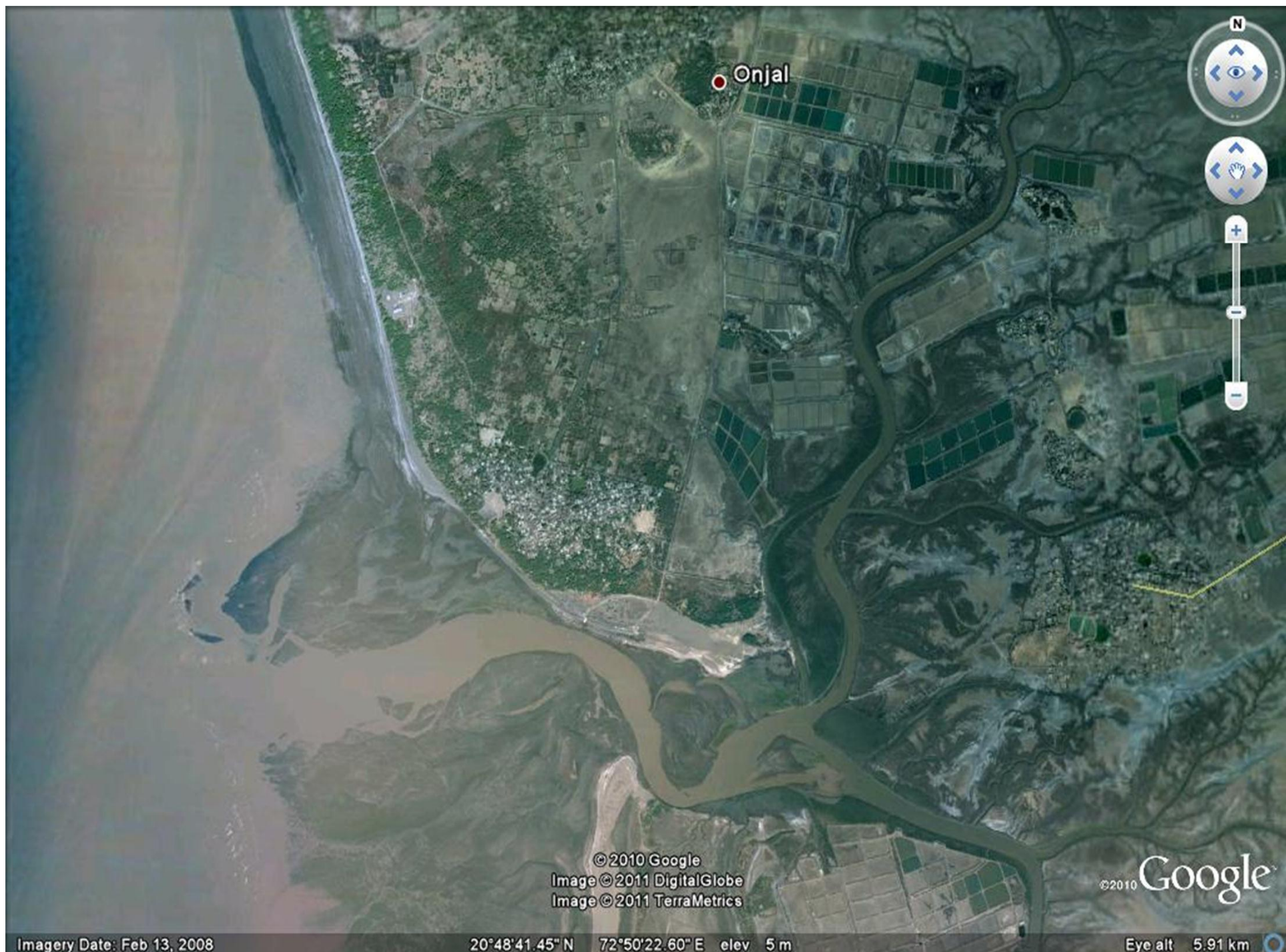


Village - Umargam, Taluka –Umargam, Dist. - Valsad. Completed



**Village -Umargam, Taluka -Umargam Dist. : Valsad.
Completed**





Onjal

© 2010 Google
Image © 2011 DigitalGlobe
Image © 2011 TerraMetrics

© 2010 Google

Imagery Date: Feb 13, 2008




20°48'41.45" N 72°50'22.60" E elev 5 m

Eye alt 5.91 km

[illegible]

1) GABIONS SHOULD BE TIED TO EACH OTHER IN BOTH THE DIRECTIONS Laterally and Longitudinally with 9mm Ø P.P.ROPES

- 2) DENSITY OF STONES SHOULD NOT BE LESS THAN 2.65 T/M^3

	P.P. ROPE GABIONS
	10 TO 20 KG STONES
	CORE UPTO 10 KG STONES

**Village : Onjal Machhiwad, Taluka : Jalalpore
Dist. : Navsari**



**Village : Onjal Machhiwad, Taluka : Jalalpore
Dist. : Navsari**



Village : Onjal Machhiwad, Taluka : Jalalpore
Dist. : Navsari. Completed



Village : Onjal Machhiwad, Taluka : Jalalpore
Dist. : Navsari. Completed



**Village : Onjal Machhiwad, Taluka : Jalalpore,
Dist. : Navsari. During High Tide**



**Village : Onjal Machhiwad, Taluka : Jalalpore,
Dist. : Navsari. During High Tide**



**Village : Onjal Machhiwad, Taluka : Jalalpore,
Dist. : Navsari. Damaged Condition**



**Village : Onjal Machhiwad, Taluka : Jalalpore,
Dist. : Navsari. Damaged Condition**



**Village : Onjal Machhiwad, Taluka : Jalalpore,
Dist. : Navsari. Damaged Condition**



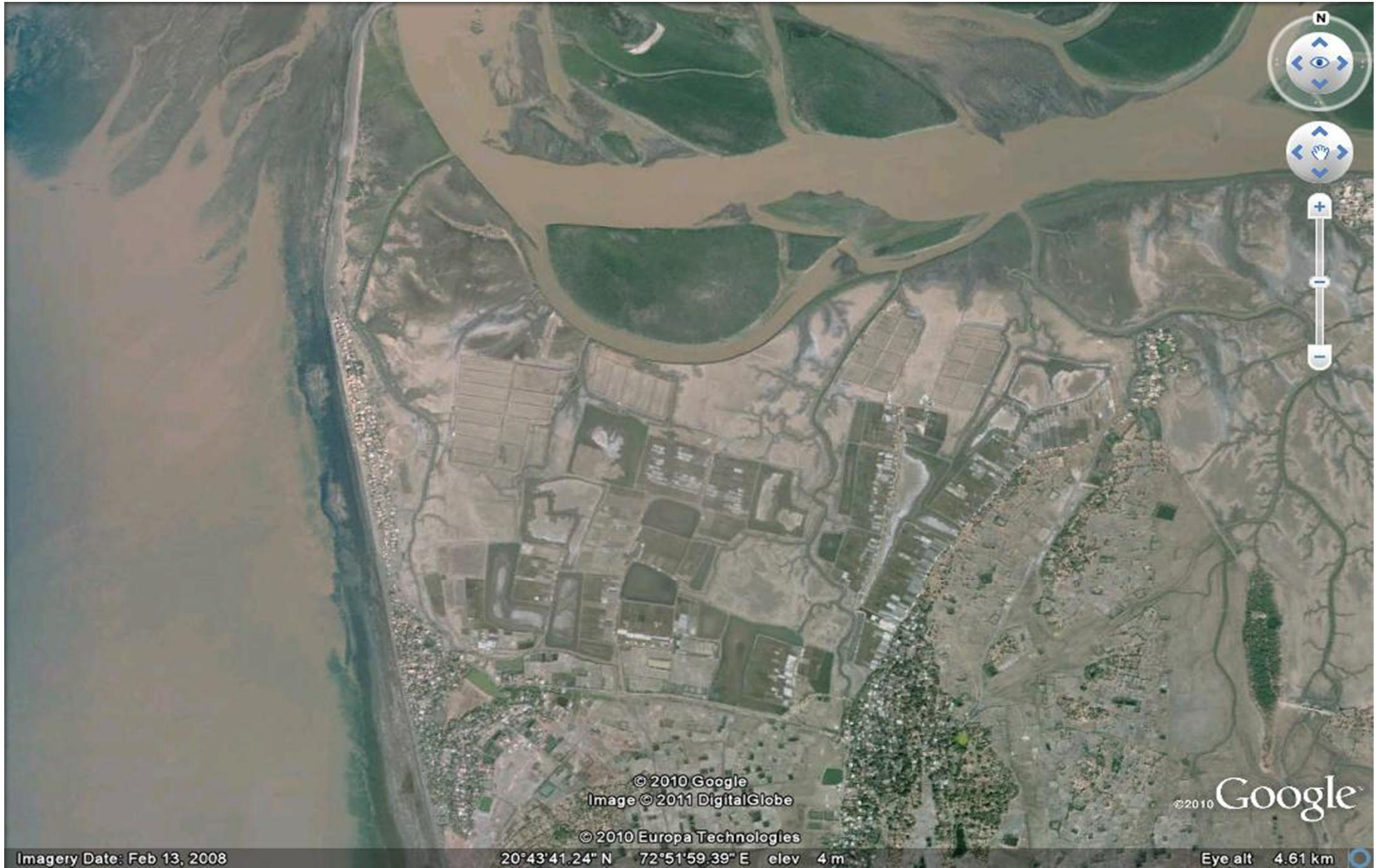
**Village : Onjal Machhiwad, Taluka : Jalalpore,
Dist. : Navsari. Damaged Condition**



**Village : Kosamba, Taluka : Valsad, Dist. :
Valsad. Completed**



Nani danti-motidanti





© 2010 Google
Image © 2011 DigitalGlobe

© 2010 Europa Technologies

© 2010 Google

Imagery Date: Feb 13, 2008

20°43'44.80" N 72°51'21.13" E elev 3 m

Eye alt 825 m

**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. Before work**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. Before work**

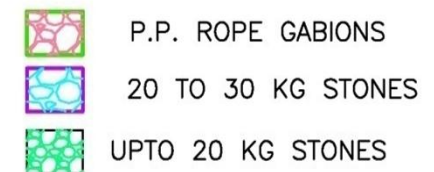


**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. Before work**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. Before work**





**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. In Progress**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. In Progress**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. Completed**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. Completed**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. Completed**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. During High Tide**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. During High Tide**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. During High Tide**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. During High Tide**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. Damaged Condition**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. Damaged Condition**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. Damaged Condition**



**Village : Nani Danti – Moti Danti, Taluka : Valsad,
Dist. : Valsad. Damaged Condition**



VILLAGE: UDWADA, TAL.: PARDI, DIST.: VALSAD.

ANNEXURE - 38

DESIGN

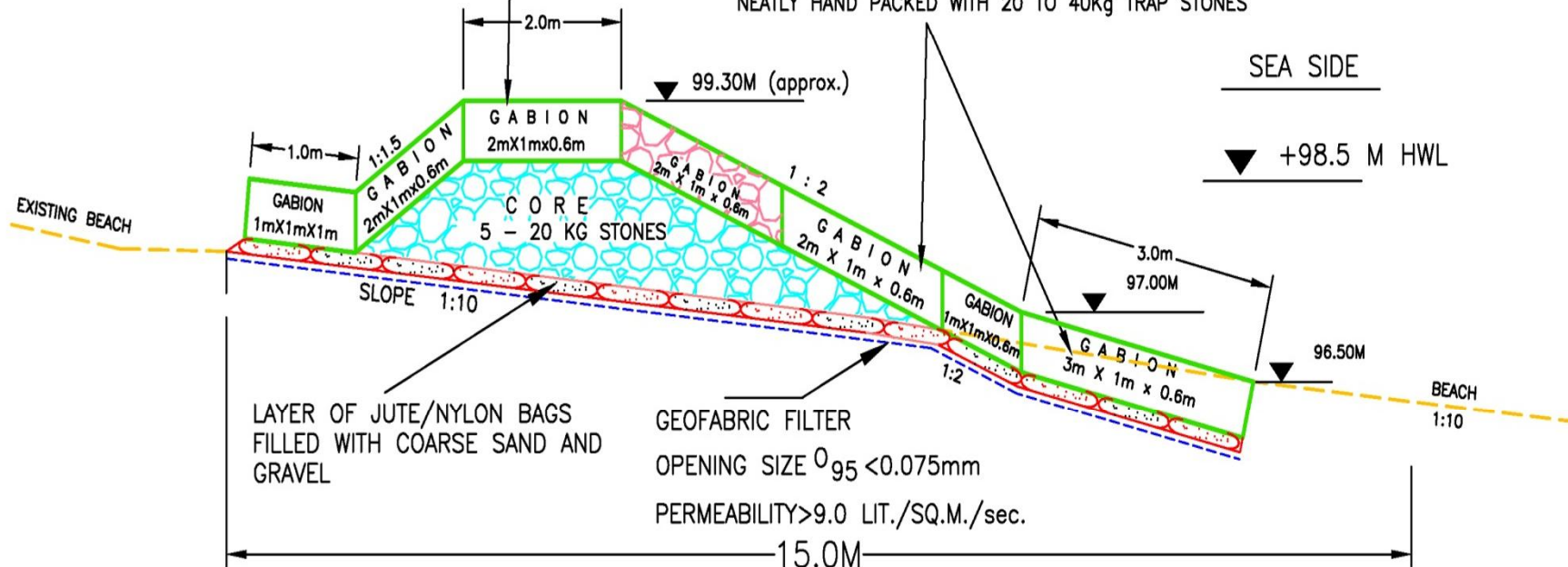
9mm Ø P.P.ROPE GABIONS (4 STRAND: MESH SIZE 100mmX100mm)

NEATLY HAND PACKED WITH CONCRETE BLOCKS (EACH BLOCK WT. 45-50 KG)

- AVAILABLE CONCRETE BLOCK MAY BE USED

9mm Ø P.P.ROPE GABIONS (4 STRAND: MESH SIZE 100mmX100mm)

NEATLY HAND PACKED WITH 20 TO 40Kg TRAP STONES



NOTE:

- GABIONS SHOULD BE TIED TO EACH OTHER BY 9MM Ø P.P.ROPES IN BOTH THE DIRECTIONS (LATERAL AND LONGITUDINAL)



P.P. ROPE GABIONS



CORE 5 TO 20 KG STONES

**Village : Udwada, Taluka : Pardi, Dist. : Valsad.
Completed**



**Village : Udwada, Taluka : Pardi, Dist. :
Valsad. Damaged Condition**



**Village : Dummas, Taluka : Choriyasi, Dist. : Surat
Proposed New Scheme**



**Village : Dummas, Taluka : Choriyasi, Dist. : Surat
Proposed New Scheme**



**Village : Dummas, Taluka : Choriyasi, Dist. : Surat
Proposed New Scheme**



**Village : Dummas, Taluka : Choriyasi, Dist. : Surat
Proposed New Scheme**



DUMAS PROTECTION SCHEME

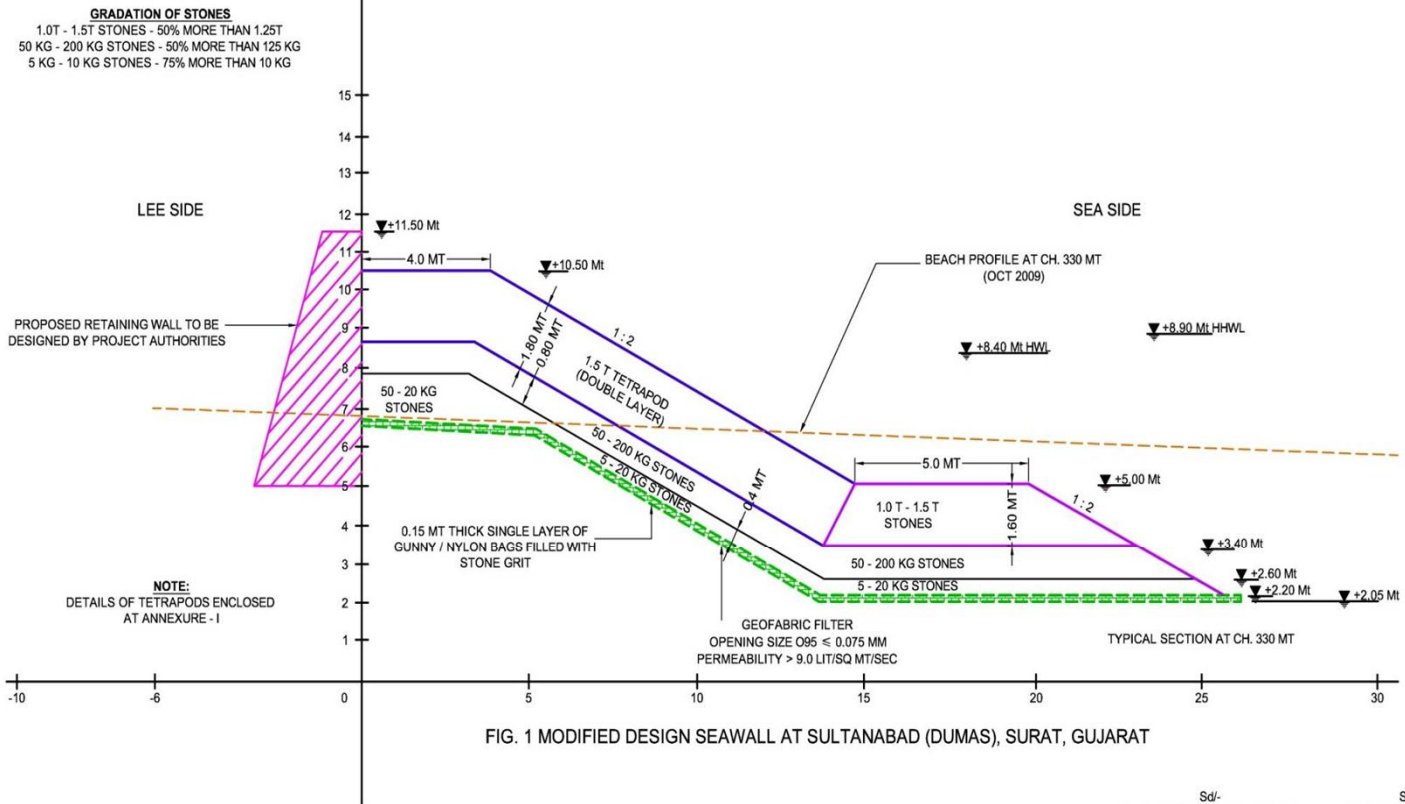


FIG. 1 MODIFIED DESIGN SEAWALL AT SULTANABAD (DUMAS), SURAT, GUJARAT

Sd/-
DEPUTY EXECUTIVE ENGINEER
SURAT CANAL SUB-DIVISION NO.1,
SURAT

Sd/-
EXECUTIVE ENGINEER
SURAT CANAL DIVISION,
SURAT

**Village : Borsi Machhiwad, Taluka : Jalalpore,
Dist . : Navsari. Proposed New Scheme**



**Village : Borsi Machhiwad, Taluka : Jalalpore,
Dist . : Navsari. Proposed New Scheme**



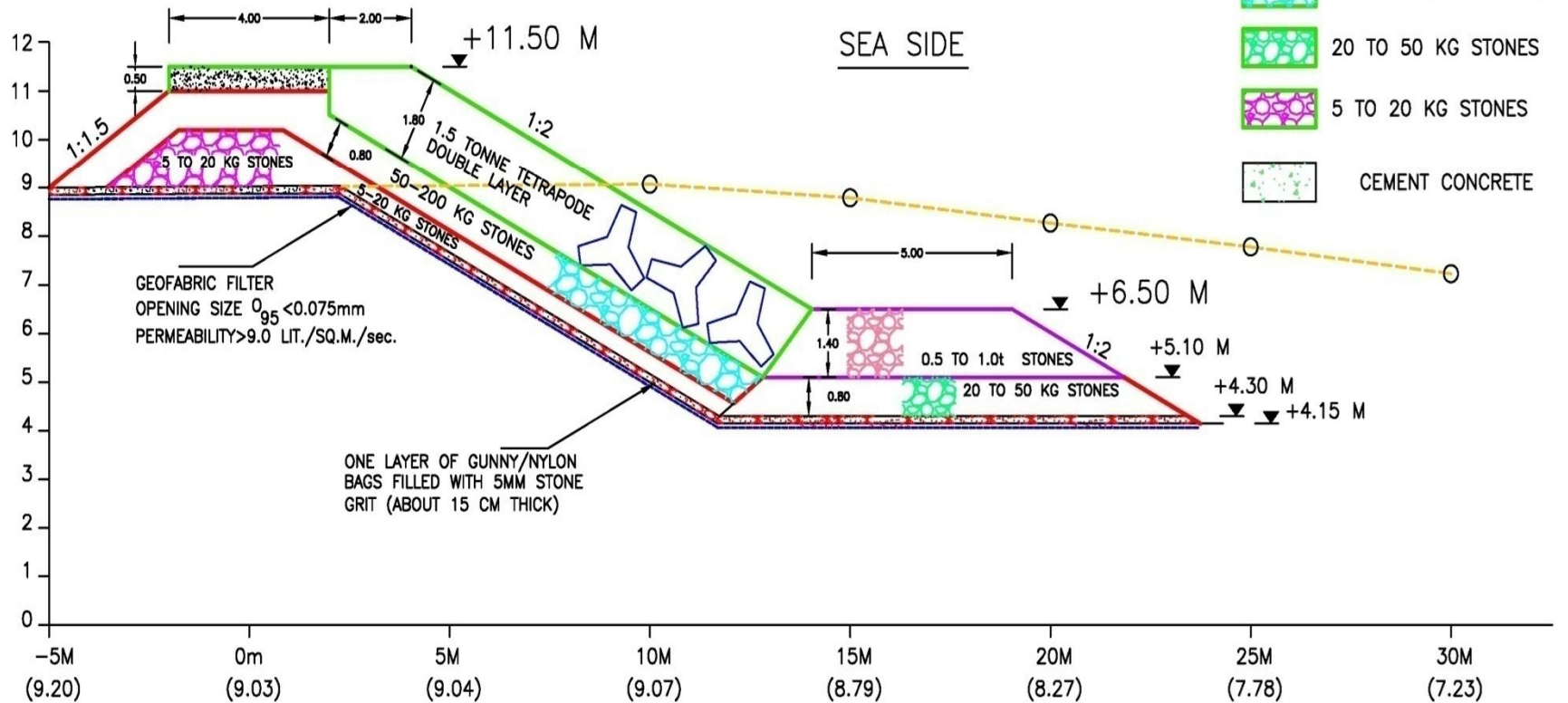
**Village : Borsi Machhiwad, Taluka : Jalalpore,
Dist . : Navsari. Proposed New Scheme**



VILLAGE: BORSI MACHHIWAD, TALUKA: JALALPORE, DIST.: NAVSARI.

ANNEXURE - 12

PROPOSED DESIGN



GRADATION OF STONES

0.5-1.0t STONES ----50% MORE THAN 0.75t
 50-200 Kg STONES ----50% MORE THAN 100 Kg
 20-50 Kg STONES ----50% MORE THAN 30 Kg
 5-20 Kg STONES ----75% MORE THAN 10 Kg

TYPICAL SECTION AT Ch.990.00 M

**Village : Dandi Samapore, Taluka : Jalalpore,
Dist. : Navsari. Proposed New Scheme**



**Village : Dandi Samapore, Taluka : Jalalpore,
Dist. : Navsari. Proposed New Scheme**



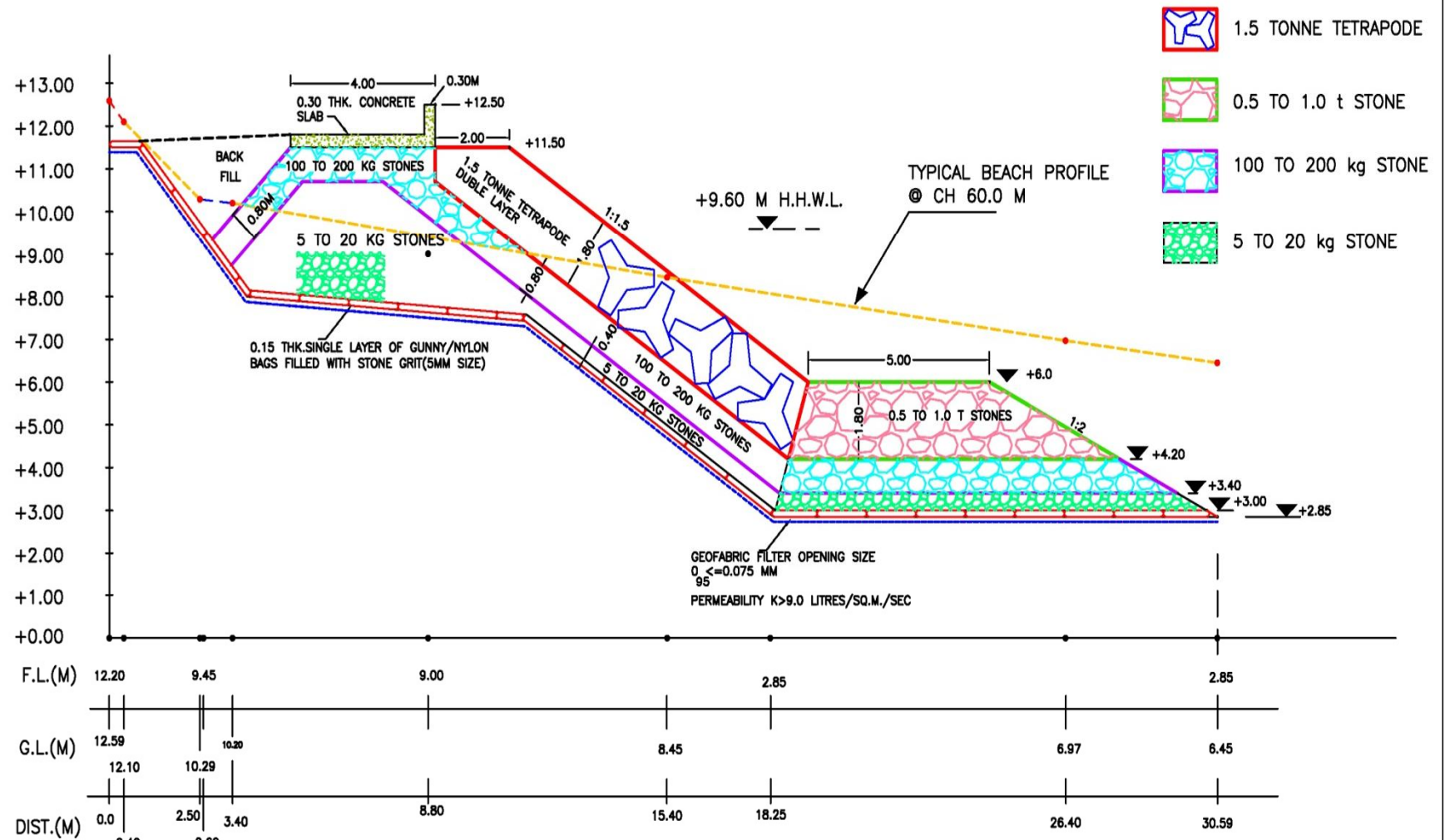
**Village : Dandi Samapore, Taluka : Jalalpore,
Dist. : Navsari.**



VILLAGE DANDI-SAMAPORE, TAL.: JALALPORE, DIST.: NAVSARI.

ANNEXURE- 14

PROPOSED DESIGN



CROSS-SECTION AT CH.60.0 M

**Village : Bhadeli Jagalala, Taluka : Valsad,
Dist. : Valsad. Proposed New Scheme**



**Village : Bhadeli Jagalala, Taluka : Valsad,
Dist. : Valsad. Proposed New Scheme**



**Village : Bhadeli Jagalala, Taluka : Valsad,
Dist. : Valsad. Proposed New Scheme**



**Village : Bhadeli Jagalala, Taluka : Valsad,
Dist. : Valsad. Proposed New Scheme**



Key issues

- Severe sea erosion problems
- Increasing in other area every year
- P.P. Gabions are not found suitable
- Protection by using tetra pod is costlier
- If protection work is carried out by Larger size stones, Gabions, Tetrapods, Beach will loose its natural beauty
- At present works are carried out by considering local problem but it is required to study whole coastline

Cont.

- It is required to study costal process and to find out cause of erosion and prepare mathematical model
- To have Permanent solution for erosion and design should be eco friendly