FINAL FEASIBILITY REPORT ON DETAILED HYDROGRAPHIC SURVEY OF GOMTI RIVER

FROM GANGA CONFLUENCE AT KAITHI GHAZIPUR (CH 0 KM) TO BARA IMAMBARA, LUCKNOW (CH 514.310 KM)

NATIONAL WATERWAY NO- 42

VOLUME - I

Submitted To

INLAND WATERWAYS AUTHORITY OF INDIA
A-13, Sector-1,NOIDA
DIST-Gautam Buddha Nagar
UTTAR PRADESH
PIN- 201 301(UP)
Email: hc.iwai@nic.in
Web: www.iwai.nic.in

Submitted By

STRABAG INDIA PVT LTD
Southern Park, Unit No.6, 4th Floor
D-2, DDA District Centre
Saket, New Delhi 110017 India
Tel : 91-11 492 01 492 , 91-11 492 01 454
Fax : 91-11 -492 01 493
Email: info@strabagindia.com
Web:www.strabagindia.com

Summation Date:- / 09 /2018

ACKNOWLEDGEMENT

STRABAG India Pvt. Ltd. (SIPL) express their gratitude to **Shri S. K. Gangwar, Member (Technical)** and Ms**. Nutan Guha Biswas, IAS, Ex-Chairperson, IWAI** for providing us the opportunity for "Detailed Hydrographic and Topography Survey of Gomti River in Region VII of National waterways, a dream and very important part of **Nation Development**".

SIPL would also like to thanks **Shri Pravir Pandey, IA & AS, Chairman, Shri Alok Ranjan, ICAS, Member (Finance) and Shri Shashi Bhushan Shukla, Member (Traffic).**

SIPL wishes to express their gratitude to **Capt. Ashish Arya, Hydrographic Chief** and **Cdr. P.K. Srivastava, Ex Hydrographic Chief, IWAI** for his guidance and technical inputs in this project. SIPL would also like to thank **Sh. Rajiv Singhal, A.H.S., IWAI** for his valuable support and suggestions provided through out the survey period. SIPL is pleased to place on record their sincere thanks to other staff and officers of IWAI and CWC Department.

CONTENTS

List of Annexure

List of Abbreviations

SD	Sounding Datum
CD	Chart Datum
RTK	Real time Kinematic
DGPS	Differential Global Positioning Systems
TS	Total Station
GPS	Global Positioning Systems
BM	Bench Mark
MSL	Mean Sea Level
RL	Reference Level
HFL	Highest Flood Level
HTL	High Tension Line
CH	Chainage
WGS	World Geodetic System
UTM	Universal Transverse Mercator
LAD	Least Available Depth

SALIENT FEATURES AT A GLANCE

REGION-VII								
Consultant: STRABAG INDIA PVT LTD								
Name	GOMTI River	NW - 42						
Length	514.31 km from GANGA CONFLUENCE AT KAITHI GHAZIPUR TO BARA IMAMBARA, LUCKNOW							
State	Uttar Pradesh							
Survey Period	04th March 2016 to 20th April 2016.							
Tidal / Non-tidal	Non Tidal							
Availability of Depth (mtrs)								
	0-25 (km)	**25-50 (km)**	**50-75 (km)**	**75-100 (km)**	**100-125 (km)**	**125-150 (km)**	**150-175 (km)**	**175-200 (km)**
<1.2	17.690	15.750	15.500	11.500	10.200	9.250	12.650	11.950
1.2-1.4	2.900	4.250	4.850	6.350	6.620	7.300	8.050	6.300
1.5-1.7	1.950	2.350	2.050	3.500	4.150	3.500	2.300	3.300
1.8-2	1.710	1.200	1.400	1.700	2.180	2.300	1.300	1.650
>2.0	0.750	1.450	1.200	1.950	1.850	2.650	0.700	1.800
TOTAL	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000
Average Slope in m in 1 km	0.296	0.092	0.116	0.104	0.076	0.128	0.084	0.084
Width range (m)	100.000	100.000	75.000	88.000	106.000	110.000	97.000	97.000
Average Vel (m/s)	0.660	0.730	0.630	0.630	0.490	0.680	0.530	0.730
Discharge (Cu.m/sec.)	40.570	34.180	42.680	54.320	15.130	60.430	46.550	24.220
Bathy Survey conducted for Length (Km)	25	25	25	25	25	25	25	25
	200-225(km)	**225-250(km)**	**250-275(km)**	**275-300(km)**	**300-325(km)**	**325-350(km)**	**350-375(km)**	**375-400(km)**
<1.2	10.500	7.350	3.200	6.010	6.100	9.060	10.100	13.850
1.2-1.4	6.150	6.500	4.800	7.930	9.200	7.500	7.220	5.240
1.5-1.7	5.400	5.600	9.400	5.500	5.700	4.190	3.950	3.210
1.8-2	1.150	2.450	4.500	2.950	2.200	2.150	1.750	1.500
>2.0	1.800	3.100	3.100	2.610	1.800	2.100	1.980	1.200
TOTAL	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000
Average Slope in m in 1 km	0.028	0.100	0.116	0.081	0.103	0.012	0.084	0.136

Width range (m)	102.000	100.000	110.000	102.000	110.000	98.000	98.000	86.000
Average Vel (m/s)	0.860	0.850	0.700	0.770	0.710	0.770	0.690	0.720
Discharge (Cu.m/sec.)	30.690	36.810	41.800	50.280	45.240	66.910	61.320	62.550
Bathy Survey conducted for Length (Km)	25	25	25	25	25	25	25	25
	400-425(km)	**425-450(km)**	**450-475(km)**	**475-500(km)**	**500-514.31(km)**	**TOTAL**		
<1.2	13.450	12.950	2.800	14.200	4.950	**219.010**		
1.2-1.4	5.750	5.650	11.350	5.400	3.050	**132.360**		
1.5-1.7	3.700	3.500	7.550	2.550	1.900	**85.250**		
1.8-2	1.250	1.600	1.950	1.300	1.360	**39.550**		
>2.0	0.850	1.300	1.350	1.550	3.050	**38.140**		
TOTAL	25.000	25.000	25.000	25.000	14.310	**514.310**		
Average Slope in m in 1 km	0.036	0.120	0.104	0.062	0.130			
Width range (m)	87.000	86.000	74.000	72.000	125.000			
Average Vel (m/s)	0.620	0.710	0.810	0.580	0.500			
Discharge (Cu.m/sec.)	41.120	38.640	23.110	14.510	61.480			
Bathy Survey conducted for Length (Km)	25	25	25	25	14.31	**514.31**		
Dredging Quantity (Observed) cu.m.								
	0-25 (km)	**25-50 (km)**	**50-75 (km)**	**75-100 (km)**	**100-125 (km)**	**125-150 (km)**	**150-175 (km)**	**175-200 (km)**
Class 1	2,35,623.97	2,56,884.11	2,34,432.66	2,94,759.51	2,49,161.01	2,86,795.64	2,30,326.84	2,89,501.69
Class 2	5,18,120.27	5,40,127.04	5,01,746.08	5,93,562.98	5,36,402.82	5,88,624.14	5,16,545.72	5,88,051.68
Class 3	10,72,002.12	11,02,118.55	10,20,435.89	11,60,186.21	11,05,117.16	11,60,929.60	10,90,744.09	11,57,004.86
Class 4	15,09,091.94	15,47,188.54	14,47,950.43	16,07,027.38	15,52,154.00	16,10,401.67	15,42,781.80	16,04,095.59
	200-225 (km)	**225-250 (km)**	**250-275 (km)**	**275-300 (km)**	**300-325 (km)**	**325-350 (km)**	**350-375 (km)**	**375-400 (km)**
Class 1	2,25,931.43	2,27,800.63	1,98,224.11	1,98,232.84	1,50,417.90	1,64,182.36	2,00,870.65	2,63,607.33
Class 2	4,88,513.00	4,92,207.56	4,46,525.11	4,46,012.94	3,55,938.37	3,72,986.71	4,36,127.45	5,34,674.35
Class 3	10,21,022.94	10,34,859.66	9,66,402.80	9,71,917.82	8,17,994.85	8,32,797.33	9,26,856.37	10,62,475.73
Class 4	14,56,503.06	14,72,474.36	13,94,096.66	14,04,987.90	12,19,594.81	12,33,142.29	13,43,821.44	14,91,869.39
	400-425 (km)	**425-450 (km)**	**450-475 (km)**	**475-500 (km)**	**500-514.31 (km)**	**TOTAL**		
Class 1	1,47,653.89	2,40,693.88	3,18,611.78	2,64,448.59	1,69,607.38	48,47,768.20		

Class 2	3,63,989.72	5,14,877.78	6,35,471.56	5,45,122.93	3,30,374.89			1,03,46,003.10
Class 3	8,69,982.46	10,56,677.33	12,26,902.78	10,88,923.24	6,38,353.21			2,13,83,705.00
Class 4	12,98,802.83	14,91,315.34	16,78,237.11	15,15,792.21	8,74,179.21			3,02,95,507.96
Dredging Quantity (Reduced) cu.m.								
	0-25 (km)	**25-50 (km)**	**50-75 (km)**	**75-100 (km)**	**100-125 (km)**	**125-150 (km)**	**150-175 (km)**	**175-200 (km)**
Class 1	8,03,574.98	8,72,996.87	11,05,050.22	4,76,449.60	2,97,655.10	2,68,668.49	3,82,976.91	3,24,471.92
Class 2	13,02,414.30	13,90,404.93	16,76,754.63	8,42,141.83	6,01,009.02	5,42,014.50	7,41,687.80	6,39,820.54
Class 3	20,89,177.60	21,95,056.90	25,25,438.04	14,83,543.49	11,93,467.94	10,89,648.41	14,00,592.68	12,34,725.26
Class 4	25,86,107.95	26,97,624.29	30,36,933.19	19,47,446.40	16,46,993.46	15,34,707.80	18,74,199.38	16,88,876.85
	200-225 (km)	**225-250 (km)**	**250-275 (km)**	**275-300 (km)**	**300-325 (km)**	**325-350 (km)**	**350-375 (km)**	**375-400 (km)**
Class 1	3,14,166.06	1,39,061.21	73,797.37	1,52,879.99	2,68,020.09	3,01,318.13	3,50,338.31	5,26,210.75
Class 2	6,23,302.12	3,40,376.99	2,00,586.00	3,81,589.12	5,31,154.14	5,87,736.48	6,47,363.48	9,09,860.10
Class 3	12,19,448.74	7,99,505.69	5,50,039.77	9,00,323.03	10,52,370.75	11,45,665.54	12,12,504.91	15,68,790.47
Class 4	16,74,494.40	11,98,951.02	9,00,610.00	13,31,975.49	14,73,959.37	15,80,417.92	16,49,561.07	20,34,332.36
	400-425 (km)	**425-450 (km)**	**450-475 (km)**	**475-500 (km)**	**500-514.31 (km)**	**TOTAL**		
Class 1	6,40,626.19	4,36,096.45	2,30,064.98	7,58,206.88	2,10,686.67			89,33,317.17
Class 2	11,06,754.68	7,95,654.36	4,98,257.99	12,28,170.71	3,76,863.92			1,59,63,917.64
Class 3	18,78,175.18	14,35,207.34	10,43,100.08	19,81,619.65	6,90,936.53			2,86,89,338.00
Class 4	23,76,812.54	18,96,747.74	14,80,255.19	24,62,113.41	9,08,287.27			3,79,81,407.10
No. Of Bridge								
64 + 02 nos. PipaPul								
Clearances less than CLASS (no.)								
	Horizontal	**Vertical**						
Class 1	**39**	**54**						
Class 2	**59**	**58**						
Class 3	**60**	**58**						
Class 4	**60**	**58**						
No. of Dams, Barrages, Weirs, Anicut etc.								
2								
Anicut	506.090							

Gomti Barrage	507.87						
NUMBER OF DAYS WATER NOT AVAILABLE							
CWC Gauge	**Maighat**	**Jaunpur**	**Sultanpur**	**Lucknow**			
Chainage (km)	**63.070**	**100.484**	**240.929**	**510.566**			
	Yearly data						

Cargo availability

Nil

Passenger Movement

Ferry Services

Present IWT use

Ferry Services

Recommendation of the Consultant

The Riverbanks are well connected with the road network and are moderately connected with Railway Network, within 5 km. The road is near parallel on both sides throughout the River stretch.
In majority of river stretch, the water in the river is available only during monsoon season.
Ferry Ghats are available at about 35 locations for cross-river ferry services, using small wooden boats. Major cities are Ghazipur, Kaithi, Rajwari, Jaunpur, Sultanpur& Lucknow.
There is no water sport facility available in the whole river portion. However, tourism facilities are present at Jaunpur and Lucknow.
No cargo movement or IWT operation is observed along the entire stretch.
Modifications required in existing bridges & navigation lock are major deterrent for IWT along the stretch.

Viable or not-viable

1. U.P. Govt. had done some dredging and beautification works for tourism around Lucknow.
2. Assessment of tourism aspect and proposal from the State Govt. is recommended.

(Signature)

Date: Name of Consultant

SECTION – I: INTRODUCTORY CONSIDERATIONS

1.1 **River Course**. Inland Waterways Authority of India has awarded contract of detailed Hydrographic Survey and feasibility report in Region VII, the National Waterways including assessment of river training works and further development cost, for eco-friendly navigations in the waterways, to Strabag India Pvt. Ltd. The detailed hydrographic and topographic survey task were undertaken from Ganga confluence at Kathi, Ghazipur Lat 25°30'31.41"N, Long83°10'16.86"E) to Bara Imambara, Lucknow (Lat 26°52'21.23"N, Long80°54'58.08"E).

Gomti is a tributary of the Ganges (Ganga) river. It rises in northern Uttar Pradesh State, about 32 miles (51 km) east of Pilibhit and is intermittent for the first 35 miles (56 km) of its course, becoming perennial after its junction with the Joknai. It flows generally southeastward from the junction for about 500 miles (800 km), receiving its only major tributary, the right-bank Sai River, near Jaunpur and emptying into the Ganges near Saidpur. It drains a basin of about 7,240 square miles (18,750 square km).

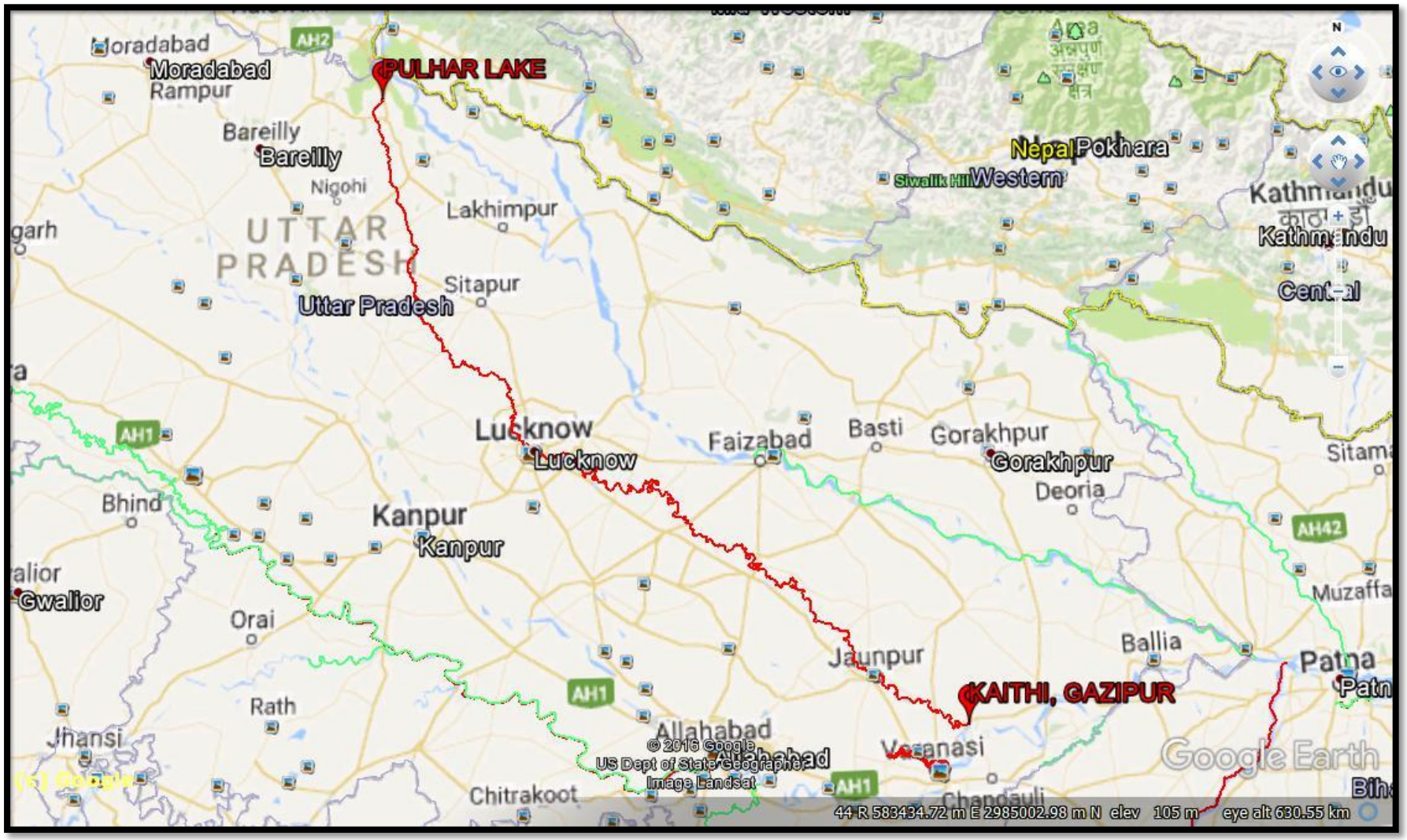
The cities of Lucknow, Sultanpur and Jaunpur are located on the banks of the Gomti. Gomti River is under "assault" at various points of its journey as it meanders through the stretch of Uttar Pradesh. From industrial effluents to domestic discharge, the river becomes more of a flowing dumping yard for the smaller and bigger towns, including Lucknow, Sultanpur and Jaunpur, etc. in its catchment area. The surveyed river length is having shallow stretches in most of the places. Fishing activity is prominent throughout the river length except the stretch passing through Lucknow city. Islands and sandchurs are also relevant in the river portion. Dense phytoplankton and water cabbage can be noticed in the surveyed river. No tidal effect observed throughout river stretch. Prominent fishing activity is relevant from river mouth to Lucknow. Continuous flow of water throughout the river being monitored. Significant amount of dredging is required for development of waterways.

Gomti is a tributary of the Ganga River. According to Hindu mythology the river is the daughter of Sage Vashist, and bathing in the waters of the Gomati on Ekadashi (the eleventh day of the Sanatana Dharma-Hindu calendar) can wash away one's sins. According to the major religious book, Srimad Bhagavatam, the Gomti is one of the many transcendental rivers in India. It is the river where sacred Gomti Chakras are found.

1.2 **Tributaries**. Its tributaries atLakhimpurKheri districts are Sukheta, Choha and Andhra Choha. Later other tributaries join this river. These are Kathina at Mailani and Sarayan at a village in Sitapur district. Another major tributary is the Sai river, which joins near Jaunpur. Other tributaries are Peeli River and Kalyani River.

1.3 **States & Districts**. The Gomti originates from Gomat Taal which formally known as Fulhaarjheel, near MadhoTanda, Pilibhit, Uttar Pradesh, India. It extends 900 kilometres (560 miles) through State of Uttar Pradesh and meets the Ganges River near Saidpur, Kaithi in Varanasi district. The cities of Lucknow, LakhimpurKheri, Sultanpur and Jaunpur are located on the banks of the Gomti and are the most prominent of the 15 towns in its catchment area. The course of waterway understudy of Gomti River is 514.31 km length in of the river from Ganga confluence to upstream

1.4 (a) **Full Course of Waterway**.



1.4 (b) **Course of Waterway under study**.

1.5 Scope of Works. Strabag India Pvt Ltd. conducted hydrographic and topographic survey of Gomti River from Ganga confluence at Kathi, Ghazipur Lat 25°30'31.41"N, Long 83°10'16.86"E) to Bara Imambara, Lucknow (Lat 26°52'21.23"N, Long 80°54'58.08"E) from 04thMarch 2016 to 20thApril 2016. The scope of the work for the conduct of survey of Gomti River includes:-

- Undertake bathymetric and topographic survey of National waterway.
- Establishing horizontal and vertical control stations
- Construction of benchmark pillars and establishing its reduced level w.r.to Mean Sea Level
- Setting up and deployment of water level gauges
- Current velocity and discharge measurements
- Collection and analysis of water and bottom samples.
- A collection of topographic features including existing cross structures.
- Analysis of survey data, including assessment of water availability for navigation.
- Preparation of survey charts and feasibility report

SECTION – 2: METHODOLOGY ADOPTED TO UNDERTAKE STUDY

2.1 **Methodology**. The detailed hydrographic and topographic survey task were undertaken from Ganga confluence at Kaithi, Ghazipur Lat 25°30'31.41"N, Long 83°10'16.86"E) to Bara Imambara, Lucknow (Lat 26°52'21.23"N, Long 80°54'58.08"E) from 04thMar 2016 to 20thApr 2016. Details of Horizontal and Vertical Control adopted for the survey of Gomti River is placed at Annexure 7 to this report. The survey was undertaken with cross-section corridor of 150m and line spacing of 200m. The plotting of chart was done on UTM projection at zone 44N as per specification. Details of survey chart scheming and sample fair sheet is placed at Annexure 15 to this report.

2.1(a) **Equipment Used**. Various equipment's were used during the survey operations which is tabulated below as well as elaborately described at Annexure 8.

HYDROGRAPHIC SURVEY EQUIPMENTS

Equipment	**Make**	**Qty. Deployed**
Echo sounder	500 DF dual Frequency	2
DGPS	Trimble SPS 356/461	2
Current Meter	Vertical Axis-Cup Type	1
Grab Sampler	Vanveen grab	1
Software	HYPACK data acquisition	1
Tide Pole	Manual	06

TOPOGRAPHIC SURVEY EQUIPMENTS

Equipment	Make	Qty. Deployed
GPS Sets	Trimble Spectra	5
Auto Level	Leica	2
Total Station	Topcon	1
Total Station	Leica	1
Software	HYPACK data acquisition	1
Software	Autocad	1
Software	Trimble Spectra Survey office v.8	1

2.1(b) **Topographic Survey.** The Topographic survey was carried out between 04th Mar 2016 to 20th Apr 2016. The weather was sunny and hot throughout the survey period. The survey was undertaken as per the approved line provided by IWAI. The spot level points in the crossline were spaced at 10 m interval. The plotting of the chart was done on UTM Projection at Zone 44N. The spot levels along the river banks and dry river beds were obtained by using Trimble DGPS in RTK mode. The topographic survey for the entire survey stretch was conducted to collect the following data:-

- Spot levels of the River bed and Banks
- Delineation of Islands
- Fixing of bridges and marks
- Assess the type of river bank
- Extending the vertical and horizontal control throughout the survey area
- Collection of local information along the river Banks

Topographic Spot Levelling by Trimble DGPS

The details of all spot levels are provided in the respective sheets being presented along with this report. The details of bank protection and features across the river are Placed at Annexure 5 & 6 respectively. Additionally, a soft copy of the same in XYZ format is being handed over as deliverable data.

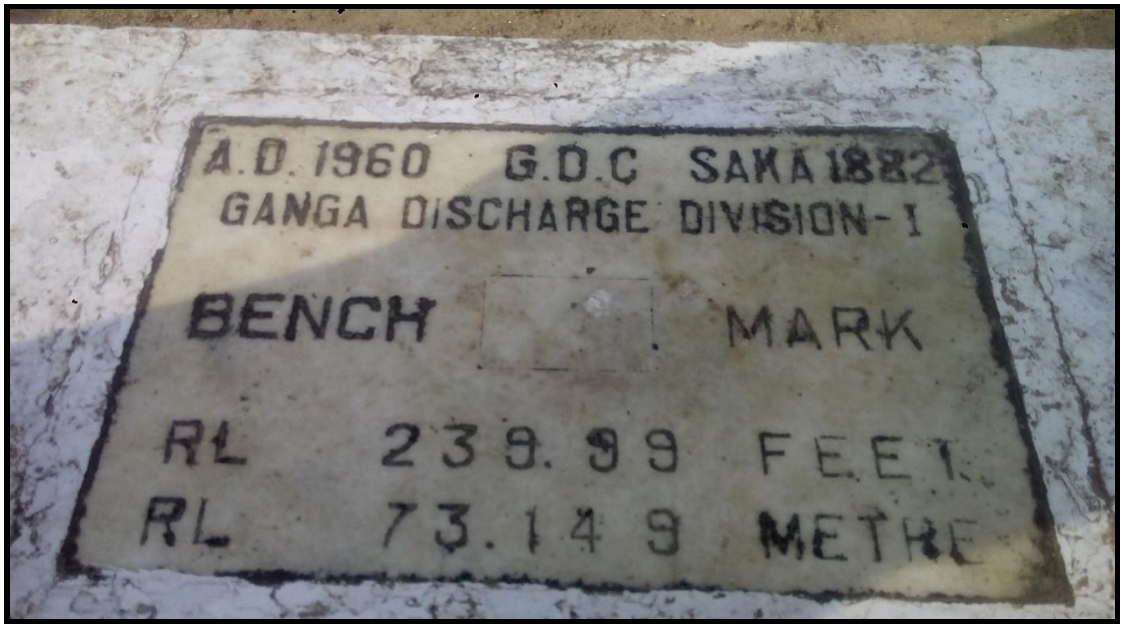
2.1(c) **Bathymetric Survey.** Bathy 500 DF Echo Sounder was used to obtain soundings onboard the survey boat. The working frequency of 210 and 33 kHz was used for sounding operations. Trimble SP 461/ 356 DGPS was used for positioning. The digital output from the echo sounder and DGPS were automatically fed to the HYPACK data logging software on a real-time basis for the acquisition of survey data. No breakdown of equipment was reported and the performance of the equipment was found to be satisfactory during the entire duration of the survey. The cross lines were run perpendicular to the orientation of river flow (i.e. perpendicular to the orientation of depth contours) in respective stretches. The spot sounding/Topographic Spot leveling was also carried out in the area where the survey boat cannot be operated due to the low depth.

Bathymetric Survey operation

2.1(d) **Calibration.** The equipment used for the survey was calibrated by the equipment supplier. The equipment calibration certificates are placed at Annexure - 13 to this report.

2.2 **Description of Bench Mark.** Trimble Spectra Precision DGPS system was used in standalone static observation mode for 24 hrs. at Varanasi Base for the river Gomti. Base at Barahpur was established by simultaneous GPS observation in baseline extension mode. Extension of the geodetic control was achieved by setting up BM pillars throughout the river stretches at every 10km chainage. Co-ordinates of such pillars were established by simultaneous Static observations between established and new stations. The data was processed using Spectra Precision Survey Office software. Details of these BM pillars along with stationed recovery descriptions are mentioned at Annexure 9.

2.2.1 **CWC BM Rajghat.** CWC Benchmark was recovered near Rajghat, Varanasi, UP. Simultaneous GPS observation and levelling were carried out for establishing vertical control. Value of the CWC BM was extended for Gomti River and cross checked at Maighat, Jaunpur, and Sultanpur & Lucknow. RL value of the CWC bench mark at Rajghat is 73.149m.



CWC BM at Rajghat, Varanasi (U.P)

2.2.2 **CWC BM Maighat.** The TBM at Right Bankside of Gomti River near CWC Maighat site was recovered and the inscribed value of the TBM as 74.496 mtr. from MSL was recovered on confirmation from Junior Engineer, CWC Maighat site office.

CWC BM at Maighat

NAME OF BM	VALUE OF CWC BM (m)	Latitude	Longitude
MAIGHAT	74.496	25°38'25.61258"	82°51'43.60360"

2.2.3 **CWC BM Jaunpur.** The TBM at Left Bank side of Gomti River near CWC Maighat site was recovered and the inscribed value of the TBM as 75.136 mtr from MSL was recovered on confirmation from Junior Engineer, CWC Katghara, Jaunpur site office.

CWC BM at Katghara, Jaunpur, Uttar Pradesh

NAME OF BM	VALUE OF CWC BM (m)	Latitude	Longitude
Katghara, Jaunpur	75.136	25°44'56.18568"	82°40'18.81623"

2.2.4 **CWC BM Sultanpur.** The TBM at Left Bankside of Gomti River near CWC Karoudia, Sultanpur site was recovered and the inscribed value of the TBM as 93.925 mtr from MSL was recovered on confirmation from Junior Engineer, CWC karoudia, Sultanpur site office.

CWC BM at Karoudia, Bhattawa, Sultanpur

NAME OF BM	VALUE OF CWC BM (m)	Latitude	Longitude
Karoudia, Sultanpur	93.925	26°16'30.58658"	82°04'00.84485"

2.2.5 **CWC BM Lucknow.** The TBM at Right Bankside of Gomti River near CWC Lucknow site was recovered and the inscribed value of the TBM as 109.630 mtr from MSL was recovered on confirmation from Junior Engineer, CWC Hanuman setu, Lucknow site office.

CWC BM at Lucknow

NAME OF BM	VALUE OF CWC BM (m)	Latitude	Longitude
CWC Lucknow	109.630	26°51'43.03186"	80°56'45.84021"

2.3 **Tidal Influence Zone and Tidal Variation**. Total 514.310 km length of river stretch was completely non-tidal. However, tidal observations were undertaken at every 10 Km. Tidal data being attached at '**Annexure 3**' along with this report.

2.4 **Methodology to Fix Sounding Datum**. Sounding datum for all the tide gauge fixed with the consulting of the IWAI department. Last six year average of minimum water level data of CWC gauge is to be taken for fixed the sounding datum. Barrage (UP Stream) area Minimum Draw down Level (MDDL) data is to be taken for fixed the sounding datum. Shallow and of dry stretches of waterway, lowest MSL value at every km is to be taken for fixed Sounding Datum. The details of established datum value for stretches are as tabulated below:-

Stretch (KM)		Established SD wrt MSL (m)
From	To	
0.000	5.370	55.510
5.370	15.974	56.750
15.974	27.102	57.850
27.102	36.161	59.060
36.161	45.066	59.840
45.066	54.797	61.020
54.797	60.962	61.980
66.405	76.851	63.220
76.851	86.280	64.810
86.280	94.061	65.400
94.061	99.708	66.600
104.977	114.160	67.530
114.160	123.712	68.260
123.712	133.813	69.140
133.813	143.991	70.030
143.991	153.840	70.880
153.840	164.111	71.660
164.111	174.325	72.620
174.325	184.390	73.400
184.390	192.867	74.320
192.867	203.136	74.820
203.136	214.225	76.070

Stretch (KM)		Established SD wrt MSL (m)
From	To	
214.225	224.714	76.700
224.714	235.117	77.840
235.117	239.514	78.470
243.709	253.398	79.160
253.398	262.420	80.180
262.420	272.864	80.640
272.864	283.809	81.900
283.809	292.607	82.440
292.607	304.698	83.340
304.698	313.255	84.440
313.255	321.167	84.760
321.167	332.119	85.740
332.119	339.856	86.550
339.856	349.787	87.000
349.787	362.771	88.160
362.771	376.012	89.100
376.012	384.640	90.310
384.640	391.590	90.510
391.590	403.392	91.450
403.392	413.740	92.450
413.740	422.966	93.140
422.966	432.838	93.940
432.838	439.656	94.780
439.656	448.199	95.060
448.199	460.144	96.140
460.144	471.286	97.000
471.286	479.554	97.760
479.554	483.321	98.350
483.321	487.879	98.570
487.879	496.730	99.100
496.730	503.759	99.810
503.759	505.607	100.240
505.607	506.089	100.315
506.091	506.984	101.285
512.438	514.310	104.150

2.5 **Maximum and Minimum Water Level**. Maximum and minimum water level of CWC Gauges data was not available.

2.6 **Salient Features of Dam, Barrages, Weirs, Anicut, Locks and Aqueducts, etc**. The only barrage, i.e. Gomti barrage is located at Ch.507.870 km at Lucknow city. This is an open barrage. Features of barrage being tabulated below:-

Salient Features	
Name of the Structure	Gomti Barrage
Nearest city	Lucknow
District	Lucknow
State	Uttar Pradesh
Name of River	GOMTI
Basin	Ganga
Year of commencement	1973
Year of completion	1979
Design flood (Cumec)	4246
Length of Barrage and Anicut (m)	202.5
No. of bays (i.e. number of openings)	10
Type of spillway gate	OT
Spillway gates - Number	11
Pond level (m)	105.75
Means for dissipating energy (Hydraulic)	BAFFLE BLOCK AND END BLOCK
Status of BWA Construction	Completed

2.7 **Description of Erected Bench Mark Pillars**. New Bench Mark Pillar (53 Nos) were constructed as per the Specification of Tender Documents. The Extension of Horizontal and Vertical Control was carried out by base line processing method with the nearest reference station. Details of erected BM pillars is Place at Annexure 9.The final accepted co-ordinate and Reference Level value of Gomti BM Pillar are as below:-

CONTROL PILLERS CO-ORDINATES

BM No	Location	Chainage (km)	Latitude	Longitude	Easting (m)	Northing (m)	Height above MSL (m)	BM Ht above SD (m)
Base at Barahpur	Barahpur	27.420	25°33'26.50"N	83°03'35.44"E	706939.907	2828271.800	73.842	-
GOM 1	Kaithi	0.346	25°30'24.50"N	83°10'6.33"E	717942.751	2822844.969	64.899	9.39
GOM 2	Dudhuwan	11.615	25°30'26.25"N	83° 7'2.49"E	712807.726	2822815.028	71.613	14.87
GOM 3	Udho Rampur	21.596	25°31'21.15"N	83° 4'7.97"E	707907.135	2824428.789	70.290	12.44
GOM 4	Mohandaspur	32.63	25°33'39.77"N	83° 1'56.57"E	704173.256	2828637.962	70.882	11.82
GOM 5	Ramgarh	39.698	25°34'24.98"N	82°59'36.71"E	700248.370	2829969.273	67.700	7.86
GOM 6	Narhan	50.520	25°37'22.19"N	82°56'25.97"E	694845.696	2835343.889	72.951	11.93
GOM 7	Tarawa	59.090	25°37'0.97"N	82°53'14.58"E	689515.827	2834613.302	67.618	5.64
GOM 8	RajepurJaitpur	70.050	25°39'11.54"N	82°48'7.06"E	680881.739	2838511.999	69.062	5.85
GOM 9	Jaitpur	83.749	25°41'31.93"N	82°44'57.60"E	675540.810	2842760.380	73.540	8.73
GOM 10	Uttargawa	88.896	25°43'40.83"N	82°44'22.06"E	674497.908	2846713.738	72.035	6.64
GOM 11	Tutipur	99.265	25°45'6.00"N	82°40'49.92"E	668551.001	2849257.896	75.279	8.68
GOM 12	Chhuncha	109.805	25°47'29.79"N	82°37'4.81"E	662224.893	2853603.774	74.073	6.55
GOM 13	Dakkhin Patti	118.491	25°50'29.38"N	82°35'31.50"E	659558.538	2859097.648	75.924	7.66
GOM 14	Anguli	128.809	25°55'5.86"N	82°33'44.30"E	656472.651	2867568.083	72.445	3.30
GOM 15	Pilkichha	139.300	25°57'51.39"N	82°32'49.28"E	654881.859	2872643.202	77.603	7.57
GOM 16	Amiliya	149.264	25°59'59.97"N	82°32'49.28"E	647795.002	2876518.072	74.765	3.89
GOM 17	Sultanpur	158.480	26° 1'4.70"N	82°23'39.21"E	639518.838	2878419.164	76.052	4.39
GOM 18	Pakarpur	169.800	26° 6'27.41"N	82°22'38.02"E	637712.804	2888330.112	79.018	6.40
GOM 19	Baruaripur	178.869	26° 9'20.19"N	82°20'51.28"E	634692.438	2893615.790	88.441	15.05
GOM 20	Benipur	189.934	26°10'55.98"N	82°18'15.69"E	630342.740	2896518.278	83.914	9.59
GOM 21	Mahmoodpur	195.799	26°12'52.21"N	82°16'51.12"E	627959.497	2900071.351	83.488	8.67
GOM 22	Madavpur	210.447	26°11'59.90"N	82°12'26.14"E	620620.160	2898391.437	85.616	9.55
GOM 23	Badaruddinpur	218.000	26°13'31.52"N	82° 9'13.17"E	615239.236	2901161.514	84.806	8.10
GOM 24	Saidpur	231.403	26°17'27.80"N	82° 6'37.79"E	610865.302	2908393.195	86.377	8.54
GOM 25	Sultanpur city	238.809	26°16'13.05"N	82° 4'45.97"E	607783.142	2906067.113	82.366	3.89

BM No	Location	Chainage (km)	Latitude	Longitude	Easting (m)	Northing (m)	Height above MSL (m)	BM Ht above SD (m)
GOM 26	Malikpur	247.224	26°19'23.73"N	82° 5'34.77"E	609087.829	2911945.496	92.228	13.06
GOM 27	Doulatpur	259.640	26°21'16.42"N	82° 2'58.78"E	604734.750	2915376.188	85.664	5.48
GOM 28	Amaujasarpur	265.187	26°22'15.86"N	82° 2'1.52"E	603132.795	2917192.970	84.174	3.53
GOM 29	Kota	280.468	26°22'45.28"N	81°56'6.41"E	593284.725	2918022.661	91.172	9.28
GOM 30	Rasoolabad	287.139	26°23'26.86"N	81°52'44.28"E	587674.797	2919262.547	91.115	8.67
GOM 31	Kailashpur	298.044	26°25'20.78"N	81°49'40.53"E	582560.587	2922733.512	90.824	7.49
GOM 32	Pipri	311.347	26°28'52.08"N	81°46'4.79"E	576545.262	2929197.381	92.190	7.76
GOM 33	Jarai Kalan	315.150	26°29'48.16"N	81°44'31.06"E	573940.228	2930907.093	88.014	3.26
GOM 34	Satthin	327.210	26°31'45.07"N	81°40'24.44"E	567094.866	2934466.155	91.516	5.78
GOM 35	BandaraShekhpur	337.125	26°35'24.14"N	81°41'37.88"E	569090.521	2941217.057	94.806	8.26
GOM 36	Kishni	342.572	81°38'50.79"E	81°38'50.79"E	564471.535	2940645.925	92.095	5.10
GOM 37	Pali	356.967	26°37'23.38"N	81°37'30.34"E	562225.375	2944850.118	93.562	5.40
GOM 38	ManjhGaon	368.494	26°38'43.78"N	81°33'39.75"E	555838.555	2947294.587	95.164	6.06
GOM 39	Belpur	383.384	26°41'34.74"N	81°34'45.26"E	557625.390	2952562.519	93.184	2.87
GOM 40	Hajipur	385.781	26°41'46.10"N	81°33'45.75"E	555979.749	2952904.144	95.462	4.95
GOM 41	Lakariya	397.317	26°39'15.85"N	81°30'30.97"E	550615.706	2948259.766	94.976	3.53
GOM 42	Menahuwa	409.423	26°39'40.05"N	81°27'24.67"E	545462.536	2948984.328	100.050	7.60
GOM 43	Jalalpur	418.053	26°39'40.42"N	81°24'19.77"E	540351.325	2948978.129	101.637	8.49
GOM 44	Pahala	427.916	26°39'24.68"N	81°20'40.89"E	534302.227	2948476.719	101.400	7.46
GOM 45	Achkamau	437.727	26°41'44.29"N	81°17'59.99"E	529844.425	2952760.606	104.222	9.44
GOM 46	Paharapur	441.577	26°42'48.29"N	81°16'23.92"E	527185.727	2954723.765	102.441	7.38
GOM 47	Maulabad	454.910	26°42'48.29"N	81°16'23.92"E	525877.088	2959507.079	102.568	6.42
GOM 48	Chaksar	465.356	26°44'16.98"N	81°12'19.95"E	520440.793	2957439.771	102.346	5.35
GOM 49	Gehendavar	481.969	26°48'49.04"N	81° 8'24.69"E	513932.836	2965800.026	105.128	6.78
GOM 50	Sureya Mau	484.673	26°49'59.12"N	81° 7'44.09"E	512809.955	2967955.387	103.228	4.66
GOM 51	NoorpurBehata	491.124	26°49'41.46"N	81° 4'7.59"E	506834.018	2967407.623	108.057	8.96
GOM 52	VikasKhand,, Lucknow	505.097	26°49'57.89"N	80°58'11.49"E	497005.852	2967911.996	109.109	8.87
GOM 53	Lajpat Nagar, Lucknow	514.444	26°52'22.19"N	80°54'49.10"E	491422.763	2972353.428	107.130	2.99

2.8 **Description of Erected Tide Gauges**. Tide gauges were erected throughout the river stretch. Water level reading as per prescribed format along with chainage is mentioned at **Annexure 3**. Details of erected tide gauges being mentioned below:-

Tide Gauge No	Location	Chainage (km)	Easting/Northing (m)	Zero of Tide Gauge W.r.t MSL (M)	Period of Observation
TP_GM 1	Kaithi	0.346	717911.735 2822913.5391	55.797	During the Conduct of Bathy Survey
TP_GM 2	Dudhuwan	10.393	712778.440 2822753.880	57.148	During the Conduct of Bathy Survey
TP_GM 3	Udho Rampur	21.554	707979.737 2824434.710	58.684	During the Conduct of Bathy Survey
TP_GM 4	Mohandaspur	32.649	704208.217 2828675.990	59.546	During the Conduct of Bathy Survey
TP_GM 5	Ramgarh	39.672	700224.000 2829976.500	59.892	During the Conduct of Bathy Survey
TP_GM 6	Narhan	50.46	694828.000 2835300.000	61.169	During the Conduct of Bathy Survey
TP_GM 7	Tarawa	59.134	689471.000 2834634.000	61.835	During the Conduct of Bathy Survey
TP_GM 8	RajepurJaitpur	70.02	680897.000 2838476.500	63.334	During the Conduct of Bathy Survey
TP_GM 9	Jaitpur	83.681	675645.000 2842738.500	64.403	During the Conduct of Bathy Survey
TP_GM 10	Uttargawa	88.879	674442.500 2846708.500	65.214	During the Conduct of Bathy Survey
TP_GM 11	Tutipur	99.243	668543.214 2849195.512	66.045	During the Conduct of Bathy Survey

Tide Gauge No	Location	Chainage (km)	Easting/Northing (m)	Zero of Tide Gauge W.r.t MSL (M)	Period of Observation
TP_GM 12	Chhuncha	109.781	662249.347 2853572.251	67.104	During the Conduct of Bathy Survey
TP_GM 13	Dakkhin Patti	118.539	659514.389 2859139.530	67.375	During the Conduct of Bathy Survey
TP_GM 14	Anguli	128.885	656406.500 2867606.000	68.537	During the Conduct of Bathy Survey
TP_GM 15	Pilkichha	138.741	654923.500 2872610.000	69.187	During the Conduct of Bathy Survey
TP_GM 16	Amiliya	149.241	647802.500 2876494.000	70.697	During the Conduct of Bathy Survey
TP_GM 17	Sultanpur	158.439	639475.500 2878394.500	71.13	During the Conduct of Bathy Survey
TP_GM 18	Pakarpur	169.782	637707.413 2888301.247	72.465	During the Conduct of Bathy Survey
TP_GM 19	Baruaripur	178.868	634669.527 2893606.316	72.926	During the Conduct of Bathy Survey
TP_GM 20	Benipur	189.911	630369.215 2896495.315	74.336	During the Conduct of Bathy Survey
TP_GM 21	Mahmoodpur	195.822	627924.412 2900068.315	75.289	During the Conduct of Bathy Survey
TP_GM 22	Madavpur	210.449	620640.615 2898412.295	76.018	During the Conduct of Bathy Survey
TP_GM 23	Badaruddinpur	218	615251.993 2901190.787	76.499	During the Conduct of Bathy Survey
TP_GM 24	Saidpur	231.428	610839.153 2908350.351	77.269	During the Conduct of Bathy Survey

Tide Gauge No	Location	Chainage (km)	Easting/Northing (m)	Zero of Tide Gauge W.r.t MSL (M)	Period of Observation
TP_GM 25	Sultanpur city	238.806	607805.500 2906074.500	77.345	During the Conduct of Bathy Survey
TP_GM 26	Malikpur	247.197	609068.000 2911914.500	78.538	During the Conduct of Bathy Survey
TP_GM 27	Doulatpur	259.598	604635.210 2915326.010	78.915	During the Conduct of Bathy Survey
TP_GM 28	Amaujasarpur	265.241	603017.351 2917193.214	79.526	During the Conduct of Bathy Survey
TP_GM 29	Kota	280.486	593264.520 2918095.420	81.319	During the Conduct of Bathy Survey
TP_GM 30	Rasoolabad	287.131	587703.648 2919269.282	81.888	During the Conduct of Bathy Survey
TP_GM 31	Kailashpur	298.083	582525.220 2922756.510	83.268	During the Conduct of Bathy Survey
TP_GM 32	Pipri	311.312	576512.333 2929182.395	83.559	During the Conduct of Bathy Survey
TP_GM 33	Jarai Kalan	315.198	573877.230 2930956.232	84.765	During the Conduct of Bathy Survey
TP_GM 34	Satthin	327.136	567145.634 2934414.922	85.917	During the Conduct of Bathy Survey
TP_GM 35	BandaraShekhpur	337.101	569110.410 2941260.340	86.424	During the Conduct of Bathy Survey
TP_GM 36	Kishni	342.61	564476.105 2940681.342	86.711	During the Conduct of Bathy Survey
TP_GM 37	Pali	356.963	562211.906 2944895.039	87.603	During the Conduct of Bathy Survey

Tide Gauge No	Location	Chainage (km)	Easting/Northing (m)	Zero of Tide Gauge W.r.t MSL (M)	Period of Observation
TP_GM 38	ManjhGaon	368.578	555726.500 2947310.410	89.178	During the Conduct of Bathy Survey
TP_GM 39	Belpur	383.445	557581.200 2952534.500	90.142	During the Conduct of Bathy Survey
TP_GM 40	Hajipur	385.834	556015.641 2952799.576	90.426	During the Conduct of Bathy Survey
TP_GM 41	Lakariya	397.345	550594.000 2948286.310	91.547	During the Conduct of Bathy Survey
TP_GM 42	Menahuwa	409.439	545496.500 2948992.000	93.01	During the Conduct of Bathy Survey
TP_GM 43	Jalalpur	418.04	540344.250 2948958.500	92.927	During the Conduct of Bathy Survey
TP_GM 44	Pahala	427.892	534290.491 2948406.762	94.16	During the Conduct of Bathy Survey
TP_GM 45	Achkamau	437.784	529797.267 2952721.673	94.625	During the Conduct of Bathy Survey
TP_GM 46	Paharapur	441.528	527224.240 2954740.500	94.436	During the Conduct of Bathy Survey
TP_GM 47	Maulabad	454.87	525895.500 2959543.350	95.309	During the Conduct of Bathy Survey
TP_GM 48	Chaksar	465.418	520333.500 2957493.420	96.377	During the Conduct of Bathy Survey
TP_GM 48A	Jheejhe Mau	477.154	515540.197 2963899.271	97.5	During the Conduct of Bathy Survey
TP_GM 49	Gehendavar	481.953	513910.430 2965761.520	98.708	During the Conduct of Bathy Survey

Tide Gauge No	Location	Chainage (km)	Easting/Northing (m)	Zero of Tide Gauge W.r.t MSL (M)	Period of Observation
TP_GM 50	Sureya Mau	484.689	512802.080 2967995.802	99.207	During the Conduct of Bathy Survey
TP_GM 51	NoorpurBehata	491.068	506889.530 2967489.580	99.443	During the Conduct of Bathy Survey
TP_GM 51A	Malesemau	502.391	499467.833 2968043.998	99.36	During the Conduct of Bathy Survey
TP_GM 52	VikasKhand,, Lucknow	505.126	496974.751 2967919.028	99.982	During the Conduct of Bathy Survey
TP_GM 53	Lajpat Nagar, Lucknow	514.31	491579.914 2972334.155	102.231	During the Conduct of Bathy Survey

Tidal Observation at Ch.110.18 km

2.9 **Chart Datum/ Sounding Datum and Reduction Details**. Sounding Datum reduction table being mentioned below on the erected tide gauges as well as CWC Gauges:-

Location of CWC gauge / Dam / Barrage / Weir / Anicut / Bench Mark / tide gauges	Chainage (km)	Stretch for corrected soundings and topo levels (km)		Established Sounding Datum w.r.t. MSL (m) at col. A.	Sounding Datum of Tide Gauge wrt MSL (m)	Correction in WL data for Bathymetric survey (m)	Topo level data converted as depth for volume calculation wrt SD (m)	HFL (m)
A	B	C		D +ve indicates above MSL	E	F = (E- WL data in MSL)	G = (E- topo levels in MSL)	
		FROM	TO	-ve indicates below MSL				
Ganga Confl. (1262)	0.000			**55.473**		**Details at Annexure 3.**	**A separate xyz file is created and soft copy provide with report**	**70.392**
TP_GM 01	0.346	0.000	5.370		55.510			
TP_GM 02	10.393	5.370	15.974		56.750			
TP_GM 03	21.554	15.974	27.102		57.850			
TP_GM 04	32.649	27.102	36.161		59.060			
TP_GM 05	39.672	36.161	45.066		59.840			
TP_GM 06	50.460	45.066	54.797		61.020			
TP_GM 07	59.134	54.797	60.962		61.980			
CWC MAIGHAT	62.789			**62.38**				**74.970**
TP_GM 08	70.020	66.405	76.851		63.220			
TP_GM 09	83.681	76.851	86.280		64.810			
TP_GM 10	88.879	86.280	94.061		65.400			
TP_GM 11	99.243	94.061	99.708		66.600			
CWC JAUNPUR	100.172			**66.705**				**77.740**
TP_GM 12	109.781	104.977	114.160		67.530			
TP_GM 13	118.539	114.160	123.712		68.260			
TP_GM 14	128.885	123.712	133.813		69.140			
TP_GM 15	138.741	133.813	143.991		70.030			
TP_GM 16	149.241	143.991	153.840		70.880			
TP_GM 17	158.439	153.840	164.111		71.660			
TP_GM 18	169.782	164.111	174.325		72.620			
TP_GM 19	178.868	174.325	184.390		73.400			
TP_GM 20	189.911	184.390	192.867		74.320			
TP_GM 21	195.822	192.867	203.136		74.820			
TP_GM 22	210.449	203.136	214.225		76.070			
TP_GM 23	218.000	214.225	224.714		76.700			
TP_GM 24	231.428	224.714	235.117		77.840			
TP_GM 25	238.806	235.117	239.514		78.470			
CWC SULTANPUR	240.221			**78.593**				**89.455**
TP_GM 26	247.197	243.709	253.398		79.160			
TP_GM 27	259.598	253.398	262.420		80.180			
TP_GM 28	265.241	262.420	272.864		80.640			

Location of CWC gauge / Dam / Barrage / Weir / Anicut / Bench Mark / tide gauges	Chainage (km)	Stretch for corrected soundings and topo levels (km)		Established Sounding Datum w.r.t. MSL (m) at col. A.	Sounding Datum of Tide Gauge wrt MSL (m)	Correction in WL data for Bathymetric survey (m)	Topo level data converted as depth for volume calculation wrt SD (m)	HFL (m)
A	B	C		D +ve indicates above MSL	E	F = (E- WL data in MSL)	G = (E- topo levels in MSL)	
		FROM	TO	-ve indicates below MSL				
TP_GM 29	280.486	272.864	283.809		81.900			
TP_GM 30	287.131	283.809	292.607		82.440			
TP_GM 31	298.083	292.607	304.698		83.340			
TP_GM 32	311.312	304.698	313.255		84.440			
TP_GM 33	315.198	313.255	321.167		84.760			
TP_GM 34	327.136	321.167	332.119		85.740			
TP_GM 35	337.101	332.119	339.856		86.550			
TP_GM 36	342.610	339.856	349.787		87.000			
TP_GM 37	356.963	349.787	362.771		88.160			
TP_GM 38	368.578	362.771	376.012		89.100			
TP_GM 39	383.445	376.012	384.640		90.310			
TP_GM 40	385.834	384.640	391.590		90.510			
TP_GM 41	397.345	391.590	403.392		91.450			
TP_GM 42	409.439	403.392	413.740		92.450			
TP_GM 43	418.040	413.740	422.966		93.140			
TP_GM 44	427.892	422.966	432.838		93.940			
TP_GM 45	437.784	432.838	439.656		94.780			
TP_GM 46	441.528	439.656	448.199		95.060			
TP_GM 47	454.870	448.199	460.144		96.140			
TP_GM 48	465.418	460.144	471.286		97.000			
TP_GM 48A	477.154	471.286	479.554		97.760			
TP_GM 49	481.953	479.554	483.321		98.350			
TP_GM 50	484.689	483.321	487.879		98.570			
TP_GM 51	491.068	487.879	496.730		99.100			
TP_GM 51A	502.391	496.730	503.759		99.810			
TP_GM 52	505.126	503.759	505.607		100.240			
D/S ANICUT	506.087	505.607	506.089	**100.315**				
ANICUT	506.090	506.089	506.091	**101.285**				
U/S ANICUT	506.092	506.091	506.984	**101.285**				
D/S GOMTI BARRAGE		506.984	507.870	**101.300**				
GOMTI BARRAGE	507.870			**104.145**				
U/S GOMTI BARRAGE								
LUCKNOW CWC	510.565	507.870	512.438	**104.145**				**110.850**
TP_GM 53	514.310	512.438	514.310		104.150			

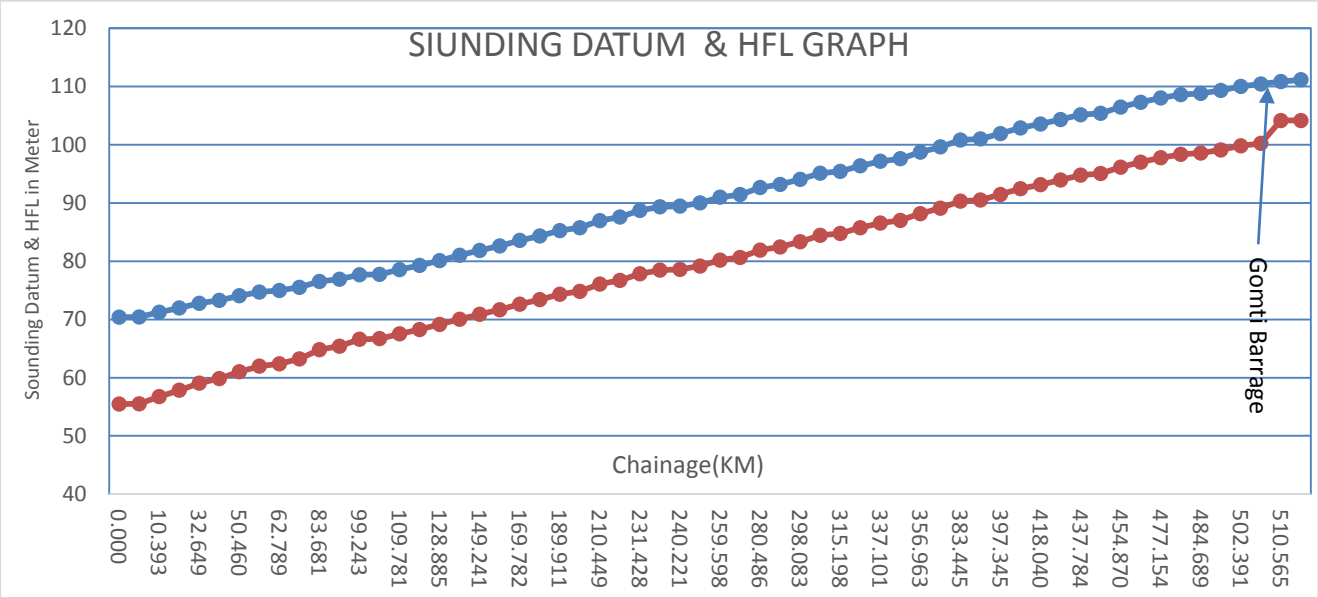
2.10 **HFL at Gauge Stations and Cross-Structures**. HFL wrt MSL at CWC Gauge locations was provided by the IWAI department and the same being utilized in interpolation method for deriving the HFL at cross-structures.

Sl	Location and Description of CWC Gauge/ Dam/etc.	Cross-Structure Details	Chainage (km)	Established HFL wrt MSL (m)	Computed HFL at Cross – Structure wrt MSL (m)
	A	B	C	D	E
	Ganga Confl. (1262)			70.392	
1		Rajwari Bridge	3.12		70.638
2		Rajwari Rail Bridge/U/C	3.73		70.686
3		Babatpur Bridge	23.23		72.224
4		Banshakti Bridge	29.08		72.685
5		Balua Bridge	39.03		73.470
6		Balua Bridge	39.05		73.471
7		Hariharpur UC Bridge	42.97		73.780
8		Kerkat Bridge	56.29		74.830
9		Pasewan UC Bridge	62.85		74.965
	CWC Maighat		62.789	74.97	
10		Pierce UC Bridge	66.5		75.636
11		Belao Bridge	74.42		76.260
12		Peepa Pool	76.66		76.437
13		Jafrabad Bridge	85.36		77.123
14		Jamaitha U/C Bridge	91.335		77.594
15		Chakpanchhaita Rail Bridge	95.69		77.663
16		Shastri Bridge	97.98		77.700
17		Lokbandhu Bridge	98.51		77.708
18		Shahi Bridge	98.76		77.712
	CWC Jaunpur		100.172	77.74	
19		Chuncha Bridge	109.83		79.052
20		Pilkichha Bridge	139.23		81.370
21		Imiliya Bridge U/C	148.35		82.089
22		TripathiSetu Bridge	158.00		82.850

Sl	Location and Description of CWC Gauge/ Dam/etc.	Cross-Structure Details	Chainage (km)	Established HFL wrt MSL (m)	Computed HFL at Cross – Structure wrt MSL (m)
	A	B	C	D	E
23		Dewad Bridge	172.38		83.984
24		Dhopap UC Bridge	186.42		85.091
25		Bhawanpur Bridge	195.82		85.832
27		PapadGhat U/C Bridge	206.65		86.686
28		Saidpur Bridge	231.46		88.643
29		Sultanpur Bridge	239.08		89.243
30		Sultanpur Old Bridge	239.11		89.246
31		Sultanpur Rail Bridge	239.59		89.284
	CWC Sultanpur		240.221	89.455	
32		Kalkhura U/C Bridge	255.23		90.517
33		Nayora Bridge	269.26		91.623
34		Brasin Bridge	274.43		92.031
35		Mithnepur Bridge	284.32		92.811
36		Isauli Bridge	293.94		93.569
37		Gajarpur U/C Bridge	305.625		94.491
38		Thauri Bridge	314.266		95.172
39		Satthin UC Bridge	327.45		96.211
40		Sunwa Bridge	349..37		97.940
41		Khemmau Bridge	359.8		98.762
42		Dandupur Bridge	399.24		101.872
43		Peepa Pool	414.5		103.075
44		Naipura Bridge	418.14		103.362
45		Semri Bridge	427.41		104.093
46		Dhaurahara bridge	437.67		104.902
47		Ibraheembad Bridge	455.02		106.270
48		Gangaganj Bridge	464.05		106.982
49		Chamartaliya Bridge	469.78		107.434
50		Fatehpur Bridge	471.97		107.607

Sl	Location and Description of CWC Gauge/ Dam/etc.	Cross-Structure Details	Chainage (km)	Established HFL wrt MSL (m)	Computed HFL at Cross – Structure wrt MSL (m)
	A	B	C	D	E
51		Nizampur Bridge	482.02		108.399
52		Indra Canal	491.16		109.120
53		Ardonamau Bridge	499.00		109.738
54		Ardonamau Bridge	499.02		109.740
55		UC Bridge	505.18		110.225
56		Rail Bridge	505.32		110.236
57		Rail Bridge	505.37		110.240
58		Lucknow Bypass Bridge	507.31		110.393
58		Lohia Bridge	507.67		110.422
60		Gomti Barrage	507.87		110.438
61		Nishatganj Bridge	509.61		110.575
62		Nishatganj Bridge	509.64		110.577
	Lucknow CWC		510.565	110.850	
63		Hanuman Setu	511.520		110.862
64		Acharya Nagendra Dev Bridge	513.25		110.871
65		Daligunj Rail Bridge	513.481		110.880
66		Daligunj Rail Bridge	513.496		110.881
67		Loha Pool	514.24		110.940

2.11 **Graph: Sounding Datum and HFL vs Chainage**.



HFL AND SOUNDING DATUM TABLE

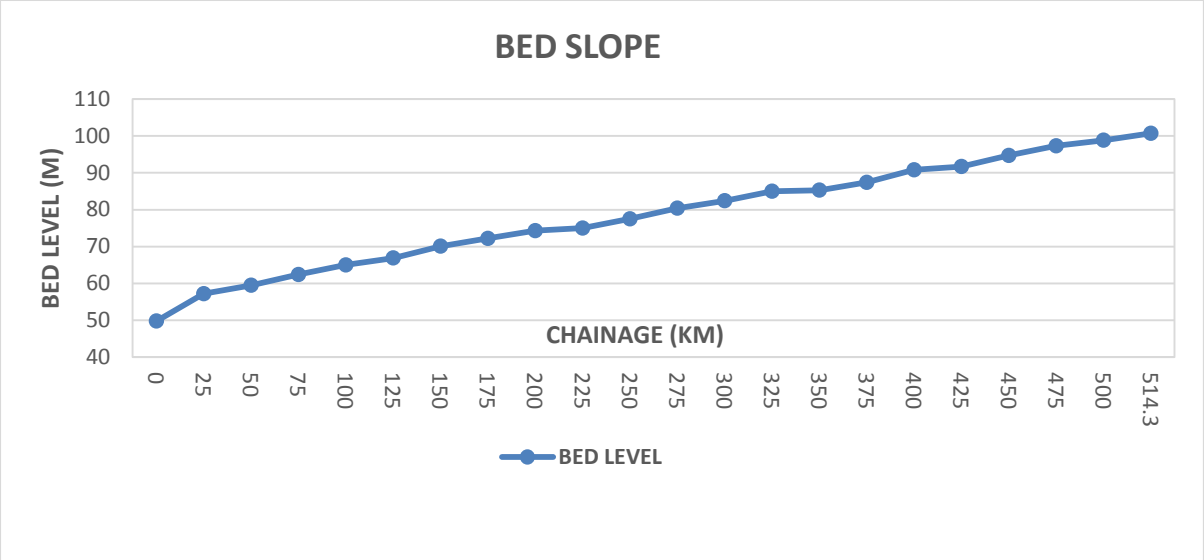
GAUGE NAME	CHAINAGE (KM)	SOUNDING DATUM(M)	HFL(M)
Ganga Confl. (1262)	0.000	55.470	70.390
TP_GM 01	0.346	55.510	70.420
TP_GM 02	10.393	56.750	71.240
TP_GM 03	21.554	57.850	71.970
TP_GM 04	32.649	59.060	72.770
TP_GM 05	39.672	59.840	73.280
TP_GM 06	50.460	61.020	74.070
TP_GM 07	59.134	61.980	74.700
CWC MAIGHAT	62.789	62.380	74.970
TP_GM 08	70.020	63.220	75.510
TP_GM 09	83.681	64.810	76.520
TP_GM 10	88.879	65.400	76.900
TP_GM 11	99.243	66.600	77.670
CWC JAUNPUR	100.172	66.710	77.740
TP_GM 12	109.781	67.530	78.550
TP_GM 13	118.539	68.260	79.280
TP_GM 14	128.885	69.140	80.100
TP_GM 15	138.741	70.030	81.020
TP_GM 16	149.241	70.880	81.850
TP_GM 17	158.439	71.660	82.620
TP_GM 18	169.782	72.620	83.570
TP_GM 19	178.868	73.400	84.330

GAUGE NAME	CHAINAGE (KM)	SOUNDING DATUM(M)	HFL(M)
TP_GM 20	189.911	74.320	85.250
TP_GM 21	195.822	74.820	85.740
TP_GM 22	210.449	76.070	86.960
TP_GM 23	218.000	76.700	87.590
TP_GM 24	231.428	77.840	88.720
TP_GM 25	238.806	78.470	89.340
CWC SULTANPUR	240.221	78.590	89.460
TP_GM 26	247.197	79.160	90.010
TP_GM 27	259.598	80.180	90.990
TP_GM 28	265.241	80.640	91.440
TP_GM 29	280.486	81.900	92.650
TP_GM 30	287.131	82.440	93.180
TP_GM 31	298.083	83.340	94.050
TP_GM 32	311.312	84.440	95.110
TP_GM 33	315.198	84.760	95.420
TP_GM 34	327.136	85.740	96.380
TP_GM 35	337.101	86.550	97.160
TP_GM 36	342.610	87.000	97.600
TP_GM 37	356.963	88.160	98.730
TP_GM 38	368.578	89.100	99.630
TP_GM 39	383.445	90.310	100.810
TP_GM 40	385.834	90.510	101.000
TP_GM 41	397.345	91.450	101.910
TP_GM 42	409.439	92.450	102.880
TP_GM 43	418.040	93.140	103.550
TP_GM 44	427.892	93.940	104.320
TP_GM 45	437.784	94.780	105.140
TP_GM 46	441.528	95.060	105.400
TP_GM 47	454.870	96.140	106.460
TP_GM 48	465.418	97.000	107.280
TP_GM 48A	477.154	97.760	108.030
TP_GM 49	481.953	98.350	108.600
TP_GM 50	484.689	98.570	108.810
TP_GM 51	491.068	99.100	109.320
TP_GM 51A	502.391	99.810	110.010
TP_GM 52	505.126	100.240	110.430
LUCKNOW CWC	510.565	104.150	110.850
TP_GM 53	514.310	104.150	111.160

2.12 **Average Bed Slope**. Bed slope along with graph of the entire river being tabulated below:-

Chainage(KM)		**River Bed Level wrt MSL**		**River Bed Level Change (m) (A)**	**Distance (km) B**	**Slope (A/B)**
From (km)	**To (km)**					
Ch. 0 km	Ch. 25 km	49.8m	57.2m	7.4	25	1:3378
Ch. 25 km	Ch. 50 km	57.2m	59.5m	2.3	25	1:10870
Ch. 50 km	Ch. 75 km	59.5m	62.4m	2.9	25	1:8621
Ch. 75 km	Ch. 100 km	62.4m	65m	2.6	25	1:9615
Ch. 100 km	Ch. 125 km	65m	66.9m	1.9	25	1:13158
Ch. 125 km	Ch. 150 km	66.9m	70.1m	3.2	25	1:7812
Ch. 150 km	Ch. 175 km	70.1m	72.2m	2.1	25	1:11905
Ch. 175 km	Ch. 200 km	72.2m	74.3m	2.1	25	1:11905
Ch. 200 km	Ch. 225 km	74.3m	75.0m	0.7	25	1:35714
Ch. 225 km	Ch. 250 km	75.0m	77.5m	2.5	25	1:10000
Ch. 250 km	Ch. 275 km	77.5m	80.4m	2.9	25	1:8621
Ch. 275 km	Ch. 300 km	80.4m	82.42m	2.02	25	1:12376
Ch. 300 km	Ch. 325 km	82.42m	85m	2.58	25	1:9690
Ch. 325 km	Ch. 350 km	85m	85.3m	0.3	25	1:83333
Ch. 350 km	Ch. 375 km	85.3m	87.4m	2.1	25	1:11905
Ch. 375 km	Ch. 400 km	87.4m	90.8m	3.4	25	1:7353
Ch. 400 km	Ch. 425 km	90.8m	91.7m	0.9	25	1:27778
Ch. 425 km	Ch. 450 km	91.7m	94.7m	3	25	1:8333
Ch. 450 km	Ch. 475 km	94.7m	97.3m	2.6	25	1:9615
Ch. 475 km	Ch. 500 km	97.3m	98.84m	1.54	25	1:16234
Ch. 500 km	Ch. 514.31 km	98.84m	100.7m	1.86	14.31	1:7694

BED SLOPE VS CHAINAGE GRAPH



2.13 **Details of Dam, Barrages, Weirs, Anicut, etc**. The only barrage, i.e. Gomti barrage is located at Ch. 507.87 km at Lucknow city and one Anicut at Ch.506.09 km. This is an open barrage, which is not a hindrance for development of waterway. Salient features being appended below:-

Sl No	Structure Name	Chainage (KM)	Location	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t HFL (m)	Present Condition
				Left Bank	Right Bank	Left Bank	Right Bank						
01	Gomti Barrage	507.87	Lucknow	26°51'18.82"N 80°58'6.61"E	26°51'20.64"N 80°58'13.89"E	496871.845E 2970401.720N	497072.297E 2970457.873N	208.17	12.2	11	18.90	2.8	Completed

Gomti Barrage at Ch.507.870 km

Sl No	Structure Name	Chainage (km)	Location	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	Height w.r.t. --- (m)	Present condition
				Left Bank	Right Bank	Left Bank	Right Bank				
1	Anicut	506.09	Martin Purva	26°50'26.62"N 80°57'58.76"E	26°50'24.12"N 80°58'7.53"E	496654.375 2968795.632	496896.647 2968718.768	254.50	5.0	2.0	under construction

Anicut at Ch.506.09 km

2.14 **Details of Locks**. There is no lock present in the whole waterway

2.15 **Details of Aqueducts**. There is no aqueduct in this portion of the river.

2.16 **Details of Existing Bridges & Crossings**. Total 67 in no's bridges are present across the river. Details being tabulated below:-

Sl No	Structure Name	Chainage (KM)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t HFL (m)	Remarks (Completed or not-completed (Completed or not-completed
			Left Bank	Right Bank	Left Bank	Right Bank						
1	Rajwari Bridge	3.12	25°30'16.96"N 83° 8'26.79"E	25°30'28.00"N 83° 8'27.24"E	715166.290E 2822567.811N	715173.944E 2822907.977N	340.15	9.4	9	41	4.5	Completed
2	Rajwari Rail Bridge/U/C	3.73	25°30'23.79"N 83° 8'4.00"E	25°30'27.36"N 83° 8'6.42"E	714526.350E 2822767.723N	714592.402E 2822878.218N	385	6.6	13	30.1	4.1	Under Construction
3	Babatpur Bridge	23.23	25°31'53.28"N 83° 3'54.73"E	25°31'55.69"N 83° 3'47.78"E	707522.836E 2825411.718N	707327.850E 2825482.268N	207	7.7	8	28.3	3.5	Completed
4	Banshakti Bridge	29.08	25°32'33.48"N 83° 3'8.67"E	25°32'39.11"N 83° 3'3.82"E	706217.184E 2826628.022N	706079.632E 2826799.286N	219.6	7.1	8	30.1	2.1	Completed
5	Balua Bridge	39.03	25°34'40.38"N 82°59'53.77"E	25°34'44.78"N 82°59'47.71"E	700717.682E 2830450.317N	700546.681E 2830583.191N	216.55	7.3	07	34.8	4.3	Completed

Sl No	Structure Name	Chainage (KM)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t HFL (m)	Remarks (Completed or not-completed (Completed or not-completed
			Left Bank	Right Bank	Left Bank	Right Bank						
6	Balua Bridge	39.05	25°34'39.71"N 82°59'53.15"E	25°34'43.95"N 82°59'47.09"E	700700.146E 2830429.004N	700529.692E 2830557.687N	213.57	6.5	07	34.5	3.9	Completed
7	Hariharpur UC Bridge	42.97	25°35'31.52"N 82°58'28.11"E	-	-	698303.697E 2831988.740N	-	-	7	25.0	-	Under Construction
8	Kerkat Bridge	56.29	25°37'53.71"N 82°54'32.92"E	25°37'58.95"N 82°54'27.26"E	691677.870E 2836267.262N	691517.145E 2836426.417N	226.2	7	07	36.5	3.1	Completed
9	Pasewan UC Bridge	62.85	25°38'20.34"N 82°51'37.81"E	-	686781.740E 2837017.474N	-	-	-	-	-	-	Under Construction
10	Pierce UC Bridge	66.5	25°38'25.38"N 82°49'33.95"E	-	683324.203E 2837124.177N	-	-	-	-	-	-	Under Construction
11	Belao Bridge	74.42	25°40'35.55"N 82°48'22.20"E	25°40'36.60"N 82°48'29.78"E	681268.279E 2841102.301N	681479.387E 2841137.295N	214	7.5	7	34.1	2.9	Completed
12	Peepa Pool	76.66	25°41'37.46"N 82°47'50.96"E	25°41'38.95"N 82°47'54.21"E	680371.215E 2842995.562N	680461.356E 2843042.801N	101.7	3	-	-	-	Temporary Completed
13	Jafrabad Bridge	85.36	25°42'4.00"N 82°44'17.78"E	25°42'10.33"N 82°44'20.64"E	674417.834E 2843732.695N	674494.329E 2843928.935N	210.6	7.1	07	33.9	2.7	Completed
14	Jamaitha U/C Bridge	91.335	25°44'40.06"N 82°43'53.10"E	-	673666.544E 2848525.275 N	-	-	-	-	-	-	Under Construction
15	Chakpanchhaita Rail Bridge	95.69	25°44'8.77"N 82°42'38.20"E	25°44'24.52"N 82°42'33.68"E	671591.541E 2847535.684N	671459.116E 2848018.552N	500.7	4.5	25	19.16	3.3	Completed
16	Shastri Bridge	97.98	25°44'36.31"N 82°41'21.69"E	25°44'41.09"N 82°41'27.03"E	669448.838E 2848355.368N	669595.716E 2848504.918N	209.6	8.80	6	39.42	2.8	Completed
17	Lokbandhu Bridge	98.51	25°44'49.76"N 82°41'10.93"E	25°44'53.96"N 82°41'13.65"E	669143.531E 2848765.205N	669217.281E 2848895.247N	149.5	10.5	9	17.88	1.8	Completed
18	Shahi Bridge	98.76	25°44'51.81"N 82°41'2.96"E	25°44'58.15"N 82°41'5.17"E	668920.419E 2848825.023N	668979.321E 2849021.288N	204.91	5.7	14	6.5	1.9	Completed
19	Chuncha Bridge	109.83	25°47'23.93"N 82°37'3.40"E	82°37'4.47"E 82°37'4.47"E	662187.884E 2853422.821N	662214.374E 2853640.856N	219.6	7.5	7	34.8	2.1	Completed
20	Pilkichha Bridge	139.23	25°57'44.37"N 82°32'51.67"E	25°57'51.49"N 82°32'51.62"E	654950.662E 2872428.262N	654946.544E 2872647.956N	219.7	7.2	07	35.4	2.8	Completed
21	Imiliya Bridge U/C	148.35	25°59'33.45"N 82°28'49.32"E	25°59'35.95"N 82°28'55.10"E	648171.085E 2875706.051N	648331.082E 2875785.644N	178.7	4.2	7	28.3	2.2	Under Construction
22	TripathiSetu Bridge	158	26° 0'49.22"N 82°23'34.06"E	26° 0'52.45"N 82°23'39.57"E	639380.650E 2877941.951N	639532.515E 2878042.534N	182.15	7	07	29.16	3.5	Completed
23	Dewad Bridge	172.38	26° 7'9.98"N 82°21'30.00"E	26° 7'14.74"N 82°21'28.44"E	635809.189E 2889620.945N	635764.573E 2889766.926N	152.64	6.8	6	29.35	3.2	Completed
24	Dhopap UC Bridge	186.42	26°10'38.89"N 82°16'40.33"E		627700.977E 2895966.849N	-	-	-	-	-	-	Under Construction
25	Bhawanpur Bridge	195.82	26°12'50.73"N 82°16'49.99"E	26°12'54.85"N 82°16'46.61"E	627928.470E 2900025.579N	627833.829E 2900151.227N	157.3	7.6	06	30.1	2.3	Completed
27	PapadGhat U/C Bridge	206.65	26°11'2.13"N 82°12'43.84"E	26°11'7.47"N 82°12'46.24"E	621128.517E 2896618.459N	621193.605E 2896783.296N	177.22	7.8	7	27.54	2.4	Under Construction
28	Saidpur Bridge	231.46	26°17'21.32"N 82° 6'35.68"E	26°17'28.40"N 82° 6'35.45"E	610808.086E 2908193.926N	610800.601E 2908411.773N	217.97	8	08	29.64	2.3	Completed
29	Sultanpur Bridge	239.08	26°16'12.08"N 82° 4'36.91"E	26°16'19.17"N 82° 4'36.76"E	607532.274E 2906035.303N	607526.784E 2906253.190N	217.95	10	08	29.7	2.7	Completed

Sl No	Structure Name	Chainage (KM)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t HFL (m)	Remarks (Completed or not-completed (Completed or not-completed
			Left Bank	Right Bank	Left Bank	Right Bank						
30	Sultanpur Old Bridge	239.11	26°16'12.58"N 82° 4'35.62"E	26°16'16.58"N 82° 4'35.55"E	607496.948E 2906050.447N	607493.035E 2906173.374N	122.98	4.5	06	22.1	3.2	Completed
31	Sultanpur Rail Bridge	239.59	26°16'15.22"N 82° 4'17.51"E	26°16'20.71"N 82° 4'21.78"E	606993.749E 2906127.982N	607110.976E 2906297.273N	205.91	7.2	06	37.7	2.2	Completed
32	Kalkhura U/C Bridge	255.23	26°19'6.69"N 82° 3'4.68"E	26°19'11.24"N 82° 3'8.94"E	604930.988E 2911386.723N	605047.083E 2911527.354N	182.15	7.3	06	34.93	1.8	Completed
33	Nayora Bridge	269.26	26°22'44.93"N 82° 0'41.41"E	26°22'49.68"N 82° 0'45.35"E	600905.496E 2918069.912N	601013.530E 2918216.062N	181.78	7.3	07	28.8	1.7	Completed
34	Brasin Bridge	274.43	26°21'32.29"N 81°58'20.36"E	26°21'37.64"N 81°58'17.66"E	597013.183E 2915804.236N	596937.018E 2915968.831N	181.36	7.3	07	28.73	3.2	Completed
35	Mithnepur Bridge	284.32	26°22'41.44"N 81°54'10.51"E	26°22'47.42"N 81°54'10.63"E	590073.819E 2917881.054N	590075.744E 2918065.648N	184.6	7.3	07	29.3	2.8	Completed
36	Isauli Bridge	293.94	26°24'18.67"N 81°50'41.05"E	26°24'19.73"N 81°50'47.56"E	584249.059E 2920833.898N	584429.400E 2920867.083N	183.3	7.7	07	28.95	2.7	Completed
37	Gajarpur U/C Bridge	305.625	26°26'33.95"N 81°46'27.56"E	26°26'38.22"N 81°46'32.43"E	577201.975E 2924951.011N	577334.739E 2925083.757N	187.74	7.2	7	30.1	2.1	Completed
38	Thauri Bridge	314.266	26°29'29.31"N 81°44'44.31"E	26°29'34.23"N 81°44'46.65"E	574310.648E 2930329.055N	574374.437E 2930481.072N	164.86	7.1	07	26.08	1.8	Completed
39	Satthin UC Bridge	327.45	-	26°31'54.98"N 81°40'31.15"E	-	567278.147E 2934772.193N	164.86	7.1	7	25.98	2	Under Construction
40	Sunwa Bridge	349..37	26°36'34.04"N 81°40'20.53"E	26°36'38.27"N 81°40'25.79"E	566939.994E 2943356.958N	567084.573E 2943487.894N	195	7.7	07	31.3	2.5	Completed
41	Khemmau Bridge	359.8	26°38'26.61"N 81°36'27.64"E	26°38'29.54"N 81°36'33.52"E	560482.015E 2946787.270N	560644.072E 2946878.611N	186	8	07	29.6	2.6	Completed
42	Dandupur Bridge	399.24	26°38'36.28"N 81°30'7.32"E	26°38'46.35"N 81°30'0.03"E	549966.708E 2947039.478N	549763.997E 2947348.175N	369.3	7.7	11	35.43	2	Completed
43	Peepa Pool	414.5	26°38'21.95"N 81°25'48.00"E	26°38'23.87"N 81°25'47.10"E	542798.692E 2946572.194N	542773.503E 2946631.473N	65	3.5	-	-	-	Temporary Completed
44	Naipura Bridge	418.14	26°39'39.88"N 81°24'13.40"E	26°39'42.70"N 81°24'18.15"E	540175.079E 2948961.729N	540306.034E 2949048.866N	157.29	7.3	07	24.81	2.25	Completed
45	Semri Bridge	427.41	26°39'19.53"N 81°20'57.95"E	26°39'25.26"N 81°20'56.20"E	534774.449E 2948319.184N	534725.257E 2948495.543N	183.1	7.7	07	29.12	2.8	Completed
46	Dhaurahara bridge	437.67	26°41'38.34"N 81°18'1.49"E	26°41'44.32"N 81°18'2.85"E	529886.454E 2952577.213N	529923.151E 2952761.290N	187.9	7.9	07	29.72	2.2	Completed
47	Ibraheembad Bridge	455.02	26°45'20.96"N 81°15'34.46"E	26°45'25.42"N 81°15'30.09"E	525809.363E 2959417.074N	525688.175E 2959554.213N	183	8	07	29	2.6	Completed
48	Gangaganj Bridge	464.05	26°43'36.26"N 81°12'17.64"E	26°43'40.48"N 81°12'22.49"E	520378.080E 2956186.088N	520512.307E 2956316.651N	187.25	7.3	07	30	3.1	Completed
49	Chamartaliya Bridge	469.78	26°46'19.16"N 81°11'10.28"E	26°46'22.77"N 81°11'15.69"E	518510.920E 2961195.689N	518659.911E 2961306.917N	185.9	7	07	29.78	3	Completed
50	Fatehpur Bridge	471.97	26°47'16.65"N 81°10'31.30"E	26°47'22.43"N 81°10'33.05"E	517431.411E 2962962.276N	517479.234E 2963140.299N	184.33	7.9	06	35.66	2.9	Completed
51	Nizampur Bridge	482.02	26°48'47.81"N 81° 8'18.93"E	26°48'50.63"N 81° 8'24.87"E	513773.119E 2965762.599N	513937.115E 2965849.051N	185.39	7.9	07	29.4	2.7	Completed
52	Indra Canal	491.16	26°49'36.58"N 81° 4'5.74"E	26°49'49.16"N 81° 4'6.80"E	506783.932E 2967257.991N	506812.643E 2967644.144N	387.22	18	21	16.86	1.7	Completed
53	Ardonamau Bridge	499	26°48'57.31"N 81° 0'51.98"E	26°49'4.04"N 81° 0'49.74"E	501435.059E 2966047.562N	501373.085E 2966254.685N	216.19	14.4	8	29.48	3.1	Completed

Sl No	Structure Name	Chainage (KM)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t HFL (m)	Remarks (Completed or not-completed (Completed or not-completed
			Left Bank	Right Bank	Left Bank	Right Bank						
54	Ardonamau Bridge	499.02	26°48'57.12"N 81° 0'51.15"E	26°49'3.75"N 81° 0'48.98"E	501412.919E 2966041.929N	501352.742E 2966245.709N	216.19	14.4	8	29.48	3.1	Completed
55	UC Bridge	505.18	26°50'1.27"N 80°58'11.63"E	-	-	497009.855E 2968015.242N	209.1	-	9	24.94	-	Under Construction
56	Rail Bridge	505.32	26°50'0.16"N 80°58'1.02"E	26°50'3.09"N 80°58'7.10"E	496716.300E 2967981.229N	496884.023E 2968071.005N	190.23	12	07	28.2	2.7	Completed
57	Rail Bridge	505.37	26°50'1.43"N 80°58'1.12"E	26°50'4.68"N 80°58'7.64"E	496719.292E 2968020.874N	496899.570E 2968120.066N	205.79	10.5	08	25.9	2.9	Completed
58	Lucknow Bypass Bridge	507.31	26°51'1.82"N 80°58'9.95"E	26°51'1.53"N 80°58'17.78"E	496963.515E 2969878.614N	497179.963E 2969869.110N	216.65	10.5	08	29.75	3.2	Completed
58	Lohia Bridge	507.67	26°51'10.60"N 80°58'7.99"E	26°51'16.13"N 80°58'15.82"E	496909.477E 2970148.749N	497125.276E 2970318.166N	274.35	33.5	13	21.66	4.6	Completed
60	Gomti Barrage	507.87	26°51'18.82"N 80°58'6.61"E	26°51'20.64"N 80°58'13.89"E	496871.845E 2970401.720N	497072.297E 2970457.873N	208.17	12.2	11	18.32	2.8	Completed
61	Nishatganj Bridge	509.61	26°51'40.72"N 80°57'20.72"E	26°51'47.77"N 80°57'20.18"E	495605.472E 2971075.404N	495590.712E 2971292.971N	218	10	08	29.94	2.6	Completed
62	Nishatganj Bridge	509.64	26°51'40.78"N 80°57'19.89"E	26°51'47.80"N 80°57'19.38"E	495582.615E 2971077.146N	495568.076E 2971293.505N	216.84	9.8	07	35	2.9	Completed
63	Hanuman Setu	511.52	26°51'27.89"N 80°56'14.08"E	26°51'34.74"N 80°56'12.49"E	493766.163E 2970681.341N	493722.560E 2970892.585N	215.79	18.3	08	29.32	2.6	Completed
64	Acharya Nagendra Dev Bridge	513.25	26°52'3.32"N 80°55'27.02"E	26°52'8.40"N 80°55'31.69"E	492468.128E 2971772.149N	492597.656E 2971928.910N	203.17	25	7	32.36	2.4	Completed
65	Daligunj Rail Bridge	513.481	26°52'8.42"N 80°55'20.89"E	26°52'11.84"N 80°55'23.54"E	492299.073E 2971929.990N	492372.229E 2972034.117N	127.25	4	07	17.71	2.4	Completed
66	Daligunj Rail Bridge	513.496	26°52'11.94"N 80°55'23.32"E	26°52'8.59"N 80°55'20.68"E	492293.305E 2971934.650N	492366.662E 2972037.276N	127.25	4	7	17.71	2.3	Completed
67	Loha Pool	514.24	26°52'18.94"N 80°54'57.40"E	26°52'24.05"N 80°54'58.92"E	491651.471E 2972253.604N	491693.242E 2972410.799N	162.65	10.7	07	23.61	3.2	Completed

2.17 **Details of Other Cross Structures**. There is no other cross structure, pipe-line and underwater cable present in this river stretch.

2.18 **High Tension Lines / Electric Lines / Tele-Communication Lines**. Detail of HT lines and Electric lines being tabulated below:-

Sl No	Cross-Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		HFL wrt MSL(M)	Vertical clearance w.r.t HFL (m)	Remarks (Completed or not-completed)
			Left Bank	Right Bank	Left Bank	Right Bank			
1	HT Line	104.327	25°46'17.76"N	25°46'23.35"N	666132.461E 2851435.536N	666294.655E 2851609.707N	78.279	20	Completed
2	HT Line	104.393	25°46'19.06"N	25°46'24.00"N	666070.791E 2851474.400N	666227.937E 2851628.138N	78.228	21	Completed
3	HT Line	223.304	26°15'47.35"N	26°15'54.17"N	613257.046E 2905323.871N	613281.955E 2905533.453N	87.999	20.50	Completed
4	HT Line	247.358	. 26°19'27.33"N	26°19'27.73"N	608903.070E 2912054.240N	609097.588E 2912068.009N	89.896	20.50	Completed
5	Electric Line	255.199	82° 3'5.91"E 82° 3'5.91"E	26°19'9.87"N 82° 3'9.11"E	604964.827E 2911379.427N	605052.177E 2911485.789N	90.517	7.40	Completed
6	Electric Line	275.470	26°21'19.16"N 81°57'46.12"E	26°21'25.33"N	596067.678E 2915393.763N	595977.013E 2915582.618N	92.113	8.20	Completed
7	HT Line	491.342	26°49'39.15"N	26°49'44.94"N	506666.453E 2967336.841N	506604.575E 2967514.727N	109.133	21	Completed
8	HT Line	501.045	26°49'28.52"N	26°49'34.73"N	499993.476E 2967007.112N	500030.040E 2967198.016N	109.898	21	Completed

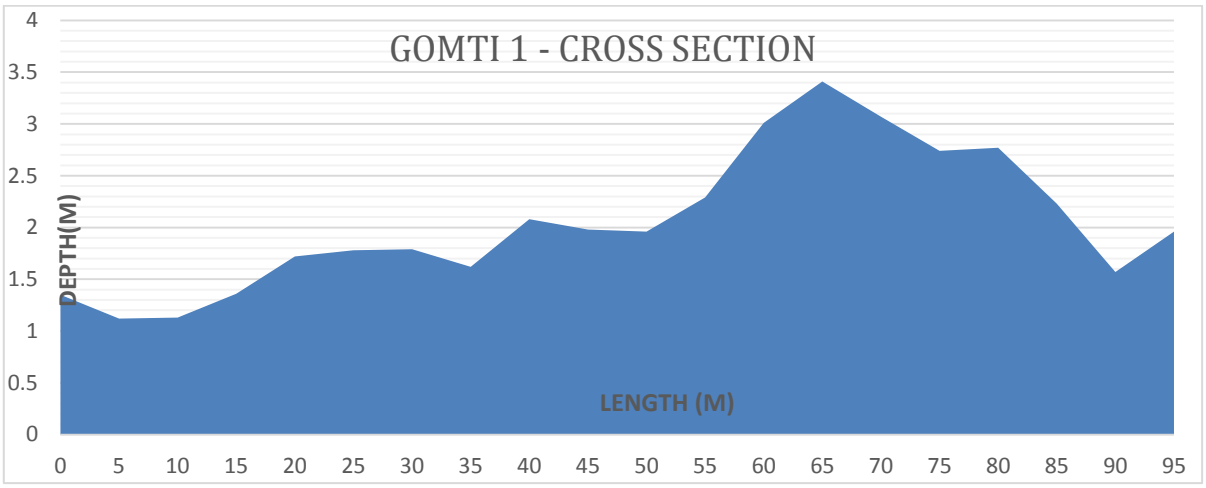
2.19 **Current Meter and Discharge Details**. Current meter observations and discharge calculations were undertaken at every 10 km interval approximately. Details of the same are tabulated below:-

Sr.No	Chainage (KM)	Position				Observed Depth(m)	Velocity (Mtrs/sec)	Avg. Velocity (Mtrs/sec)	X-Sectional Area (sq. m)	Discharge M3/Sec
		Latitude	Longitude	Easting(m)	Northing(m)		0.5 D			
GOM1	0.200	25°30'27.96"N	83°10'10.24"E	718049.38	2822952.40	3.00	0.65	0.35	196.43	68.75
GOM2	10.150	25°30'33.84"N	83°06'10.78"E	711359.41	2823025.80	2.50	0.66	0.66	61.48	40.57
GOM3	20.00	25°30'39.34"N	83°04'45.30"E	708969.74	2823157.60	1.60	0.67	0.67	39.63	26.55
GOM4	29.15	25°32'36.14"N	83° 3'6.60"E	706158.09	2826709.10	2.40	0.71	0.71	96.03	68.18
GOM5	39.800	25°34'27.04"N	82°59'36.27"E	700235.19	2830032.20	1.80	0.73	0.73	46.83	34.18
GOM6	50.030	25°37'20.70"N	82°56'25.74"E	694839.85	2835297.70	2.00	0.56	0.56	75.81	42.45
GOM7	59.05	25°37'2.82"N	82°53'17.80"E	689604.22	2834671.90	1.70	0.57	0.57	97.42	55.53
GOM8	70.060	25°39'11.35"N	82°48'8.78"E	680929.30	2838507.00	2.60	0.67	0.67	60.28	40.38
GOM9	80.00	25°42'13.66"N	82°46'15.80"E	677703.22	2844073.30	1.40	0.63	0.63	67.75	42.68
GOM10	88.50	25°43'17.84"N	82°44'11.93"E	674224.22	2846002.30	1.40	0.63	0.63	86.22	54.32
GOM11	99.00	25°44'57.36"N	82°41'0.81"E	668858.61	2848995.70	1.70	0.84	0.84	99.63	83.69

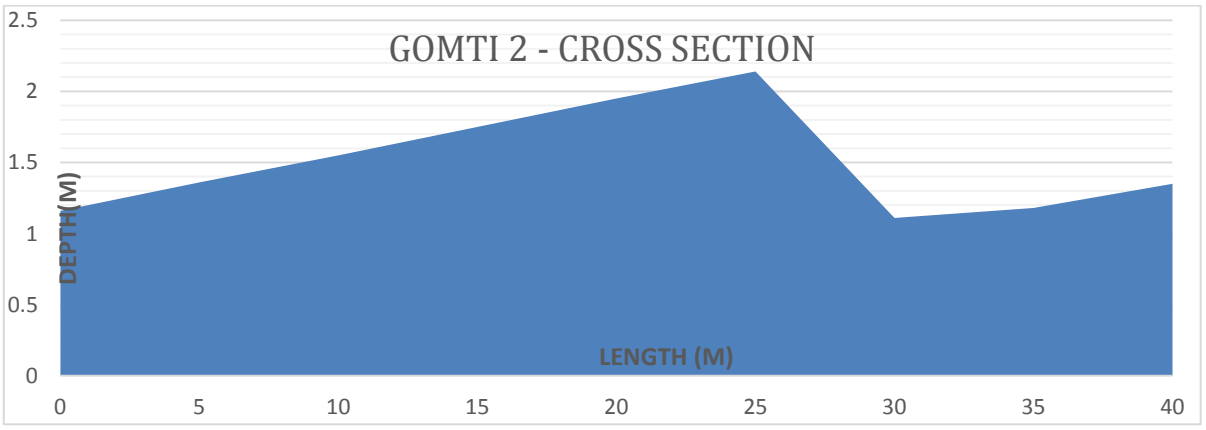
Sr.No	Chainage (KM)	Position				Observed Depth(m)	Velocity (Mtrs/sec)	Avg. Velocity (Mtrs/sec)	X-Sectional Area (sq. m)	Discharge M3/Sec
		Latitude	Longitude	Easting(m)	Northing(m)		0.5 D			
GOM12	109.910	25°47'27.92"N	82°37'3.85"E	662198.36	2853545.20	5.00	0.64	0.64	75.16	48.10
GOM13	118.132	25°50'16.56"N	82°35'26.66"E	659428.86	2858701.70	1.40	0.49	0.49	30.88	15.13
GOM14	128.750	25°55'3.92"N	82°33'46.00"E	656520.75	2867509.10	1.60	0.61	0.61	82.50	50.32
GOM15	139.301	25°57'48.66"N	82°32'51.69"E	654949.88	2872560.20	1.20	0.68	0.68	88.87	60.43
GOM16	149.242	25°59'58.68"N	82°28'35.71"E	647784.20	2876478.30	1.80	0.66	0.66	51.83	34.20
GOM17	159.030	26° 1'19.62"N	82°23'47.43"E	639741.60	2878880.30	1.10	0.79	0.79	75.38	59.55
GOM18	169.800	26° 6'26.59"N	82°22'35.77"E	637650.23	2888304.40	1.30	0.53	0.53	88.03	46.65
GOM19	178.81	26° 9'15.03"N	82°20'47.08"E	634577.10	2893455.80	1.80	0.96	0.96	180.98	173.74
GOM20	188.133	26°10'50.69"N	82°17'27.65"E	629010.21	2896342.50	1.80	0.73	0.73	33.18	24.22
GOM21	195.5	26°13'0.82"N	82°17'9.92"E	628478.65	2900341.50	1.10	0.63	0.63	95.41	60.11
GOM22	210.410	26°12'0.15"N	82°12'27.51"E	620658.38	2898399.80	1.60	0.86	0.86	35.69	30.69
GOM23	218.326	26°13'52.80"N	82° 9'5.99"E	615034.09	2901814.60	1.60	0.77	0.77	33.30	25.64
GOM24	231.400	26°17'24.70"N	82° 6'35.53"E	610803.33	2908297.10	2.40	0.60	0.60	96.73	58.04
GOM25	238.802	26°16'14.41"N	82° 4'46.96"E	607810.40	2906109.90	1.90	0.85	0.85	43.30	36.81
GOM26	248.725	26°20'0.22"N	82° 5'2.18"E	608174.35	2913060.10	1.50	0.72	0.72	65.52	47.17
GOM27	259.706	26°21'17.97"N	82° 2'55.41"E	604640.16	2915423.40	1.70	0.65	0.65	50.74	32.98
GOM28	265.159	26°22'12.89"N	82° 1'58.06"E	603037.16	2917100.30	1.40	0.70	0.70	59.72	41.80
GOM29	280.462	26°22'49.93"N	81°56'5.04"E	593245.32	2918165.50	1.20	0.71	0.71	58.80	41.75
GOM30	287.143	26°23'27.24"N	81°52'46.81"E	587744.12	2919274.60	1.30	0.77	0.77	65.30	50.28
GOM31	298.400	26°25'27.46"N	81°49'31.08"E	582297.65	2922937.30	1.40	0.69	0.69	113.58	78.37
GOM32	310.940	26°27'37.64"N	81°46'18.46"E	576937.20	2926908.90	2.00	0.71	0.71	63.73	45.24
GOM33	319.94	26°31'10.89"N	81°44'22.92"E	573700.42	2933451.20	2.60	0.72	0.72	88.25	63.54
GOM34	327.800	26°32'5.19"N	81°40'31.32"E	567281.22	2935086.40	1.70	0.67	0.52	123.40	64.17
GOM35	339.721	26°35'5.80"N	81°40'26.12"E	567108.35	2940642.30	2.80	0.77	0.77	86.90	66.91
GOM36	349.22	26°36'32.52"N	81°40'25.94"E	567089.33	2943310.00	1.70	0.74	0.74	89.90	66.53
GOM37	359.720	26°38'26.40"N	81°36'30.97"E	560574.80	2946781.10	1.90	0.69	0.69	88.88	61.32
GOM38	368.800	26°38'40.50"N	81°33'28.85"E	555537.02	2947192.50	1.50	0.68	0.87	29.45	25.62
GOM39	379.473	26°40'44.09"N	81°36'7.06"E	559893.11	2951014.90	1.10	0.69	0.69	75.05	51.78
GOM40	389.165	26°41'29.51"N	81°32'24.54"E	553737.12	2952384.70	2.10	0.72	0.72	86.88	62.55
GOM41	397.510	26°39'21.84"N	81°30'28.40"E	550543.70	2948443.10	3.00	0.59	0.59	123.84	73.06
GOM42	409.300	26°40'21.15"N	81°26'39.17"E	544200.43	2950244.70	2.20	0.62	0.62	66.33	41.12
GOM43	418.100	26°39'40.13"N	81°24'17.85"E	540298.69	2948969.60	1.80	0.69	0.69	90.01	62.11
GOM44	427.500	26°39'22.36"N	81°20'57.45"E	534760.83	2948406.10	2.10	0.77	0.77	97.00	74.69
GOM45	437.800	26°41'41.68"N	81°17'58.78"E	529810.75	2952679.50	1.20	0.71	0.71	54.43	38.64
GOM46	446.95	26°43'26.67"N	81°16'13.48"E	526856.12	2955672.90	2.00	0.65	0.65	43.93	28.55

Sr.No	Chainage (KM)	Position				Observed Depth(m)	Velocity (Mtrs/sec)	Avg. Velocity (Mtrs/sec)	X-Sectional Area (sq. m)	Discharge M3/Sec
		Latitude	Longitude	Easting(m)	Northing(m)		0.5 D			
GOM47	457.920	26°44'14.44"N	81°14'28.32"E	523986.03	2957367.60	0.90	0.66	0.81	28.53	23.11
GOM48	468.065	26°45'28.73"N	81°11'29.17"E	519034.06	2959644.50	1.00	0.61	0.78	34.53	26.93
GOM49	480.00	26°48'43.78"N	81° 9'20.87"E	515483.65	2965640.20	1.20	0.52	0.87	18.83	16.38
GOM50	489.700	26°49'58.27"N	81° 4'54.34"E	508124.56	2967925.50	1.50	0.58	0.58	25.03	14.51
GOM51	497.170	26°49'16.25"N	81° 1'53.46"E	503132.37	2966630.80	1.00	0.52	0.52	37.36	19.43
GOM52	506.24	26°50'28.57"N	80°58'08.63"E	496296.50	2968854.98	1.60	0.59	0.50	122.95	61.48
GOM53	514.200	26°52'20.11"N	80°54'59.76"E	491716.32	2972289.50	1.60	0.22	0.22	61.92	13.62

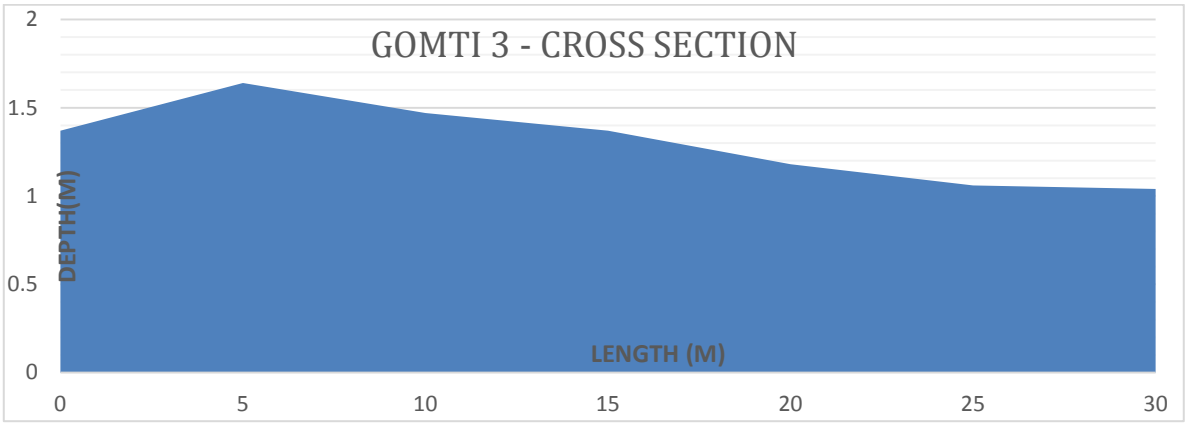
GOMTI 1- CROSS SECTION



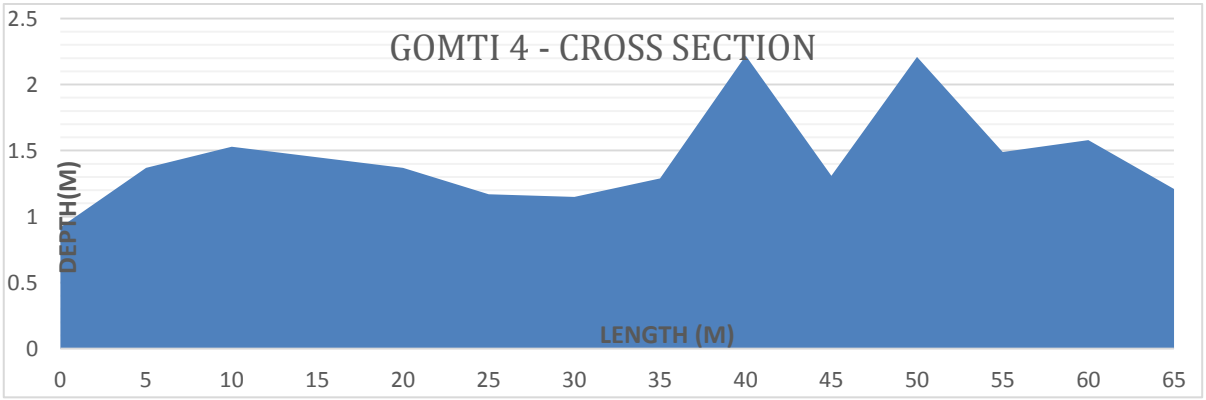
GOMTI 2- CROSS SECTION



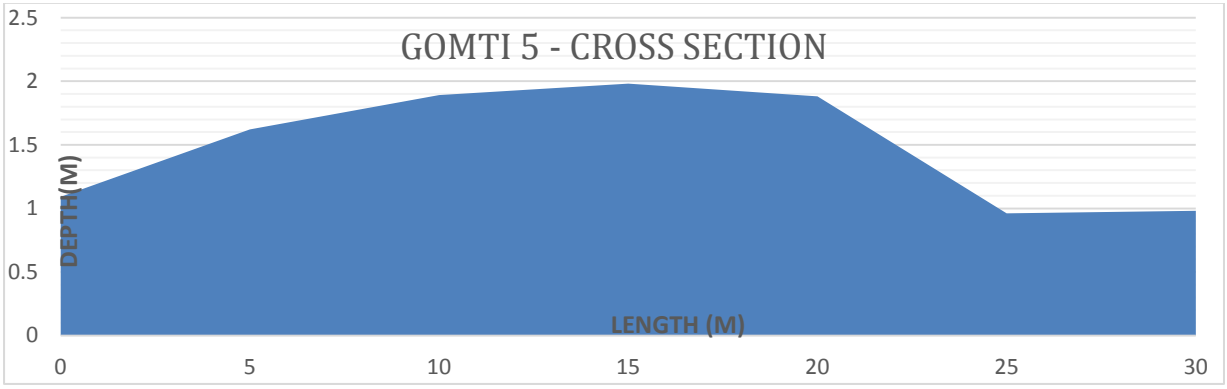
GOMTI 3- CROSS SECTION



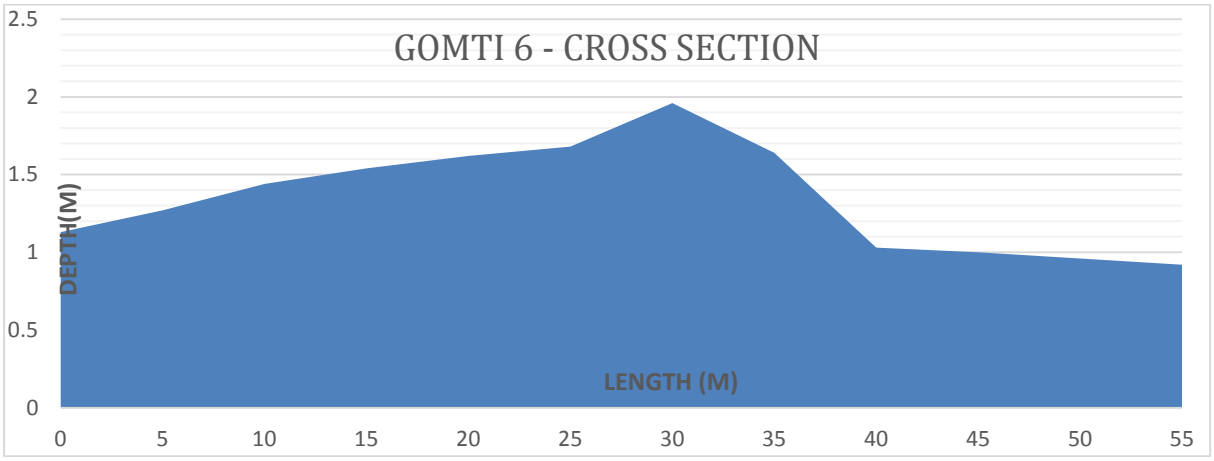
GOMTI 4- CROSS SECTION



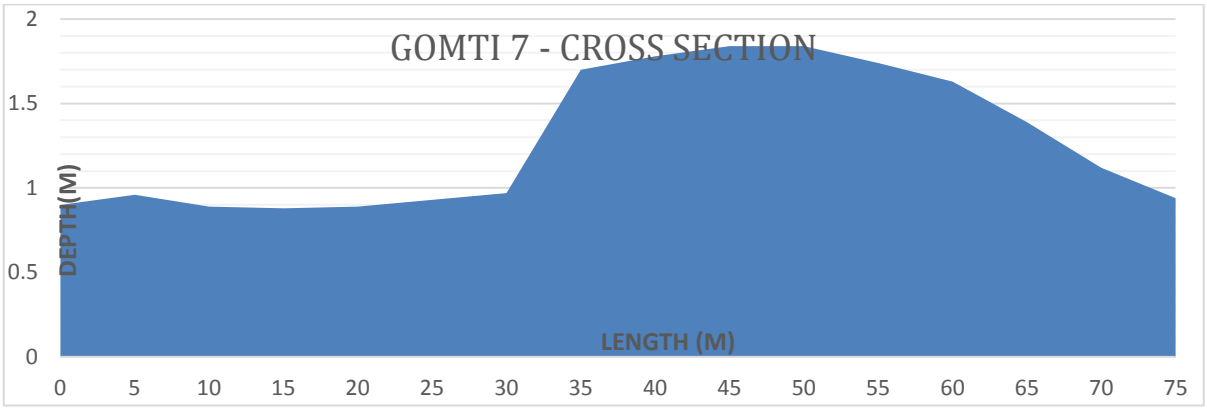
GOMTI 5- CROSS SECTION



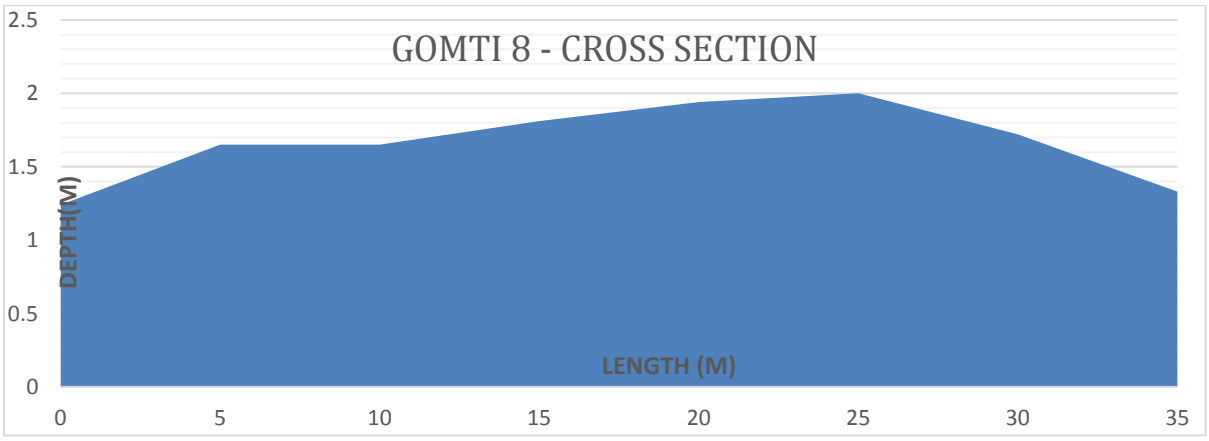
GOMTI 6- CROSS SECTION



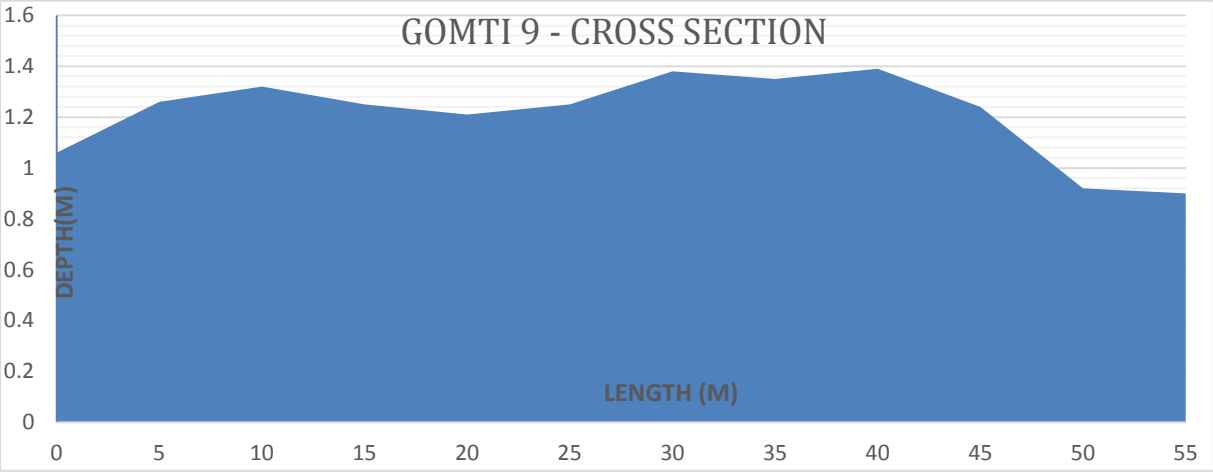
GOMTI 7- CROSS SECTION



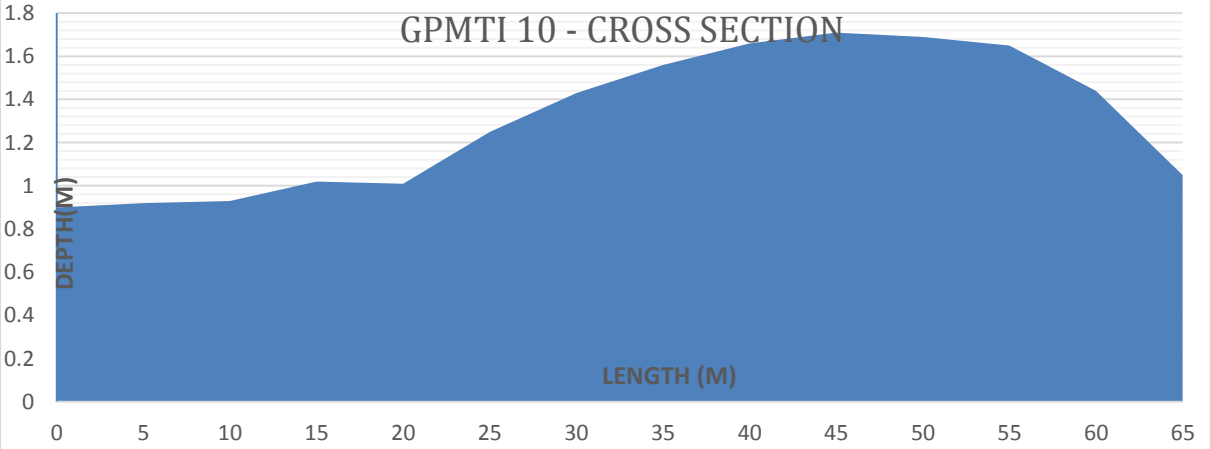
GOMTI 8- CROSS SECTION



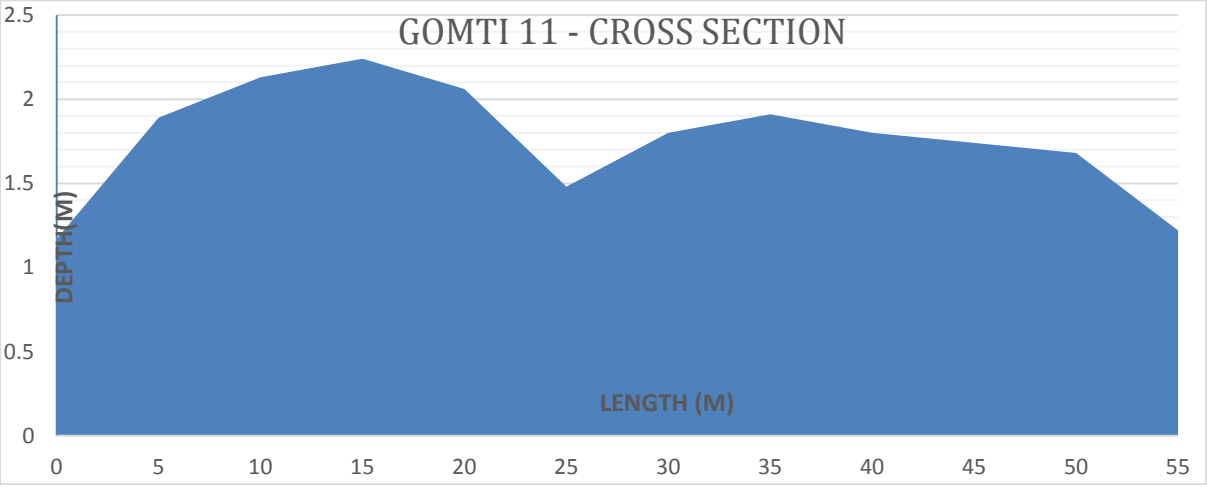
GOMTI 9- CROSS SECTION



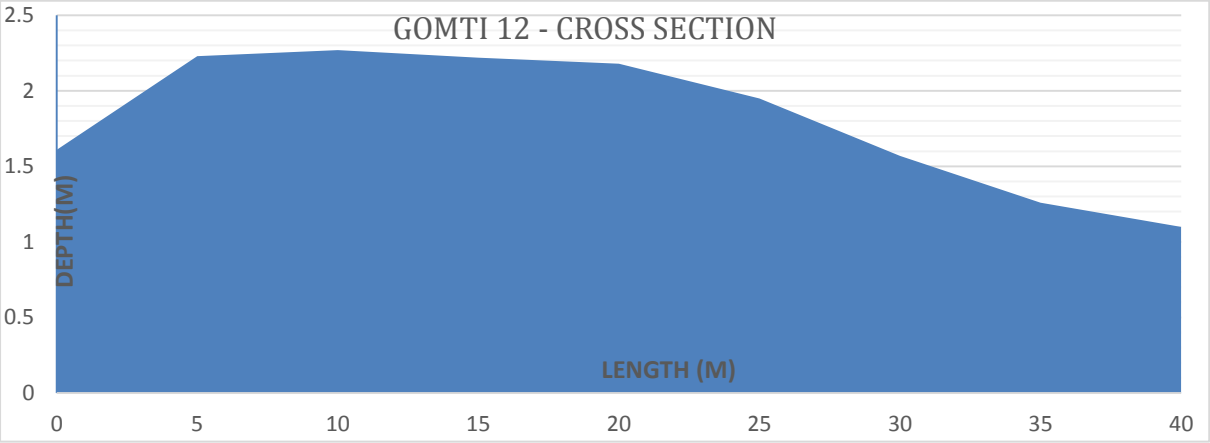
GOMTI 10- CROSS SECTION



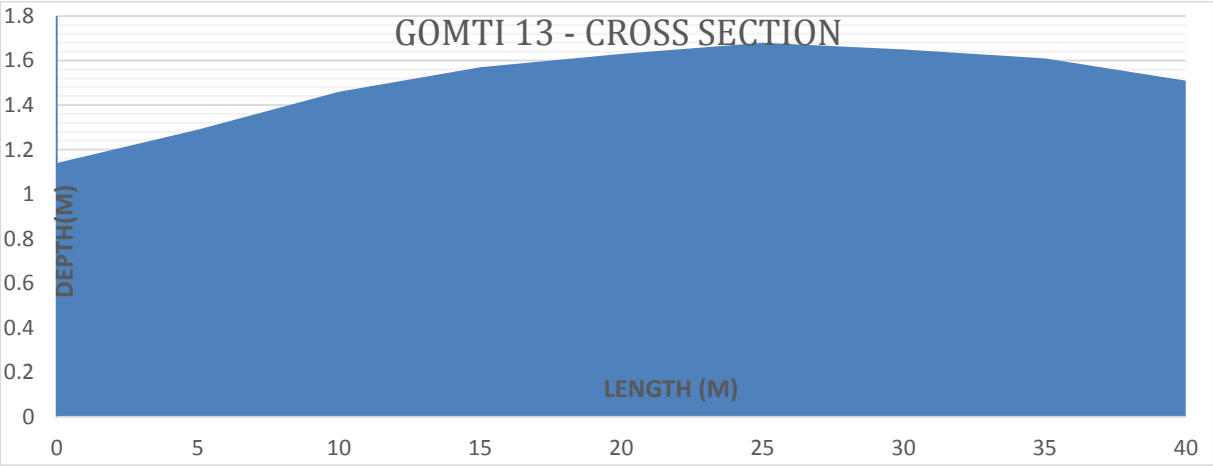
GOMTI 11- CROSS SECTION



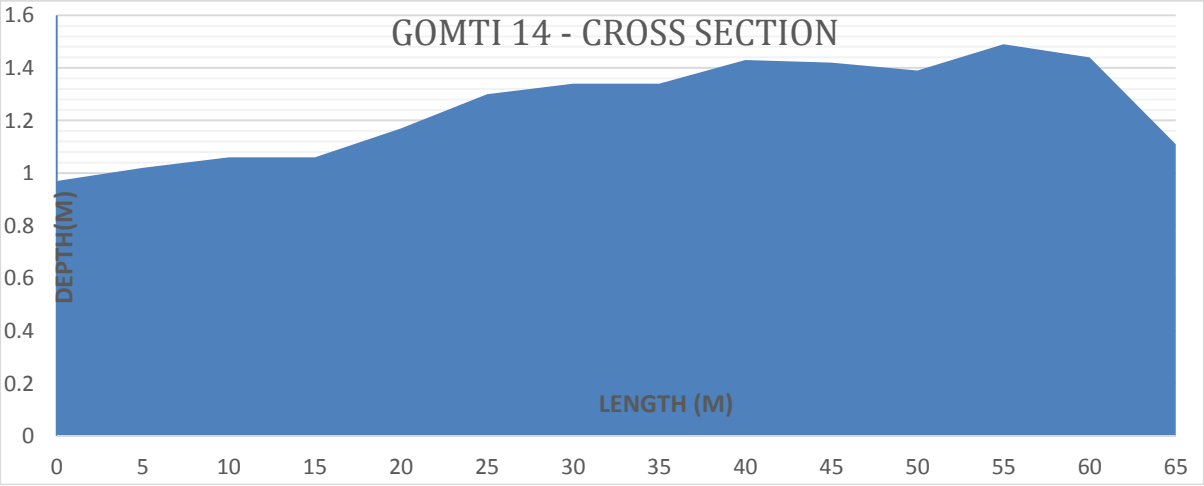
GOMTI 12- CROSS SECTION



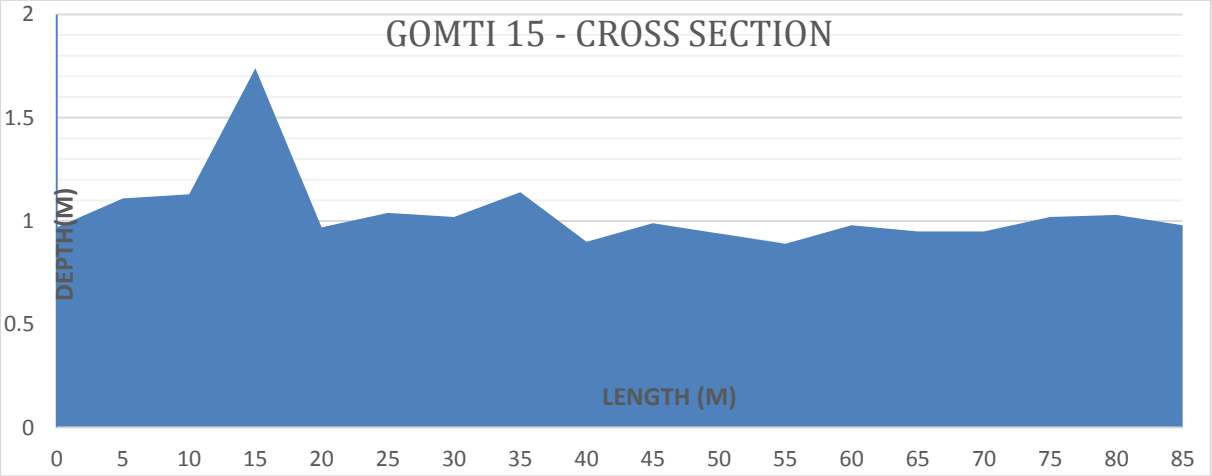
GOMTI 13- CROSS SECTION



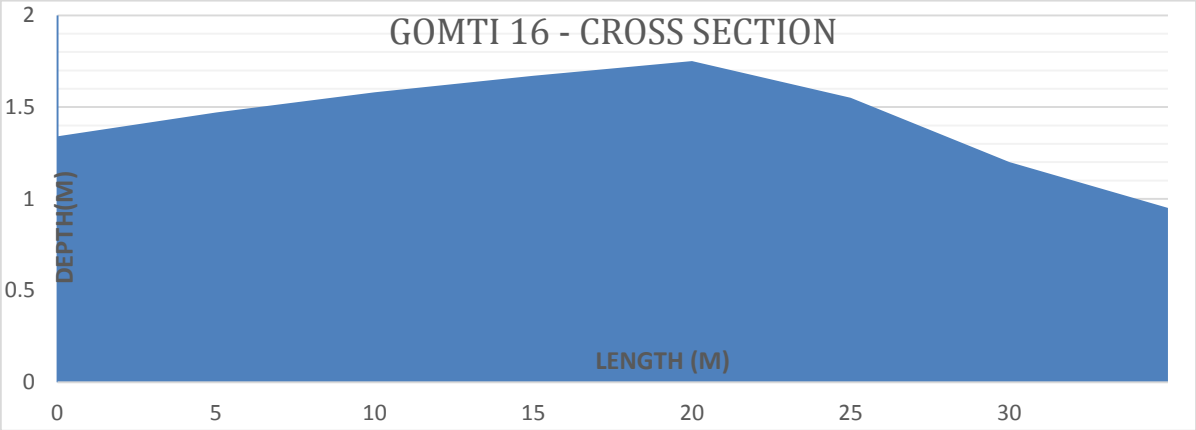
GOMTI 14- CROSS SECTION



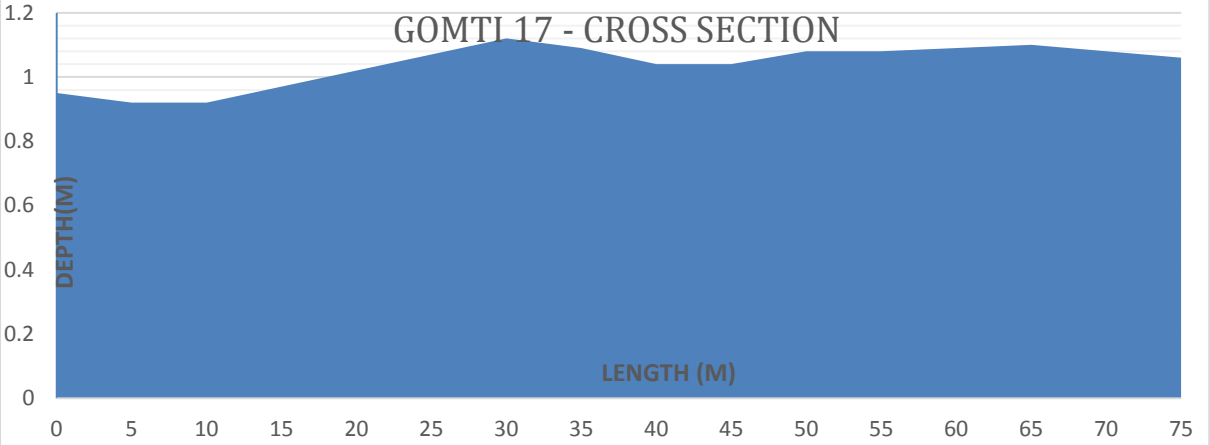
GOMTI 15- CROSS SECTION



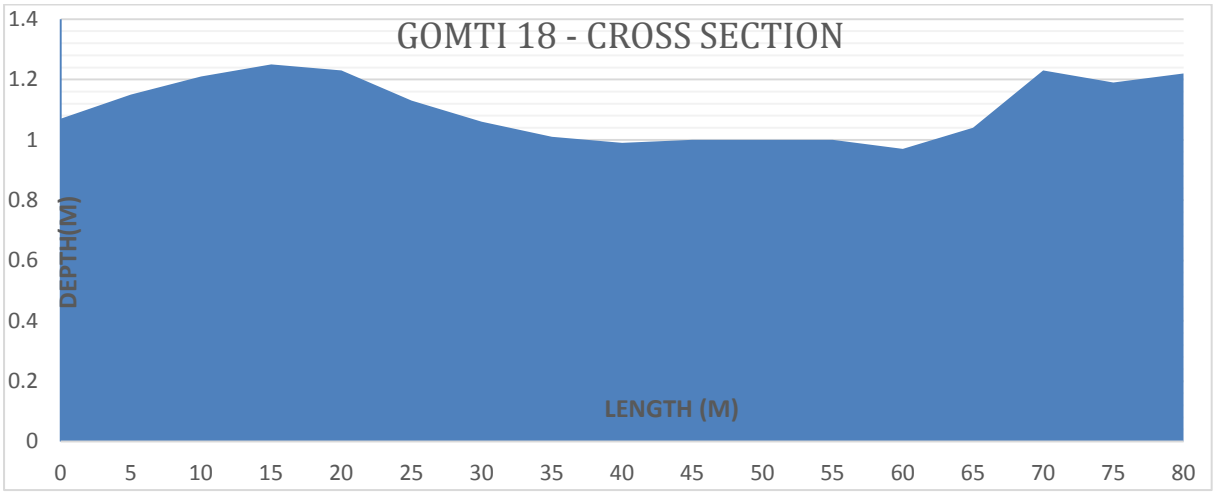
GOMTI 16- CROSS SECTION



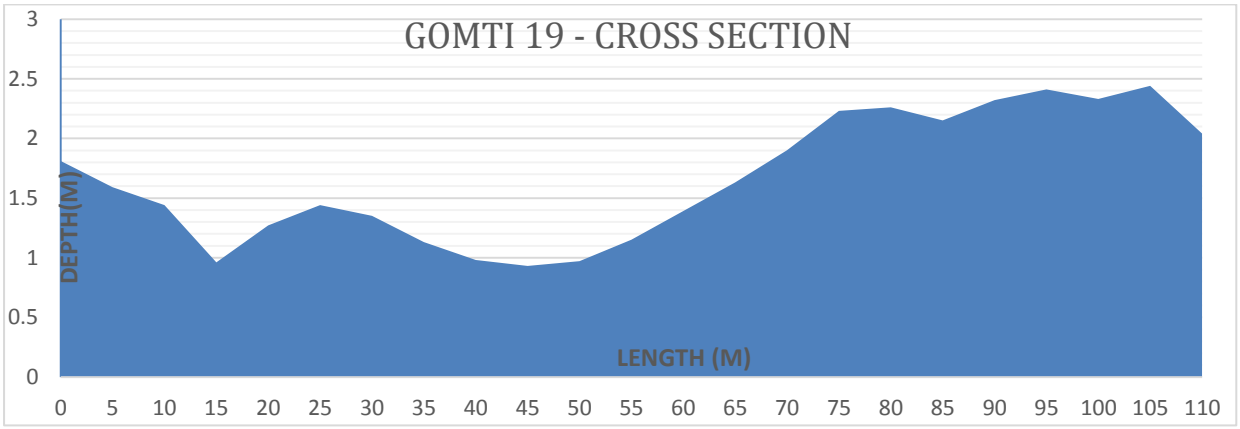
GOMTI 17- CROSS SECTION



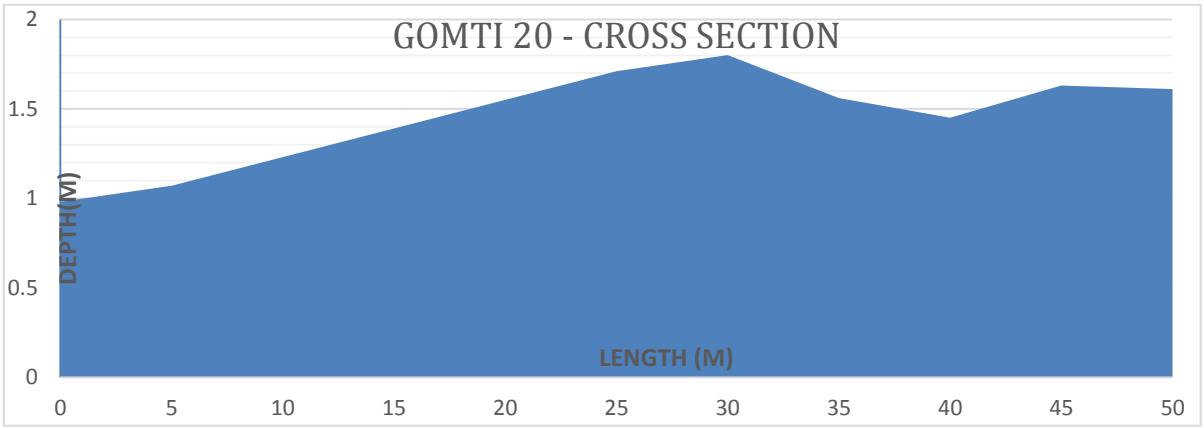
GOMTI 18- CROSS SECTION



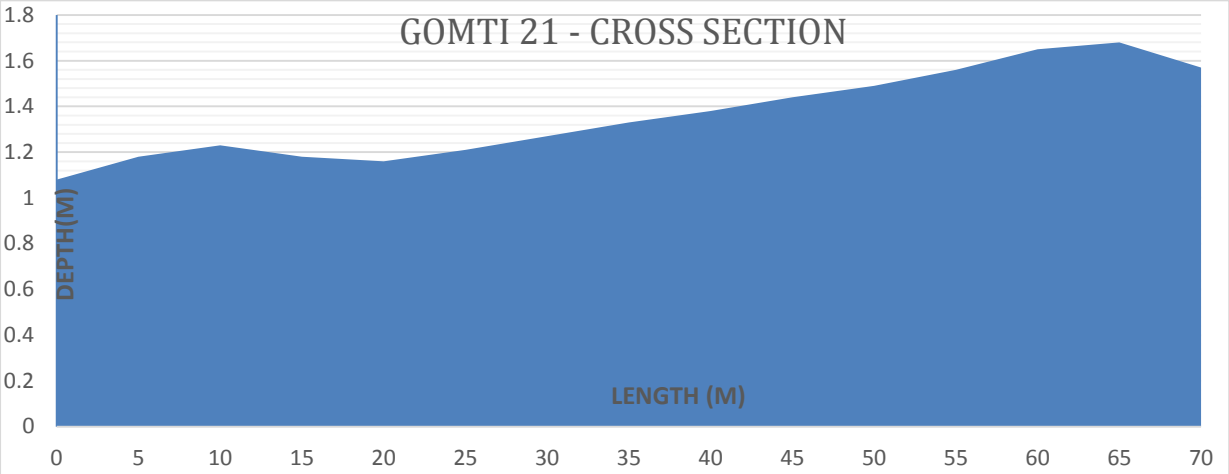
GOMTI 19- CROSS SECTION



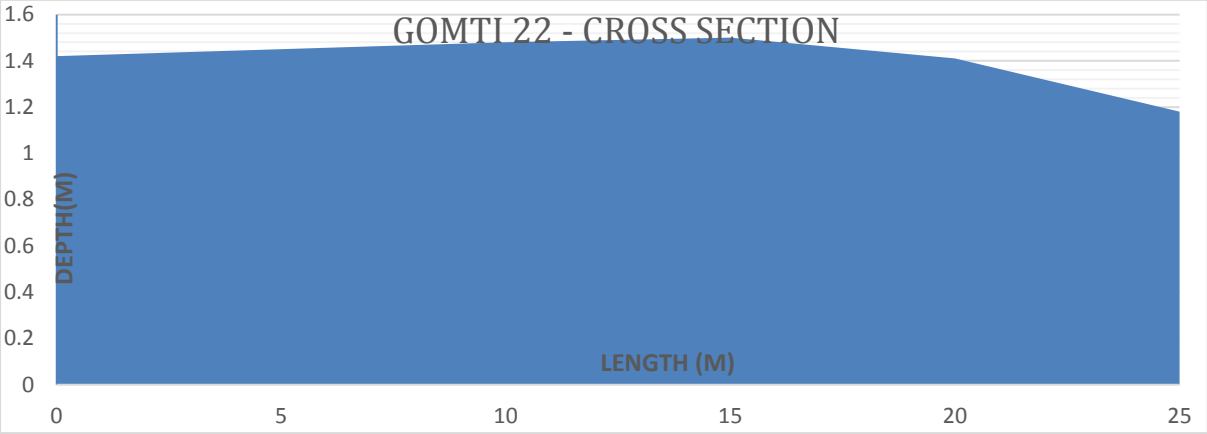
GOMTI 20- CROSS SECTION



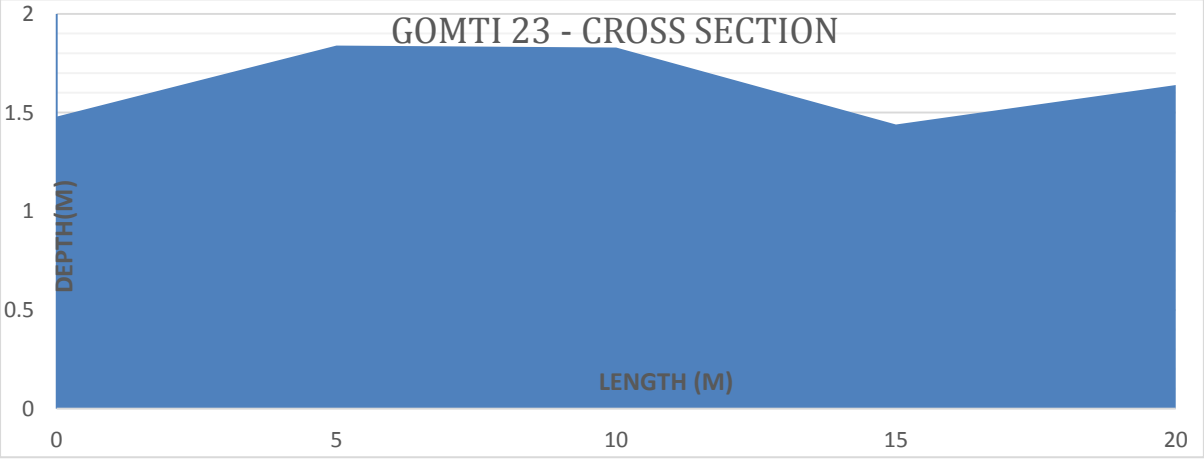
GOMTI 21- CROSS SECTION



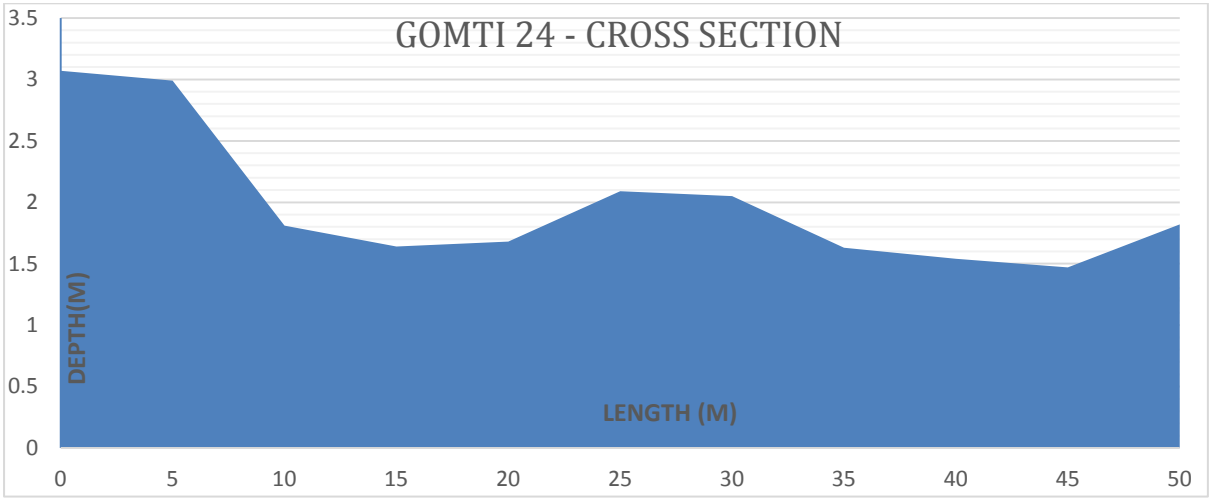
GOMTI 22- CROSS SECTION



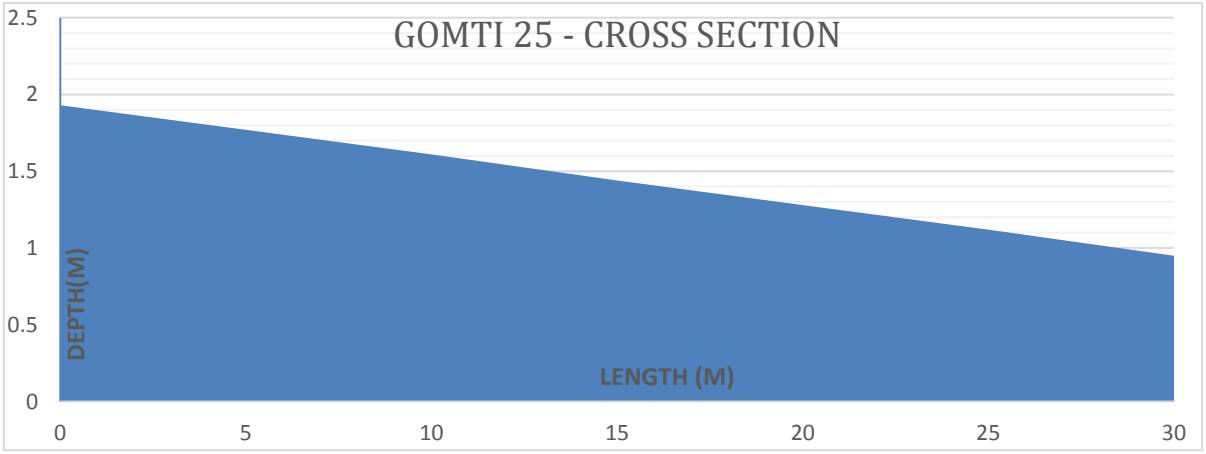
GOMTI 23- CROSS SECTION



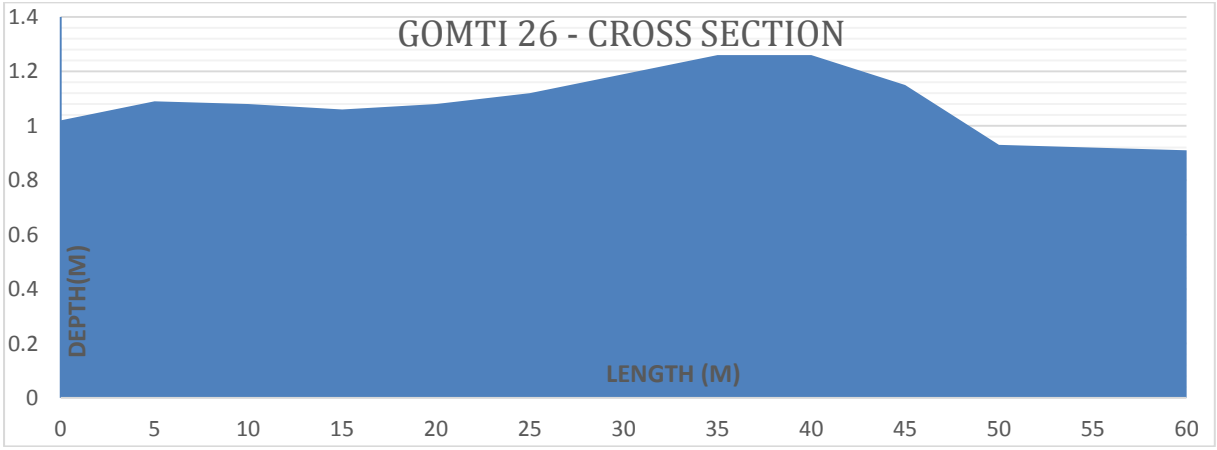
GOMTI 24- CROSS SECTION



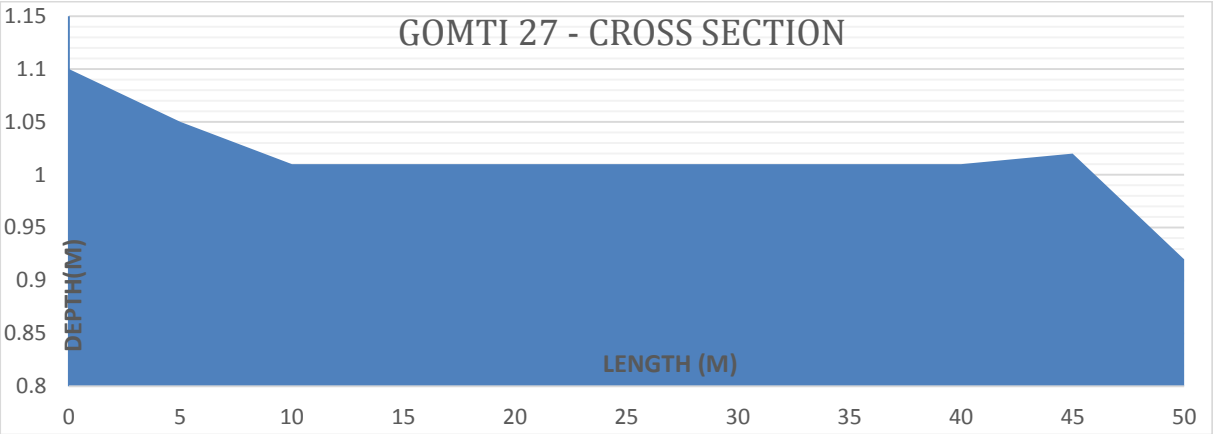
GOMTI 25- CROSS SECTION



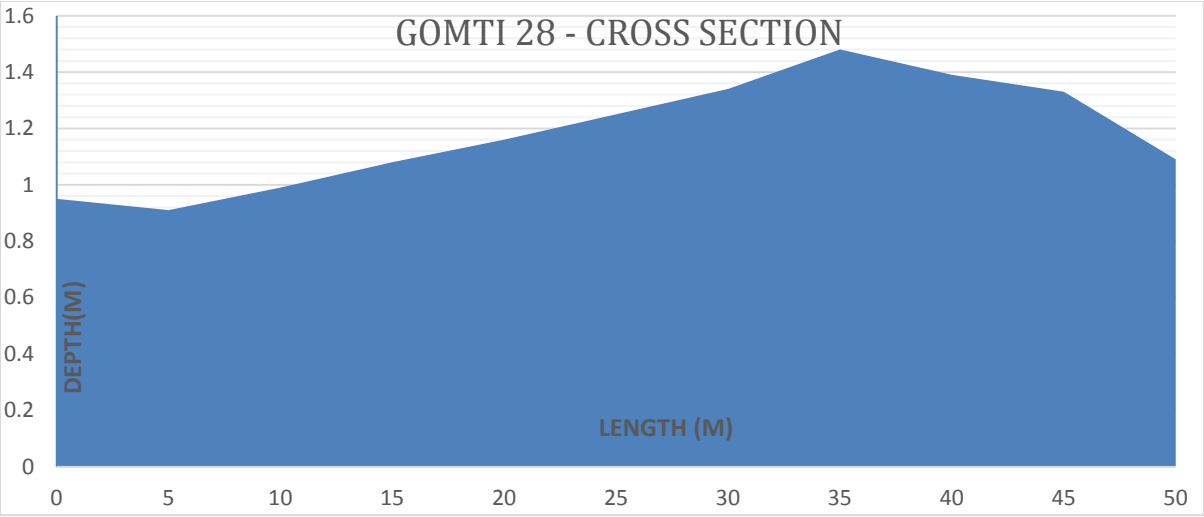
GOMTI 26- CROSS SECTION



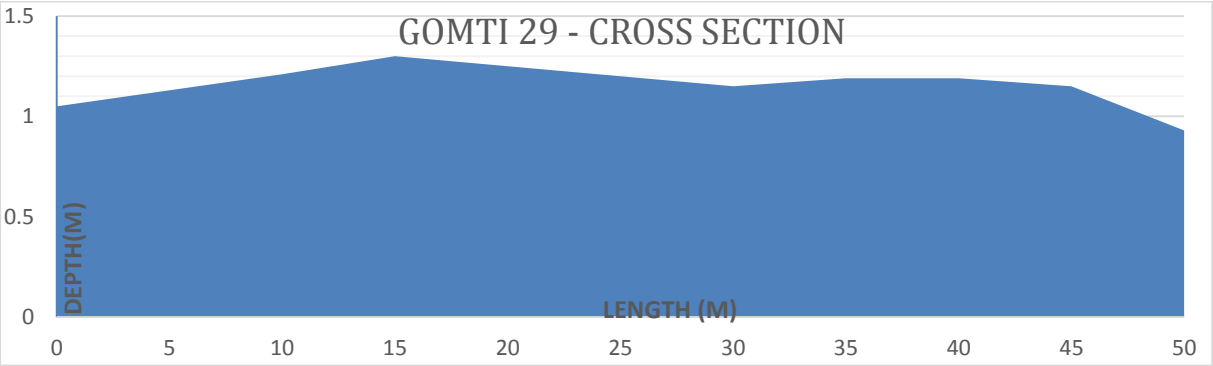
GOMTI 27- CROSS SECTION



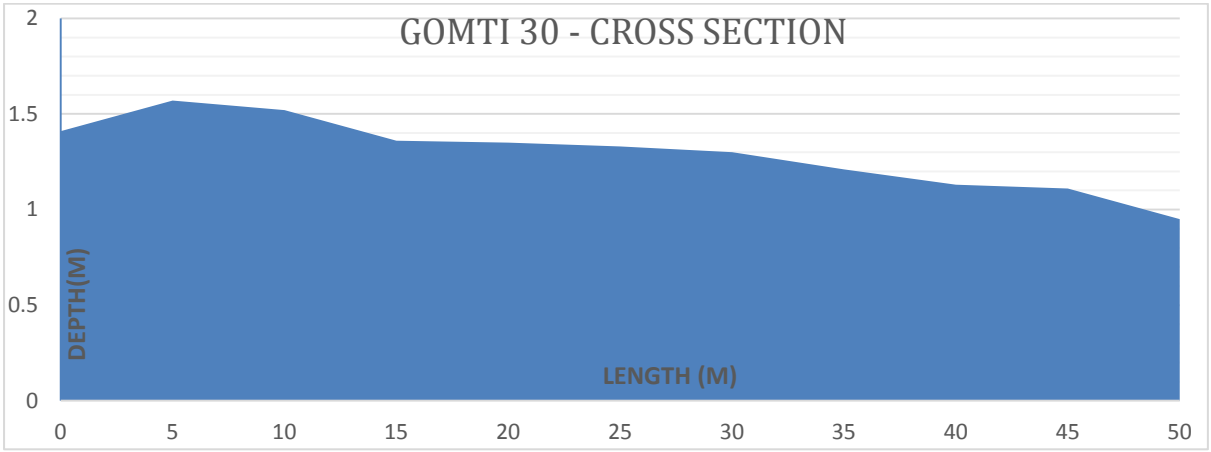
GOMTI 28- CROSS SECTION



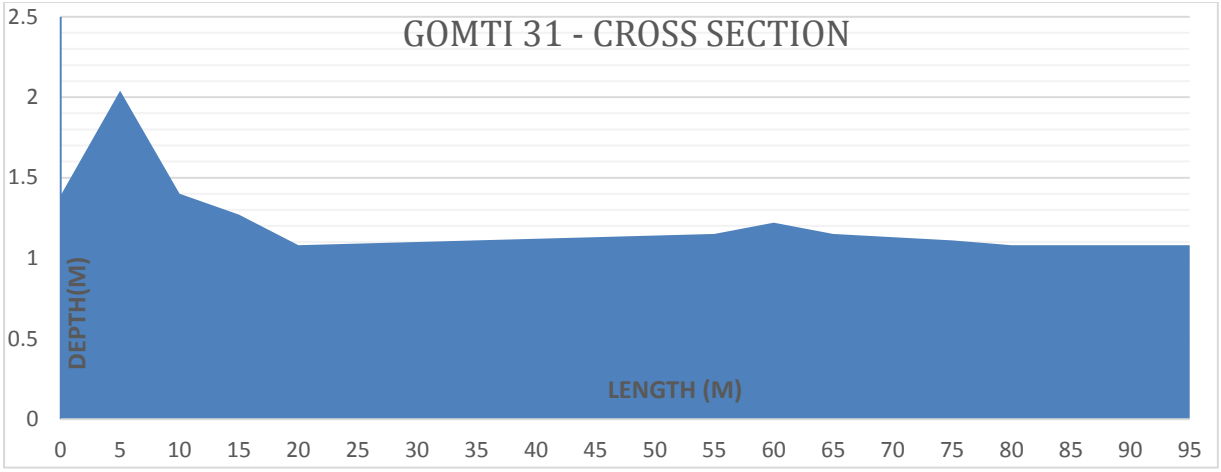
GOMTI 29- CROSS SECTION



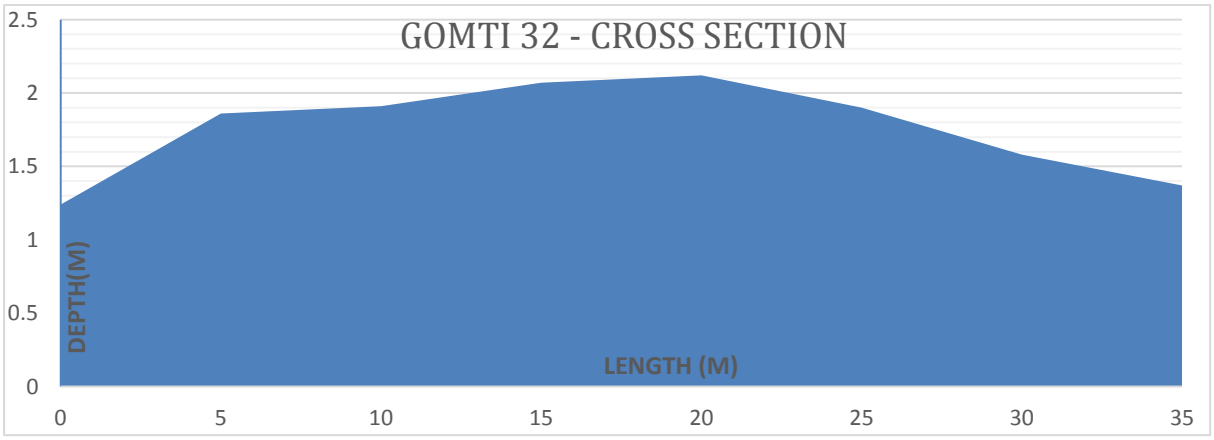
GOMTI 30- CROSS SECTION



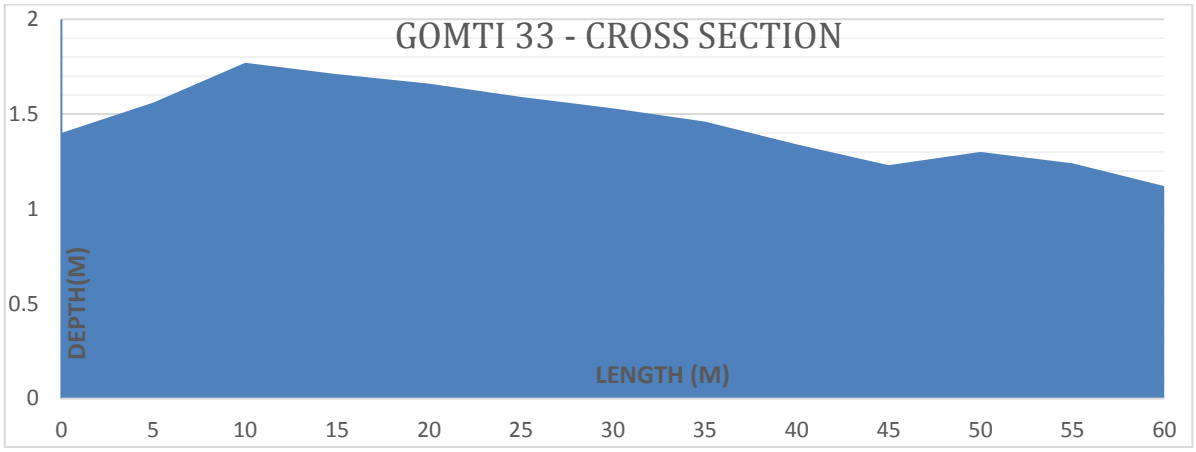
GOMTI 31- CROSS SECTION



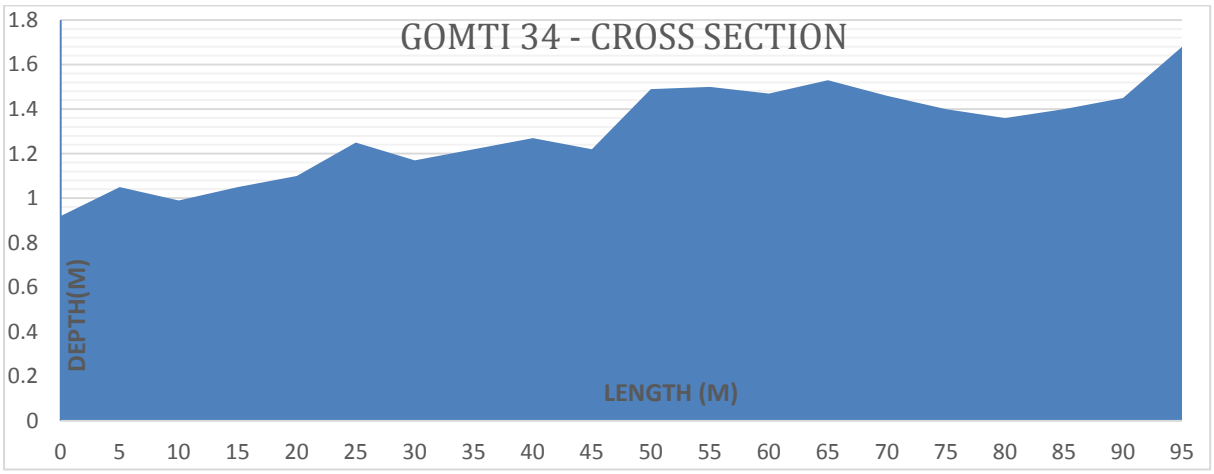
GOMTI 32- CROSS SECTION



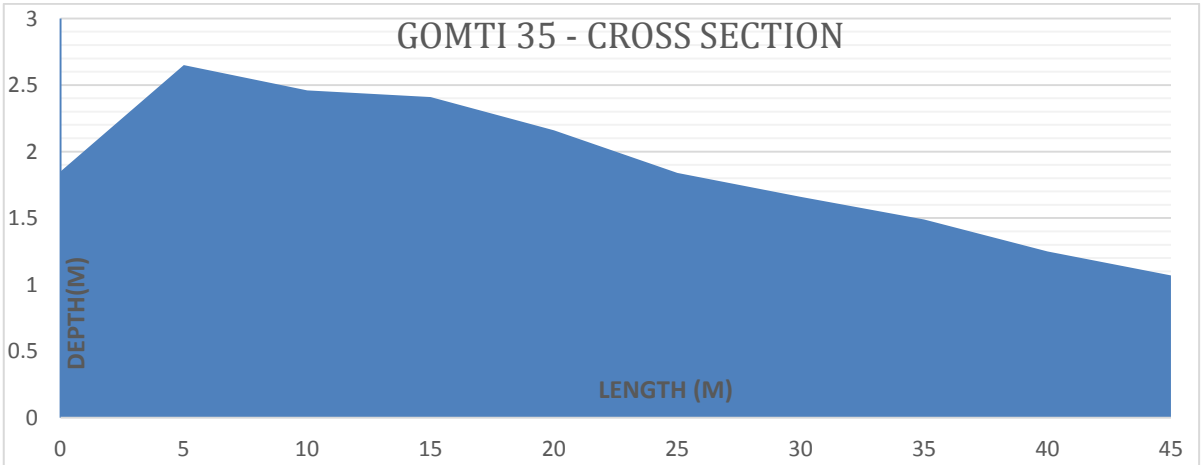
GOMTI 33- CROSS SECTION



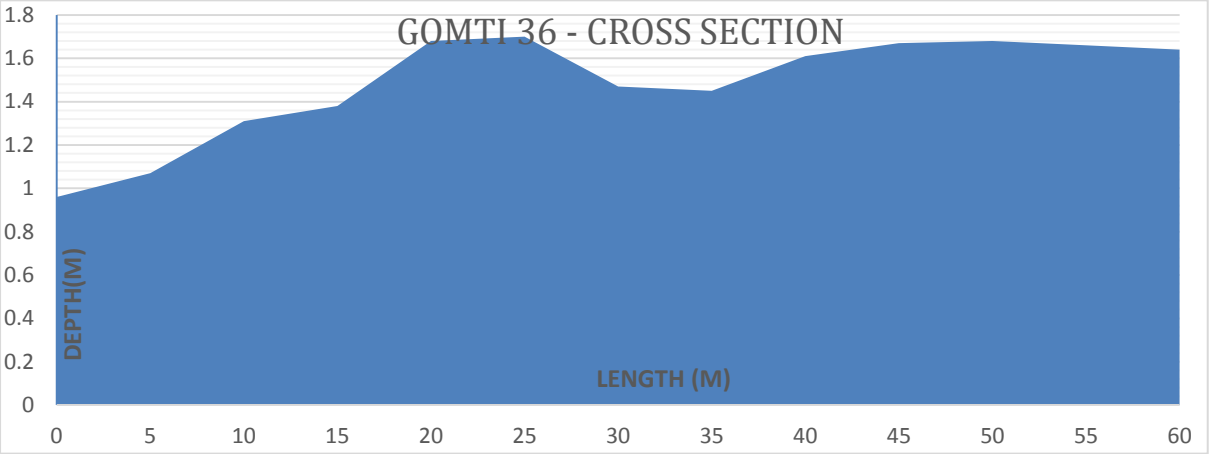
GOMTI 34- CROSS SECTION



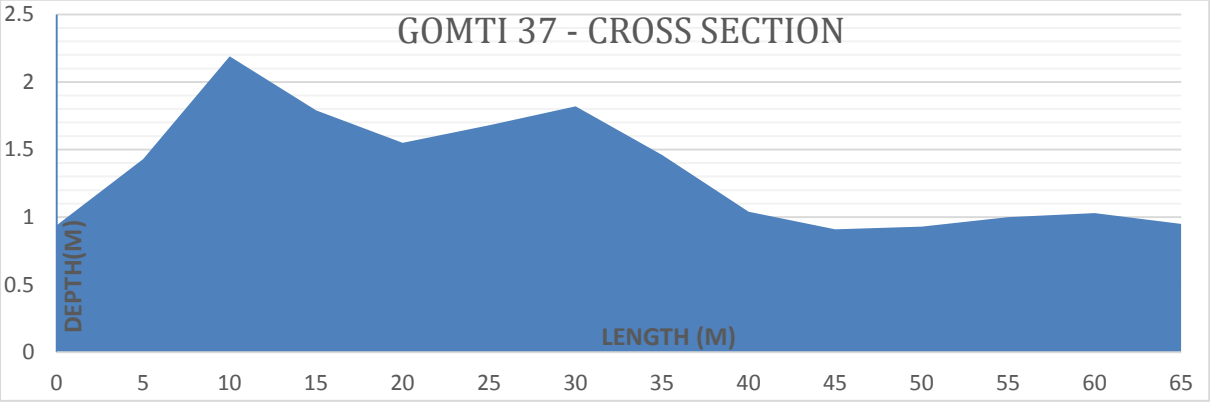
GOMTI 35- CROSS SECTION



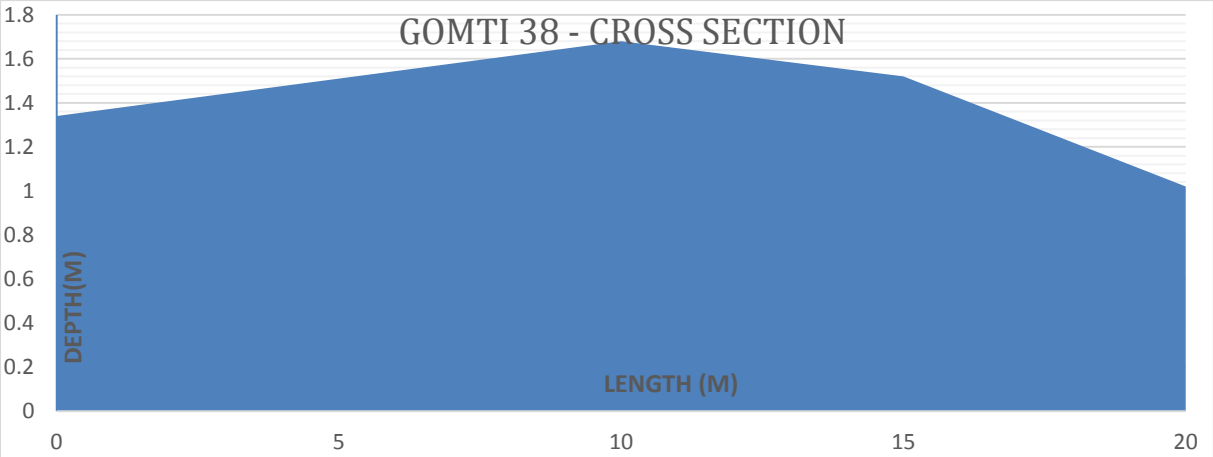
GOMTI 36- CROSS SECTION



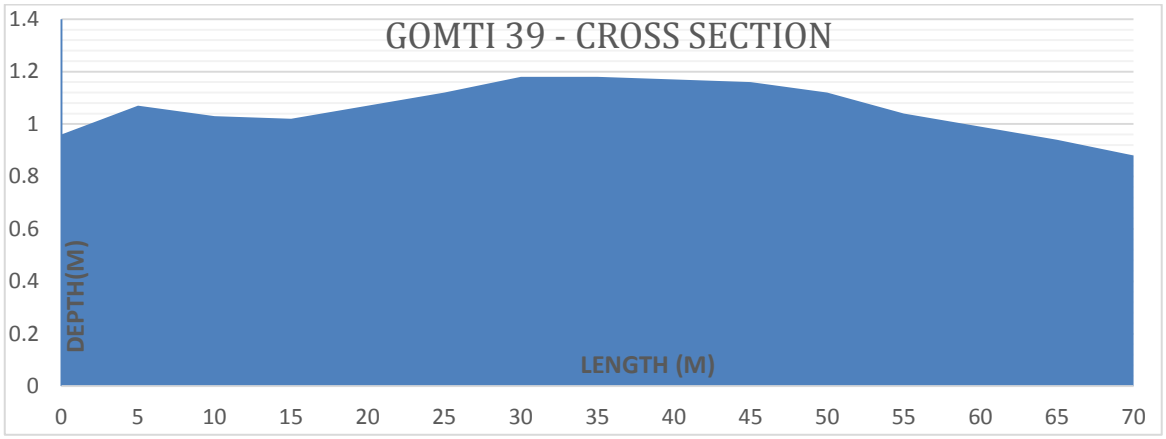
GOMTI 37- CROSS SECTION



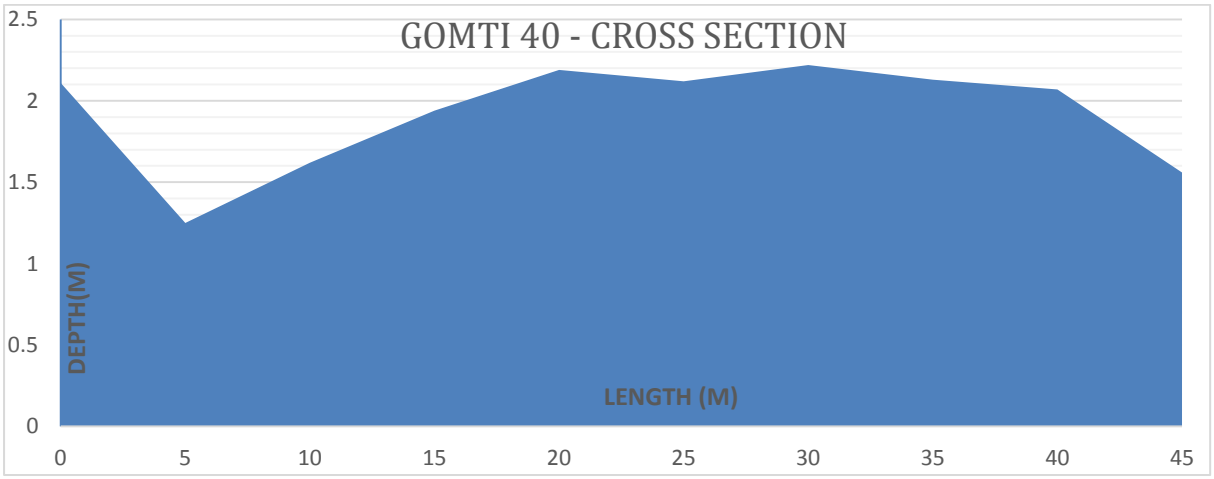
GOMTI 38- CROSS SECTION



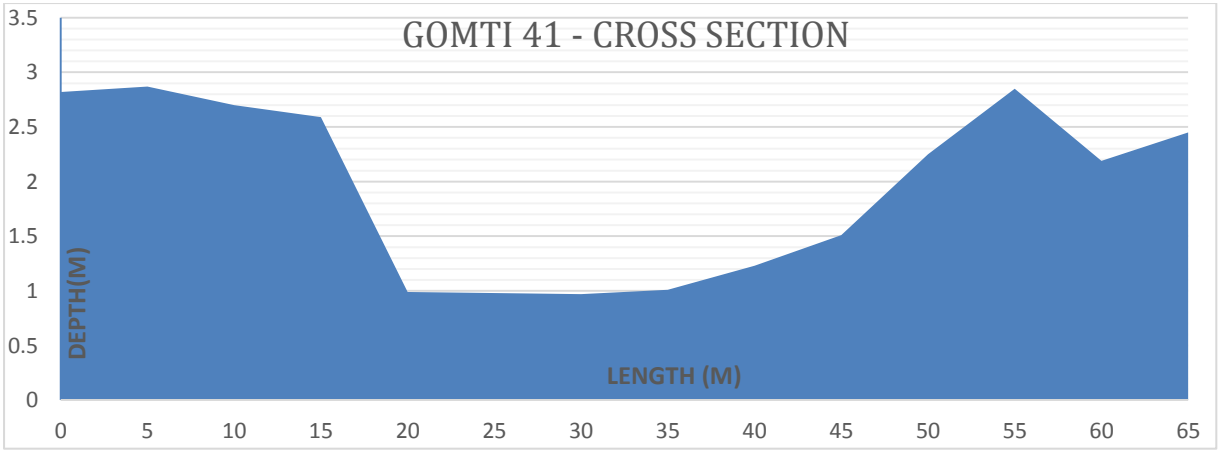
GOMTI 39- CROSS SECTION



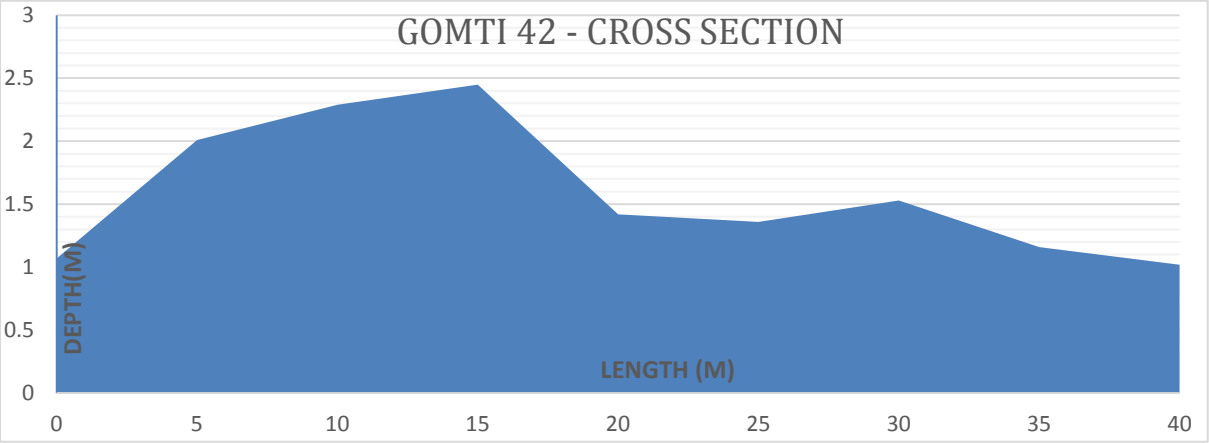
GOMTI 40- CROSS SECTION



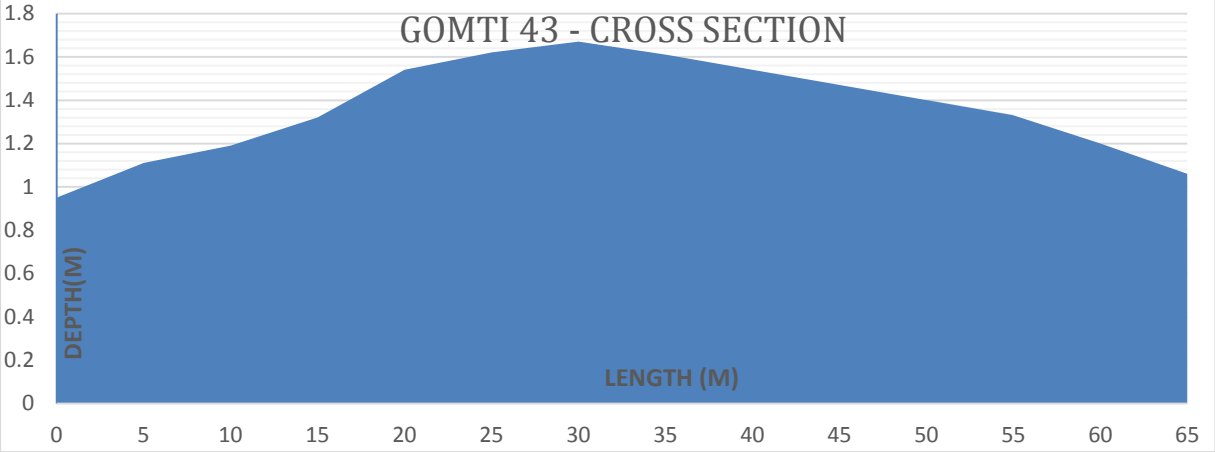
GOMTI 41- CROSS SECTION



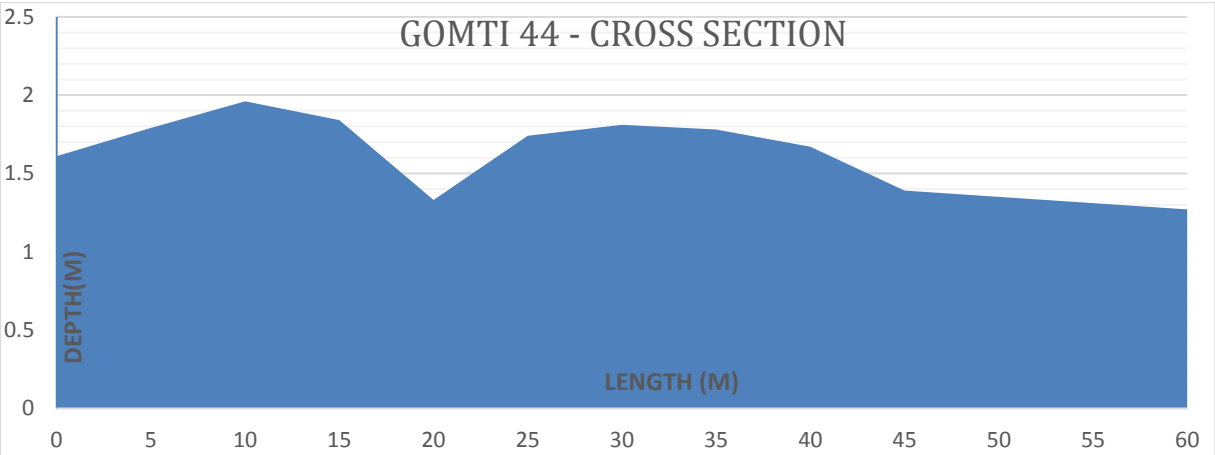
GOMTI 42- CROSS SECTION



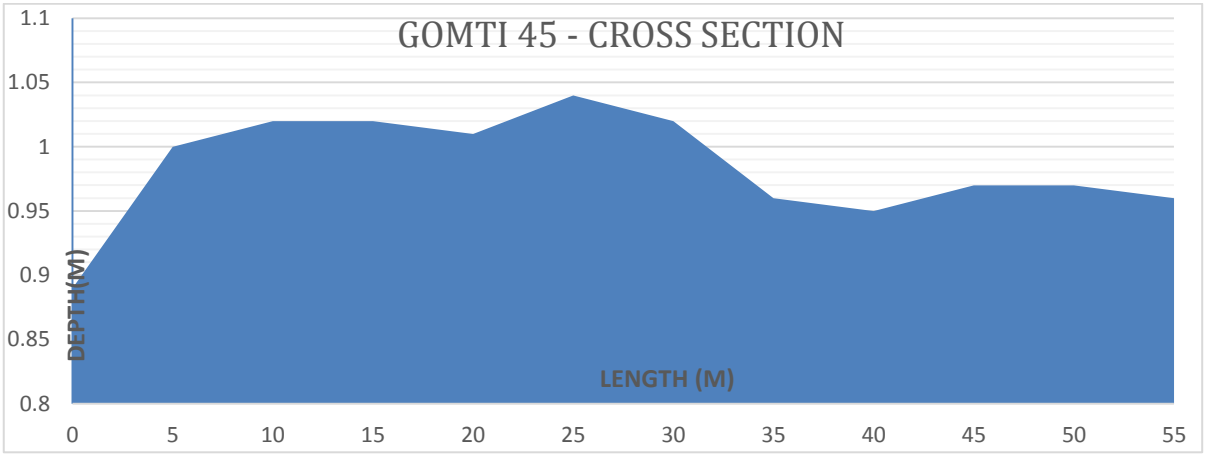
GOMTI 43- CROSS SECTION



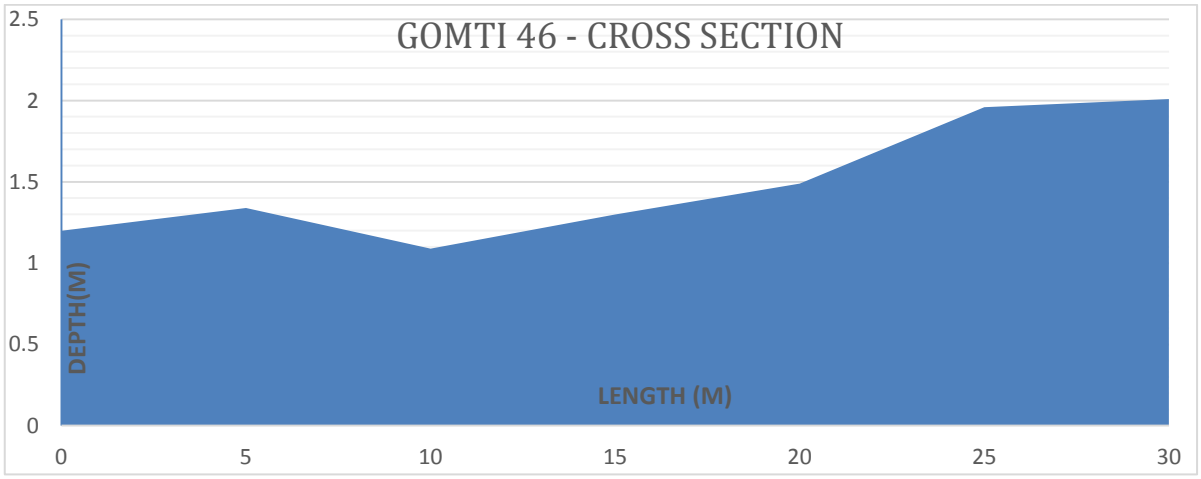
GOMTI 44- CROSS SECTION



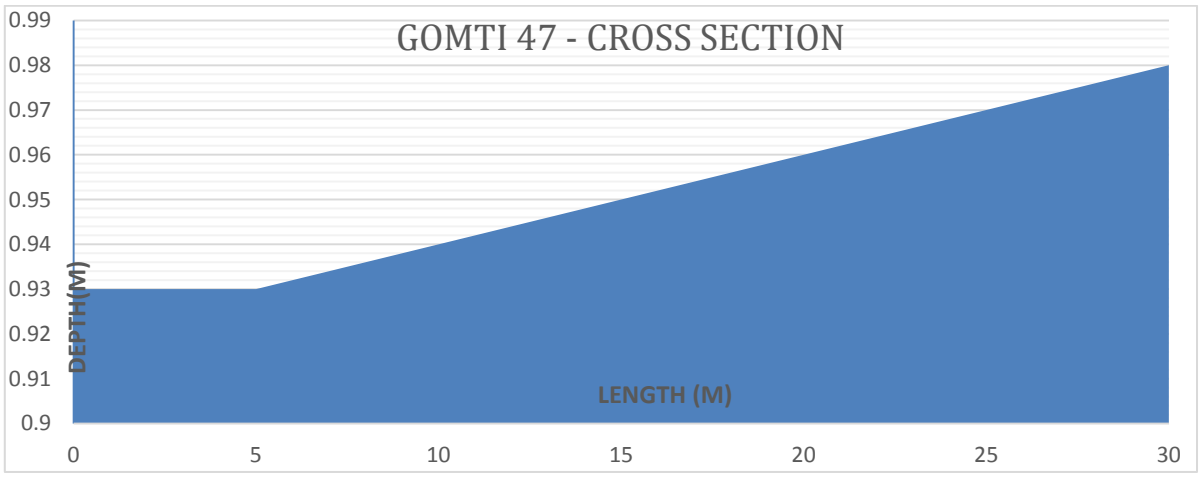
GOMTI 45- CROSS SECTION



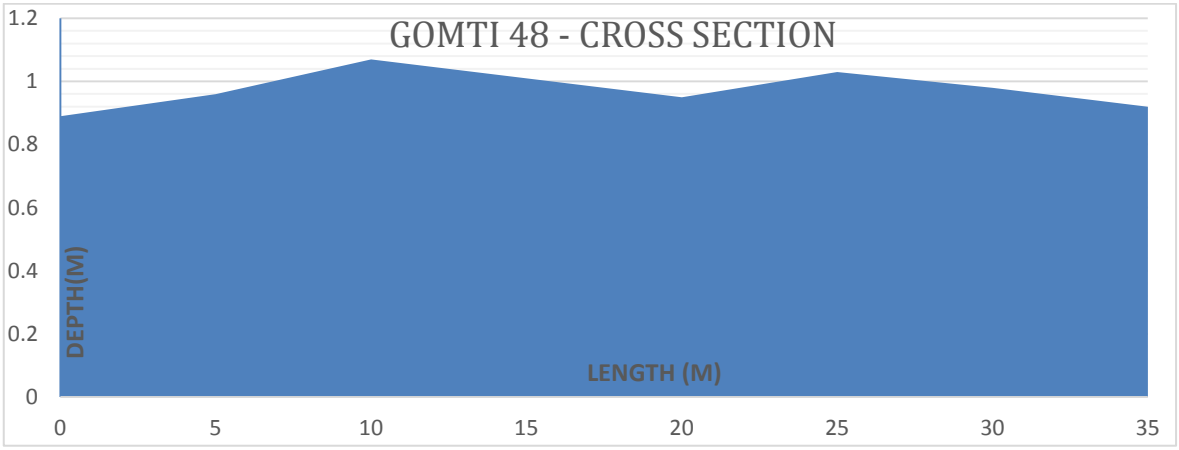
GOMTI 46- CROSS SECTION



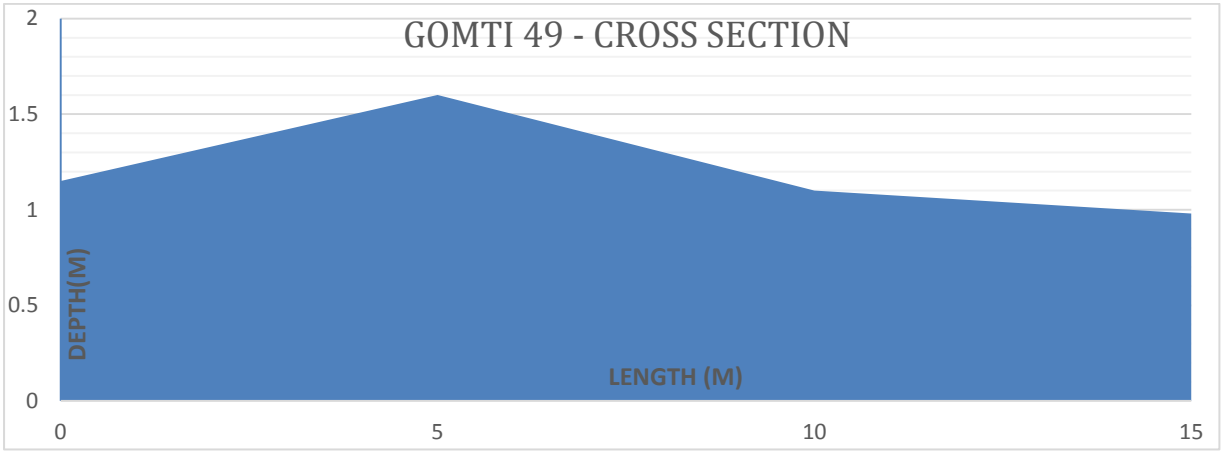
GOMTI 47- CROSS SECTION



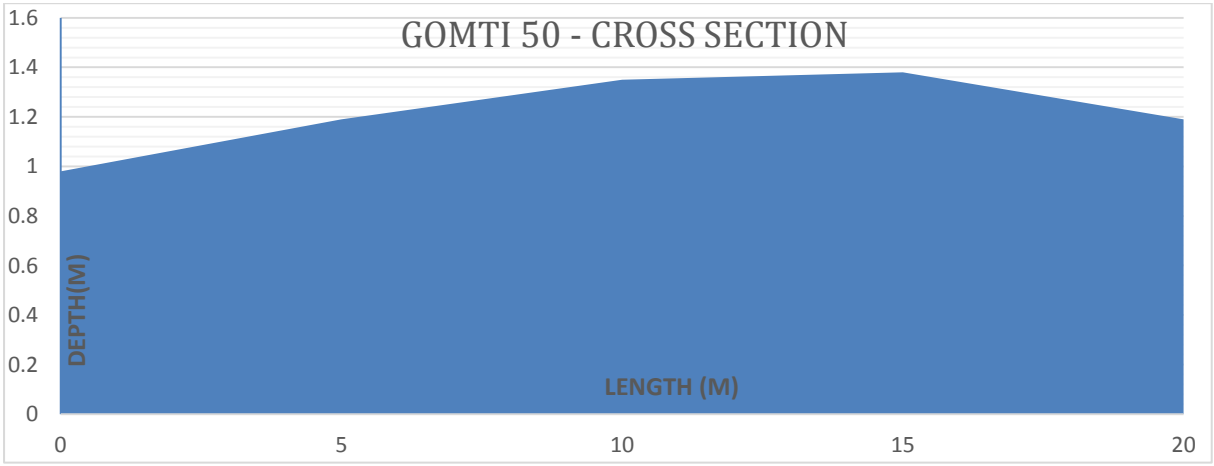
GOMTI 48- CROSS SECTION



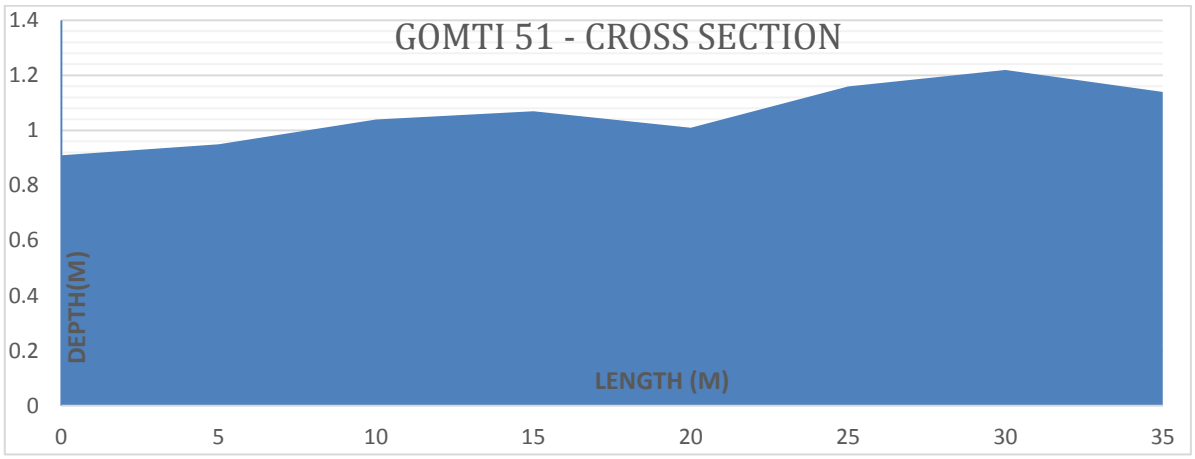
GOMTI 49- CROSS SECTION



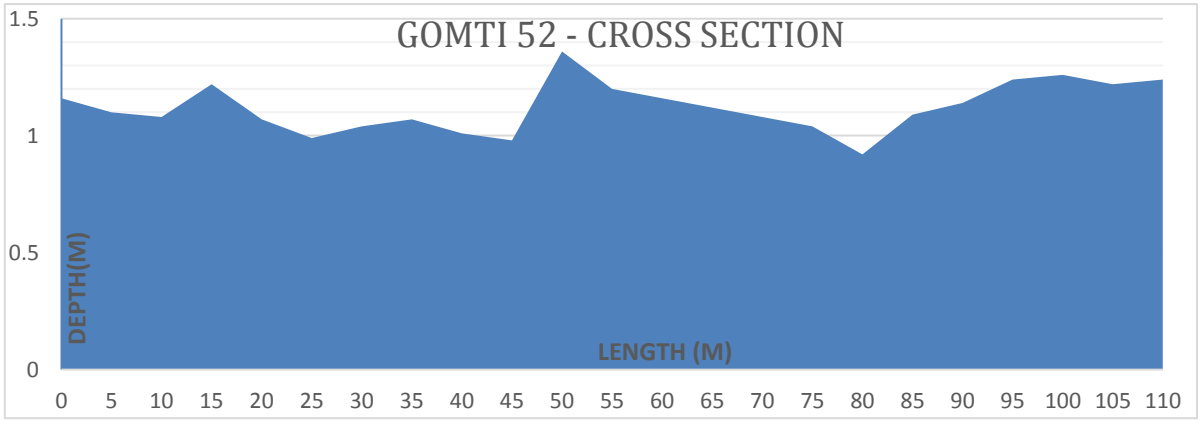
GOMTI 50- CROSS SECTION



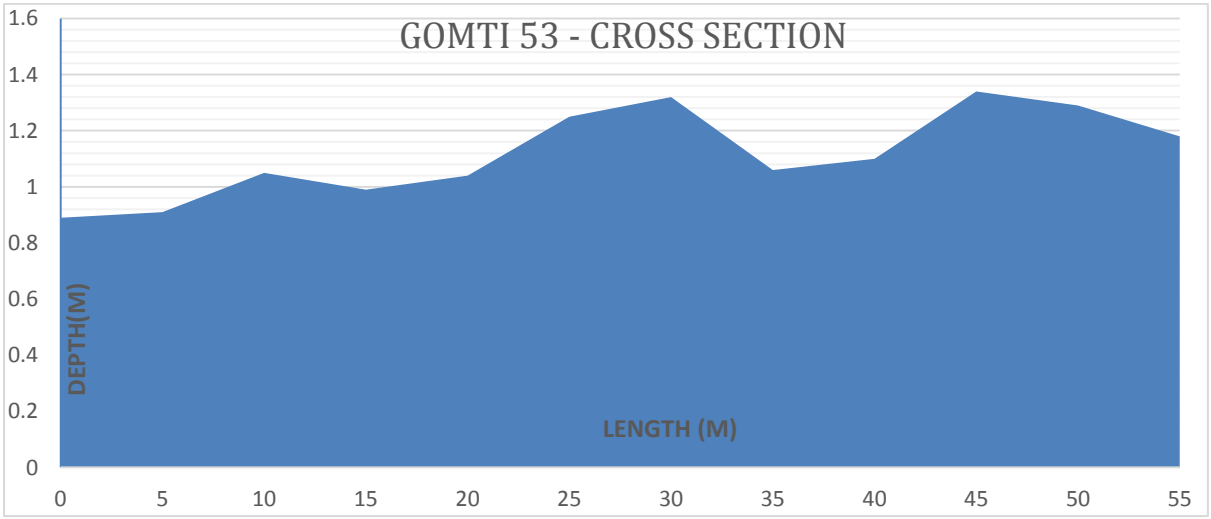
GOMTI 51- CROSS SECTION



GOMTI 52- CROSS SECTION



GOMTI 53- CROSS SECTION



2.20(a) **Soil Sample Locations**. Detail of soil sample locations being appended below:-

S.No	Chainage (Km)	Latitude	Longitude	Easting	Northing	Depth (m)
GOM 1	0.23	25°30'28.13"N	83°10'9.05"E	718016.03	2822957.437	3.1
GOM 2	10.21	25°30'33.93"N	83° 6'11.63"E	711384	2823029.416	2.7
GOM 3	19.94	25°30'39.32"N	83° 4'45.56"E	708977.7	2823157.447	1.6
GOM 4	29.1	25°32'36.20"N	83° 3'6.82"E	706164.9	2826711.862	2.4
GOM 5	39.75	25°34'27.13"N	82°59'36.42"E	700239.83	2830035.732	1.8
GOM 6	50	25°37'20.08"N	82°56'25.62"E	694836.48	2835278.891	2
GOM 7	59	25°37'2.87"N	82°53'18.31"E	689618.36	2834673.89	1.7
GOM 8	70.05	25°39'11.48"N	82°48'8.82"E	680930.89	2838510.072	2.6
GOM 9	79.98	25°42'14.02"N	82°46'15.52"E	677695.28	2844084.599	1.4
GOM 10	88.14	25°43'18.07"N	82°44'11.36"E	674208.89	2846009.447	1.4
GOM 11	98.87	25°44'57.23"N	82°41'0.67"E	668854.09	2848991.407	1.7
GOM 12	109.82	25°47'27.76"N	82°37'3.56"E	662190.21	2853540.479	5
GOM 13	118.154	25°50'18.58"N	82°35'26.65"E	659427.59	2858763.366	1.4
GOM 14	128.734	25°55'3.27"N	82°33'45.88"E	656517.27	2867489.156	1.6
GOM 15	139.289	25°57'48.78"N	82°32'49.79"E	654896.45	2872563.107	1.2
GOM 16	149.22	25°59'58.51"N	82°28'35.89"E	647789.49	2876473.024	1.8
GOM 17	159	26° 1'19.09"N	82°23'46.97"E	639729.2	2878864.917	1.1
GOM 18	169.764	26° 6'24.92"N	82°22'37.09"E	637687.82	2888253.711	1.3
GOM 19	178.718	26° 9'14.96"N	82°20'47.30"E	634583.13	2893453.467	1.8
GOM 20	188.121	26°10'50.23"N	82°17'28.08"E	629022.85	2896328.179	1.8
GOM 21	195.205	26°13'1.23"N	82°17'7.94"E	628423.19	2900353.291	1.1
GOM 22	210.404	26°11'59.88"N	82°12'28.37"E	620682.45	2898391.785	1.6
GOM 23	218.752	26°13'53.16"N	82° 9'5.92"E	615032.55	2901825.673	1.6
GOM 24	231.429	26°17'24.79"N	82° 6'36.79"E	610838.22	2908300.453	2.4
GOM 25	238.818	26°16'15.13"N	82° 4'46.42"E	607795.42	2906131.155	1.9
GOM 26	248.75	26°20'0.15"N	82° 5'2.72"E	608189.12	2913058.419	1.5
GOM 27	259.692	26°21'18.16"N	82° 2'55.23"E	604635.58	2915429.147	1.7
GOM 28	265.157	26°22'13.15"N	82° 1'57.78"E	603029.48	2917108.15	1.4
GOM 29	280.5	26°22'49.16"N	81°56'4.56"E	593232.16	2918141.305	1.2
GOM 30	287.1	26°23'26.94"N	81°52'47.03"E	587750.84	2919265.499	1.3
GOM 31	298.37	26°25'27.47"N	81°49'30.54"E	582282.93	2922937.464	1.4
GOM 32	310.923	26°28'44.61"N	81°45'51.81"E	576187.19	2928965.899	2
GOM 33	315.196	26°29'49.90"N	81°44'28.22"E	573861.52	2930960.03	2.6
GOM 34	327.782	26°32'5.22"N	81°40'31.14"E	567276.73	2935087.364	1.7
GOM 35	339.7	26°35'5.73"N	81°40'26.12"E	567108.23	2940640.584	2.8
GOM 36	349.262	26°36'33.17"N	81°40'25.33"E	567072.35	2943330.223	1.7
GOM 37	359.727	26°38'25.78"N	81°36'31.40"E	560586.49	2946762.232	1.9
GOM 38	358.658	26°38'43.02"N	81°33'33.35"E	555661.69	2947270.44	1.5
GOM 39	379.441	26°40'44.38"N	81°36'6.26"E	559871.24	2951023.563	1.1
GOM 40	389.154	26°41'29.93"N	81°32'24.94"E	553748.81	2952397.4	2.1

S.No	Chainage (Km)	Latitude	Longitude	Easting	Northing	Depth (m)
GOM 41	397.5	26°39'21.78"N	81°30'27.96"E	550531.38	2948441.353	3
GOM 42	409.285	26°39'45.91"N	81°27'23.79"E	545437.47	2949164.444	2.2
GOM 43	418.087	26°39'40.07"N	81°24'17.27"E	540282.68	2948967.832	1.8
GOM 44	427.48	26°39'22.50"N	81°20'55.72"E	534712.45	2948410.202	2.1
GOM 45	487.788	26°41'41.76"N	81°17'57.92"E	529787.24	2952682.819	1.2
GOM 46	476.981	26°43'19.81"N	81°16'12.26"E	526861.17	2955692.417	2
GOM 47	457.908	26°44'14.44"N	81°14'27.30"E	523958.87	2957367.822	0.9
GOM 48	468.045	26°45'29.05"N	81°11'28.52"E	519016.99	2959654.576	1
GOM 49	480	26°48'42.96"N	81° 9'26.05"E	515626.36	2965615.658	1.2
GOM 50	489.688	26°49'58.08"N	81° 4'53.62"E	508104.44	2967919.423	1.5
GOM 51	497.171	26°49'16.51"N	81° 1'52.52"E	503106.68	2966638.885	1
GOM 52	505.1	26°49'56.91"N	80°58'10.55"E	496979.88	2967881.633	1.5
GOM 53	514.204	26°52'20.60"N	80°54'58.99"E	491695.97	2972304.022	1.6

2.20(b) **Water Samples**. Water sample locations are tabulated below:-

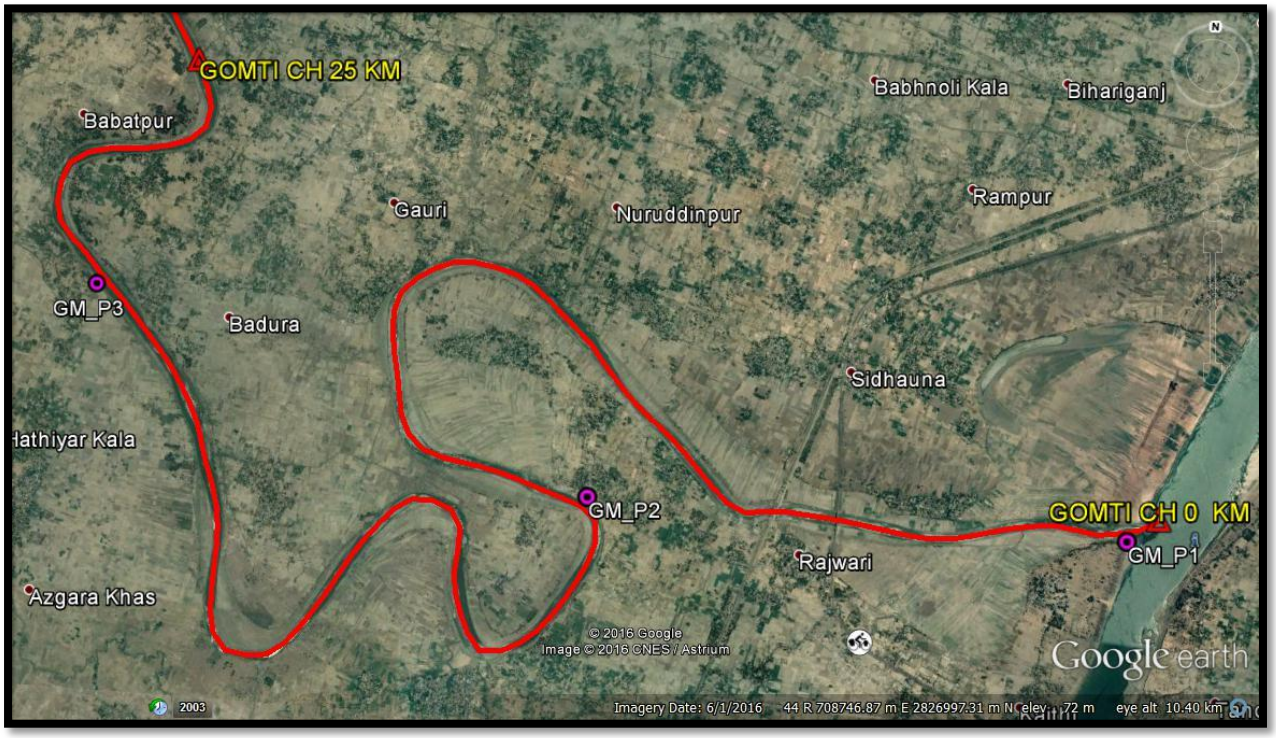
S.No	Chainage (Km)	Latitude	Longitude	Easting	Northing	Total Depth (m)	Mid-Depth (0.5d) (m)
GOM 1	0.23	25°30'28.13"N	83°10'9.05"E	718016.03	2822957.4	3.1	1.55
GOM 2	10.21	25°30'33.93"N	83° 6'11.63"E	711384	2823029.4	2.7	1.35
GOM 3	19.94	25°30'39.32"N	83° 4'45.56"E	708977.7	2823157.4	1.6	0.8
GOM 4	29.1	25°32'36.20"N	83° 3'6.82"E	706164.9	2826711.9	2.4	1.2
GOM 5	39.75	25°34'27.13"N	82°59'36.42"E	700239.83	2830035.7	1.8	0.9
GOM 6	50	25°37'20.08"N	82°56'25.62"E	694836.48	2835278.9	2	1
GOM 7	59	25°37'2.87"N	82°53'18.31"E	689618.36	2834673.9	1.7	0.85
GOM 8	70.05	25°39'11.48"N	82°48'8.82"E	680930.89	2838510.1	2.6	1.3
GOM 9	79.98	25°42'14.02"N	82°46'15.52"E	677695.28	2844084.6	1.4	0.7
GOM 10	88.14	25°43'18.07"N	82°44'11.36"E	674208.89	2846009.4	1.4	0.7
GOM 11	98.87	25°44'57.23"N	82°41'0.67"E	668854.09	2848991.4	1.7	0.85
GOM 12	109.82	25°47'27.76"N	82°37'3.56"E	662190.21	2853540.5	5	2.5
GOM 13	118.154	25°50'18.58"N	82°35'26.65"E	659427.59	2858763.4	1.4	0.7
GOM 14	128.734	25°55'3.27"N	82°33'45.88"E	656517.27	2867489.2	1.6	0.8
GOM 15	139.289	25°57'48.78"N	82°32'49.79"E	654896.45	2872563.1	1.2	0.6
GOM 16	149.22	25°59'58.51"N	82°28'35.89"E	647789.49	2876473	1.8	0.9
GOM 17	159	26° 1'19.09"N	82°23'46.97"E	639729.2	2878864.9	1.1	0.55
GOM 18	169.764	26° 6'24.92"N	82°22'37.09"E	637687.82	2888253.7	1.3	0.65
GOM 19	178.718	26° 9'14.96"N	82°20'47.30"E	634583.13	2893453.5	1.8	0.9
GOM 20	188.121	26°10'50.23"N	82°17'28.08"E	629022.85	2896328.2	1.8	0.9

S.No	Chainage (Km)	Latitude	Longitude	Easting	Northing	Total Depth (m)	Mid-Depth (0.5d) (m)
GOM 21	195.205	26°13'1.23"N	82°17'7.94"E	628423.19	2900353.3	1.1	0.55
GOM 22	210.404	26°11'59.88"N	82°12'28.37"E	620682.45	2898391.8	1.6	0.8
GOM 23	218.752	26°13'53.16"N	82° 9'5.92"E	615032.55	2901825.7	1.6	0.8
GOM 24	231.429	26°17'24.79"N	82° 6'36.79"E	610838.22	2908300.5	2.4	1.2
GOM 25	238.818	26°16'15.13"N	82° 4'46.42"E	607795.42	2906131.2	1.9	0.95
GOM 26	248.75	26°20'0.15"N	82° 5'2.72"E	608189.12	2913058.4	1.5	0.75
GOM 27	259.692	26°21'18.16"N	82° 2'55.23"E	604635.58	2915429.1	1.7	0.85
GOM 28	265.157	26°22'13.15"N	82° 1'57.78"E	603029.48	2917108.2	1.4	0.7
GOM 29	280.5	26°22'49.16"N	81°56'4.56"E	593232.16	2918141.3	1.2	0.6
GOM 30	287.1	26°23'26.94"N	81°52'47.03"E	587750.84	2919265.5	1.3	0.65
GOM 31	298.37	26°25'27.47"N	81°49'30.54"E	582282.93	2922937.5	1.4	0.7
GOM 32	310.923	26°28'44.61"N	81°45'51.81"E	576187.19	2928965.9	2	1
GOM 33	315.196	26°29'49.90"N	81°44'28.22"E	573861.52	2930960	2.6	1.3
GOM 34	327.782	26°32'5.22"N	81°40'31.14"E	567276.73	2935087.4	1.7	0.85
GOM 35	339.7	26°35'5.73"N	81°40'26.12"E	567108.23	2940640.6	2.8	1.4
GOM 36	349.262	26°36'33.17"N	81°40'25.33"E	567072.35	2943330.2	1.7	0.85
GOM 37	359.727	26°38'25.78"N	81°36'31.40"E	560586.49	2946762.2	1.9	0.95
GOM 38	358.658	26°38'43.02"N	81°33'33.35"E	555661.69	2947270.4	1.5	0.75
GOM 39	379.441	26°40'44.38"N	81°36'6.26"E	559871.24	2951023.6	1.1	0.55
GOM 40	389.154	26°41'29.93"N	81°32'24.94"E	553748.81	2952397.4	2.1	1.05
GOM 41	397.5	26°39'21.78"N	81°30'27.96"E	550531.38	2948441.4	3	1.5
GOM 42	409.285	26°39'45.91"N	81°27'23.79"E	545437.47	2949164.4	2.2	1.1
GOM 43	418.087	26°39'40.07"N	81°24'17.27"E	540282.68	2948967.8	1.8	0.9
GOM 44	427.48	26°39'22.50"N	81°20'55.72"E	534712.45	2948410.2	2.1	1.05
GOM 45	487.788	26°41'41.76"N	81°17'57.92"E	529787.24	2952682.8	1.2	0.6
GOM 46	476.981	26°43'19.81"N	81°16'12.26"E	526861.17	2955692.4	2	1
GOM 47	457.908	26°44'14.44"N	81°14'27.30"E	523958.87	2957367.8	0.9	0.45
GOM 48	468.045	26°45'29.05"N	81°11'28.52"E	519016.99	2959654.6	1	0.5
GOM 49	480	26°48'42.96"N	81° 9'26.05"E	515626.36	2965615.7	1.2	0.6
GOM 50	489.688	26°49'58.08"N	81° 4'53.62"E	508104.44	2967919.4	1.5	0.75
GOM 51	497.171	26°49'16.51"N	81° 1'52.52"E	503106.68	2966638.9	1	0.5
GOM 52	505.1	26°49'56.91"N	80°58'10.55"E	496979.88	2967881.6	1.5	0.75
GOM 53	514.204	26°52'20.60"N	80°54'58.99"E	491695.97	2972304	1.6	0.8

SECTION-3

3.**Description of Waterway**.

3.1 **Sub-Stretch 1: From Ch 0 km to Ch 25 km**. This stretch of the surveyed river is having length of 25 km and average width of 100m approximately. Current meter observation and discharge measurement were carried out at Ch. 0.20 km, Ch. 10.15 km and Ch. 20.00 km. Rajwari ferry ghat is situated at Ch.1.90 km. Markandey Mahadev temple at Kaithi, Ghazipur is situated in this section. The surveyed river length is having shallow stretches in most of the places. Fishing activity is prominent throughout the river length. Islands and sandchurs are also relevant in this portion. Dense phytoplankton can also be noticed. There is neither any forest zone nor restricted zone in this stretch. Farmers were seen engaging in agricultural activities. Primary crops are mustard, wheat, gourd, ridge gourd, cucumber, carrot, radish, etc.



From Ch 0 km to 25 km

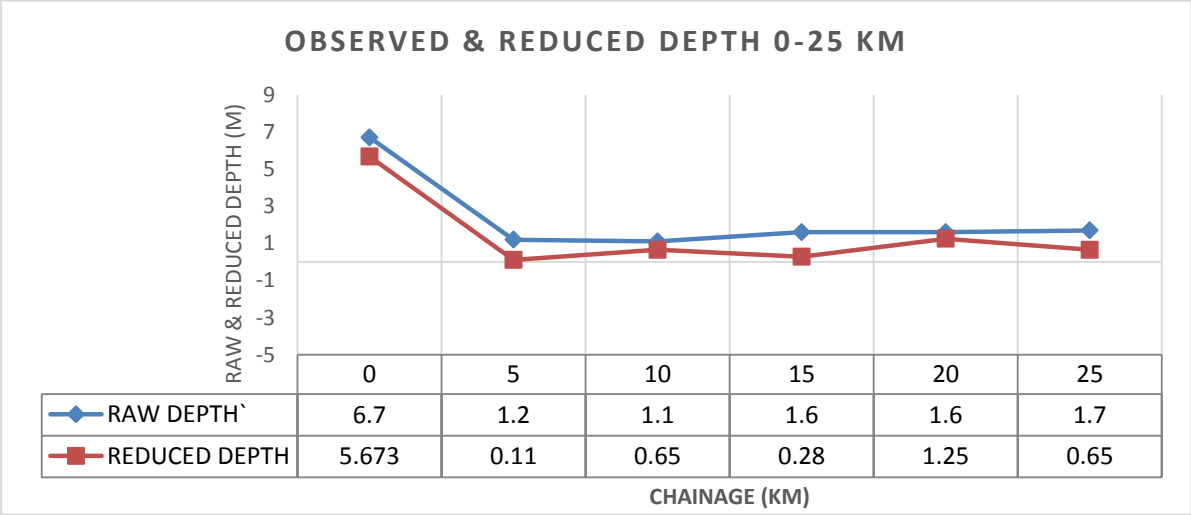
Dredging quantity for substretch-1

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	0	25	0.0	4.6	5,600.00	2,35,623.97	-0.3	3.9	19,500.00	8,03,574.98
Class-II	0	25	0.0	4.6	7,900.00	5,18,120.27	-0.3	3.9	20,700.00	13,02,414.30
Class-III	0	25	0.0	4.6	12,700.00	10,72,002.12	-0.3	3.9	22,000.00	20,89,177.60
Class-IV	0	25	0.0	4.6	15,400.00	15,09,091.94	-0.3	3.9	22,600.00	25,86,107.95

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-1 (0-25 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	0-25	The full stretch is covered by bathymetric survey
Topographic Survey	0-25	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope being mentioned below:-

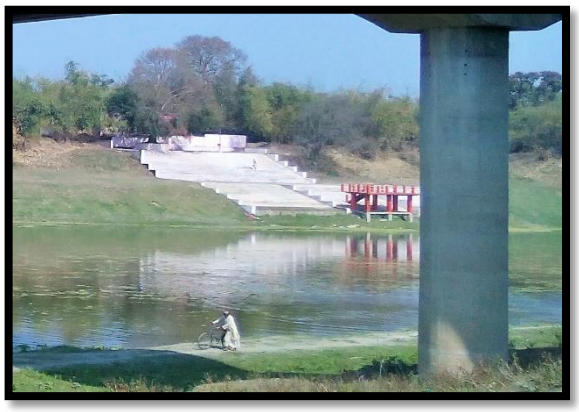


Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
0	25	49.8	57.2	7.4	1:3378

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. Bank protection in this river stretch was noticed at Ch 22.90 km.



Temple & Ghat Ch 22.90 km

(f) **Hindrances**. Shallow patches and water plankton are hindrances for navigation.

Island at Ch 16.13 km

Dry River Bank at Ch 24.00 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other protected area present in this river stretch.

(i) **NH/ SH**. National Highway 29 is crossing the river at Ch 3 km

(j) **Railway Station**. Rajwari Raiway Station is located 1 km towards southern side from the river.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

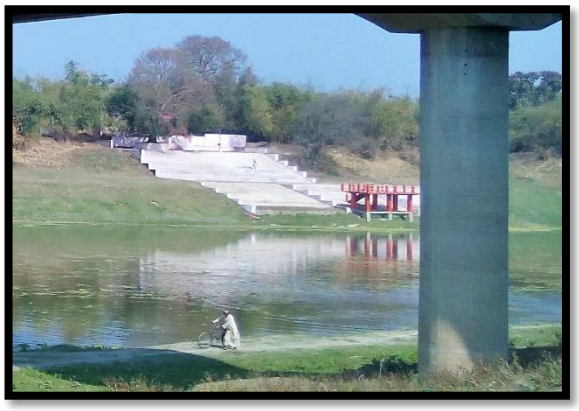
(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the stretch. The Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

Crops at Ch. 16 km & Ch. 23 km

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. There is no major or minor industry exists in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty and terminal present in this portion. However, a ghat on the river bank at Ch. 22.90 km was noticed.



Temple & Ghat Ch 22.90 km

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. Prominent town Kaithi is located in this section, which is 2 km away towards southern side from the waterway. The famous Markandey Mahadev temple is located near the confluence.

Markandey Mahadev Temple, Kaithi

(r) **Ferry**. Rajwari Ferry ghat is located at Ch. 1.90 km and another ferry ghat is situated at Ch. 16.5 km.

Rajwari Ferry Ghat at Ch 1.90 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section. However, the same can be developed at Ganga confluence, owing to having water availability throughout the year.

(t) **Fishing Activity**.Small wooden boats were seen engaging in fishing activity in this river portion.

Fishing Activity at Ch. 7.9 km &Ch. 19 km

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary of the river present in this portion.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. The nallas were noticed at Ch. 1.3 km on left bank, Ch. 17.5 km on right bank and Ch. 19.7 km on left bank (towards upstream).

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z) **Details of Cross-Structures**. RajwariRail Bridge at Ch. 3.12 km, Rajwari under construction rail bridge at Ch. 3.73 km and BabatputBridge at Ch. 23.23 km are the cross structures in this section. There is no HT lines or electric lines across the river in this portion. Details of bridges are mentioned below:-

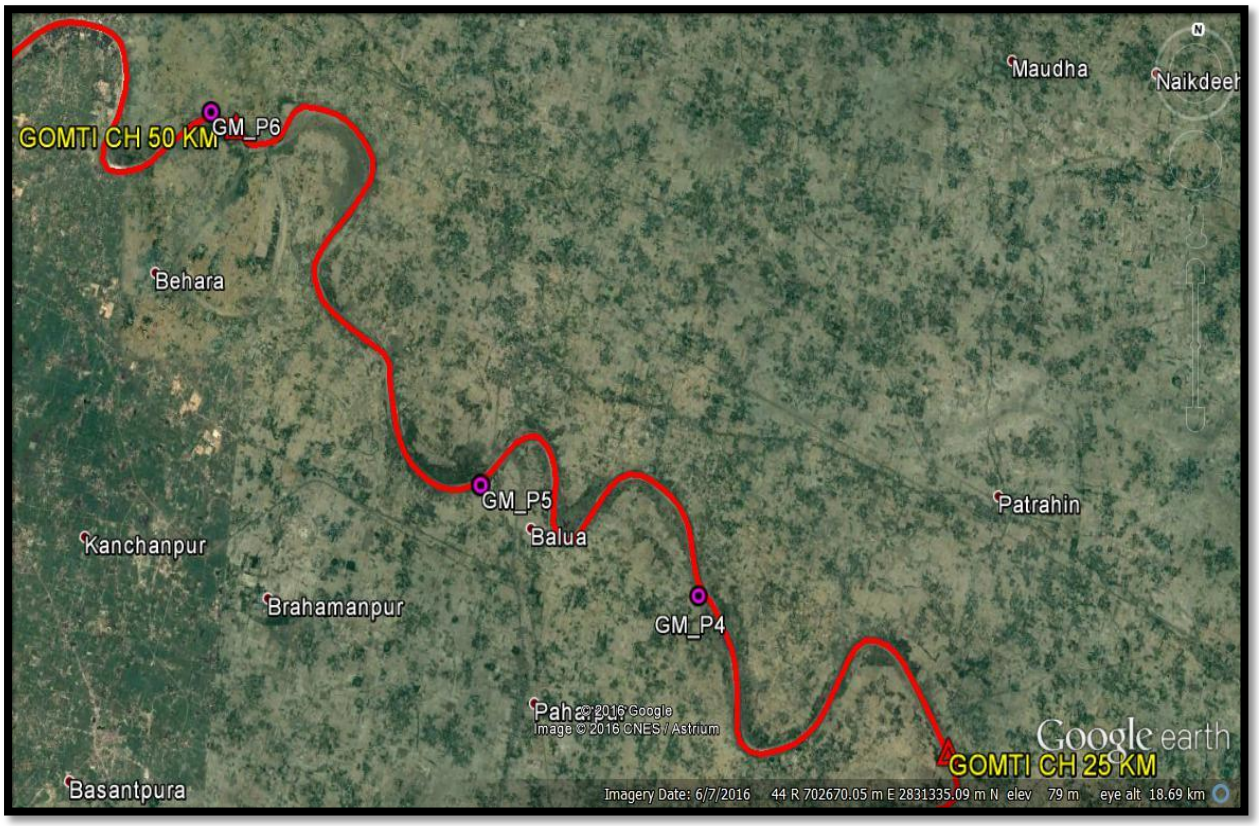
Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Rajwari Bridge	3.12	25°30'16.96"N 83° 8'26.79"E	25°30'28.00"N 83° 8'27.24"E	715166.290E 2822567.811N	715173.944E 2822907.977N	340.15	9.4	09	41.0	4.5
2	Rajwari Rail Bridge/U/C	3.73	25°30'23.79"N 83° 8'4.00"E	25°30'27.36"N 83° 8'6.42"E	714526.350E 2822767.723N	714592.402E 2822878.218N	385.0	6.6	13	30.1	4.1
3	Babatpur Bridge	23.23	25°31'53.28"N83° 3'54.73"E	25°31'55.69"N 83° 3'47.78"E	707522.836E 2825411.718N	707327.850E 2825482.268N	207.0	7.7	08	28.3	3.5

Rajwari Bridge Ch 3.12 km

Rajwari Rail Bridge Ch. 3.73 km

Babatpur Bridge Ch. 23.23 km

3.2 **Sub-Stretch 2: From Ch 25 km to Ch 50 km**. This stretch of the surveyed river is having length of 25 km from Ch. 25 km to Ch. 50 km with an average width of 100m. Fishing activity, islands, shallow patches and irrigation water pumps are the prominent features in this section. Current meter observation and discharge measurement were carried out at Ch. 29.15 km and Ch. 39.80 km. Primary crops are mustard, wheat, pumpkin, gourd, cucumber, etc.



From Ch 25 km to 50 km

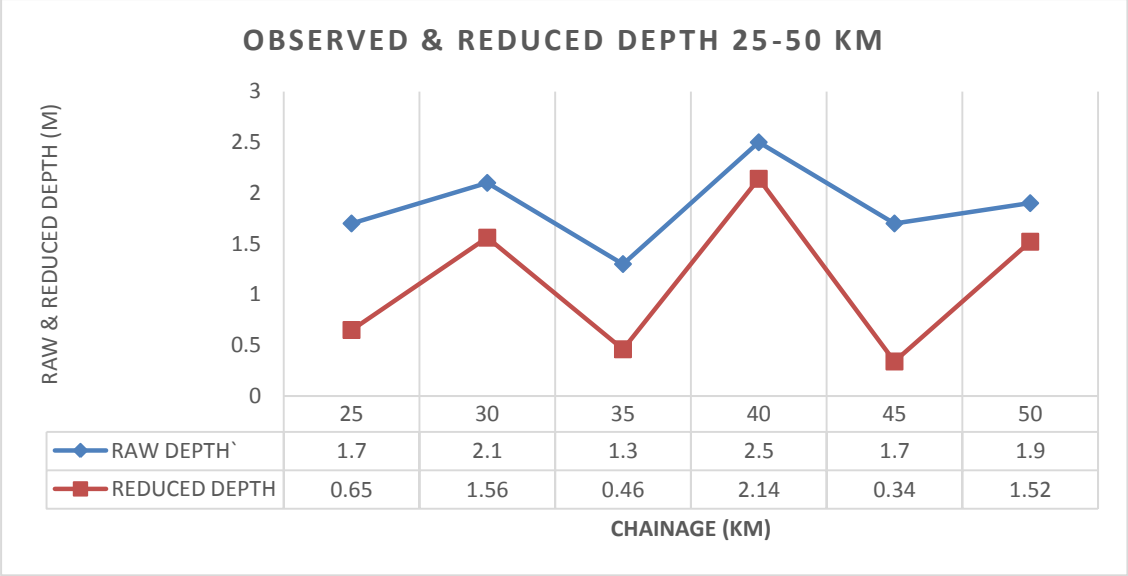
Dredging quantity for substretch-2

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	25	50	0.0	3.8	5,800.00	2,56,884.11	-0.3	3.0	19,600.00	8,72,996.87
Class-II	25	50	0.0	3.8	8,500.00	5,40,127.04	-0.3	3.0	21,000.00	13,90,404.93
Class-III	25	50	0.0	3.8	11,900.00	11,02,118.55	-0.3	3.0	22,500.00	21,95,056.90
Class-IV	25	50	0.0	3.8	15,100.00	15,47,188.54	-0.3	3.0	23,700.00	26,97,624.29

(a) **Bathymetry Survey**&**Topographic Survey**.

SUB-STRETCH-2 (25-50 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	25-50	The full stretch is covered by bathymetric survey
Topographic Survey	25-50	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed & reduced water level along with slope of the river stretch being appended below:-



Chainage (km)		**River Bed Level (m)**		**River Bed Level Change (m)**	**Slope**
From	**To**	**From**	**To**		
25	50	57.2	59.5	2.3	1:10870

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. This river portion is having unprocted bank.

(f) **Hindrances**. Shallow patches and water plankton are hindrances for navigation.

***Island at Ch 27.80 km*& Shallow stretch from Ch 30.50 – 31.00 km**

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other protected area present in this river stretch.

(i) **NH/ SH**. SH 73 and SH 36 are located north eastern and eastern side respectively from the waterway.

(j) **Railway Station**. There is no railway station present in this portion. However, railway track is located 2 km towards north eastern side of the river.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. There is no major or minor industry exists in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, ghat and terminal present in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. Prominent town is Manikpur, which is located towards south western side from the river stretch.

(r) **Ferry**. Two ferry ghats are located at Ch. 34.2 km &Ch. 34.8 km (Saripur Ferry Ghat).

Sarepur Ferry Ghat at Ch 34.750 km

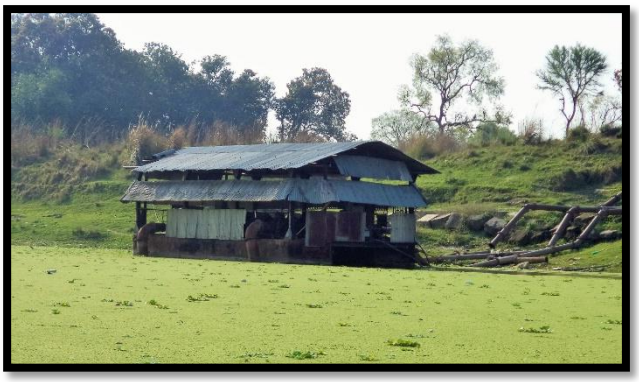
(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**.Small wooden boats were seen engaging in fishing activity in this river portion.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary of Gomti River present in this portion.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section but irrigation pump house is prominent in this section.



Irrigation Pump at Ch 29.67 km

(x) **Details of Nalas**. The nallas were noticed on the left bank, at Ch. 30 km (towards upstream).

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

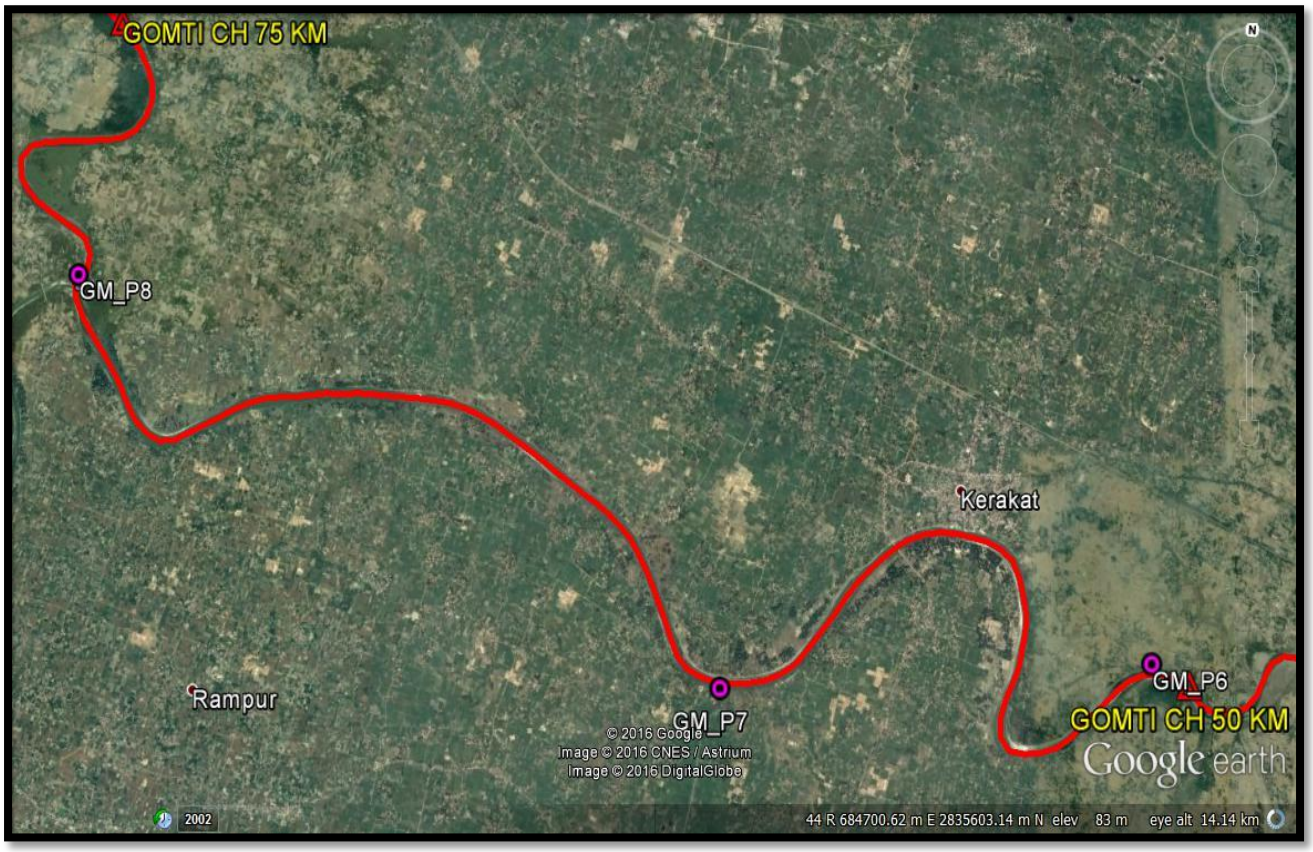
(z) **Details of Cross-Structures**. Banshakti Bridge, Balua Bridge and Hariharpur under Construction Bridge are the prominent cross structures in this section. There is neither any HT line nor electric line present in this portion. Details of bridges are enumerated below:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Banshakti Bridge	29.08	25°32'33.48"N 83° 3'8.67"E	25°32'39.11"N 83° 3'3.82"E	706217.184E 2826628.022N	706079.632E 2826799.286N	219.6	7.1	8	30.10	2.1
2	Balua Bridge	39.03	25°34'40.38"N 82°59'53.77"E	25°34'44.78"N 82°59'47.71"E	700717.682E 2830450.317N	700546.681E 2830583.191N	216.55	7.3	07	34.80	4.3
3	Balua Bridge	39.05	25°34'39.71"N 82°59'53.15"E	25°34'43.95"N 82°59'47.09"E	700700.146E 2830429.004N	700529.692E 2830557.687N	213.57	6.5	07	34.50	3.9
4	Hariharpur UC Bridge	42.97	25°35'31.52"N 82°58'28.11"E	-	-	698303.697E 2831988.740N	-	-	07	25.0	2.6

Banshakti Barrage at Ch. 29.08 km **Balua Bridge at Ch. 39.03 & 39.05 km**

Hariharpur U/C Bridge Ch. 42.97 km

3.3 **Sub-Stretch 3: From Ch 50 km to Ch 75 km**. This stretch of the river is having length of 25 km from Ch. 50 km to Ch. 75 km and average width of 96m. Current meter observation and discharge measurement were carried out at Ch. 50.03 km, 59.05 and Ch. 70.06 km. The river length is having shallow stretches in most of the places. Fishing activity is prominent in this section. One tributary i.e. Sai river is located at Ch. 70 km. Islands and sandchurs are also relevant in the river portion. CWC Bench Mark at Maighat is situated in this portion.



From Ch 50 km to 75 km

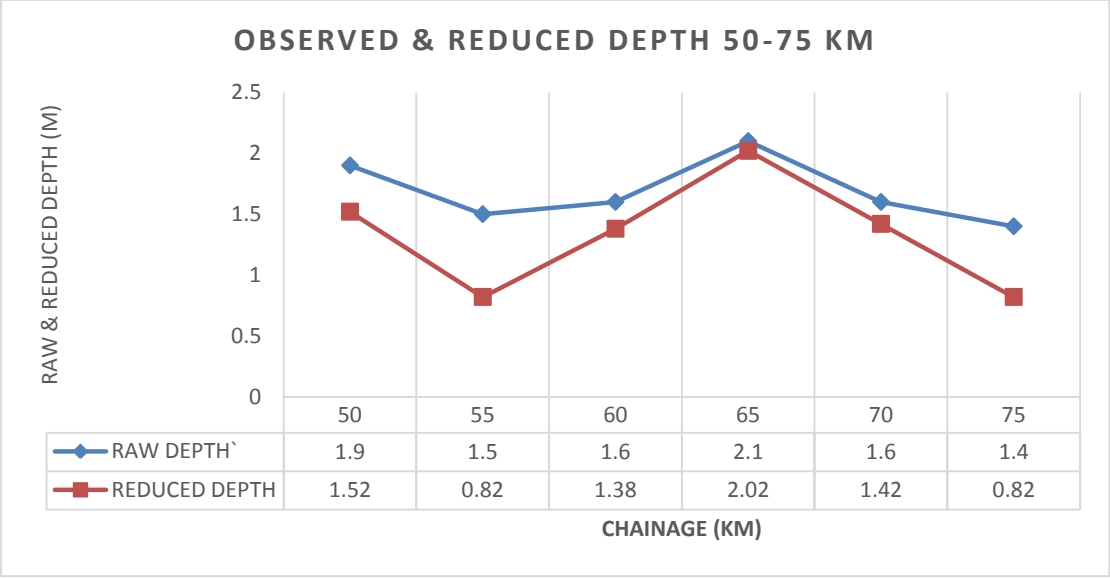
Dredging quantity for substretch-3

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	50	75	0.5	4.6	5,550.00	2,34,432.66	-0.3	3.0	23,200.00	11,05,050.22
Class-II	50	75	0.0	4.6	7,700.00	5,01,746.08	-0.3	3.0	23,700.00	16,76,754.63
Class-III	50	75	0.0	4.6	10,100.00	10,20,435.89	-0.3	3.0	24,300.00	25,25,438.04
Class-IV	50	75	0.0	4.6	13,200.00	14,47,950.43	-0.3	3.0	24,400.00	30,36,933.19

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-3 (50-75 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	50-75	The full stretch is covered by bathymetric survey
Topographic Survey	50-75	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope being mentioned below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
50	75	59.5	62.4	2.9	1:8621

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. This river portion is having procted bank.

Narhan Ghat at Ch 55.16 km ***Mosque at Ch 55.30 km***

Shallow Stretch at Ch 53.50 km & Temple & Ghat at Ch 56.03 km

(f) **Hindrances**. Shallow patches and water plankton are hindrances for navigation.

Shallow Depth Ch 57 to 57.50 km & Island from Ch 64 to 64.50 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other protected area present in this river stretch.

(i) **NH/ SH**. SH 36 and SH 56 are located north eastern and western side respectively from the waterway.

(j) **Railway Station**. Sarkohi, Muftiganj, Jalalganj and Jafrabad railway stations are located 5.5 km SW, 2 km NE ,5 km SW and 1 km W respectively from the river portion.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. There is no major or minor industry exists in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty and terminal present in this portion. However, temple Ghats were present at Ch. 52.5 km, Ch. 55 km &Ch. 56 km.

Temple Ghat at Ch 52.5 km & Narhan Ghat at Ch 55.16 km

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. Prominent town is Rampur, which is located towards southern side from the river stretch.

(r) **Ferry**. Two ferry Ghats are located at Ch. 59.7 km &Ch. 62.8 km.

Pasewan Ferry Ghat at Ch 55.80 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Small wooden boats were seen engaging in fishing activity in this river portion.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. Sai River is the only tributary, which is located at Ch. 70 km on the left side.

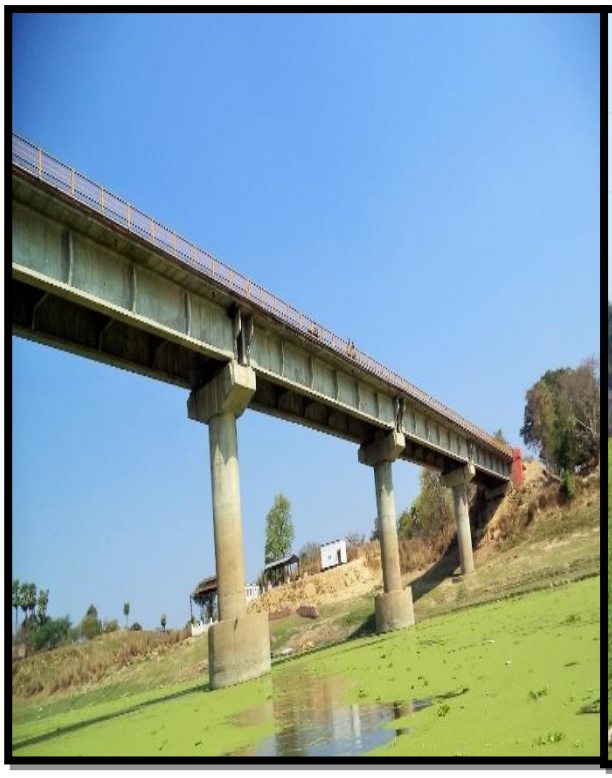
(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. The nallas were noticed at Ch. 55.4 km on right bank, Ch. 59.9 km on left bank, Ch. 63.6 km on left bank and Ch. 74.7 km on right bank (towards upstream).

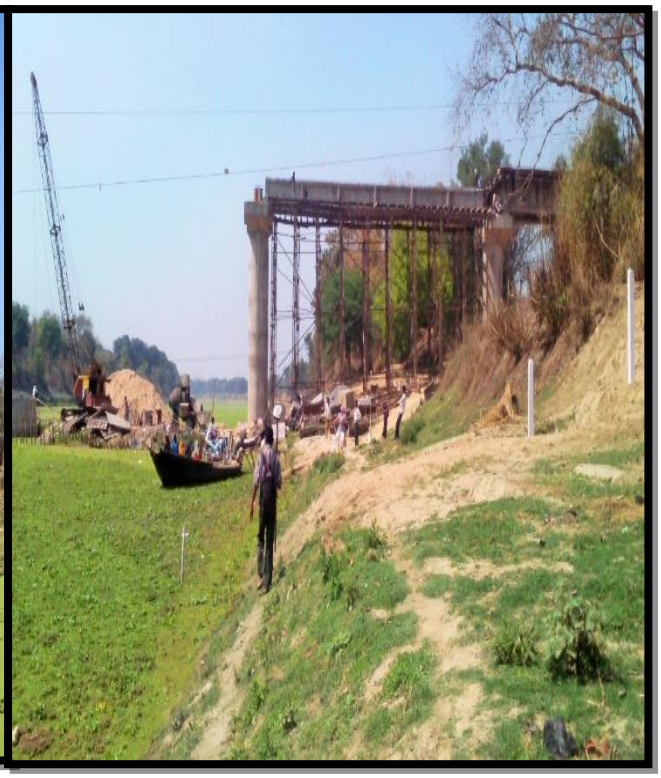
(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z) **Details of Cross-Structures**. Kerakat Bridge at Ch. 56.29 km, Pasewan under Construction Bridge at Ch. 62.85 km, Pierce under Construction Bridge at Ch. 66.50 km and Belao Bridge at Ch. 74.42 km are the prominent cross structures in this section. There is no HT line or electric pole across the river in this section. Details of cross structures are tabulated below:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Kerkat Bridge	56.29	25°37'53.71"N 82°54'32.92"E	25°37'58.95"N 82°54'27.26"E	691677.870E 2836267.262N	691517.145E 2836426.417N	226.2	7.0	07	36.50	3.1
2	Pasewan UC Bridge	62.85	25°38'20.34"N 82°51'37.81"E	-	686781.740E 2837017.474N	-	-	-	-	-	-
3	Pierce UC Bridge	66.5	25°38'25.38"N 82°49'33.95"E	-	683324.203E 2837124.177N	-	-	-	-	-	-
4	Belao Bridge	74.42	25°40'35.55"N 82°48'22.20"E	25°40'36.60"N 82°48'29.78"E	681268.279E 2841102.301N	681479.387E 2841137.295N	214	7.5	07	34.10	2.90



Kerakat Bridge at Ch 56.29 km

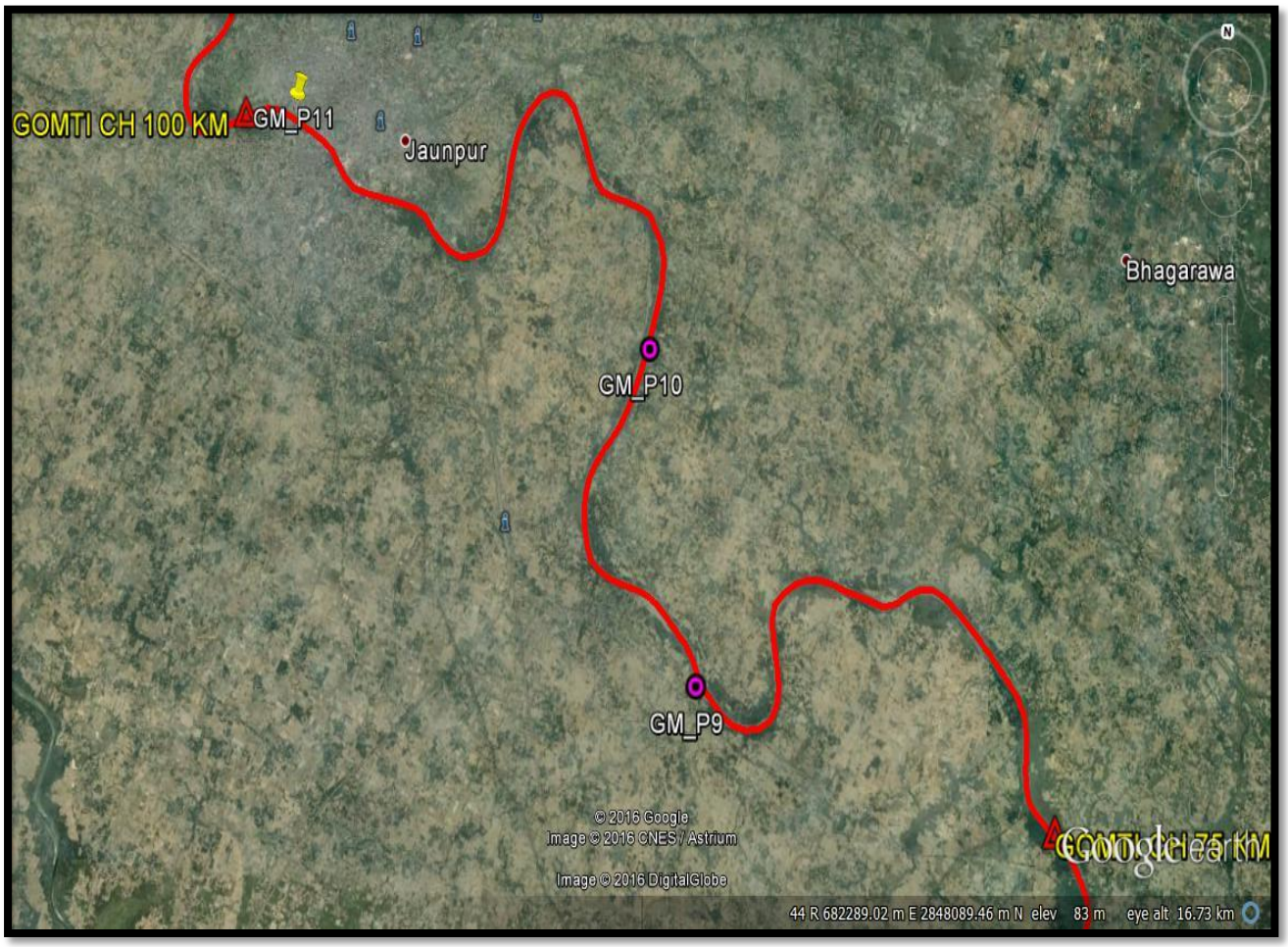


Pasewan U/C Bridge at Ch 62.85 km

Pierce U/C Bridge at Ch 66.50 km

ECO Belao Bridge Ch 74.4 km

3.4 **Sub-Stretch 4: From Ch 75 km to Ch 100 km**. This stretch of the river is having length of 25 km from Ch. 75 km to Ch. 100 km and average width of 88m. Shallow stretch, fishing activity, sandchurs, and water pump are the prominent features in this section. Old Shahi Fort is located at Ch. 98.5 km at Jaunpur city. Current meter observation and discharge measurement were carried out at Ch. 80.00 km, Ch. 88.50 km and Ch. 99.00. Primary crops are wheat, mustard, peas, chickpeas, gourd, cucumber, etc.



From Ch 75 km to 100 km

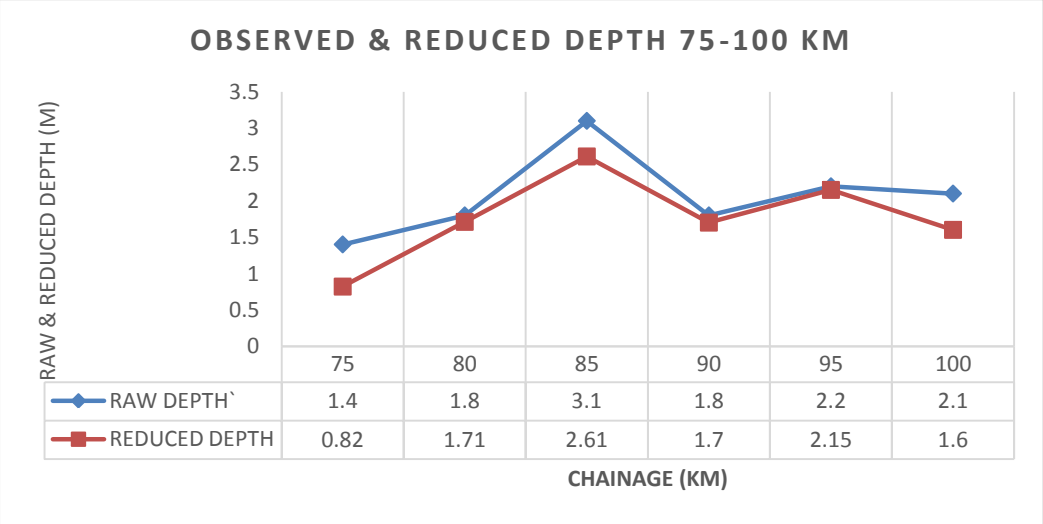
Dredging quantity for substretch-4

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	75	100	0.0	4.8	6,700.00	2,94,759.51	-0.3	4.6	10,700.00	4,76,449.60
Class-II	75	100	0.0	4.8	8,700.00	5,93,562.98	-0.3	4.6	12,700.00	8,42,141.83
Class-III	75	100	0.0	4.8	11,400.00	11,60,186.21	-0.3	4.6	16,600.00	14,83,543.49
Class-IV	75	100	0.0	4.8	14,800.00	16,07,027.38	-0.3	4.6	18,500.00	19,47,446.40

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-4 (75-100 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	75-100	The full stretch is covered by bathymetric survey
Topographic Survey	75-100	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope being mentioed below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
75	100	62.4	65	2.6	1:9615

(d) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. This river portion is having unprocted bank in most of the places, however, the temple ghat & mosque portions are protected.

Mosque at Ch 97.62 km & Temple at Ch 98.88 km

(f) **Hindrances**. Shallow patches and water plankton are hindrances for navigation.

Island at Ch 77.13 to 77.39 km & Fishing Net at Ch 84.87 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence and Atomic power plant in this river stretch. However, the famous Old Saahi Fort at Jaunpur is located at Ch 98.50 km, which is inside the area protected by ASI.

Marimai Shahi Fort, Jaunpur(U.P) at Ch 98.50 km

(i) **NH/ SH**. SH 5, NH 56 and NH 231 are located southern and south western side from the waterway.

(j) **Railway Station**. Jaunpur City and Jaunpur Jn are the two railway stations, which are located 2.5 km SW and 2 km NE respectively from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. UP State Agro, fertilisers & chemical, plastic and carpet industries are prominent at Jaunpur city.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty and terminal present in this portion. However, a temple ghat exists at Ch. 98.8 km.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. Jaunpur is prominent city in this section.

(r) **Ferry**. Salempur Ferry Ghat and Jamitha Ferry Ghat are located at Ch. 79.3 km and Ch. 94.4 km respectively in this stretch.

Salempur Ferry Ghats at Ch 79.25 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary present in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. Total fourteen nallas are present in this portion which are depicted in the survey Chart also.

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z) **Details of Cross-Structures**. Total seven cross structures are prominent in this section of the river. There is neither any HT line nor any electric line across the river, present in this portion.

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Peepa Pool	76.66	25°41'37.46"N 82°47'50.96"E	25°41'38.95"N 82°47'54.21"E	680371.215E 2842995.562N	680461.356E 2843042.801N	101.7	3	-	-	-
2	Jafrabad Bridge	85.36	25°42'4.00"N 82°44'17.78"E	25°42'10.33"N 82°44'20.64"E	674417.834E 2843732.695N	674494.329E 2843928.935N	210.6	7.1	07	33.90	2.7
3	Jamaitha U/C Bridge	91.335	25°44'40.06"N 82°43'53.10"E	-	673666.544E 2848525.275 N	-	-	-	-	-	-
4	Chakpanchhaita Rail Bridge	95.69	25°44'8.77"N 82°42'38.20"E	25°44'24.52"N 82°42'33.68"E	671591.541E 2847535.684N	671459.116E 2848018.552N	500.7	4.5	25	19.16	3.3
5	Shastri Bridge	97.98	25°44'36.31"N 82°41'21.69"E	25°44'41.09"N 82°41'27.03"E	669448.838E 2848355.368N	669595.716E 2848504.918N	209.6	8.80	06	39.42	2.8
6	Lokbandhu Bridge	98.51	25°44'49.76"N 82°41'10.93"E	25°44'53.96"N 82°41'13.65"E	669143.531E 2848765.205N	669217.281E 2848895.247N	149.5	10.5	09	17.88	1.8
7	Shahi Bridge	98.76	25°44'51.81"N 82°41'2.96"E	25°44'58.15"N 82°41'5.17"E	668920.419E 2848825.023N	668979.321E 2849021.288N	204.91	5.7	14	6.50	1.9

Peepa Pool at Ch 76.66 km

Jafrabad Bridge at Ch 85.36 km

Jafrabad U/C Bridge at Ch 91.335 km

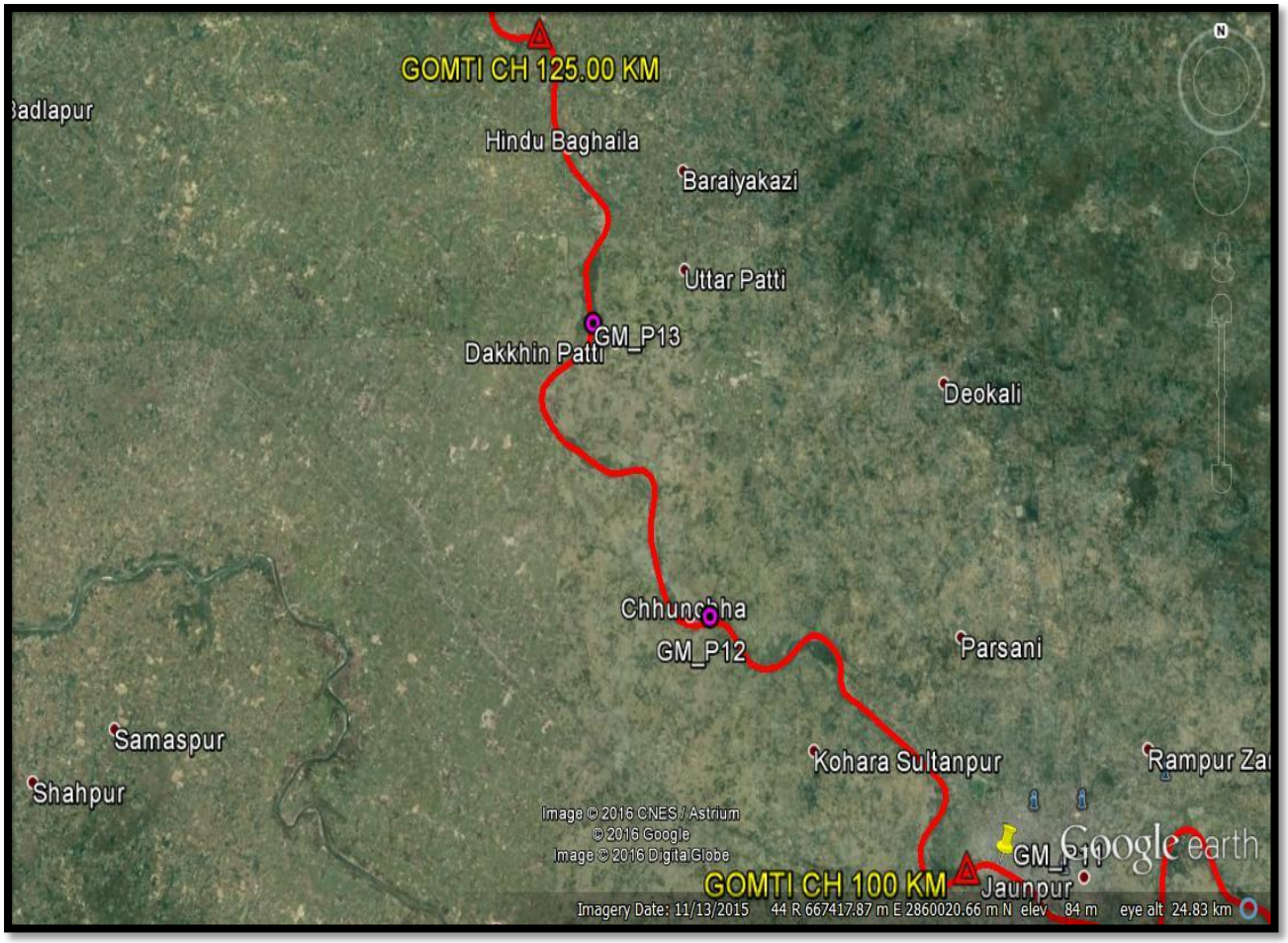
Chakpanchhaita Rail Bridge at Ch 95.69 km

Shastri Bridge at Ch 97.98 km

Lokbandhu Bridge at Ch 98.51 km

Shahi Bridge at Ch 98.76 km

3.5 **Sub-Stretch 5: From Ch 100 km to Ch 125 km**. This stretch of the river is having length of 25 km from Ch. 100 km to Ch. 125 km and average width of 106m. Current meter observation and discharge measurement were carried out at Ch. 109.91 km and Ch. 118.13 km. The surveyed river length is having shallow stretches in most of the places. Islands and water pumps, phytoplankton are also relevant in the river portion. CWC BM, Katghara (Jaunpur) and Tomb (Makbara) of Kalich khan are located at Ch. 100.16 km & Ch100.460 km respectively. Gomti's one tributary viz. Peeli river confluences at Ch. 119.68 km. Cultivated crops are mustard, wheat, gourd, ridge gourd, cucumber, etc.



From Ch 100 km to 125 km

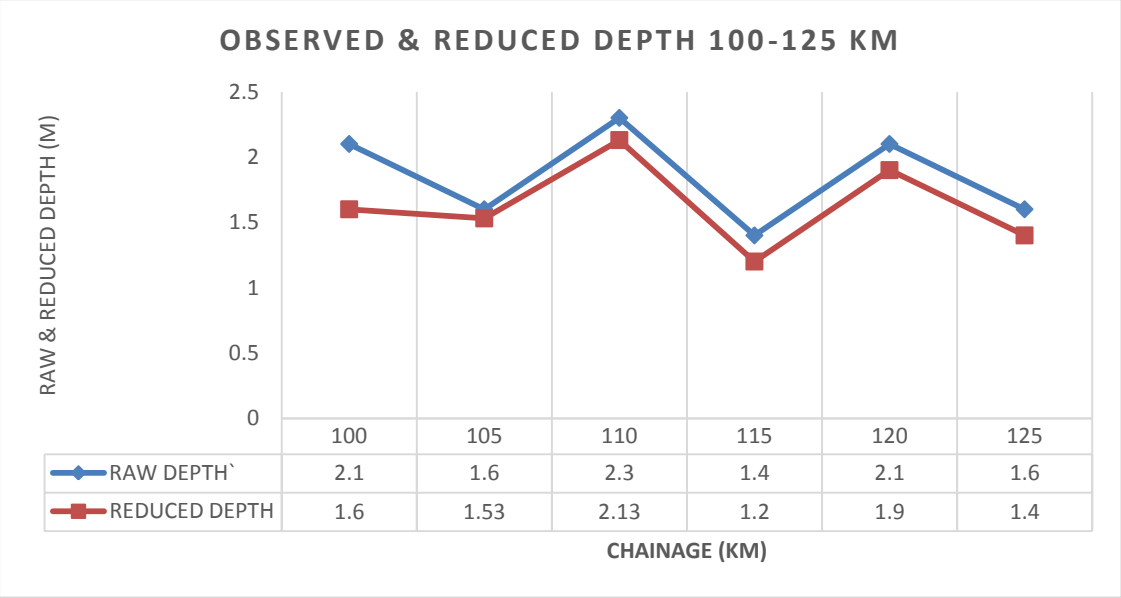
Dredging quantity for substretch-5

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	100	125	0.0	5.2	5,550.00	2,49,161.01	-0.2	4.8	7,250.00	2,97,655.10
Class-II	100	125	0.0	5.2	8,200.00	5,36,402.82	-0.2	4.8	9,800.00	6,01,009.02
Class-III	100	125	0.0	5.2	10,600.00	11,05,117.16	-0.3	4.8	12,400.00	11,93,467.94
Class-IV	100	125	0.0	5.2	14,900.00	15,52,154.00	-0.3	4.8	17,100.00	16,46,993.46

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-5 (100-125 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	100-125	The full stretch is covered by bathymetric survey
Topographic Survey	100-125	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed & reduced depth along with slope being mentioned below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
100	125	65	66.9	1.9	1:13158

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. This river portion is having unprocted bank.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence and Atomic power plant and any procted area in this stretc.

(i) **NH/ SH**. SH 5, NH 56 and NH 231 are located southern and south western side from the waterway.

(j) **Railway Station**. Bakhsha and Sarai Harakku railway stations are located 3.5 km SW and 6.8 km W from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty and terminal present in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. No prominent city/ town is located in this section.

(r) **Ferry**. Harataripur Ferry Ghat and Kohana Ferry Ghat are located at Ch. 102.2 km and Ch. 106.4 km respectively in this stretch.

Kohana Ferry Ghat at Ch 106.44 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. The only tributary in this section is Peeli River, which confluences Gomti at Ch. 119.6 km.

Peeli River Confluence at Ch 119.68km km

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section. However, irrigational pump house was observed at Ch. 117.08 km.

Water Pump at Ch 117.081 km

(x) **Details of Nalas**. Total four nallas are present in this portion, which are depicted in the survey chart also.

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z) **Details of Cross-Structures**. Chuncha Bridge at Ch. 109.83 km and two HT lines at Ch. 104.32 km and Ch. 104.39 km are prominent cross structures across the river. Detail of bridges and HT lines are tabulated below:-

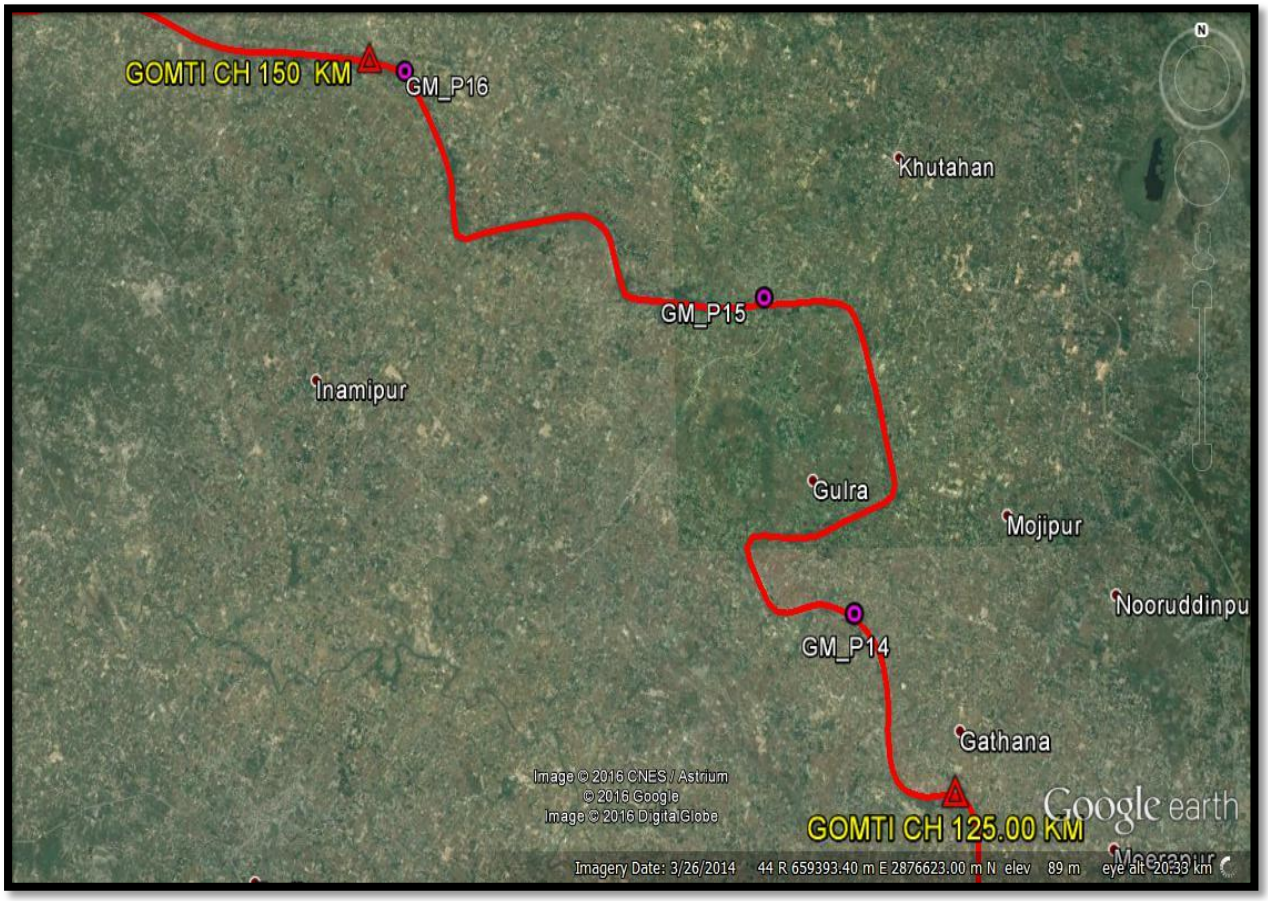
Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Chuncha Bridge	109.83	25°47'23.93"N 82°37'3.40"E	82°37'4.47"E 82°37'4.47"E	662187.884E 2853422.821N	662214.374E 2853640.856N	219.6	7.5	07	34.80	2.1

Chuncha Bridge Ch 109.83 km

Sl No	Cross-Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank	
1	HT Line	104.327	25°46'17.76"N 82°39'24.10"E	25°46'23.35"N 82°39'30.00"E	666132.461E 2851435.536N	666294.655E 2851609.707N	20.0
2	HT Line	104.393	25°46'19.06"N 82°39'21.90"E	25°46'24.00"N 82°39'27.60"E	666070.791E 2851474.400N	666227.937E 2851628.138N	21.0

HT Lines at Ch 104.327 km & Ch 104.393 km

3.6 Sub-Stretch 6: From Ch 125 km to Ch 150 km. This stretch of the river is having length of 25 km from Ch. 125 km to Ch. 150 km and average width of 110m. Current meter observation and discharge measurement were carried out at Ch. 128.75 km, Ch. 139.30 km and Ch. 149.24 km. Shallow stretches, irrigation water pump and fishing activity are prominent in this section. Cultivated crops are mustard, wheat, gourd, ridge gourd, cucumber, etc.



From Ch 125 km to 150 km

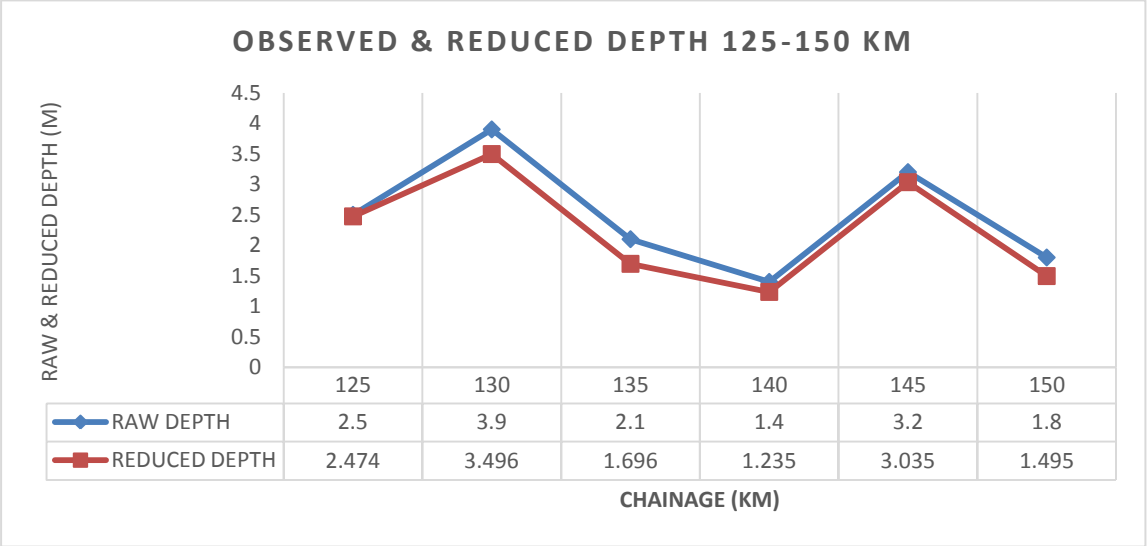
Dredging quantity for substretch-6

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	125	150	0.0	5.0	6,500.00	2,86,795.64	0.2	5.2	6,600.00	2,68,668.49
Class-II	125	150	0.0	5.0	8,700.00	5,88,624.14	0.2	5.2	8,450.00	5,42,014.50
Class-III	125	150	0.0	5.0	12,350.00	11,60,929.60	0.2	5.2	11,300.00	10,89,648.41
Class-IV	125	150	0.0	5.0	16,800.00	16,10,401.67	0.2	5.2	14,700.00	15,34,707.80

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-6 (125-150 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	125-150	The full stretch is covered by bathymetric survey
Topographic Survey	125-150	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope being appended below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope/ km
From	**To**	**From**	**To**		
125	150	66.9	70.1	3.2	1:7812

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. This river portion is having unprocted bank.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Shallow Patch at Ch 127.107 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence and Atomic power plant and any procted area in this stretch.

(i) **NH/ SH**. SH 30, SH 34 and NH 56 are located eastern, north eastern and south western side of the waterway.

(j) **Railway Station**. Khetasarai railway station is located 12 km E from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, terminal and ghat present in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. Shahganj is prominent city in this section, which is located 17 km towards north eastern side of the river.

(r) **Ferry**. No ferry ghat was observed in this section.

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

Fishing Boat at Ch 143.50 km

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary present in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section. However, irrigational pump house was observed at Ch. 130.263 km.

Irrigation Pump at Ch 130.263 km

(x) **Details of Nalas**. Three nalas are present in this portion, which are depicted in the survey chart also.

(y) **Usage of Water**. Water in this portion primarily irrigation purpose.

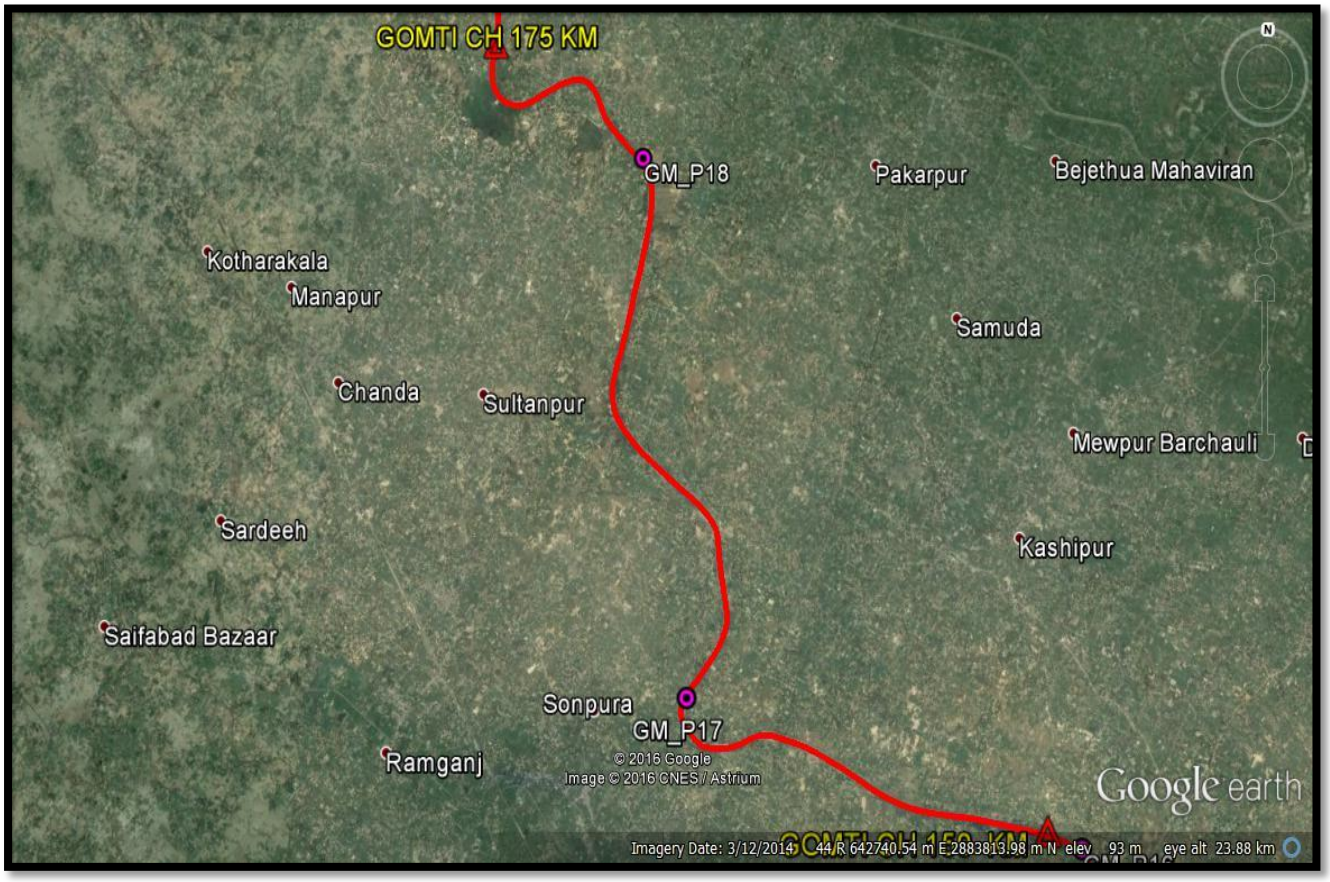
*(z)***Details of Cross-Structures***.* Pilkicha Bridge at Ch. 139.23 km and Imiliya under Construction Bridge at Ch. 148.35 km were observed in this section. Details of bridges are being tabulated below:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Pilkichha Bridge	139.23	25°57'44.37"N 82°32'51.67"E	25°57'51.49"N 82°32'51.62"E	654950.662E 2872428.262N	654946.544E 2872647.956N	219.7	7.2	07	35.40	2.8
2	Imiliya Bridge U/C	148.35	25°59'33.45"N 82°28'49.32"E	25°59'35.95"N 82°28'55.10"E	648171.085E 2875706.051N	648331.082E 2875785.644N	178.7	4.2	07	28.30	2.2

Pilkichha Bridge at Ch 139.23 km

Imiliya U/C Bridge at Ch 148.35 km

3.7 Sub-Stretch 7: From Ch 150 km to Ch 175 km. This stretch of the river is having length of 25 km from Ch. 150 km to Ch. 175 km and average width of 97m. Current meter observation and discharge measurement were carried out at Ch. 159.03 km and Ch. 169.80 km. There is no forest zone or restricted zone in this section. Cultivated crops are mustard, wheat, gourd, ridge gourd, cucumber, etc.



From Ch 150 km to 175 km

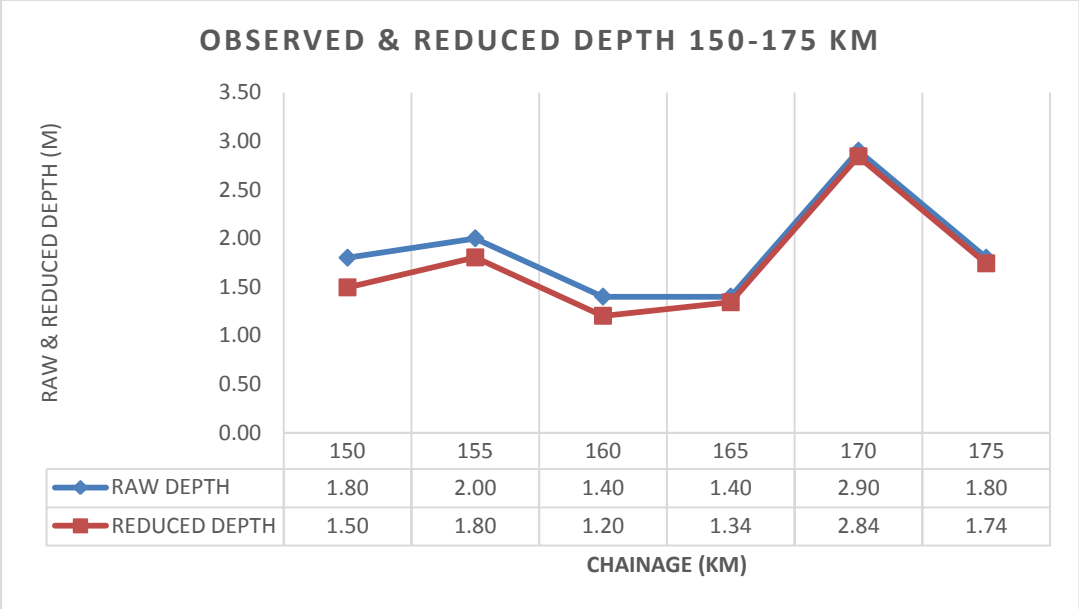
Dredging quantity for substretch-7

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	150	175	0.0	6.2	5,300.00	2,30,326.84	-0.1	6.0	9,200.00	3,82,976.91
Class-II	150	175	0.0	6.2	8,500.00	5,16,545.72	-0.2	6.0	13,700.00	7,41,687.80
Class-III	150	175	0.0	6.2	15,600.00	10,90,744.09	-0.2	6.0	17,400.00	14,00,592.68
Class-IV	150	175	0.0	6.2	18,900.00	15,42,781.80	-0.2	6.0	20,800.00	18,74,199.38

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-7 (150-175 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	150-175	The full stretch is covered by bathymetric survey
Topographic Survey	150-175	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope are mentioned below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
150	175	70.1	72.2	2.1	1:11905

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. This river portion is having unprocted bank.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence and Atomic power plant and any procted area in this stretch.

(i) **NH/ SH**. SH 34 and NH 56 are located north eastern and south western side of the waterway.

(j) **Railway Station**. Maharani Paschim railway station is located 6.5 km towards south western side of the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty and terminal present in this portion. However, one cremation ghat was observed at Ch. 171.6 km.

Gaht on River Bank at Ch 171.60 km

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. No prominent town is present in this section.

(r) **Ferry**. Gudra Ferry Ghat is located at Ch. 164.8 km.

Gudra Ferry Ghat at Ch 164.748 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary present in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

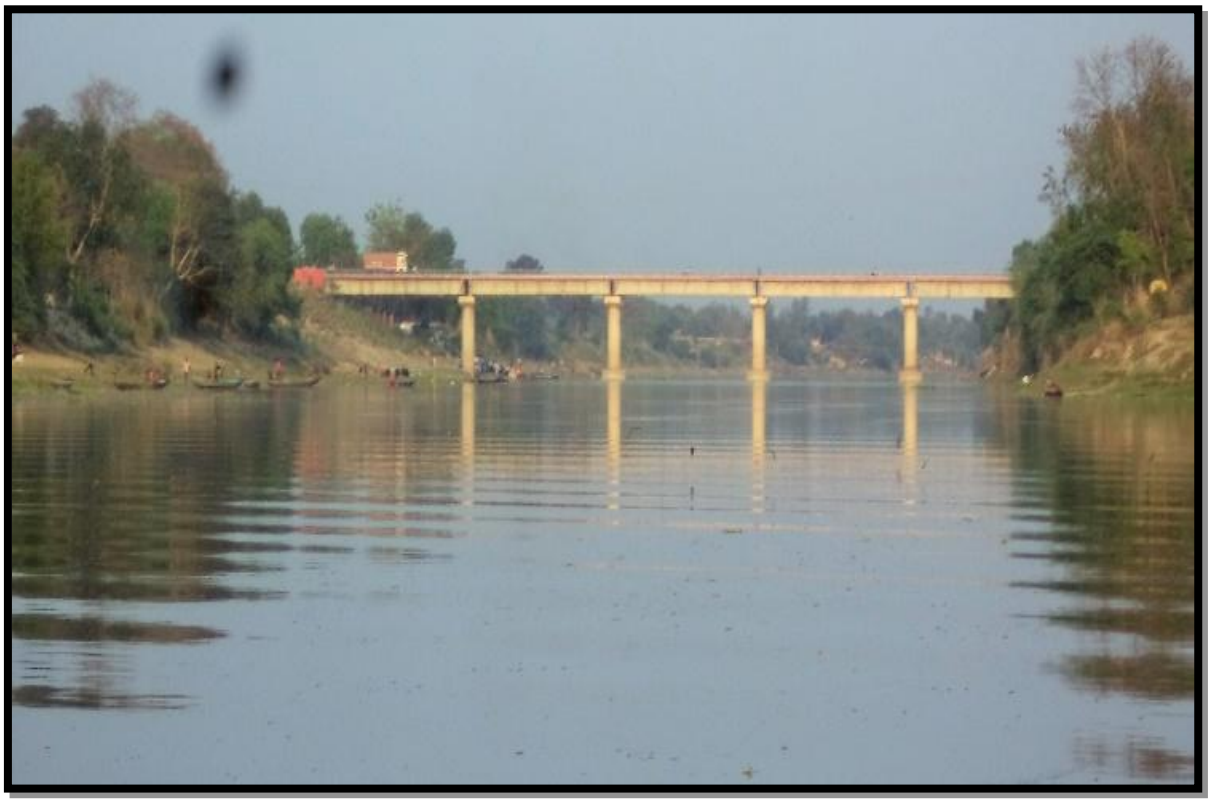
(x) **Details of Nalas**. Only one nala is present at Ch. 158.7 km in this portion, which is depicted in the survey Chart file also.

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(Z)**Details of Cross-Structures**. Tripathi Bridge at Ch. 158.00 km and Dewad Bridge at Ch. 172.38 km are two prominent cross structures in this section. Details of bridges are appended below:-

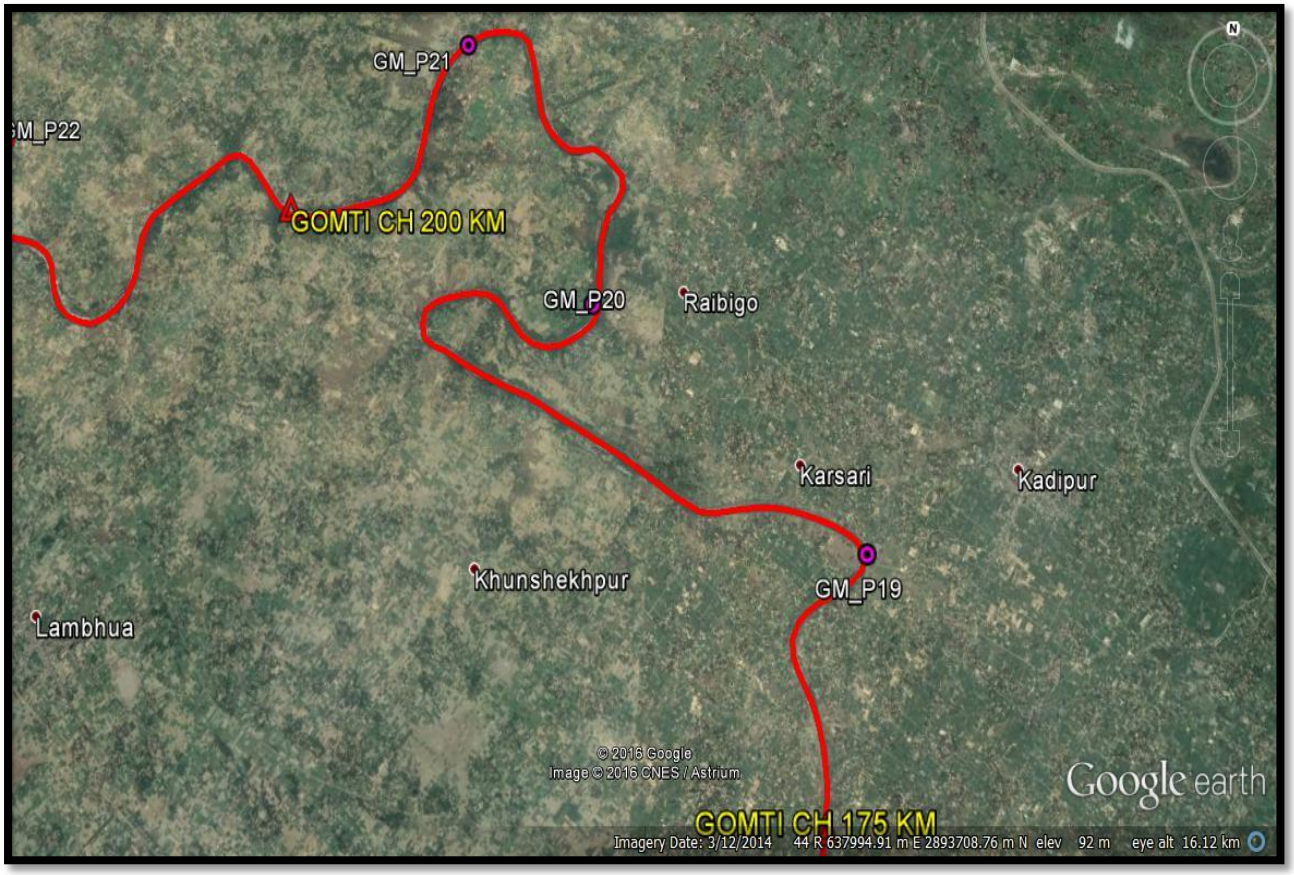
Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	TripathiSetu Bridge	158.00	26° 0'49.22"N 82°23'34.06"E	26° 0'52.45"N 82°23'39.57"E	639380.650E 2877941.951N	639532.515E 2878042.534N	182.15	7.0	07	29.16	3.5
2	Dewad Bridge	172.38	26° 7'9.98"N 82°21'30.00"E	26° 7'14.74"N 82°21'28.44"E	635809.189E 2889620.945N	635764.573E 2889766.926N	152.64	6.8	06	29.35	3.2

Tripathi Setu Bridge at Ch 158 km



Dewad Bridge at Ch 172.38 km

3.8 Sub-Stretch 8: From Ch 175 km to Ch 200 km. This stretch of the river is having length of 25 km from Ch. 175 km to Ch. 200 km and average width of 97m. Current meter observation and discharge measurement were carried out at Ch. 178.81 km, Ch. 188.13 km and Ch. 195.50 km. There is no forest zone or restricted zone in this section. Islands, ferry Ghats, temples and shallow patches are the prominent features of this section. Cultivated crops are mustard, wheat, cucumber, pumpkin, etc.



From Ch 175 km to 200 km

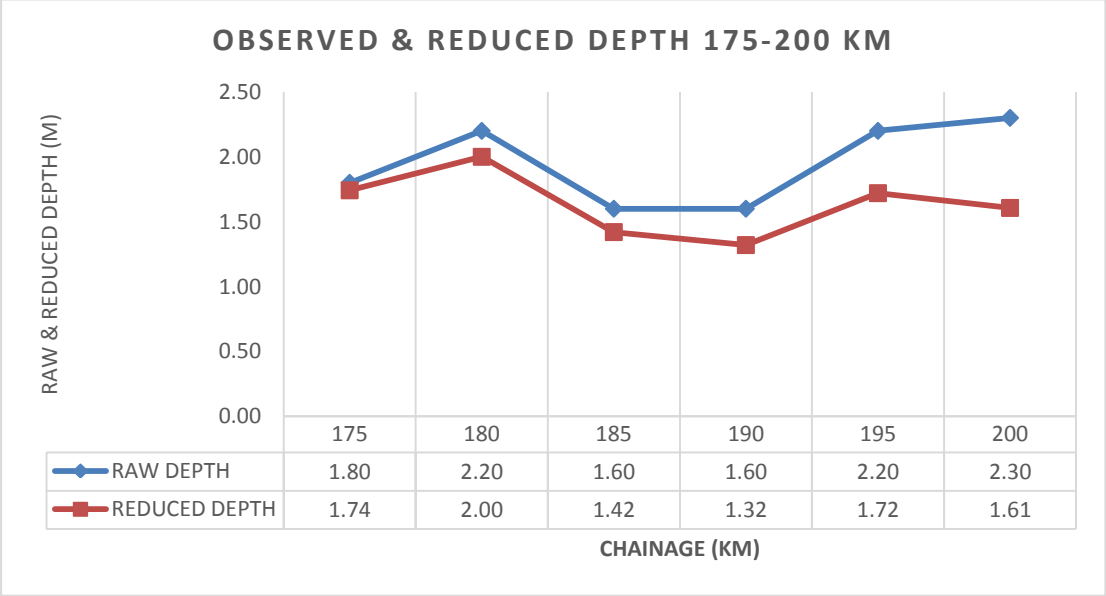
Dredging quantity for substretch-8

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	175	200	0.0	7.0	6,550.00	2,89,501.69	-0.2	6.8	7,900.00	3,24,471.92
Class-II	175	200	0.0	7.0	10,000.00	5,88,051.68	-0.3	6.8	10,800.00	6,39,820.54
Class-III	175	200	0.0	7.0	13,300.00	11,57,004.86	-0.3	6.8	16,000.00	12,34,725.26
Class-IV	175	200	0.0	7.0	16,100.00	16,04,095.59	-0.3	6.8	17,900.00	16,88,876.85

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-8 (175-200 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	175-200	The full stretch is covered by bathymetric survey
Topographic Survey	175-200	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope of the strectch are appended below:-



Chainage (km)		**River Bed Level (m)**		**River Bed Level Change (m)**	**Slope**
From	**To**	**From**	**To**		
175	200	72.2	74.3	2.1	1:11905

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. This river portion is having unprocted bank.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Island at Ch 176.4 to 176.700 km & Island at Ch 195.634 km

Shallow Stretch at Ch 196.09 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any procted area in this stretch.

(i) **NH/ SH**. SH 34 and NH 56 are located north eastern and south western side of the waterway.

(j) **Railway Station**. Lambhua railway station is located 7.5 km towards south western side from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty and terminal present in this portion.

Temple on River Bank Ch 195.39 km

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. Khuhshekhpur is the only town in this section.

(r) **Ferry**. There are four ferry ghats present in this section at Ch. 176.8 km (Gopinathpur), Ch. 181.5 km (Katshari), Ch. 183 km and Ch. 186.5 km (Dhopap).

Gopinathpur Ferry Ghat at 176.786 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary present in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. Only one nala is present at Ch. 179 km in this portion, which is depicted in the survey chart also.

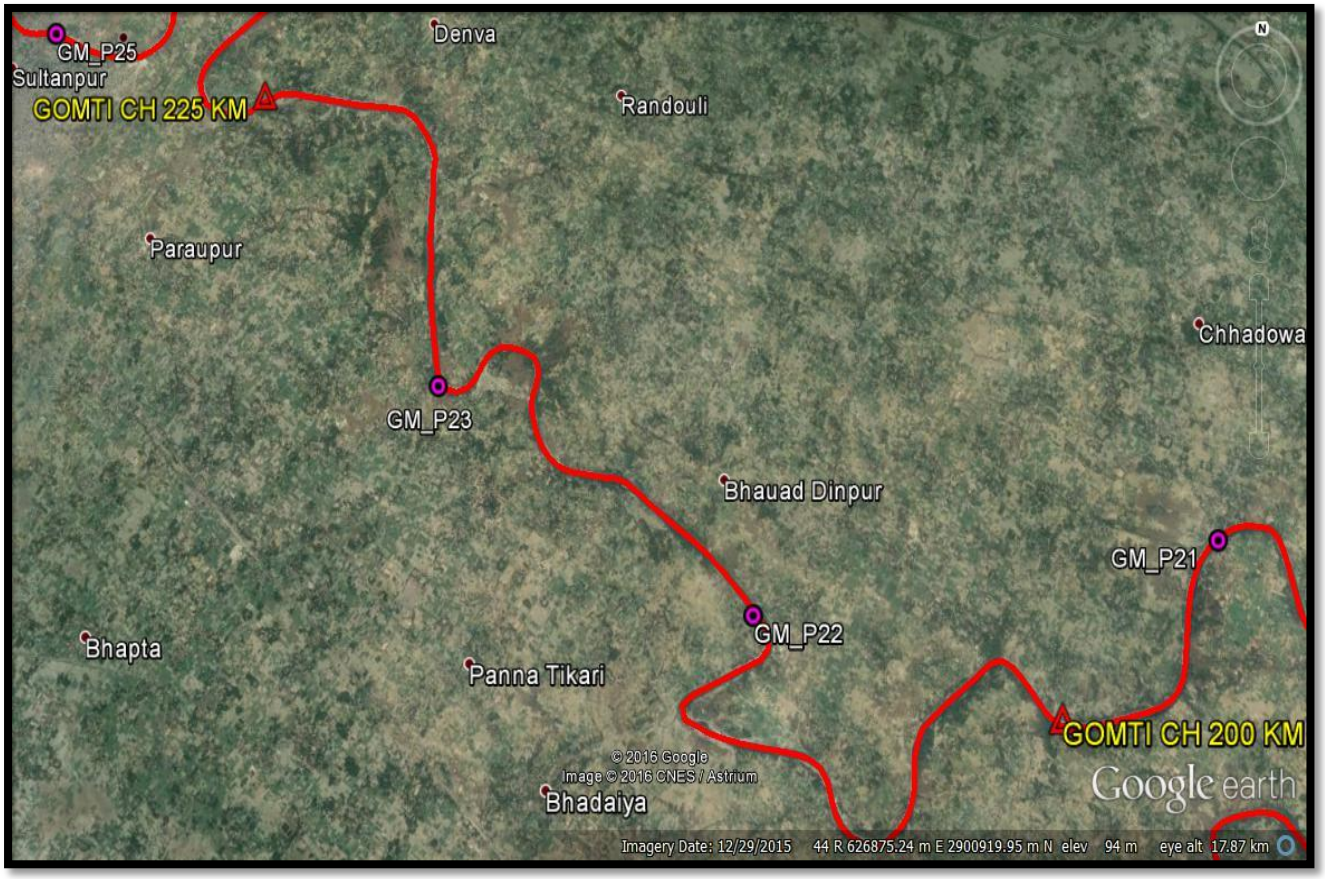
(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z)**Details of Cross-Structures**. Detail of bridges in this section are appended below:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Dhopap UC Bridge	186.42	26°10'38.89"N 82°16'40.33"E		627700.977E 2895966.849N	-	-	-	-	-	-
2	Bhawanpur Bridge	195.82	26°12'50.73"N 82°16'49.99"E	26°12'54.85"N 82°16'46.61"E	627928.470E 2900025.579N	627833.829E 2900151.227N	157.3	7.6	06	30.10	2.3

Dhopap U/C Bridge at Ch 186.42 km ***Bhawanpur Bridge at Ch 195.82 km***

3.9 Sub-Stretch 9: From Ch 200 km to Ch 225 km. This stretch of the river is having length of 25 km from Ch. 200 km to Ch. 225 km and average width of 102m. Current meter observation and discharge measurement were carried out at Ch. 210.41 km and Ch. 218.32 km. Ferry ghat, shallow patch, island and cross structures are the noticeable features in this section. There is no forest zone or restricted zone in this section. Cultivated crops are mustard, wheat, gourd, ridge gourd, cucumber, etc.



From Ch 200 km to 225 km

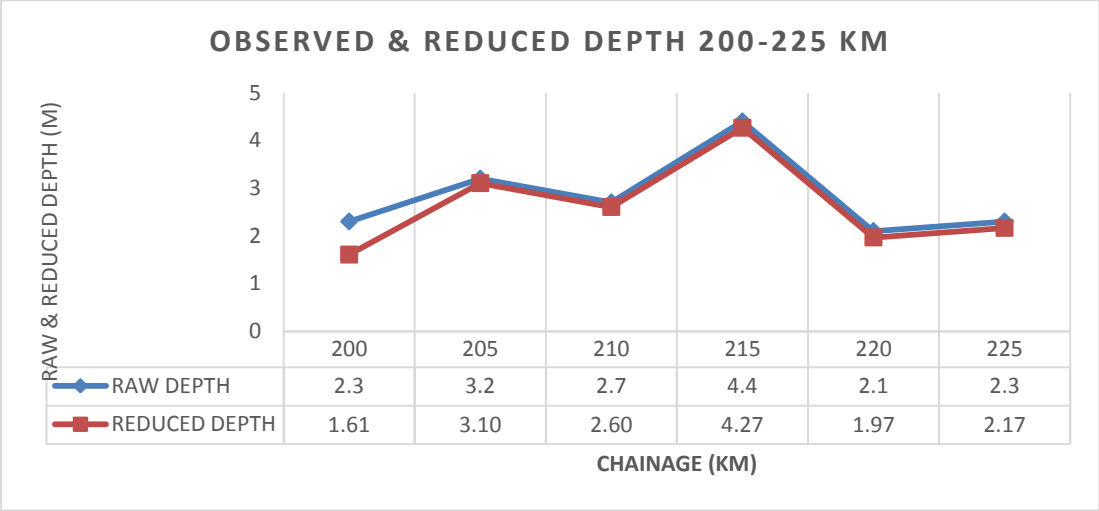
Dredging quantity for substretch-9

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	200	225	0.0	5.4	5,050.00	2,25,931.43	-0.3	5.3	7,600.00	3,14,166.06
Class-II	200	225	0.0	5.4	7,500.00	4,88,513.00	-0.3	5.3	10,300.00	6,23,302.12
Class-III	200	225	0.0	5.4	10,300.00	10,21,022.94	-0.3	5.3	12,800.00	12,19,448.74
Class-IV	200	225	0.0	5.4	12,700.00	14,56,503.06	-0.3	5.3	15,200.00	16,74,494.40

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-9 (200-225 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	200-225	The full stretch is covered by bathymetric survey
Topographic Survey	200-225	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope are mentioned below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	**To**	**From**	**To**		
200	225	74.3	75	0.7	1:35714

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. This river portion is having unprocted bank.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Shallow Stretch at Ch 208.5 km to 209.00 km & Islands at Ch 212.05 km to 212.406 km

Island at Ch 213.268 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. SH 34 and NH 56 are located north eastern and south western side of the waterway.

(j) **Railway Station**. Pakhrauli railway station is located 3.5 km towards south western side from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. Fertiliser, tobacco, cotton, wool & silk, jute, garments, printing, leather, plastic, chemical, non-metallic mineral and basic metal industries are very common at Sultanpur.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, terminal and ghat present in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. No prominent city/ town exist in this section.

(r) **Ferry**. There are six ferry ghats present in this section at Ch. 204.6 km (Naridrapur), Ch. 206.6 km (Papad), Ch. 210.4 km (Belhari), Ch. 214.4 km (Babhan), Ch. 218 km (Madhavpur) and Ch. 221.2 km.

Babhan Ferry Ghat at Ch 214.416 km & Madhavpur Ferry Ghat at Ch 218.020 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary present in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. There is no nala exist in this section.

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z)**Details of Cross-Structures**. Papad Ghat under Construction Bridge at Ch. 206.65 km and one HT line at Ch. 223.30 km are the two prominent cross structures in this section. Detail of cross structures are tabulated below:-

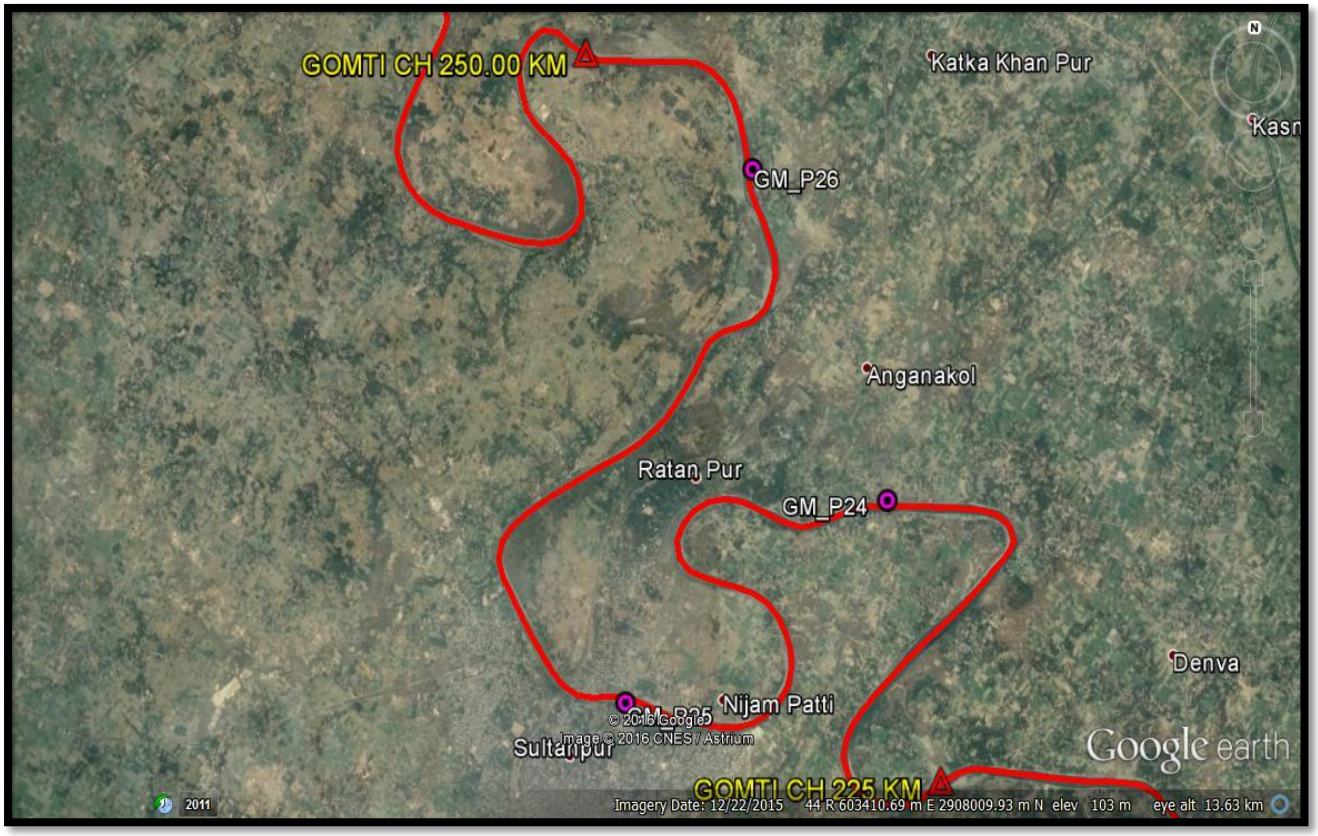
Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	PapadGhat U/C Bridge	206.65	26°11'2.13"N 82°12'43.84"E	26°11'7.47"N 82°12'46.24"E	621128.517E 2896618.459N	621193.605E 2896783.296N	177.22	7.8	07	27.54	2.4

Papad Ghat Under Construction Bridge Ch 206.65 km

Sl No	Cross-Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank	
1	HT Line	223.304	26°15'47.35"N 82° 8'3.06"E	26°15'54.17"N 82° 8'4.00"E	613257.046E 2905323.871N	613281.955E 2905533.453N	20.5

HT Line at Ch 223.304 km

3.10 Sub-Stretch 10: From Ch 225 km to Ch 250 km. This stretch of the river is having length of 25 km from Ch. 225 km to Ch. 250 km and average width of 100m. Saidpur and Sultanpur town are the prominent places in this section. One CWC gauge at Karoudia, Sultanpur is located in this section. Current meter observation and discharge measurement were carried out at Ch. 231.40 km, Ch. 238.80 km and Ch. 248.72 km. Cultivated crops are mustard, wheat, gourd, ridge gourd, cucumber, etc.



From Ch 225 km to 250 km

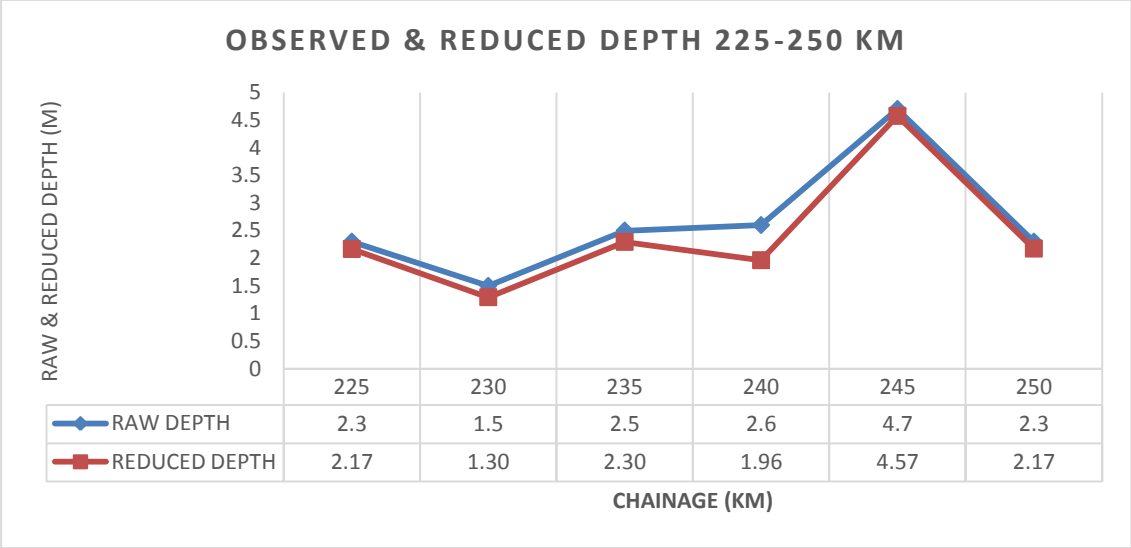
Dredging quantity for substretch-10

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	225	250	0.0	5.6	5,450.00	2,27,800.63	0.2	6.3	3,700.00	1,39,061.21
Class-II	225	250	0.0	5.6	7,400.00	4,92,207.56	0.1	6.3	5,300.00	3,40,376.99
Class-III	225	250	0.0	5.6	12,000.00	10,34,859.66	0.1	6.3	8,600.00	7,99,505.69
Class-IV	225	250	0.0	5.6	14,100.00	14,72,474.36	0.1	6.3	12,100.00	11,98,951.02

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-10 (225-250 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	225-250	The full stretch is covered by bathymetric survey
Topographic Survey	225-250	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope being mentioed below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
225	250	75	77.5	2.5	1:10000

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. This river portion is having unprocted bank.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Island at Ch 231.50 km ***Shallow Patch at Ch 237.5 to 238.00 km***

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. NH 56 is located south western side from the river strech. NH 9 crosses the river at Ch 231 km.

(j) **Railway Station**. Dwarikaganj railway station is located 2 km towards north eastern side from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

Temple at Sultanpur city, Ch 238.745 km & Building at Ch 239.236 to 239.433 km

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, terminal and ghat present in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. The only prominent town is Sultanpur.

(r) **Ferry**. Tamiliapur Ferry Ghat is located at Ch. 247.2 km

Tamiliapur Ferry Ghat Ch 247.2 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary present in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. There are two nalas present in this section, which are being depicted in the survey chart file.

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z) **Details of Cross-Structures**. Four bridges and one HT line exist in this section. Details of bridges and HT line are appended below:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Saidpur Bridge	231.46	26°17'21.32"N 82° 6'35.68"E	26°17'28.40"N 82° 6'35.45"E	610808.086E 2908193.926N	610800.601E 2908411.773N	217.97	8.0	08	29.64	2.3
2	Sultanpur Bridge	239.08	26°16'12.08"N 82° 4'36.91"E	26°16'19.17"N 82° 4'36.76"E	607532.274E 2906035.303N	607526.784E 2906253.190N	217.95	10.0	08	29.70	2.7
3	Sultanpur Old Bridge	239.11	26°16'12.58"N 82° 4'35.62"E	26°16'16.58"N 82° 4'35.55"E	607496.948E 2906050.447N	607493.035E 2906173.374N	122.98	4.5	06	22.10	3.2
4	Sultanpur Rail Bridge	239.59	26°16'15.22"N 82° 4'17.51"E	26°16'20.71"N 82° 4'21.78"E	606993.749E 2906127.982N	607110.976E 2906297.273N	205.91	7.2	06	37.70	2.2

Saidpur Bridge at Ch 231.46 km

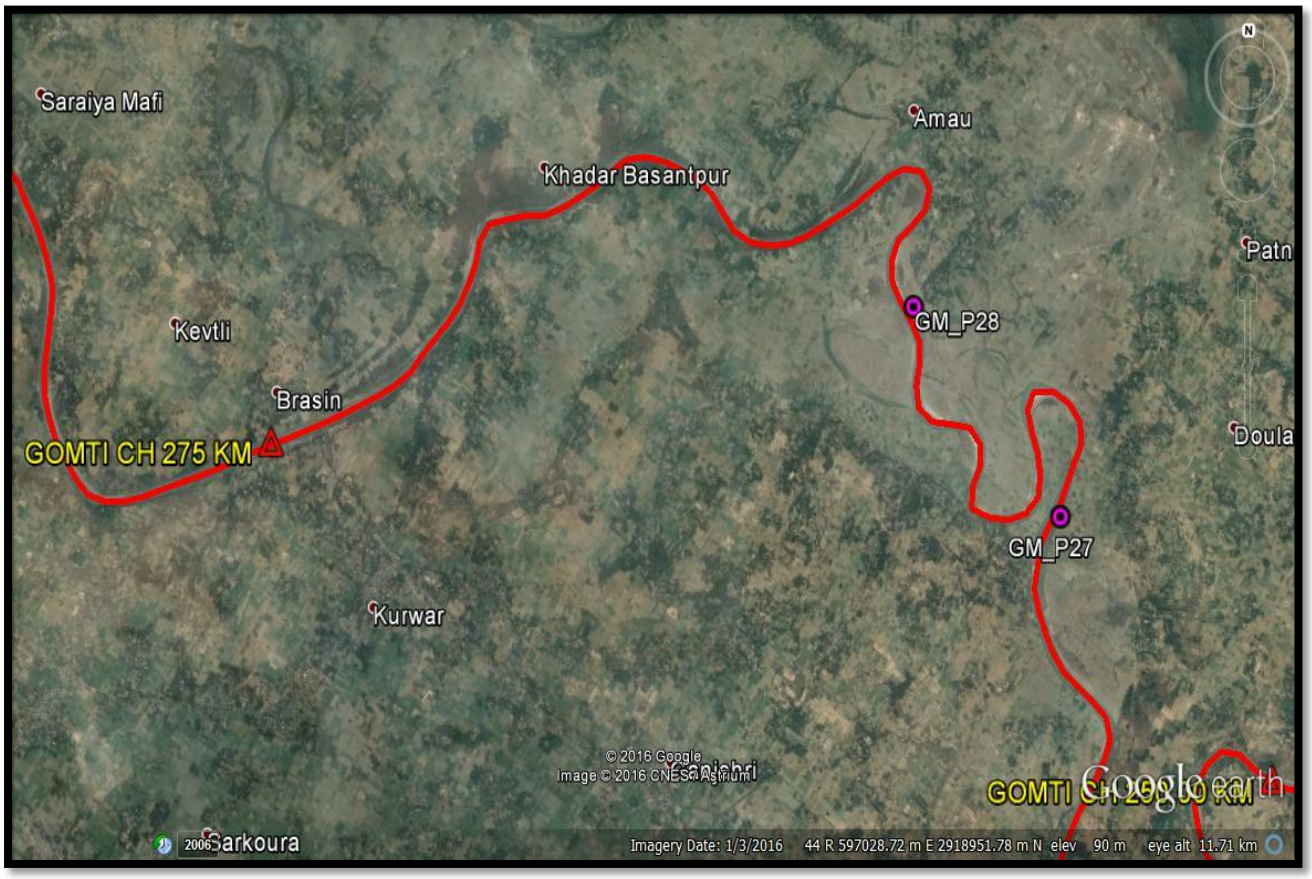
Sultanpur Bridge at Ch 239.08 km

Sultanpur Old Bridge at Ch 239.11 km *Sultanpur Rail Bridge at Ch 239.590*

Sl No	Cross-Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank	
1	HT Line	247.358	. 26°19'27.33"N 82° 5'28.17"E	26°19'27.73"N 82° 5'35.17"E	608903.070E 2912054.240N	609097.588E 2912068.009N	20.5

HT Line at Ch 247.358 km

3.11 Sub-Stretch 11: From Ch 250 km to Ch 275 km. This stretch of the river is having length of 25 km from Ch. 250 km to Ch. 275 km and average width of 110m. Ferry ghat, island, and phytoplankton, cross structures are the prominent features in this section. Current meter observation and discharge measurement were carried out at Ch. 259.70 km and Ch. 265.16 km. There is no forest zone or restricted zone in this section. Cultivated crops are mustard, wheat, gourd, cucumber, etc.



From Ch 250 km to 275 km

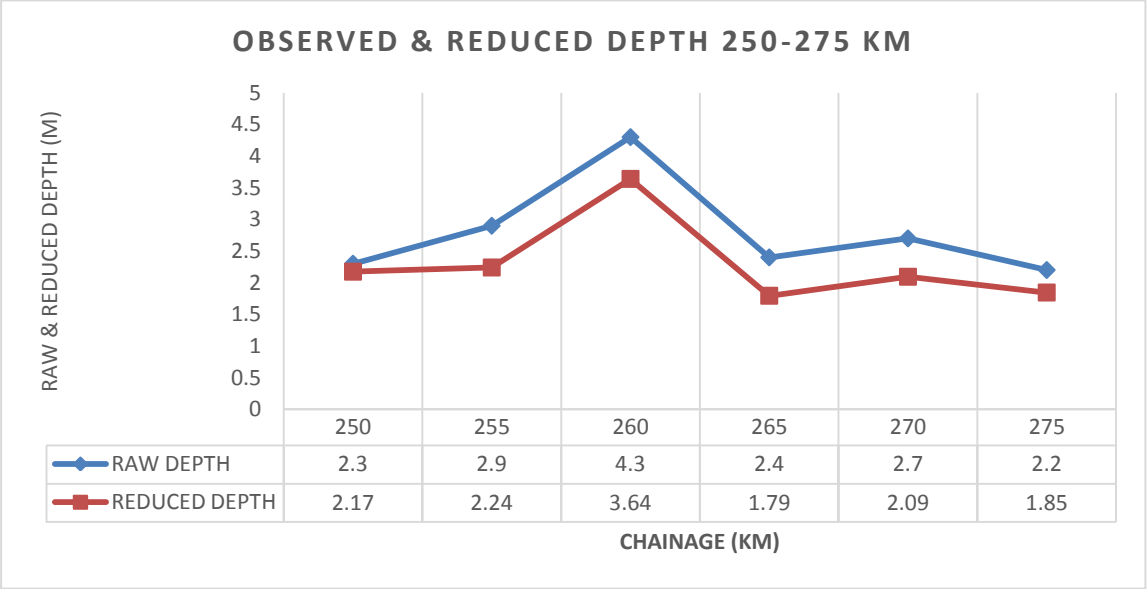
Dredging quantity for substretch-11

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	250	275	0.0	4.3	4,800.00	1,98,224.11	0.2	5.0	2,150.00	73,797.37
Class-II	250	275	0.0	4.3	6,800.00	4,46,525.11	0.1	5.0	3,300.00	2,00,586.00
Class-III	250	275	0.0	4.3	10,300.00	9,66,402.80	0.1	5.0	5,600.00	5,50,039.77
Class-IV	250	275	0.0	4.3	12,500.00	13,94,096.66	0.1	5.0	7,500.00	9,00,610.00

a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-11 (250-275 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	250-275	The full stretch is covered by bathymetric survey
Topographic Survey	250-275	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope being appended below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
250	275	77.5	80.4	2.9	1:8621

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. Bank protection was noticed at Ch 269.2 km and Ch 274.5 km.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Island at Ch 254.72 km & Shallow Patch at Ch 259.15 to 259.50 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. NH 56 is located south western side from the river strech.

(j) **Railway Station**. There is no railway station present in this section. However, railway track exists 7.5 km towards south western side from the river.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, terminal and ghat present in this portion, However one RCC ghat was noticed at Ch. 274.59 km.

Ghat at Ch 274.59 km

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. No prominent city/ town exist in this section.

(r) **Ferry**. Kalkhura and Tirachha ferry ghats are located at Ch. 255.4 km and Ch. 259.1 km respectively.

Kalhura Ferry Ghat at Ch 255.33 km & Tirachha Ferry Ghat Ch 259.102 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

Ch 260.25 KM Fishing Activity in the River

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary present in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. The only one nala is present at Ch. 266.6 km right bank (upstream).

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z) **Details of Cross-Structures**. Three bridges at Ch. 255.23 km, Ch. 269.26 km and Ch. 274.43 km were noticed in this section along with one electric line at Ch. 255.20 km. Detail of bridges and electric lines are tabulated below:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Kalkhura U/C Bridge	255.23	26°19'6.69"N 82° 3'4.68"E	26°19'11.24"N 82° 3'8.94"E	604930.988E 2911386.723N	605047.083E 2911527.354N	182.15	7.3	06	34.93	1.8
2	Nayora Bridge	269.26	26°22'44.93"N 82° 0'41.41"E	26°22'49.68"N 82° 0'45.35"E	600905.496E 2918069.912N	601013.530E 2918216.062N	181.78	7.3	07	28.80	1.7
3	Brasin Bridge	274.43	26°21'32.29"N 81°58'20.36"E	26°21'37.64"N 81°58'17.66"E	597013.183E 2915804.236N	596937.018E 2915968.831N	181.36	7.3	07	28.73	3.2

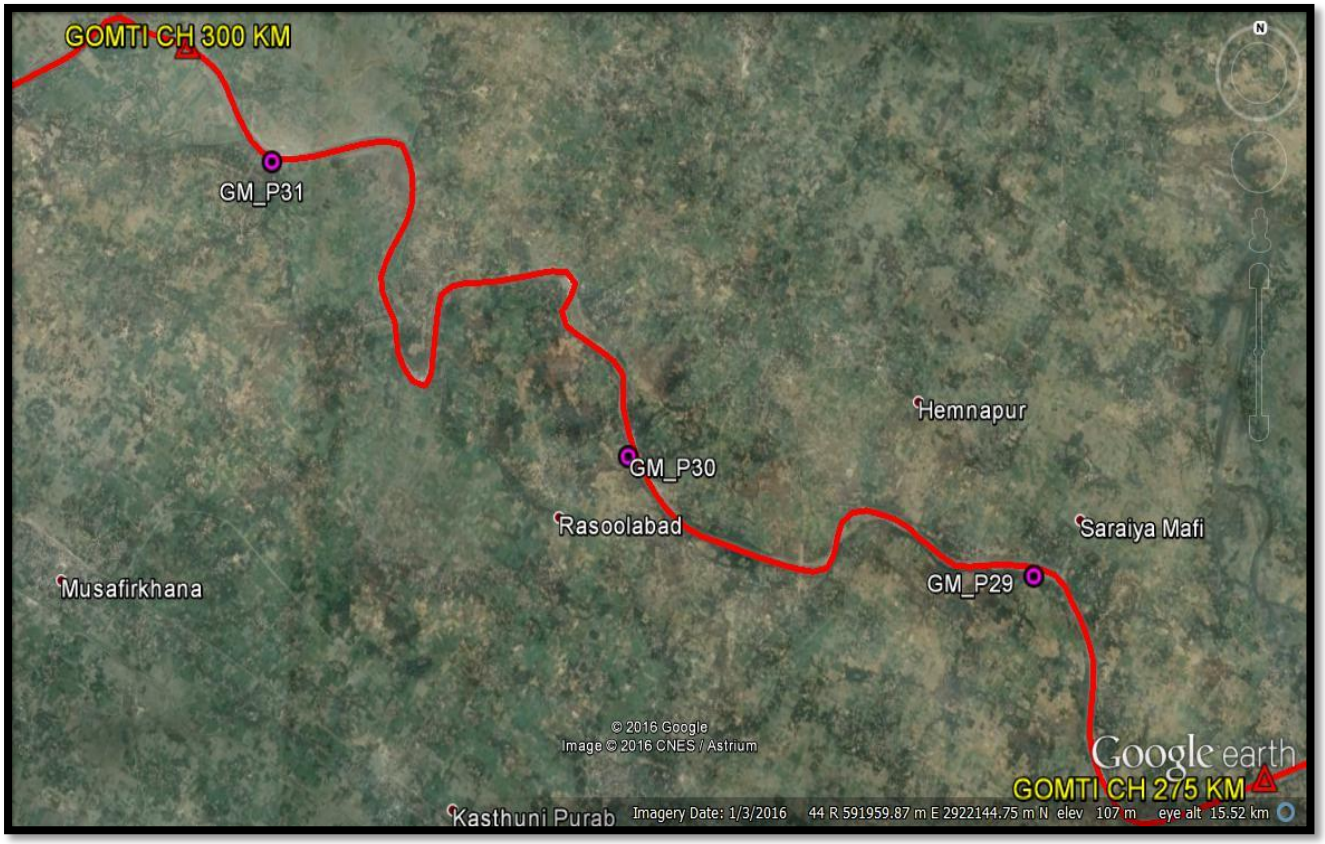
Kalkhura U/C Bridge at Ch 255.230 km ***Nayora Bridge at Ch 239.08 km***

Brasin Bridge at Ch 239.11 km

Sl No	Cross-Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank	
1	Electric Line	255.199	82° 3'5.91"E 82° 3'5.91"E	26°19'9.87"N 82° 3'9.11"E	604964.827E 2911379.427N	605052.177E 2911485.789N	7.40

Electric Line at Ch 255.199km

3.12 Sub-Stretch 12: From Ch 275 km to Ch 300 km. This stretch of the river is having length of 25 km from Ch. 275 km to Ch. 300 km and average width of 102m. Shallow stretches, ferry Ghats, islands, bridges and HT line are the primary features in this section. Current meter observation and discharge measurement were carried out at Ch. 280.46 km, Ch. 287.14 km and Ch. 298.4 km. There is no forest zone or restricted zone in this section. Cultivated crops are mustard, wheat, gourd, cucumber, etc.



From Ch 275 km to 300 km

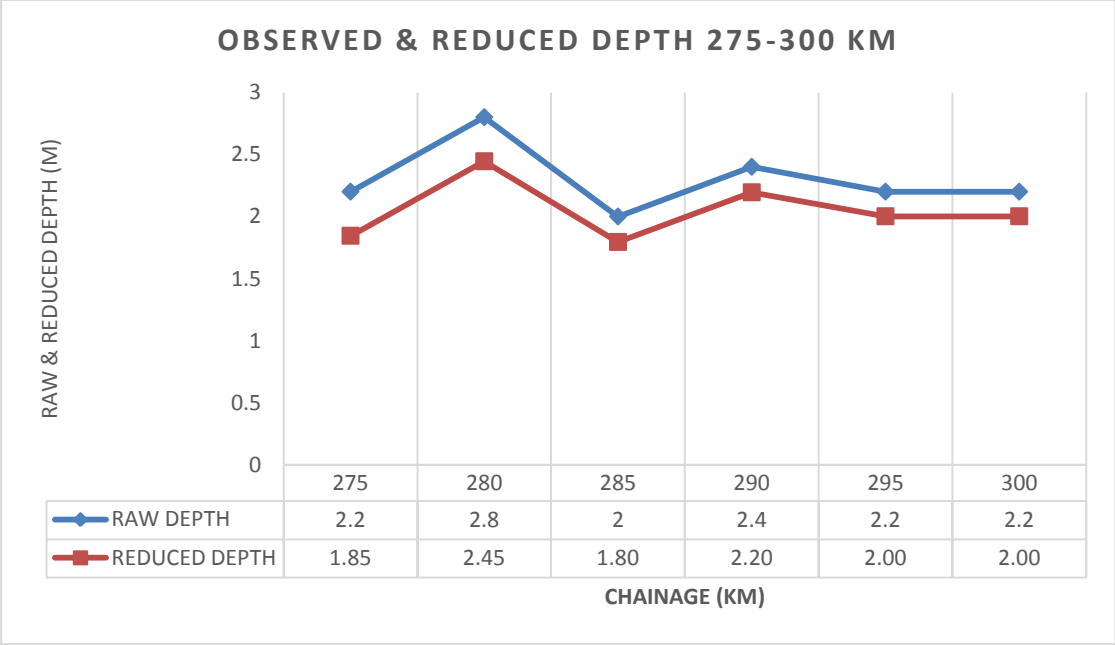
Dredging quantity for substretch-12

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	275	300	0.0	4.2	4,700.00	1,24,912.30	0.2	4.4	4,050.00	2,40,162.30
Class-II	275	300	0.0	4.2	6,600.00	7,86,211.60	-0.2	4.4	6,300.00	1,69,580.50
Class-III	275	300	0.0	4.2	10,200.00	2,43,900.00	-0.2	4.4	9,000.00	6,58,378.30
Class-IV	275	300	0.0	4.2	12,600.00	12,22,588.00	-0.2	4.4	11,700.00	10,74,547.00

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-12 (275-300 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	275-300	The full stretch is covered by bathymetric survey
Topographic Survey	275-300	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope of the stretch is mentioned below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
275	300	80.4	82.42	2.02	1:12376

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. No bank protection was observed in this section.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Shallow Patch at Ch 279.42 km & Ch. 285.00 to 285.30 km

Island at Ch 289.75 km& Low Depth at Ch 293.00 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. NH 56 is located south western side from the river strech.

(j) **Railway Station**. Musafirkhana and Shivnagar railway stations are located 5 km & 6.5 km towards south western side respectively from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty and terminal present in this portion, only one Ghat at Ch. 274.59 km present in this stretch.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. No prominent city/ town exist in this section.

(r) **Ferry**. Three ferry Ghats were noticed in this section at Ch. 280.5 km (Sataiya), Ch. 284.4 km (Mithnipur) and Ch. 287.2 km.

Saraiya Ferry Ghat Ch 280.50 km & Ferry Ghat at Ch 287.138 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary present in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. Three nalas were observed at Ch. 276.9 km (right bank), Ch. 296.1 (right bank) and Ch. 298.3 km (left bank, upstream).

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z) **Details of Cross-Structures**. Mithnepur Bridge at Ch. 284.32 km and Isauli Bridge at Ch. 293.94 km were observed in this portion. One HT line at Ch. 275.47 km is also prominent. Details of bridges and HT line are mentioned below:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Mithnepur Bridge	284.32	26°22'41.44"N 81°54'10.51"E	26°22'47.42"N 81°54'10.63"E	590073.819E 2917881.054N	590075.744E 2918065.648N	184.6	7.3	07	29.30	2.8
2	Isauli Bridge	293.94	26°24'18.67"N 81°50'41.05"E	26°24'19.73"N 81°50'47.56"E	584249.059E 2920833.898N	584429.400E 2920867.083N	183.3	7.7	07	28.95	2.7

Mithnepur Bridge at Ch 284.32 km ***Isauli Bridge at Ch 293.94 km***

Sl No	Cross-Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank	
1	HT Line	275.470	26°21'19.16"N 81°57'46.12"E	26°21'25.33"N 81°57'42.93"E	596067.678E 2915393.763N	595977.013E 2915582.618N	19.5

HT Line at Ch 275.470 km

3.13 Sub-Stretch 13: From Ch 300 km to Ch 325 km. This stretch of the river is having length of 25 km from Ch. 300 km to Ch. 325 km and average width of 110m. Current meter observation and discharge measurement were carried out at Ch. 310.94 km and Ch. 319.94 km. There is no forest zone or restricted zone in this section. Cultivated crops are mustard, wheat, gourd, ridge gourd, cucumber, etc.

From Ch 300 km to 325 km

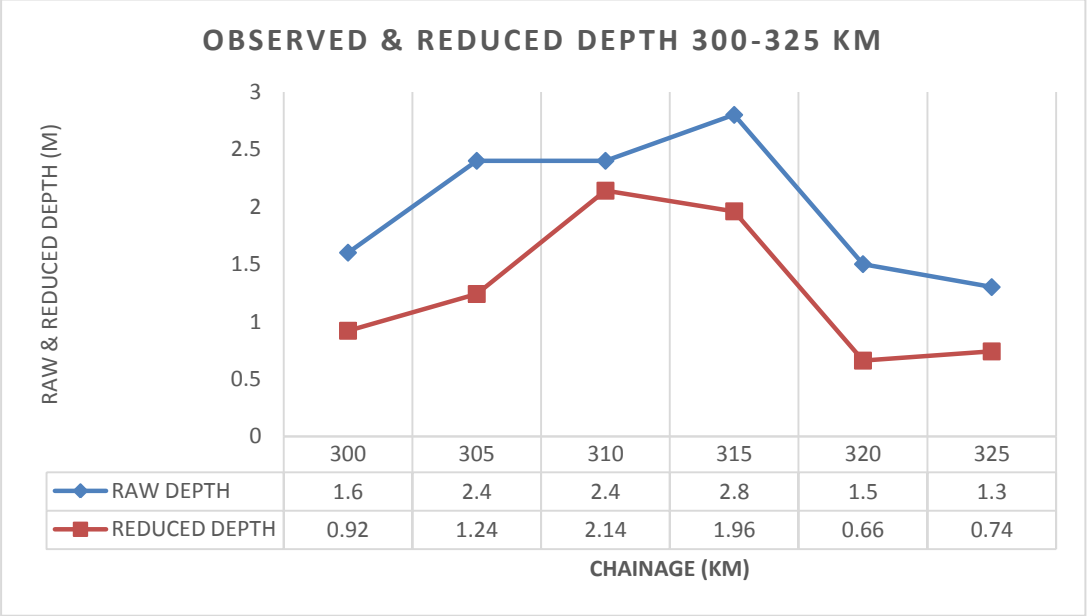
Dredging quantity for substretch-13

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	300	325	0.0	6.5	3,800.00	1,64,182.36	-0.3	6.2	6,700.00	3,01,318.13
Class-II	300	325	0.0	7.3	5,350.00	3,72,986.71	-0.3	7.1	8,400.00	5,87,736.48
Class-III	300	325	0.0	7.3	8,200.00	8,32,797.33	-0.3	7.1	12,200.00	11,45,665.54
Class-IV	300	325	0.0	7.3	11,700.00	12,33,142.29	-0.3	7.1	14,200.00	15,80,417.92

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-13 (300-325 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	300-325	The full stretch is covered by bathymetric survey
Topographic Survey	300-325	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope being appended below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
300	325	82.42	85	2.58	1:9690

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. No bank protection was observed in this section.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Shallow Depth at ***Ch 300.00 km to 305.50 km & Island at Ch 302.00 km to 302.300 km***

Shallow Patch at Ch 305.00 km to 305.5 km & Island at Ch 309.08 km

Island at Ch 321.400 km & Ch 325.00 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. SH 15 passes across the river at Ch 313 km. NH 56 is located south western side from the river strech.

(j) **Railway Station**. Adhanpur railway station is located 5.5 km south western side from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, terminal and ghat observed in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. The only town Dobhiyara is located towards north eastern side from the river stretch.

(r) **Ferry**. No ferry service was available in this section.

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary present in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. Two nalas were observed at Ch. 312.4 km right bank and Ch. 320.7 right bank (upstream).

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

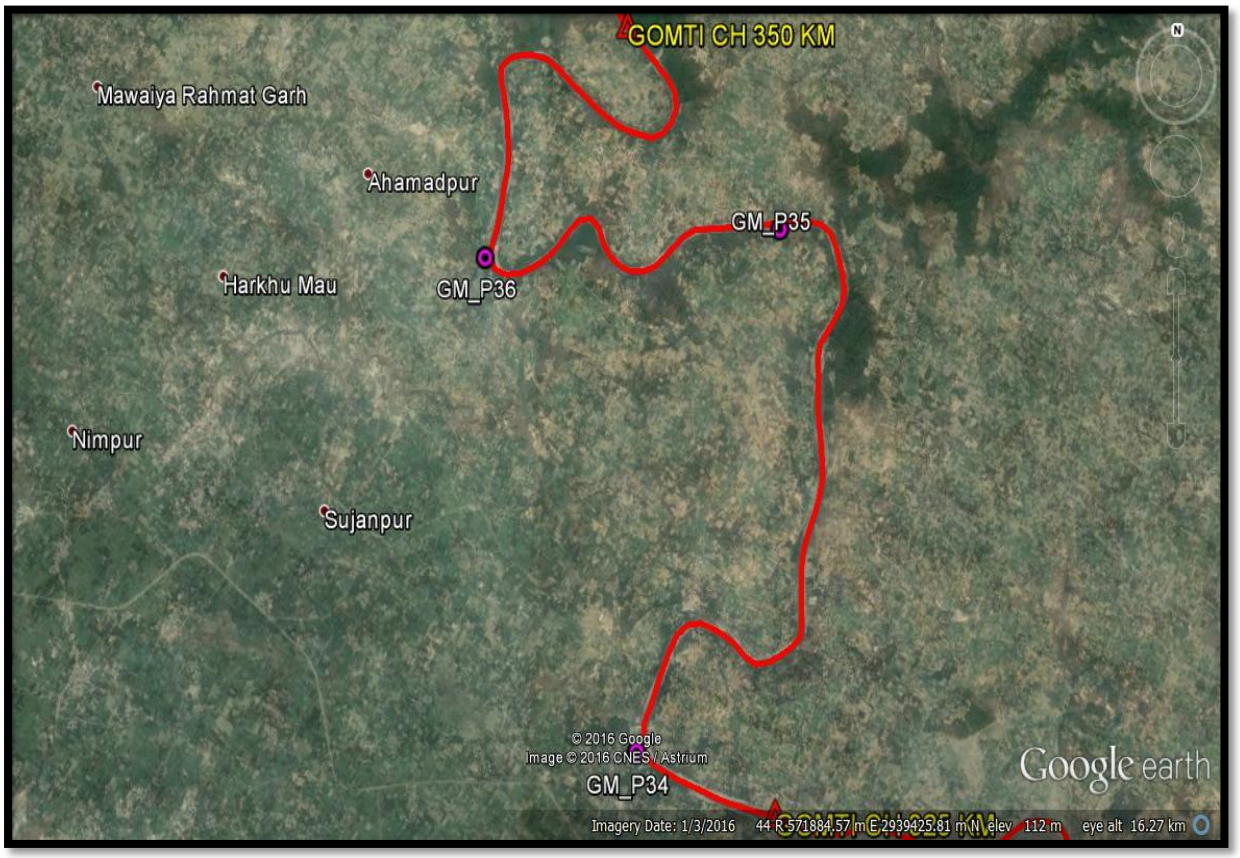
(z)**Details of Cross-Structures**. Gajarpur under Construction Bridge at Ch. 305.62 km and Thauri Bridge at Ch. 314.26 km are the two notable cross structures in this section. There is neither any HT line nor any electric line exist across the river. Details of bridges are enumerated below along with photograph:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Gajarpur U/C Bridge	305.625	26°26'33.95"N 81°46'27.56"E	26°26'38.22"N 81°46'32.43"E	577201.975E 2924951.011N	577334.739E 2925083.757N	187.74	7.2	07	30.10	2.1
2	Thauri Bridge	314.266	26°29'29.31"N 81°44'44.31"E	26°29'34.23"N 81°44'46.65"E	574310.648E 2930329.055N	574374.437E 2930481.072N	164.86	7.1	07	26.08	1.8

Gajanpur u/c Bridge at Ch 306.625 km

Thauri Bridge at Ch 314.266 km

3.14 Sub-Stretch 14: From Ch 325 km to Ch 350 km. This stretch of the river is having length of 25 km from Ch. 325 km to Ch. 350 km and average width of 98m. Ferry ghat, irrigation pump, water tank, river barrier, island, and broken bridge and cross structures are the prominent features in this section. Current meter observation and discharge measurement were carried out at Ch. 327.80 km, 339.72 km and Ch. 349.22 km. There is no forest zone or restricted zone in this segment. Cultivated crops are mustard, wheat, gourd, ridge gourd, cucumber, etc.



From Ch 325 km to 350 km

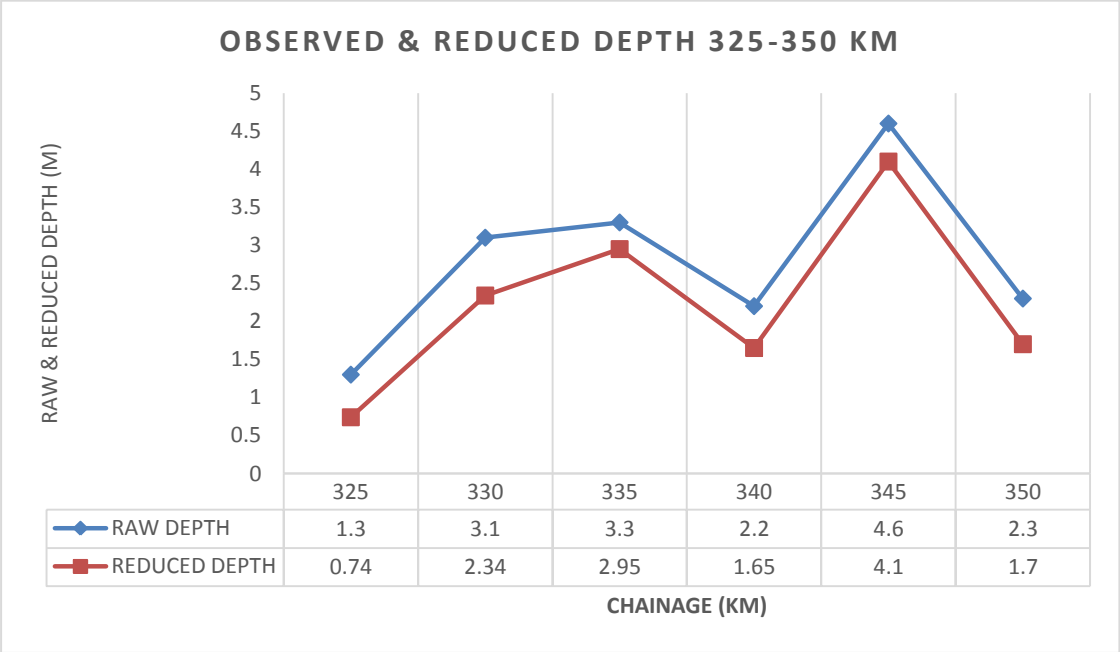
Dredging quantity for substretch-14

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	325	350	0.0	4.7	3,800.00	2,00,870.65	-0.3	4.5	6,950.00	3,01,318.13
Class-II	325	350	0.0	4.7	5,500.00	3,72,986.71	-0.3	4.5	9,200.00	5,87,736.48
Class-III	325	350	0.0	4.7	8,400.00	8,32,797.33	-0.3	4.5	12,400.00	11,45,665.54
Class-IV	325	350	0.0	4.7	10,800.00	12,33,142.29	-0.3	4.5	14,300.00	15,80,417.92

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-14 (325-350 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	325-350	The full stretch is covered by bathymetric survey
Topographic Survey	325-350	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope are mentioned below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
325	350	85	85.3	0.3	1:83333

(d) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. No bank protection was observed in this section.

(f) **Hindrances**. Shallow patches and wooden barrier are the prominent hindrances for navigation in this section.

327.115 km to 327.542 km & Island at Ch 333.900 km

Ruins of Old Bridge at Ch 334.57 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. NH 56 is located south western side from the river strech.

(j) **Railway Station**. Nihalgarh railway station is located 8.5 km south western side from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, terminal and ghat observed in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. The only city Jagdishpur is located in this stretch.

(r) **Ferry**. Three ferry Ghats were noticed at Ch. 331.1 km, Ch. 334.6 and Ch. 336.1 km (Bhandra).

Ferry Ghat at Ch 331.115 km ***Ferry Ghat at Ch 334.50 km***

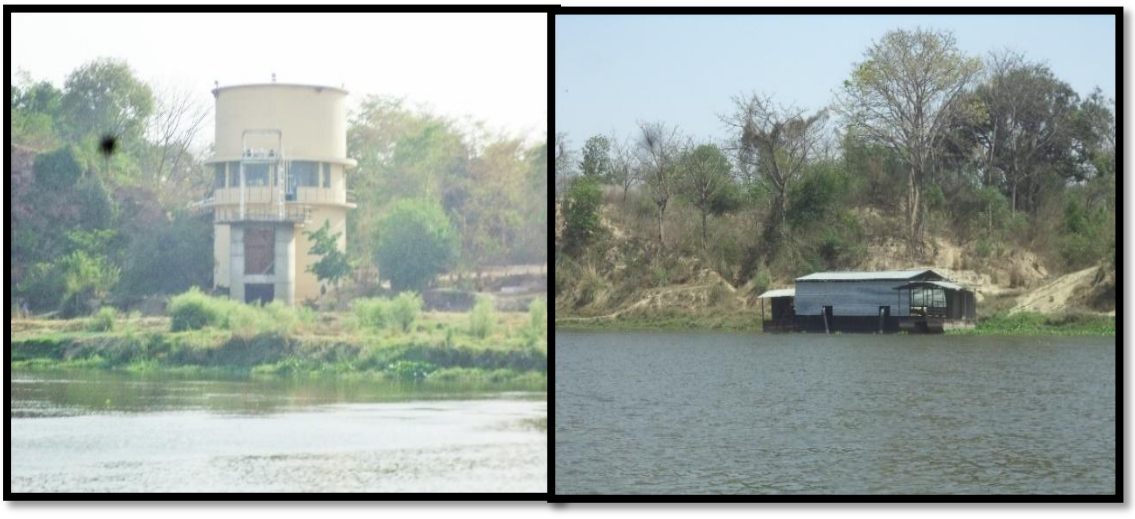
(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary present in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section. However, irrigation pump house was observed at Ch 341.5 km.



Water Tank at Ch 327.160 km & Water Pump at Ch 341.507 km

(x) **Details of Nalas**. Only one nala was observed at Ch. 329.1 km on left bank (upstream).

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z) **Details of Cross-Structures**. Satthin under Construction Bridge at Ch. 327.45 km and Sunwa Bridge at Ch. 349.37 km are the observed cross structures in this segment. No HT line or electric line exists in this section. Details of the bridges are tabulated below:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Satthin UC Bridge	327.45	-	26°31'54.98"N 81°40'31.15"E	-	567278.147E 2934772.193N	164.86	7.1	07	25.98	2
2	Sunwa Bridge	349..37	26°36'34.04"N 81°40'20.53"E	26°36'38.27"N 81°40'25.79"E	566939.994E 2943356.958N	567084.573E 2943487.894N	195.00	7.7	07	31.30	2.5

Satthin U/C Bridge atc Ch 327.45 km ***Sunwa Bridge at Ch 349.370 km***

3.15 Sub-Stretch 15: From Ch 350 km to Ch 375 km. This stretch of the river is having length of 25 km from Ch. 350 km to Ch. 375 km and average width of 98m. Shallow patch, island, ferry ghat and temple ghat are the notable features in this section. Current meter observation and discharge measurement were carried out at Ch. 359.72 km and Ch. 368.80 km. There is no forest zone or restricted zone in this section. Primary crops are mustard, wheat, cucumber, gourd, etc.

From Ch 350 km to 375 km

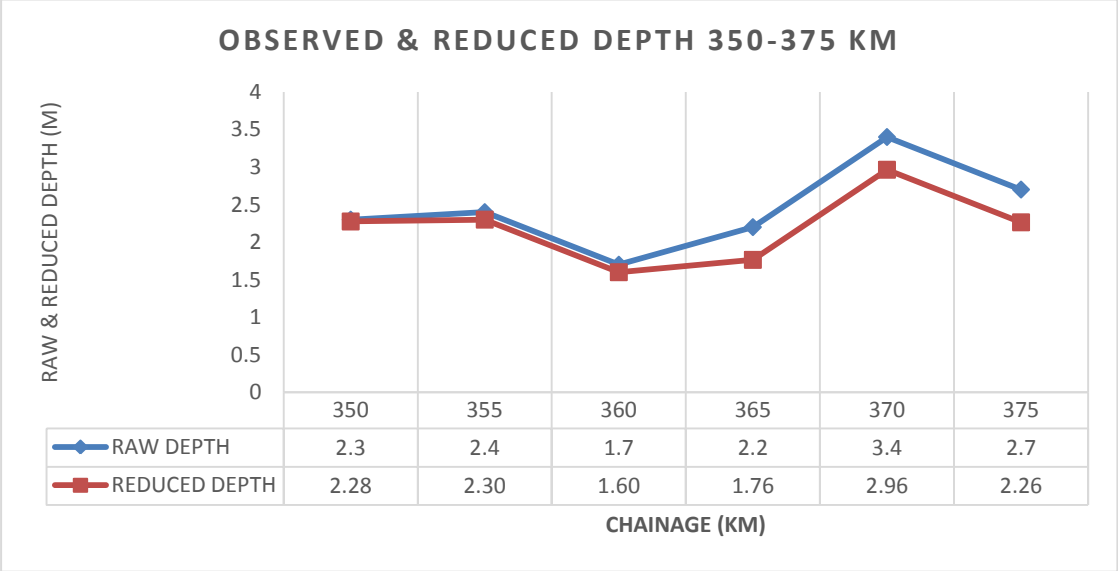
Dredging quantity for substretch-15

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	350	375	0.0	4.8	5,300.00	2,00,870.65	-0.3	4.4	9,450.00	3,50,338.31
Class-II	350	375	0.0	4.8	7,350.00	4,36,127.45	-0.3	4.4	11,050.00	6,47,363.48
Class-III	350	375	0.0	4.8	11,800.00	9,26,856.37	-0.3	4.4	13,800.00	12,12,504.91
Class-IV	350	375	0.0	4.8	14,900.00	13,43,821.44	-0.3	4.4	17,300.00	16,49,561.07

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-15 (350-375 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	350-375	The full stretch is covered by bathymetric survey
Topographic Survey	350-375	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope of the stretch being appended below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	**To**	**From**	**To**		
350	375	85.3	87.4	2.1	1:11905

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. No bank protection was observed in this section.

(f) **Hindrances**. Shallow patches and wooden barrier are the prominent hindrances for navigation in this section.

Shallow Depth at Ch 350.500 km

Island at Ch 356.102 to 356.500 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. SH 31 passes across the river at Ch 360 km and NH 56 is located south western side from the river strech.

(j) **Railway Station**. Railway track exists 16 km away from the river towards south western side.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty and terminal present in this portion. One temple ghat is present at Ch. 365.86 km.

Temple Ghat at Ch 365.859 km

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. No prominent city/ town exist in this section.

(r) **Ferry**. The only ferry ghat is located at Ch. 352.9 km.

Ferry Ghat Ch 352.932 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. There is no tributary present in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. There is no nala present in this section.

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z)**Details of Cross-Structures**. The only cross structure, Khemmau Bridge is located at Ch. 359.8 km. Details of the bridge is appended below:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Khemmau Bridge	359.8	26°38'26.61"N 81°36'27.64"E	26°38'29.54"N 81°36'33.52"E	560482.015E 2946787.270N	560644.072E 2946878.611N	186	8	07	29.60	2.6

Khemmau Bridge at Ch 359.80 km

3.16 Sub-Stretch 16: From Ch 375 km to Ch 400 km. This stretch of the river is having length of 25 km from Ch. 375 km to Ch. 400 km and average width of 86m. Shallow depth. Pump house, ferry ghat, cross structures, etc. are the prominent features in this section. One peepa pool at Ch. 389.22 km. One tributary, viz. Kalyani river confluences with Gomti river at Ch. 381.28 km. Current meter observation and discharge measurement were carried out at Ch. 379.47 km, Ch. 389.165 km and Ch. 397.51 km. Cultivated crops are mustard, wheat, gourd, ridge gourd, cucumber, etc.

From Ch 375 km to 400 km

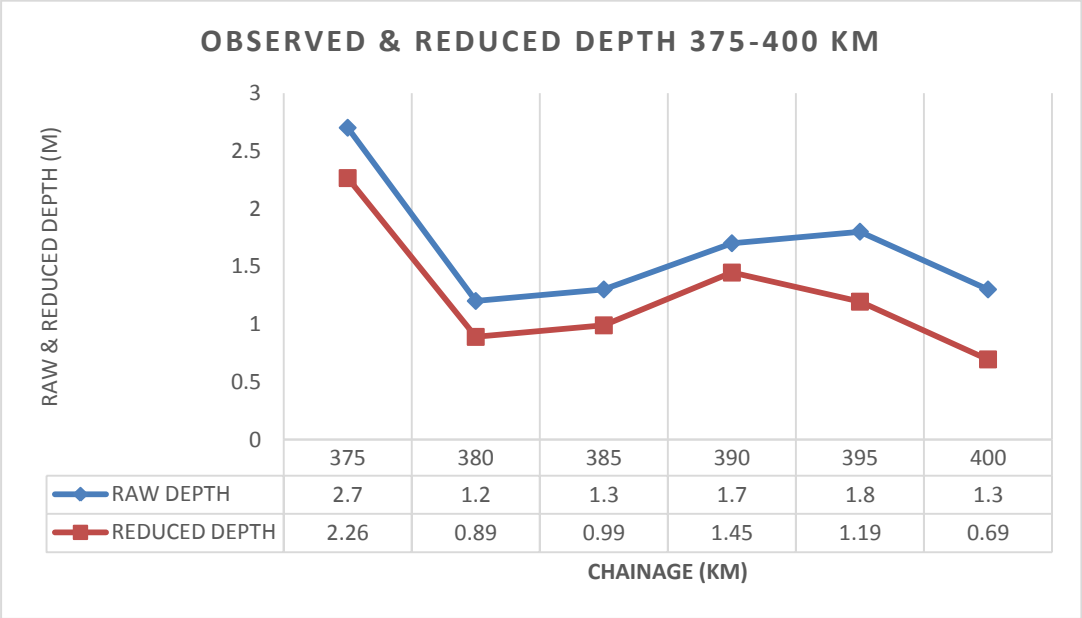
Dredging quantity for substretch-16

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	375	400	0.0	4.2	5,900.00	2,63,607.33	-0.3	3.6	12,800.00	5,26,210.75
Class-II	375	400	0.0	4.2	8,600.00	5,34,674.35	-0.3	3.6	14,700.00	9,09,860.10
Class-III	375	400	0.0	4.2	11,600.00	10,62,475.73	-0.3	3.6	18,700.00	15,68,790.47
Class-IV	375	400	0.0	4.2	16,100.00	14,91,869.39	-0.3	3.6	21,000.00	20,34,332.36

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-16 (375-400 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	375-400	The full stretch is covered by bathymetric survey
Topographic Survey	375-400	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope of the stretch being mentioned below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
375	400	87.4	90.8	3.4	1:7353

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. Bank protection was noticed at Ch 399.3 km in this section.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Shallow Depth at Ch 377.286 km & Shallow Depth Ch 387.223 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. NH 56 is located south western side from the river strech.

(j) **Railway Station**. Railway track exists 14 km away from the river towards south western side.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, ghat and terminal present in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. No prominent city/ town exist in this section.

(r) **Ferry**. The two ferry Ghats are located at Ch. 384 km (Akhori) and Ch. 393.1 km (Panditpuriya).

Panditpuriya Ferry Ghat at Ch 393.186 km

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. Kalyani River which is tributary of Gomti is located at Ch. 381.28 km.

Kalyani River confluence Ch 381.286 km

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section. Irrigational pump was noticed at Ch. 377.8 km.

Water Pump at Ch 377.805 km

(x) **Details of Nalas**. There is no nala present in this section.

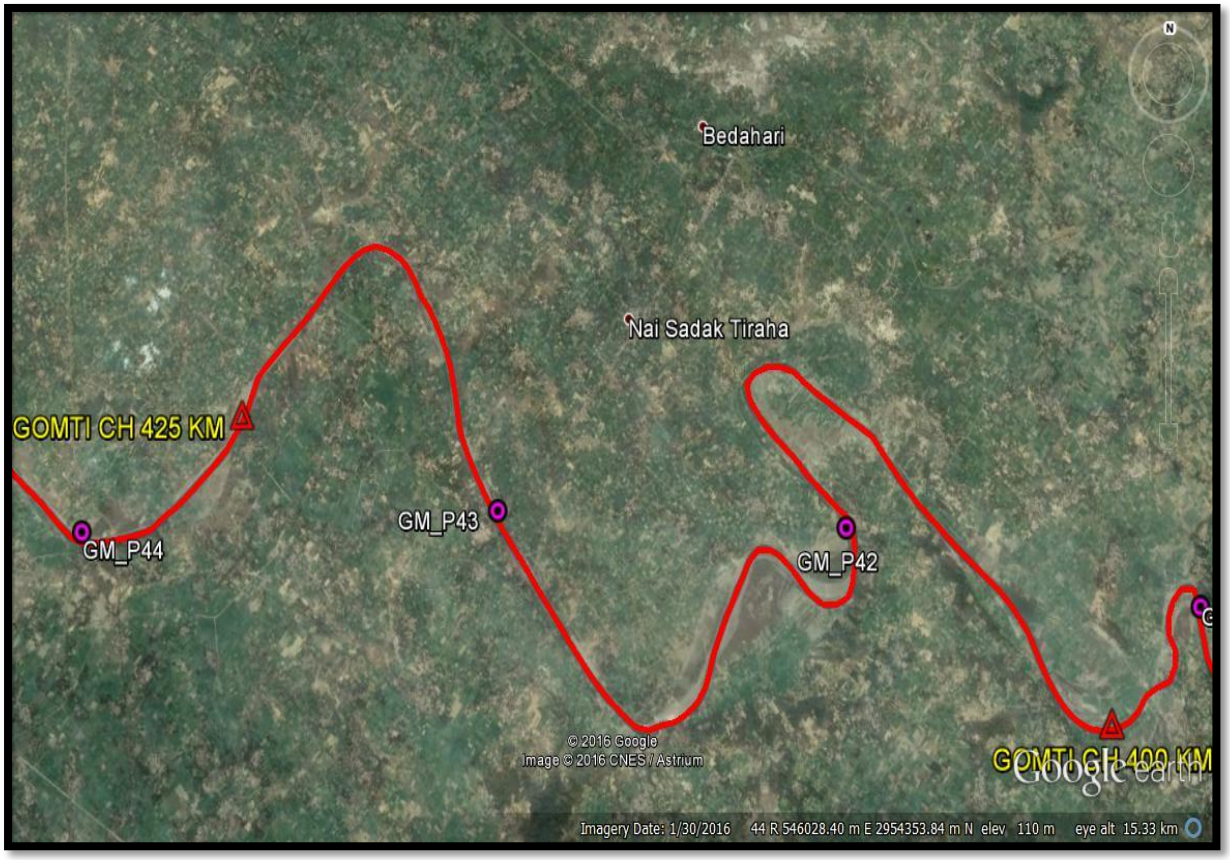
(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z)**Details of Cross-Structures**. The only bridge in this section is Dandupur Bridge at Ch. 399.24 km and No HT line present on this section.

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Dandupur Bridge	399.24	26°38'36.28"N 81°30'7.32"E	26°38'46.35"N 81°30'0.03"E	549966.708E 2947039.478N	549763.997E 2947348.175N	369.3	7.7	07	35.43	2

Dandupur Bridge at Ch 399.24 km

3.17 Sub-Stretch 17: From Ch 400 km to Ch 425 km. This stretch of the river is having length of 25 km from Ch. 400 km to Ch. 425 km and average width of 87m. In this section, irrigation pump, nala, shallow patch, stairs on river bank, and one peepa pool at Bheriya village are the prominent features. Current meter observation and discharge measurement were carried out at Ch. 409.30 km and Ch. 4158.10 km. There is no forest zone or restricted zone in this section. Mustard, wheat, gourd, ridge gourd, cucumber, etc. are the primary crops in this segment.



From Ch 400 km to 425 km

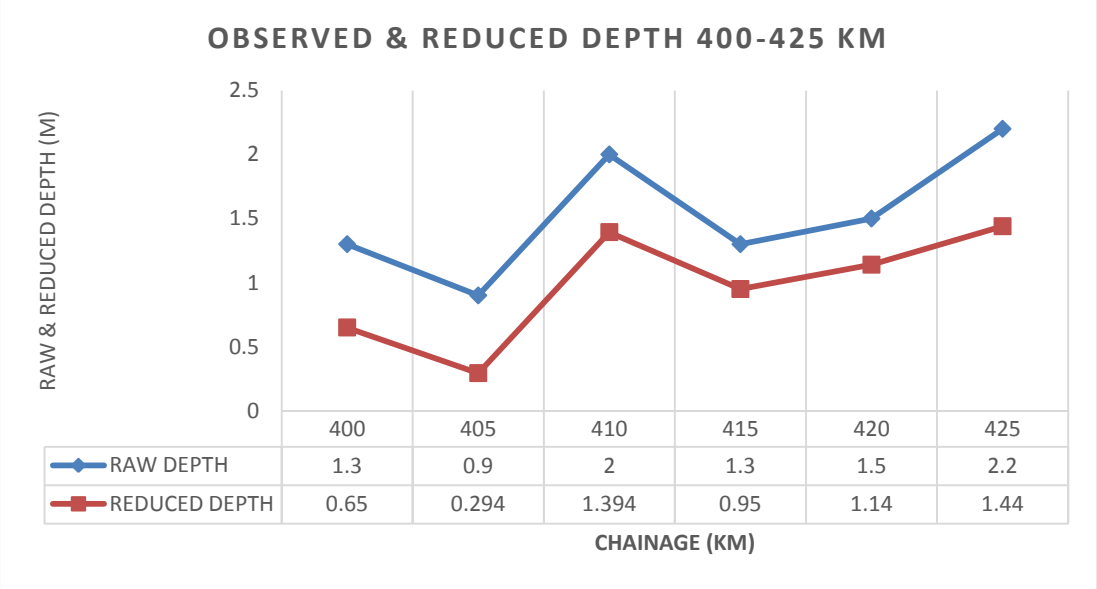
Dredging quantity for substretch-17

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	400	425	0.8	3.4	3,500.00	1,47,653.89	-0.2	2.8	15,400.00	6,40,626.19
Class-II	400	425	0.0	3.4	5,450.00	3,63,989.72	-0.3	2.8	18,200.00	11,06,754.68
Class-III	400	425	0.0	3.4	8,700.00	8,69,982.46	-0.3	2.8	21,200.00	18,78,175.18
Class-IV	400	425	0.0	3.4	13,000.00	12,98,802.83	-0.3	2.8	22,900.00	23,76,812.54

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-17 (400-425 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	400-425	The full stretch is covered by bathymetric survey
Topographic Survey	400-425	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope of the stretch being appended below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
400	425	90.8	91.7	0.9	1:27778

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. Bank protection was noticed at Ch 418.06 km in this section.

Stairs at Ch 418.06 km

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Shallow stretch at Ch 402.119 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. SH 13 crosses the river at Ch 417 km. NH 56 and NH 28 is located south western and north western side respectively from the river strech.

(j) **Railway Station**. Haidargarh and Chaubisi raiway stations are located 4 km SW and 9 km S respectively from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, ghat and terminal present in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. Haidargarh and Bara are two towns in this section.

(r) **Ferry**. There is no ferry facility available in this section.

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. No tributary exists in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section. Irrigational pump was noticed at Ch. 416.4 km.

Water Pump at Ch 416.4 km

(x) **Details of Nalas**. Three nala are situated in this section at Ch. 405.5 km right bank, Ch. 414.4 km left bank and Ch. 414.6 km left bank.

Nala Confluences Gomti at Ch 405.5 KM

(y) **Usage of Water**. Water in this portion primarily irrigation purpose.

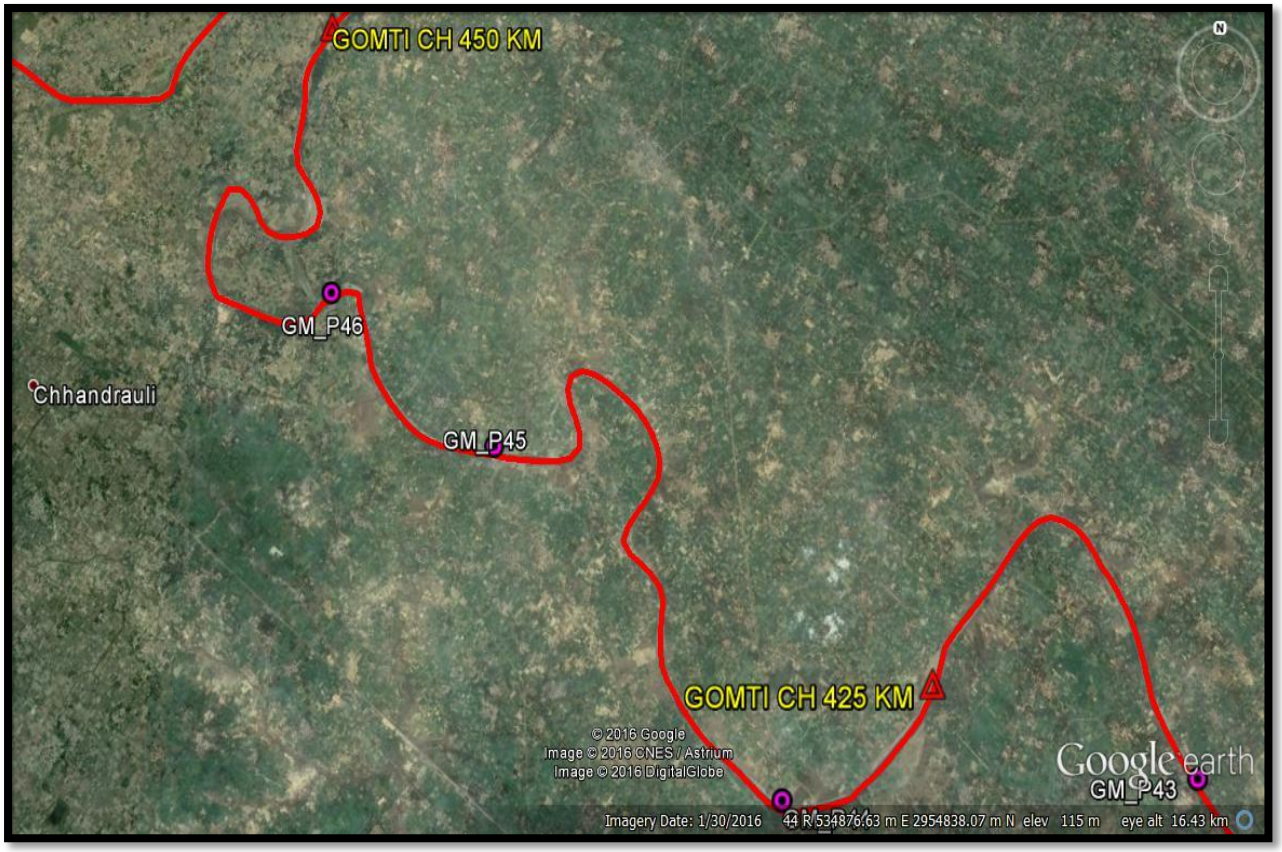
(z) **Details of Cross-Structures**. A peepa pul at Ch. 414.5 km and Naipura Bridge at Ch. 418.14 km are the two prominent cross structures in this section.

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t. HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Peepa Pool	414.5	26°38'21.95"N 81°25'48.00"E	26°38'23.87"N 81°25'47.10"E	542798.692E 2946572.194N	542773.503E 2946631.473N	65	3.5	-	-	-
2	Naipura Bridge	418.14	26°39'39.88"N 81°24'13.40"E	26°39'42.70"N 81°24'18.15"E	540175.079E 2948961.729N	540306.034E 2949048.866N	157.29	7.3	07	24.81	2.25

Peepa Pool at Ch 414.500 km

Naipura Bridge at Ch 418.14 km

3.18 Sub-Stretch 18: From Ch 425 km to Ch 450 km. This stretch of the river is having length of 25 km from Ch. 425 km to Ch. 450 km and average width of 86m. Island, Ferry Ghats, shallow stretch and phytoplankton are the notable features in this segment. Current meter observation and discharge measurement were carried out at Ch. 427.50 km, Ch. 437.80 km and Ch. 446.95 km. There is no forest zone or restricted zone in this section. Primary crops are wheat & mustard and other seasonal crops are pumpkin, cucumber, gourd, etc.



From Ch 425 km to 450 km

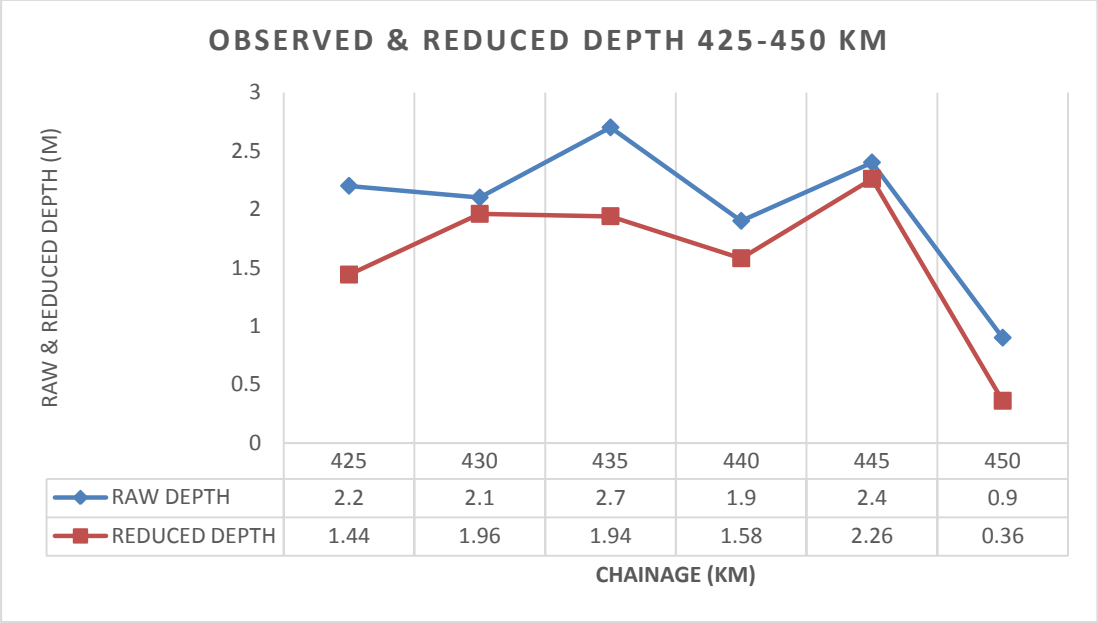
Dredging quantity for substretch-18

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	425	450	0.8	4.2	5,700.00	2,40,693.88	0.2	4.4	10,900.00	4,36,096.45
Class-II	425	450	0.0	4.2	8,900.00	5,14,877.78	-0.3	4.4	12,900.00	7,95,654.36
Class-III	425	450	0.0	4.2	12,500.00	10,56,677.33	-0.3	4.4	15,900.00	14,35,207.34
Class-IV	425	450	0.0	4.2	14,400.00	14,91,315.34	-0.3	4.4	18,400.00	18,96,747.74

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-18 (425-450 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	425-450	The full stretch is covered by bathymetric survey
Topographic Survey	425-450	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope of the stretch being mentioned below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
425	450	91.7	94.7	3	1:8333

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. There is no bank protection observed in this stretch.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Shallow Depth at Ch 425.75 km & Phytopkankton at Ch 429.50 km to 430 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. SH 13 and NH 56 are located north eastern and south western respectively from the river strech.

(j) **Railway Station**. Trivediganj raiway station is located 3.5 km towards south western side from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, ghat and terminal present in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. Chhandrauli is the only town in this section.

(r) **Ferry**. Two ferry ghats were noticed at Ch. 443.2 km (Karmemau) and Ch. 448.7 km (Thanapur).

Karme Mau Ferry Ghat at Ch 443.18 km Ch 448.782 KM Thanapur Ferry Ghat

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. No tributary exists in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. Two nala are situated in this section at Ch. 427.8 km left bank and Ch. 438.2 km left bank.

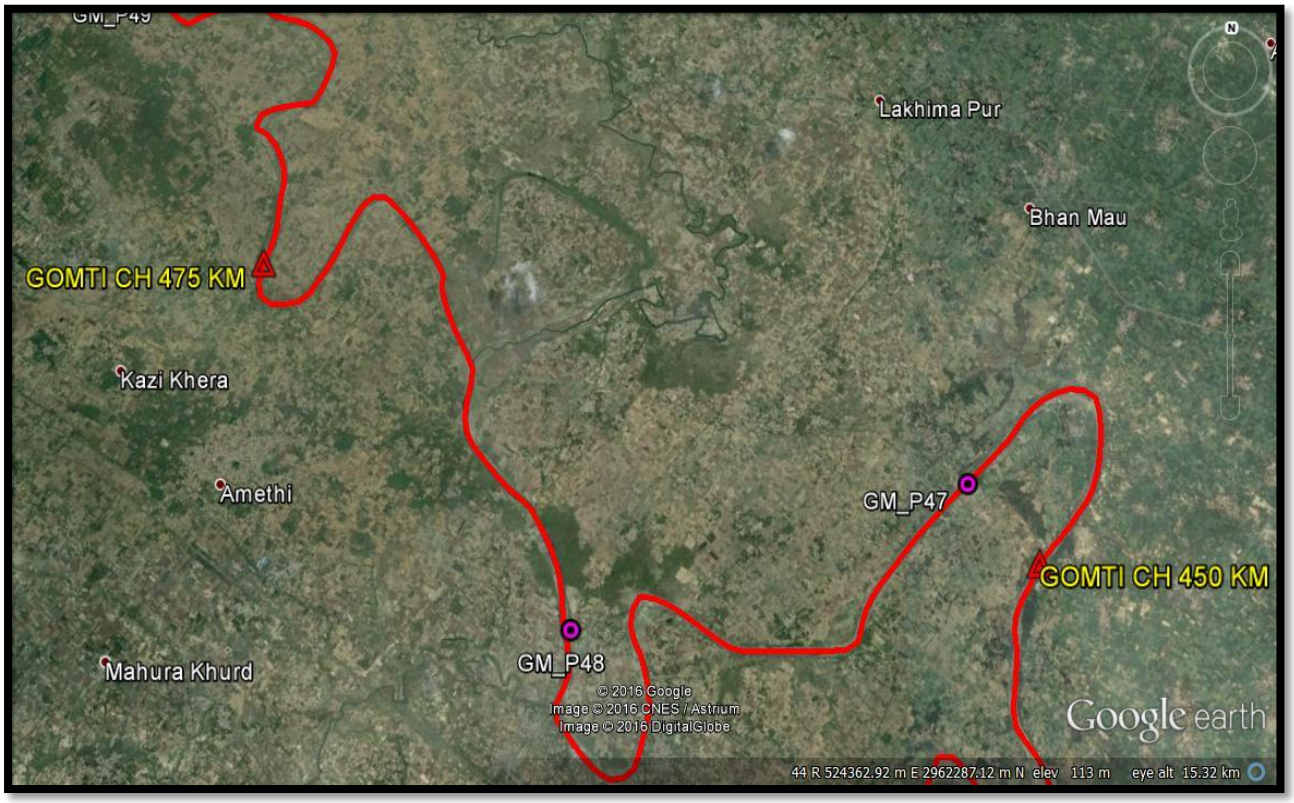
(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z) **Details of Cross-Structures**. Semri Bridge and Dhaurahara Bridge are located at Ch. 427.41 km and Ch. 437.67 km respectively in this segment. There is neither any HT line nor any electric line present across the river. Details of cross structures are tabulated below:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Semri Bridge	427.41	26°39'19.53"N 81°20'57.95"E	26°39'25.26"N 81°20'56.20"E	534774.449E 2948319.184N	534725.257E 2948495.543N	183.1	7.7	07	29.12	2.8
2	Dhaurahara bridge	437.67	26°41'38.34"N 81°18'1.49"E	26°41'44.32"N 81°18'2.85"E	529886.454E 2952577.213N	529923.151E 2952761.290N	187.9	7.9	07	29.72	2.2

Semri Bridge at Ch 427.41 km Naipura Bridge at Ch 437.67 km

3.19 Sub-Stretch 19: From Ch 450 km to Ch 475 km. This stretch of the river is having length of 25 km from Ch. 450 km to Ch. 475 km and average width of 74m. Sallow depth, Nala and bridge are the prominent features in this segment. Current meter observation and discharge measurement were carried out at Ch. 457.92 km and Ch. 468.06 km. There is no forest zone or restricted zone in this section. Cultivated crops are mustard, wheat, gourd, ridge gourd, cucumber, etc.



From Ch 450 km to 475 km

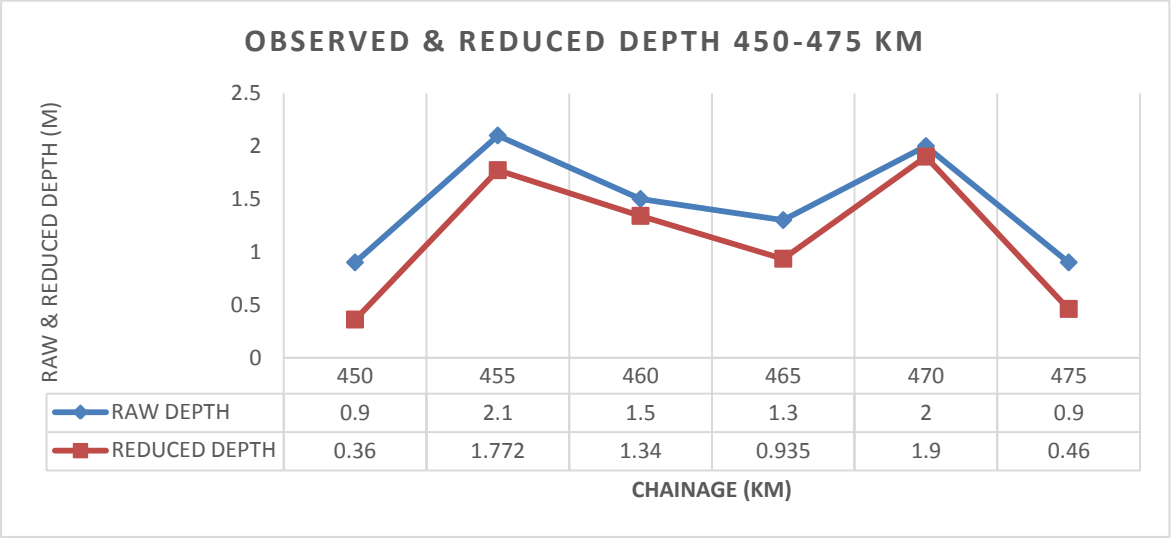
Dredging quantity for substretch-19

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	450	475	0.8	3.5	8,800.00	3,18,611.78	0.3	3.8	7,000.00	2,30,064.98
Class-II	450	475	0.0	3.5	13,200.00	6,35,471.56	-0.3	3.8	9,400.00	4,98,257.99
Class-III	450	475	0.0	3.5	18,000.00	12,26,902.78	-0.3	3.8	13,800.00	10,43,100.08
Class-IV	450	475	0.0	3.5	21,100.00	16,78,237.11	-0.3	3.8	17,200.00	14,80,255.19

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-19 (450-475 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	450-475	The full stretch is covered by bathymetric survey
Topographic Survey	450-475	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope of the river stretch being mentioned below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
450	475	94.7	97.3	2.6	1:9615

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. Bank protection can be noticed at Ch 455 km, Ch 469.8 km and Ch 472 km.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Shallow Depth at Ch 465.00 km to 468.00 km & Ch 470.60 km to 473.50 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. NH 56 is located south western side from the river strech.

(j) **Railway Station**. Rahmatnagar raiway station is located 3 km towards south western side from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, ghat and terminal present in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. Amethi is the only prominent town in this section.

(r) **Ferry**. No ferry ghat was noticed in this section.

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. No tributary exists in this section.

(w) **Details of Irrigational Canals**. There is no irrigational canal present in this section.

(x) **Details of Nalas**. Four nalas are situated in this section at Ch. 452.8 km right bank, Ch. 454.8 km right bank, Ch. 455.4 km right bank and Ch. 469.3 km right bank.

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z)**Details of Cross-Structures**. Total four bridges were noticed in this segment. There is no HT line or electric line across the river. Details of cross structures are tabulated below:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Ibraheembad Bridge	455.02	26°45'20.96"N 81°15'34.46"E	26°45'25.42"N 81°15'30.09"E	525809.363E 2959417.074N	525688.175E 2959554.213N	183.0	8	07	29.00	2.6
2	Gangaganj Bridge	464.05	26°43'36.26"N 81°12'17.64"E	26°43'40.48"N 81°12'22.49"E	520378.080E 2956186.088N	520512.307E 2956316.651N	187.25	7.3	07	30.00	3.1
3	Chamartaliya Bridge	469.78	26°46'19.16"N 81°11'10.28"E	26°46'22.77"N 81°11'15.69"E	518510.920E 2961195.689N	518659.911E 2961306.917N	185.9	7	07	29.78	3.0
4	Fatehpur Bridge	471.97	26°47'16.65"N 81°10'31.30"E	26°47'22.43"N 81°10'33.05"E	517431.411E 2962962.276N	517479.234E 2963140.299N	184.33	7.9	07	35.66	3.1

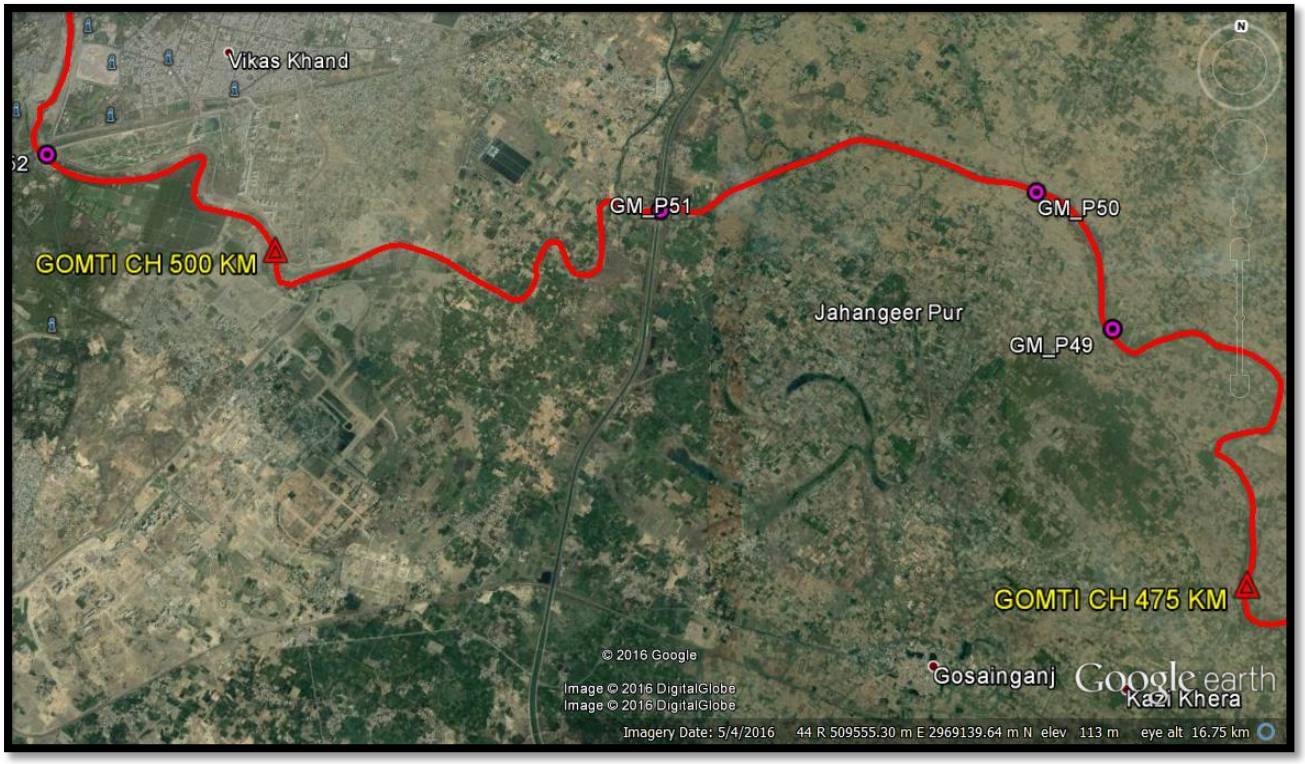
Ibraheembad Bridge at Ch 455.02 km

Gangaganj Bridge at Ch 464.05 km

Chamartaliya Bridge at Ch 469.780 k

Fatehpur Bridge at Ch 471.97 km

3.20 Sub-Stretch 20: From Ch 475 km to Ch 500 km. This stretch of the river is having length of 25 km from Ch. 475 km to Ch. 500 km and average width of 72m. Shallow patches, Island, bridges and HT line are the prominent features in this segment. Current meter observation and discharge measurement were carried out at Ch. 480.00 km, 489.70 km and Ch. 497.17 km. There is no forest zone or restricted zone in this section. Cultivated crops are mustard, wheat, gourd, ridge gourd, cucumber, etc.



From Ch 475 km to 500 km

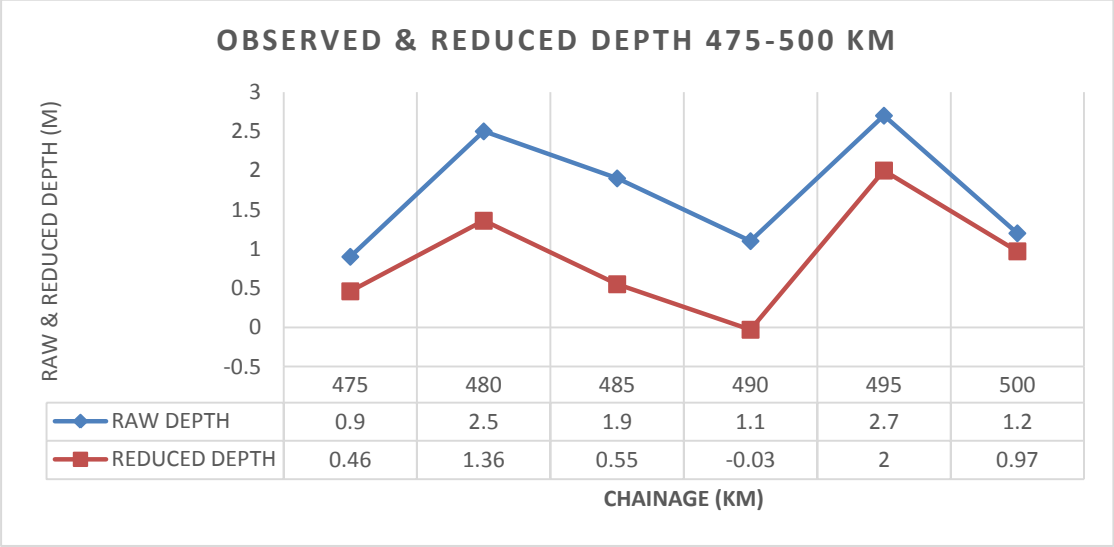
Dredging quantity for substretch-20

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	475	500	0.8	6.5	6,900.00	2,64,448.59	-0.3	6.0	18,300.00	7,58,206.88
Class-II	475	500	0.0	6.5	9,600.00	5,45,122.93	-0.3	6.0	19,300.00	12,28,170.71
Class-III	475	500	0.0	6.5	13,300.00	10,88,923.24	-0.3	6.0	20,600.00	19,81,619.65
Class-IV	475	500	0.0	6.5	16,000.00	15,15,792.21	-0.3	6.0	21,500.00	24,62,113.41

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-20 (475-500 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	475-500	The full stretch is covered by bathymetric survey
Topographic Survey	475-500	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope of the river stretch being mentioned below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
475	500	97.3	98.84	1.54	1:16234

(c) **Prominent Dam/ Barrage**. There is neither any dam nor any barrage exists in this stretch.

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. There is no bank protection observed in this stretch.

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Shallow Stretch at Ch 475.38 km to 475.78 km ***Island at Ch 482.05 km***

Shallow Depth at Ch 485.50 km to 486.04 km & Ch 497.74 to 498.74 km

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. NH 56, NH 56A left side of the river bank aprox 1.6 km distance from river bank, NH 28C and NH 24A are right side of the river bank aprox.3.0 Km distance from river bank located in this section.

(j) **Railway Station**. Gosainganj raiway station is located 5 km towards south western side from the river stretch.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. No prominent industry was noticed in this stretch.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, ghat and terminal present in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. Jageerpur, Nizampur, Goshainganj and Barabanki are the prominent town in this section.

(r) **Ferry**. No ferry ghat was noticed in this section.

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. No tributary exists in this section.

(w) **Details of Irrigational Canals**. The prominent Indra Canal is located in this section, which crosses the river at Ch. 491.16 km.

Indra Canal at Ch 491.160 km

(x) **Details of Nalas**. Two nalas are situated in this section at Ch. 491.8 km (right bank) and Ch. 499.7 km (left bank).

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z) **Details of Cross-Structures**. There are total five bridges in this section viz. Nizampur Bridge at Ch. 482.02 km, Indra Canal at Ch. 491.16 km, Ardonamau Bridge at Ch. 499.00 km &Ch. 499.02 km. One HT line at Ch. 491.34 km is also relevant Details of bridges and HT line are tabulated below along with photographs:-

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance wrt HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	Nizampur Bridge	482.02	26°48'47.81"N 81° 8'18.93"E	26°48'50.63"N 81° 8'24.87"E	513773.119E 2965762.599N	513937.115E 2965849.051N	185.39	7.9	07	29.40	2.7
2	Indra Canal	491.16	26°49'36.58"N 81° 4'5.74"E	26°49'49.16"N 81° 4'6.80"E	506783.932E 2967257.991N	506812.643E 2967644.144N	387.22	18	21	16.86	1.7
3	Ardonamau Bridge	499.00	26°48'57.31"N 81° 0'51.98"E	26°49'4.04"N 81° 0'49.74"E	501435.059E 2966047.562N	501373.085E 2966254.685N	216.19	14.40	08	29.48	3.1
4	Ardonamau Bridge	499.02	26°48'57.12"N 81° 0'51.15"E	26°49'3.75"N 81° 0'48.98"E	501412.919E 2966041.929N	501352.742E 2966245.709N	216.19	14.40	08	29.48	3.2

Nizampur Bridge at Ch 482.02 km

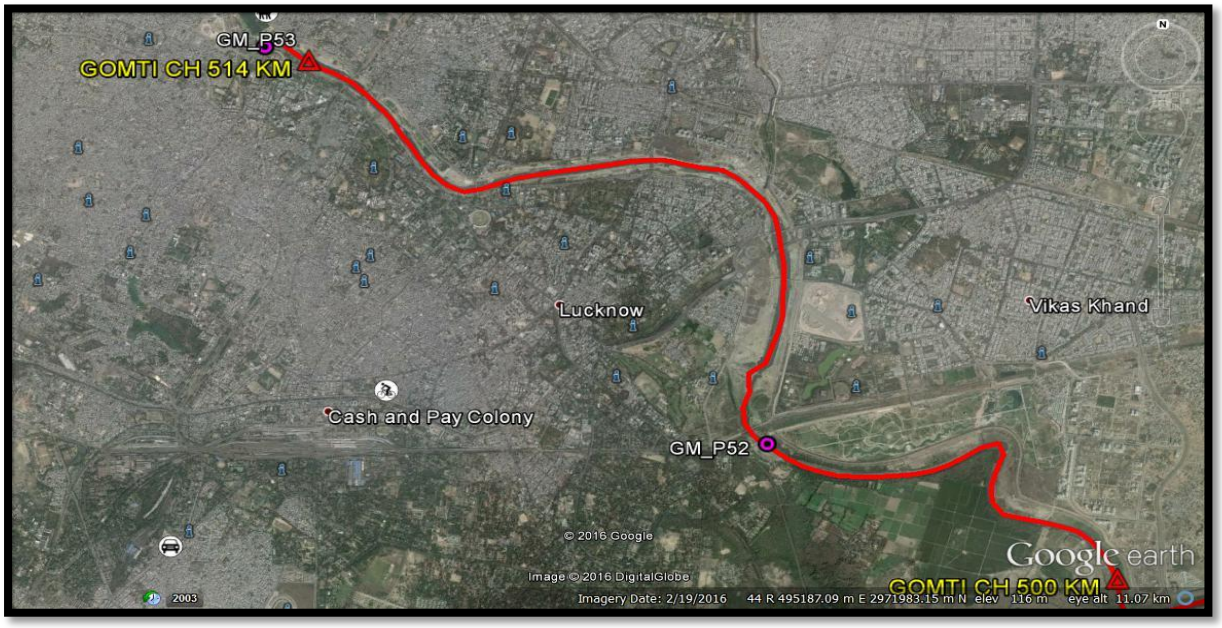
Indra Canal at Ch 491.160 km

Ardonamau Bridge at Ch 499.00 km & Ch 499.020 km

Sl No	Cross-Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank	
1	HT Line	491.342	26°49'39.15"N 81° 4'1.51"E	26°49'44.94"N 81° 3'59.26"E	506666.453E 2967336.841N	506604.575E 2967514.727N	21.0

HT Line at Ch 491.342 km

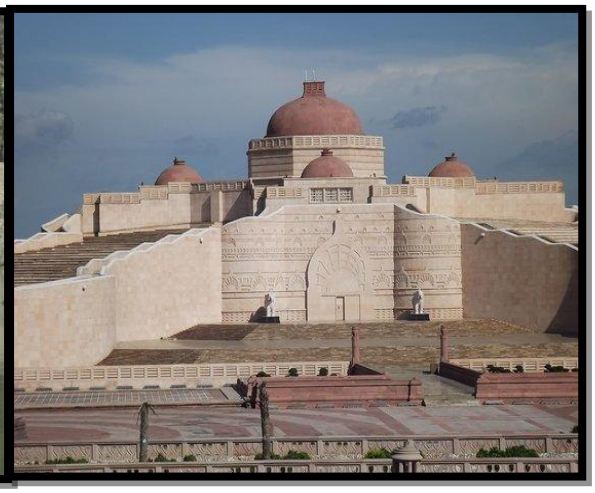
3.21 Sub-Stretch 21: From Ch 500 km to Ch 514.31 km. This stretch of the river is having length of 14.31 km from Ch. 500 km to Ch. 514.31 km and average width of 125m. This portion of the river is having shallow stretches in most of the places. In this stretch eight bridge, one barrage (Gomti Barrage) and two rail bridges are amongst the prominent cross structures. Huge cremation activities were also noticed on the river bank. Ambedkar Park, Ram Manohar Lohia Park, Janeshwar Mishra Park, Bara Imambara at Lucknow are the famous tourist destinations at Lucknow. Current meter observation and discharge measurement were carried out at Ch. 505.05 km and Ch. 514.20 km. There is no forest zone or restricted zone in this section. As this section is located in the city area of Lucknow, there is no scope of agricultural activity along the river.



From Ch 500 km to 514.31 km

Dredging quantity for substretch-21

	Chainage (km)		Observed				Reduced wrt Sounding Datum			
Type	**From**	**To**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**	**Min Depth (m)**	**Max Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (cu.m)**
Class-I	500	514.31	0.0	4.7	4450	169607.38	0.4	4.5	5850	210686.67
Class-II	500	514.31	0.0	4.7	6000	330374.89	-0.2	4.5	6700	376863.92
Class-III	500	514.31	0.0	4.7	7800	638353.21	-0.2	4.5	7800	690936.53
Class-IV	500	514.31	0.0	4.7	8500	874179.21	-0.2	4.5	8300	908287.27

CWC Bench Mark at Ch 510.570 KM & Ambetkar Park at Ch 507.50 km


Bara Imambara ***Ambedkar Park***

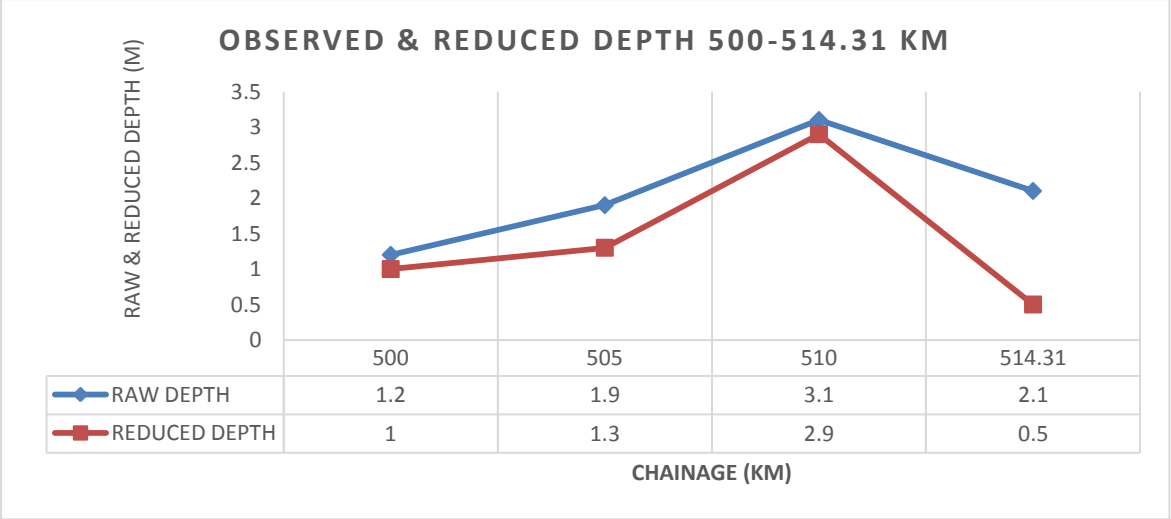

DilkushaKothi ***Janeshwar Mishra Park***

Dr Ram Manohar Loiha Park ***Lucknow Zoo***

(a) **Bathymetry Survey & Topographic Survey**.

SUB-STRETCH-21 (500-514.31 KM)		
Type of Survey	**Chainage (km)**	**Remarks**
Bathymetry Survey	500-514.31	The full stretch is covered by bathymetric survey
Topographic Survey	500-514.31	Riverbank, prominent features along the bank.

(b) **Observed & Reduced Depth Profile of the Stretch**. Both observed and reduced depth along with slope of the stretch being mentioned below:-



Chainage (km)		River Bed Level (m)		River Bed Level Change (m)	Slope
From	To	From	To		
500	514.31	98.84	100.7	1.86	1:7694

(c) **Prominent Dam/ Barrage**. Gomti Barrage is located at Ch 507.87 km in this section.

Gomti Barrage at Ch.507.87 Km

(d) **Tidal Stretch**. This 25 km of river stretch is completely non-tidal.

(e) **Bank**. Bank protection can be noticed in Lucknow city.

Anicuts at Ch 506.087 km

Retaining Wall Ch 506.08 km to 509.50 km

(f) **Hindrances**. Shallow patches are the prominent hindrances for navigation in this section.

Shallow Depth at Ch 503.00 to 505.600 km & Ch 505.00 km to 506.00 km

Shallow Depth at Ch 513.50 km to 514.00 km Seewage Line Construction at Ch 514.00

(g) **Encroachment**. No encroachment was observed in this stretch.

(h) **Protected Area**. There is no wildlife, Defence, Atomic power plant and any other procted areas in this stretch.

(i) **NH/ SH**. NH 28 are pass left side of river Bank aprox 2.3km and NH 24 are cross the river in this section.

(j) **Railway Station**. Lucknow City, Lucknow Jnand Charbag and dali ganj railway stations are Aprox.5.0 km distance from river bank km located in this section.

(k) **Land Use Pattern**. Land on either banks of the river being utilised for either agricultural or residential purpose.

(l) **Crops**. Both banks of the river are quite fertile and agricultural activity is prominent throughout the waterway. Primary crops are wheat, mustard, cucumber, gourd, peas and chickpeas, etc.

(m) **Bulk Construction Material**. There is no bulk construction material available in the river stretch.

(n) **Existing Industry**. Agro based, soda water, cotton textile, woollen, silk & artificial thread based clothes, jute, ready-made garments & embroidery, paper & paper products, leather, chemical, rubber, plastic & petro based, mineral based, metal based, electrical machinery and transport equipment and repairing & servicing industries are very common at Lucknow. Large scale industries are Hindustan Aeronautics Limited, Scooter India Ltd and Tata Motors Ltd. Major exportable items are automobile vehicles/ parts, Chicken garments, synthetic yarn, herbal products and engineering goods etc.

(o) **Existing Ghats, Jetties and Terminals**. There is no jetty, ghat and terminal present in this portion.

(p) **Cargo Movement**. There is no cargo movement observed in this portion of the water way during the course of survey.

(q) **Prominent City/ town or Place of Worship**. The capital city of Uttar Pradesh, Lucknow is located in this river stretch.

(r) **Ferry**. No ferry ghat was noticed in this section.

(s) **Water Sports Recreational Facilities**. There is no facility for water sports in this section.

(t) **Fishing Activity**. Fishing folks were seen engaging in fishing activity in this section.

(u) **Sand Mining**. No sand mining activity was found in this stretch.

(v) **Tributaries**. No tributary exists in this section.

(w) **Details of Irrigational Canals**. No irrigation canal is present in this section.

(x) **Details of Nalas**. Five nalas are situated in this section at Ch. 502.8 km (right bank), Ch. 509.9 km (left bank), Ch. 511.1 km (left bank), Ch. 513 km (left bank) and Ch. 514 km (right bank).

(y) **Usage of Water**. Water in this portion primarily used for irrigation purpose.

(z) **Details of Cross-Structures**. Total 13 bridges and one HT line were noticed in this section including Gomti Barrage. River barriers were noticed at Ch. 506.08 km and Ch. 508.90 km.

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
1	UC Bridge	505.18	26°50'1.27"N 80°58'11.63"E		-	497009.855E 2968015.242N	209.1	-	9	24.94	-
2	Rail Bridge	505.32	26°50'0.16"N 80°58'1.02"E	26°50'3.09"N 80°58'7.10"E	496716.300E 2967981.229N	496884.023E 2968071.005N	190.23	12	07	28.2	2.7
3	Rail Bridge	505.37	26°50'1.43"N 80°58'1.12"E	26°50'4.68"N 80°58'7.64"E	496719.292E 2968020.874N	496899.570E 2968120.066N	205.79	10.5	08	25.9	2.9
4	Lucknow Bypass Bridge	507.31	26°51'1.82"N 80°58'9.95"E	26°51'1.53"N 80°58'17.78"E	496963.515E 2969878.614N	497179.963E 2969869.110N	216.65	10.5	08	29.75	3.2
5	Lohia Bridge	507.67	26°51'10.60"N 80°58'7.99"E	26°51'16.13"N 80°58'15.82"E	496909.477E 2970148.749N	497125.276E 2970318.166N	274.35	33.5	13	21.66	4.6
6	Gomti Barrage	507.87	26°51'18.82"N 80°58'6.61"E	26°51'20.64"N 80°58'13.89"E	496871.845E 2970401.720N	497072.297E 2970457.873N	208.17	12.2	11	18.32	2.8
7	Nishatganj Bridge	509.61	26°51'40.72"N 80°57'20.72"E	26°51'47.77"N 80°57'20.18"E	495605.472E 2971075.404N	495590.712E 2971292.971N	218	10	08	29.94	2.6
8	Nishatganj Bridge	509.64	26°51'40.78"N 80°57'19.89"E	26°51'47.80"N 80°57'19.38"E	495582.615E 2971077.146N	495568.076E 2971293.505N	216.84	9.8	07	35.00	2.9
9	Hanuman Setu	511.52	26°51'27.89"N 80°56'14.08"E	26°51'34.74"N 80°56'12.49"E	493766.163E 2970681.341N	493722.560E 2970892.585N	215.79	18.3	08	29.32	2.6

Sl No	Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	No of Piers	Horizontal clearance (Distance Between piers) (m)	Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank					
10	Acharya Nagendra Dev Bridge	513.25	26°52'3.32"N 80°55'27.02"E	26°52'8.40"N 80°55'31.69"E	492468.128E 2971772.149N	492597.656E 2971928.910N	203.17	25	-	32.36	2.4
11	Daligunj Rail Bridge	513.481	26°52'8.42"N 80°55'20.89"E	26°52'11.84"N 80°55'23.54"E	492299.073E 2971929.990N	492372.229E 2972034.117N	127.25	4	07	17.71	2.4
12	Daligunj Rail Bridge	513.496	26°52'11.94"N 80°55'23.32"E	26°52'8.59"N 80°55'20.68"E	492293.305E 2971934.650N	492366.662E 2972037.276N	127.25	4	7	17.71	2.3
13	Loha Pool	514.24	26°52'18.94"N 80°54'57.40"E	26°52'24.05"N 80°54'58.92"E	491651.471E 2972253.604N	491693.242E 2972410.799N	162.65	10.7	07	23.61	3.2

U/C Bridgeat Ch 505.180 km ***Rail Bridge at Ch 505.32 km & Ch 505.370 km***

Lucknow Bypass Bridge at Ch 507.310 km ***RM Lohia Bridge Ch 507.67 km***

Gomti Barrage Ch 507.87 km ***Nishatganj Bridge at Ch 509.61km & Ch 509.640 km***

Hanuman Setu at Ch 511.52 km

Acharya Nagendradev Bridge Ch 513.25 km

Daligunj Rail Bridge at Ch 513.500 km

Loha Pool at Ch 514.240 km

I No	Cross-Structure Name	Chainage (km)	Position (Lat Long)		Position (UTM)		Vertical clearance w.r.t HFL (m)
			Left Bank	Right Bank	Left Bank	Right Bank	
1	HT Line	501.045	26°49'28.52"N 80°59'59.75"E	26°49'34.73"N 81° 0'1.09"E	499993.476E 2967007.112N	500030.040E 2967198.016N	21.0

HT Line at Ch 501.045 km

SECTION – 4

4.1 **Terminals.** There is no terminal present in this waterway. However, development of terminals at Lucknow (Ch.505 km), Sultanpur (Ch. 231.5 km), Jaunpur (Ch. 98 km) and Rajwari, Ghazipur (Ch. 3.6 km) seems viable. These places are well connected by rail and road networks. These proposed terminals will cater for passenger as well as cargo movement throughout the river. Details of the proposed terminal being tabulated below:-

Sl No	Ch. (km)	Location	Position (Lat/ long)		Position (UTM)		Length (m)	Width (m)	Area (sq.m)	Present Land Use
			Start	End	Start	End				
1	3.6	Rajwari	25°30'25.30"N 83° 8'9.42"E	25°30'25.44"N 83° 8'15.32"E	714673.55 2822810.41	714841.36 2822822.76	170	20	3400	Pvt Land (Agricultural Land)
2	98	Jaunpur	25°44'37.07"N 82°41'23.82"E	25°44'34.89"N 82°41'26.51"E	669507.37 2848379.18	669583.13 2848313.11	100	20	2000	Pvt Land (Agricultural Land)
3	231.5	Saidpur	26°17'23.83"N 82° 6'35.93"E	26°17'24.40"N 82° 6'41.66"E	610814.39 2908270.38	610973.16 2908289.28	150	20	3000	Pvt Land (Agricultural Land))
4	505	Lucknow	26°49'55.09"N 80°58'11.92"E	26°49'53.70"N 80°58'15.18"E	497017.35 2967825.7	497107.68 2967782.77	100	20	2000	Pvt Land (Agricultural Land)

Proposed Terminal 1

Proposed Terminal 2

Proposed Terminal 3

Proposed Terminal 4

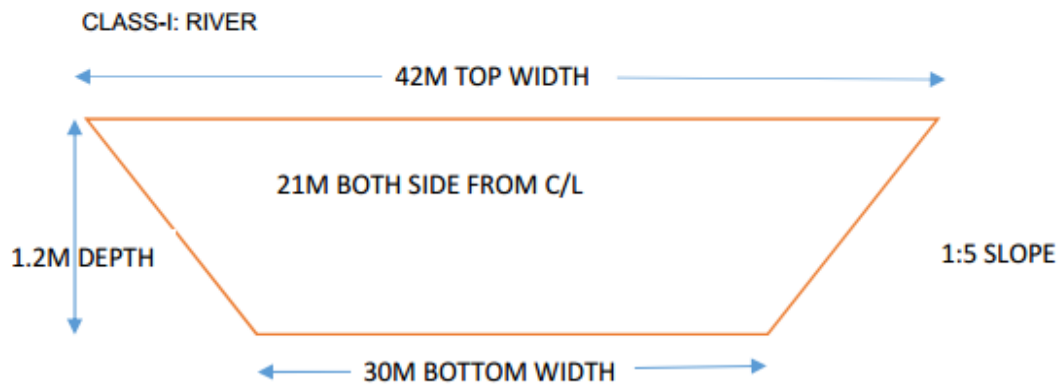
SECTION – 5

5.1 Fairway Development The dredging channel is designed by linking deepest sounding of each cross sections and the dredging quantity is estimated for developing a navigable channel with the following dimension. The best suitable dredging channel class for the survey stretch of Gomti River is identified as Class-II and the dredge volume for the Class I to Class-IV were also calculated for the entire survey stretch. The details of Fairway channel dimension used for the dredging calculation are as follows:-

Class of Channel Depth (m) Bottom	Depth (m)	Bottom width (m)	Top Width (m)	Slope
Class -I	1.2	30	42	1:5
Class -II	1.4	40	54	1:5
Class -III	1.7	50	67	1:5
Class -IV	2	50	70	1:5

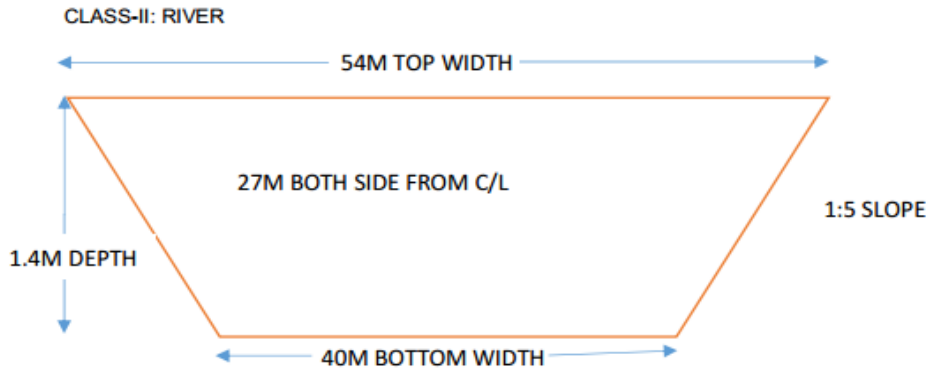
5.2 Calculation of Dredging Quantity The dredge volume calculations were accomplished using the HYPACK dredge volume computation utility. For clarity and ease of calculations, the complete channel profile was divided into segments of 1 km each (enclosed at Annexure-2). The Tin v/s Channel volume with Hypack Standard algorithm was used to calculate the dredge volume. The stretch wise summary of the dredge volume for a different class of fairway is as follows:-

1) 30m x 1.2m with side slope 1:5, along the deepest route.



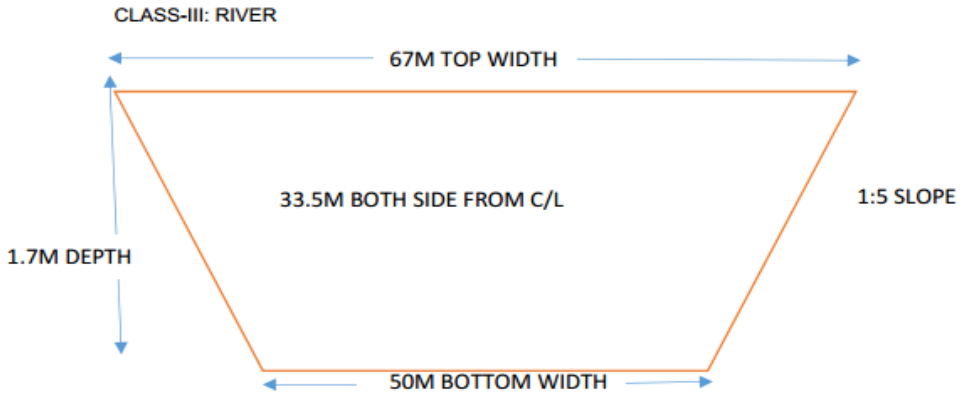
CLASS - I											
Chainage (km)		**Observed**					**Reduced w.r.t Sounding Datum**				
From	**To**	**Min. Depth (m)**	**Max. Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (Cu.m)**	**Cumulative Drg. Qty. (cu.m)**	**Min. Depth (m)**	**Max. Depth (m)**	**Length of Shoal (m)**	**Dredging Qty (Cu.m)**	**Cumulative Drg. Qty. (cu.m)**
0	25	0.0	4.6	5,600.00	2,35,623.97	2,35,623.97	-0.3	3.9	19,500.00	8,03,574.98	8,03,574.98
25	50	0.0	3.8	5,800.00	2,56,884.11	4,92,508.08	-0.3	3.0	19,600.00	8,72,996.87	16,76,571.85
50	75	0.5	4.6	5,550.00	2,34,432.66	7,26,940.74	-0.3	3.0	23,200.00	11,05,050.22	27,81,622.07
75	100	0.0	4.8	6,700.00	2,94,759.51	10,21,700.25	-0.3	4.6	10,700.00	4,76,449.60	32,58,071.67
100	125	0.0	5.2	5,550.00	2,49,161.01	12,70,861.26	-0.2	4.8	7,250.00	2,97,655.10	35,55,726.77
125	150	0.0	5.0	6,500.00	2,86,795.64	15,57,656.90	0.2	5.2	6,600.00	2,68,668.49	38,24,395.26
150	175	0.0	6.2	5,300.00	2,30,326.84	17,87,983.74	-0.1	6.0	9,200.00	3,82,976.91	42,07,372.17
175	200	0.0	7.0	6,550.00	2,89,501.69	20,77,485.43	-0.2	6.8	7,900.00	3,24,471.92	45,31,844.09
200	225	0.0	5.4	5,050.00	2,25,931.43	23,03,416.86	-0.3	5.3	7,600.00	3,14,166.06	48,46,010.15
225	250	0.0	5.6	5,450.00	2,27,800.63	25,31,217.49	0.2	6.3	3,700.00	1,39,061.21	49,85,071.36
250	275	0.0	4.3	4,800.00	1,98,224.11	27,29,441.60	0.2	5.0	2,150.00	73,797.37	50,58,868.73
275	300	0.0	4.2	4,700.00	1,98,232.84	29,27,674.44	0.2	4.4	4,050.00	1,52,879.99	52,11,748.72
300	325	0.0	6.5	3,800.00	1,50,417.90	30,78,092.34	-0.3	6.2	6,700.00	2,68,020.09	54,79,768.81
325	350	0.0	4.7	3,800.00	1,64,182.36	32,42,274.70	-0.3	4.5	6,950.00	3,01,318.13	57,81,086.94
350	375	0.0	4.8	5,300.00	2,00,870.65	34,43,145.35	-0.3	4.4	9,450.00	3,50,338.31	61,31,425.25
375	400	0.0	4.2	5,900.00	2,63,607.33	37,06,752.68	-0.3	3.6	12,800.00	5,26,210.75	66,57,636.00
400	425	0.8	3.4	3,500.00	1,47,653.89	38,54,406.57	-0.2	2.8	15,400.00	6,40,626.19	72,98,262.19
425	450	0.8	4.2	5,700.00	2,40,693.88	40,95,100.45	0.2	4.4	10,900.00	4,36,096.45	77,34,358.64
450	475	0.8	3.5	8,800.00	3,18,611.78	44,13,712.23	0.3	3.8	7,000.00	2,30,064.98	79,64,423.62
475	500	0.8	6.5	6,900.00	2,64,448.59	46,78,160.82	-0.3	6.0	18,300.00	7,58,206.88	87,22,630.50
500	514.31	0.0	4.7	4,450.00	1,69,607.38	48,47,768.20	0.4	4.5	5,850.00	2,10,686.67	89,33,317.17

2) 40m x 1.4m with side slope 1:5, along the deepest route.



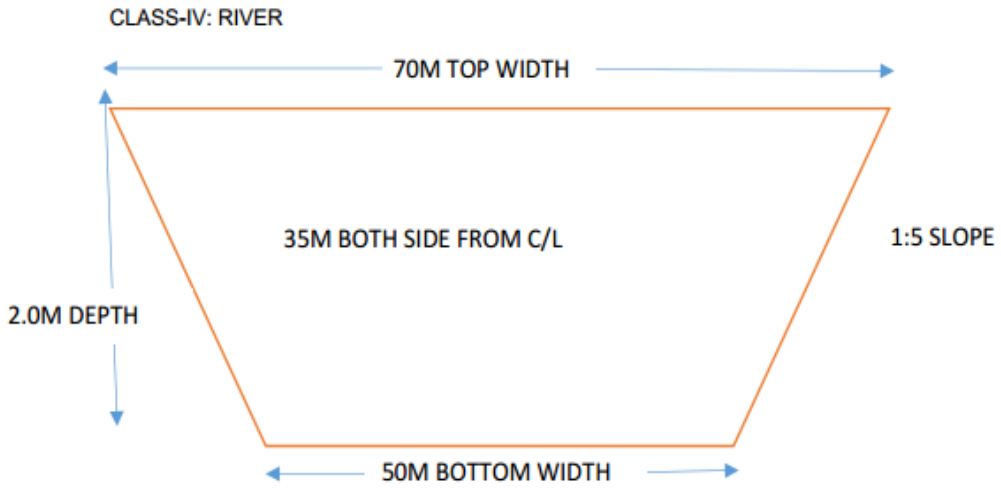
CLASS - II											
Chainage (km)		Observed					Reduced w.r.t Sounding Datum				
From	To	Min. Depth (m)	Max. Depth (m)	Length of Shoal (m)	Dredging Qty (Cu.m)	Cumulative Drg. Qty. (cu.m)	Min. Depth (m)	Max. Depth (m)	Length of Shoal (m)	Dredging Qty (Cu.m)	Cumulative Drg. Qty. (cu.m)
0	25	0.0	4.6	7,900.00	5,18,120.27	5,18,120.27	-0.3	3.9	20,700.00	13,02,414.30	13,02,414.30
25	50	0.0	3.8	8,500.00	5,40,127.04	10,58,247.31	-0.3	3.0	21,000.00	13,90,404.93	26,92,819.23
50	75	0.0	4.6	7,700.00	5,01,746.08	15,59,993.39	-0.3	3.0	23,700.00	16,76,754.63	43,69,573.86
75	100	0.0	4.8	8,700.00	5,93,562.98	21,53,556.37	-0.3	4.6	12,700.00	8,42,141.83	52,11,715.69
100	125	0.0	5.2	8,200.00	5,36,402.82	26,89,959.19	-0.2	4.8	9,800.00	6,01,009.02	58,12,724.71
125	150	0.0	5.0	8,700.00	5,88,624.14	32,78,583.33	0.2	5.2	8,450.00	5,42,014.50	63,54,739.21
150	175	0.0	6.2	8,500.00	5,16,545.72	37,95,129.05	-0.2	6.0	13,700.00	7,41,687.80	70,96,427.01
175	200	0.0	7.0	10,000.00	5,88,051.68	43,83,180.73	-0.3	6.8	10,800.00	6,39,820.54	77,36,247.55
200	225	0.0	5.4	7,500.00	4,88,513.00	48,71,693.73	-0.3	5.3	10,300.00	6,23,302.12	83,59,549.67
225	250	0.0	5.6	7,400.00	4,92,207.56	53,63,901.29	0.1	6.3	5,300.00	3,40,376.99	86,99,926.66
250	275	0.0	4.3	6,800.00	4,46,525.11	58,10,426.40	0.1	5.0	3,300.00	2,00,586.00	89,00,512.66
275	300	0.0	4.2	6,600.00	4,46,012.94	62,56,439.34	-0.2	4.4	6,300.00	3,81,589.12	92,82,101.78
300	325	0.0	7.3	5,350.00	3,55,938.37	66,12,377.71	-0.3	7.1	8,400.00	5,31,154.14	98,13,255.92
325	350	0.0	4.7	5,500.00	3,72,986.71	69,85,364.42	-0.3	4.5	9,200.00	5,87,736.48	1,04,00,992.40
350	375	0.0	4.8	7,350.00	4,36,127.45	74,21,491.87	-0.3	4.4	11,050.00	6,47,363.48	1,10,48,355.88
375	400	0.0	4.2	8,600.00	5,34,674.35	79,56,166.22	-0.3	3.6	14,700.00	9,09,860.10	1,19,58,215.98
400	425	0.0	3.4	5,450.00	3,63,989.72	83,20,155.94	-0.3	2.8	18,200.00	11,06,754.68	1,30,64,970.66
425	450	0.0	4.2	8,900.00	5,14,877.78	88,35,033.72	-0.3	4.4	12,900.00	7,95,654.36	1,38,60,625.02
450	475	0.0	3.5	13,200.00	6,35,471.56	94,70,505.28	-0.3	3.8	9,400.00	4,98,257.99	1,43,58,883.01
475	500	0.0	6.5	9,600.00	5,45,122.93	1,00,15,628.21	-0.3	6.0	19,300.00	12,28,170.71	1,55,87,053.72
500	514.31	0.0	4.7	6,000.00	3,30,374.89	1,03,46,003.10	-0.2	4.5	6,700.00	3,76,863.92	1,59,63,917.64

3) 50m x 1.7m with side slope 1:5, along the deepest route.



CLASS - III												
Chainage (km)		Observed					Reduced w.r.t Sounding Datum					
From	To	Min. Depth (m)	Max. Depth (m)	Length of Shoal (m)	Dredging Qty (Cu.m)	Cumulative Drg. Qty. (cu.m)	Min. Depth (m)	Max. Depth (m)	Length of Shoal (m)	Dredging Qty (Cu.m)	Cumulative Drg. Qty. (cu.m)
0	25	0.0	4.6	12,700.00	10,72,002.12	10,72,002.12	-0.3	3.9	22,000.00	20,89,177.60	20,89,177.60
25	50	0.0	3.8	11,900.00	11,02,118.55	21,74,120.67	-0.3	3.0	22,500.00	21,95,056.90	42,84,234.50
50	75	0.0	4.6	10,100.00	10,20,435.89	31,94,556.56	-0.3	3.0	24,300.00	25,25,438.04	68,09,672.54
75	100	0.0	4.8	11,400.00	11,60,186.21	43,54,742.77	-0.3	4.6	16,600.00	14,83,543.49	82,93,216.03
100	125	0.0	5.2	10,600.00	11,05,117.16	54,59,859.93	-0.3	4.8	12,400.00	11,93,467.94	94,86,683.97
125	150	0.0	5.0	12,350.00	11,60,929.60	66,20,789.53	0.2	5.2	11,300.00	10,89,648.41	1,05,76,332.38
150	175	0.0	6.2	15,600.00	10,90,744.09	77,11,533.62	-0.2	6.0	17,400.00	14,00,592.68	1,19,76,925.06
175	200	0.0	7.0	13,300.00	11,57,004.86	88,68,538.48	-0.3	6.8	16,000.00	12,34,725.26	1,32,11,650.32
200	225	0.0	5.4	10,300.00	10,21,022.94	98,89,561.42	-0.3	5.3	12,800.00	12,19,448.74	1,44,31,099.06
225	250	0.0	5.6	12,000.00	10,34,859.66	1,09,24,421.08	0.1	6.3	8,600.00	7,99,505.69	1,52,30,604.75
250	275	0.0	4.3	10,300.00	9,66,402.80	1,18,90,823.88	0.1	5.0	5,600.00	5,50,039.77	1,57,80,644.52
275	300	0.0	4.2	10,200.00	9,71,917.82	1,28,62,741.70	-0.2	4.4	9,000.00	9,00,323.03	1,66,80,967.55
300	325	0.0	7.3	8,200.00	8,17,994.85	1,36,80,736.55	-0.3	7.1	12,200.00	10,52,370.75	1,77,33,338.30
325	350	0.0	4.7	8,400.00	8,32,797.33	1,45,13,533.88	-0.3	4.5	12,400.00	11,45,665.54	1,88,79,003.84
350	375	0.0	4.8	11,800.00	9,26,856.37	1,54,40,390.25	-0.3	4.4	13,800.00	12,12,504.91	2,00,91,508.75
375	400	0.0	4.2	11,600.00	10,62,475.73	1,65,02,865.98	-0.3	3.6	18,700.00	15,68,790.47	2,16,60,299.22
400	425	0.0	3.4	8,700.00	8,69,982.46	1,73,72,848.44	-0.3	2.8	21,200.00	18,78,175.18	2,35,38,474.40
425	450	0.0	4.2	12,500.00	10,56,677.33	1,84,29,525.77	-0.3	4.4	15,900.00	14,35,207.34	2,49,73,681.74
450	475	0.0	3.5	18,000.00	12,26,902.78	1,96,56,428.55	-0.3	3.8	13,800.00	10,43,100.08	2,60,16,781.82
475	500	0.0	6.5	13,300.00	10,88,923.24	2,07,45,351.79	-0.3	6.0	20,600.00	19,81,619.65	2,79,98,401.47
500	514.31	0.0	4.7	7,800.00	6,38,353.21	2,13,83,705.00	-0.2	4.5	7,800.00	6,90,936.53	2,86,89,338.00

4) 50m x 2.0m with side slope 1:5, along the deepest route.



CLASS - IV											
Chainage (km)		Observed					Reduced w.r.t Sounding Datum				
From	To	Min. Depth (m)	Max. Depth (m)	Length of Shoal (m)	Dredging Qty (Cu.m)	Cumulative Drg. Qty. (cu.m)	Min. Depth (m)	Max. Depth (m)	Length of Shoal (m)	Dredging Qty (Cu.m)	Cumulative Drg. Qty. (cu.m)
0	25	0.0	4.6	15,400.00	15,09,091.94	15,09,091.94	-0.3	3.9	22,600.00	25,86,107.95	25,86,107.95
25	50	0.0	3.8	15,100.00	15,47,188.54	30,56,280.48	-0.3	3.0	23,700.00	26,97,624.29	52,83,732.24
50	75	0.0	4.6	13,200.00	14,47,950.43	45,04,230.91	-0.3	3.0	24,400.00	30,36,933.19	83,20,665.43
75	100	0.0	4.8	14,800.00	16,07,027.38	61,11,258.29	-0.3	4.6	18,500.00	19,47,446.40	1,02,68,111.83
100	125	0.0	5.2	14,900.00	15,52,154.00	76,63,412.29	-0.3	4.8	17,100.00	16,46,993.46	1,19,15,105.29
125	150	0.0	5.0	16,800.00	16,10,401.67	92,73,813.96	0.2	5.2	14,700.00	15,34,707.80	1,34,49,813.09
150	175	0.0	6.2	18,900.00	15,42,781.80	1,08,16,595.76	-0.2	6.0	20,800.00	18,74,199.38	1,53,24,012.47
175	200	0.0	7.0	16,100.00	16,04,095.59	1,24,20,691.35	-0.3	6.8	17,900.00	16,88,876.85	1,70,12,889.32
200	225	0.0	5.4	12,700.00	14,56,503.06	1,38,77,194.41	-0.3	5.3	15,200.00	16,74,494.40	1,86,87,383.72
225	250	0.0	5.6	14,100.00	14,72,474.36	1,53,49,668.77	0.1	6.3	12,100.00	11,98,951.02	1,98,86,334.74
250	275	0.0	4.3	12,500.00	13,94,096.66	1,67,43,765.43	0.1	5.0	7,500.00	9,00,610.00	2,07,86,944.74
275	300	0.0	4.2	12,600.00	14,04,987.90	1,81,48,753.33	-0.2	4.4	11,700.00	13,31,975.49	2,21,18,920.23
300	325	0.0	7.3	11,700.00	12,19,594.81	1,93,68,348.14	-0.3	7.1	14,200.00	14,73,959.37	2,35,92,879.60
325	350	0.0	4.7	10,800.00	12,33,142.29	2,06,01,490.43	-0.3	4.5	14,300.00	15,80,417.92	2,51,73,297.52
350	375	0.0	4.8	14,900.00	13,43,821.44	2,19,45,311.87	-0.3	4.4	17,300.00	16,49,561.07	2,68,22,858.59
375	400	0.0	4.2	16,100.00	14,91,869.39	2,34,37,181.26	-0.3	3.6	21,000.00	20,34,332.36	2,88,57,190.95
400	425	0.0	3.4	13,000.00	12,98,802.83	2,47,35,984.09	-0.3	2.8	22,900.00	23,76,812.54	3,12,34,003.49
425	450	0.0	4.2	14,400.00	14,91,315.34	2,62,27,299.43	-0.3	4.4	18,400.00	18,96,747.74	3,31,30,751.23
450	475	0.0	3.5	21,100.00	16,78,237.11	2,79,05,536.54	-0.3	3.8	17,200.00	14,80,255.19	3,46,11,006.42
475	500	0.0	6.5	16,000.00	15,15,792.21	2,94,21,328.75	-0.3	6.0	21,500.00	24,62,113.41	3,70,73,119.83
500	514.31	0.0	4.7	8,500.00	8,74,179.21	3,02,95,507.96	-0.2	4.5	8,300.00	9,08,287.27	3,79,81,407.10

SECTION – 6

6.1 **Conclusion**. The river corridor consists of a length of 514.31 km from Kaithi, Ghazipur at Ganga confluence (Ch. 0 km) to Bara Imambara, Lucknow (Ch. 514.31 km). The entire river is non-tidal and one of the tributary of Ganga. The surveyed stretch of Gomti River is utilized by small boat for ferry services and the waterway can be best utilized for cargo transfer and passenger ferry service on improving the depth of existing waterway. There are many cross structures exist in the waterway, which are presently in use. The dredging on the Waterway of Gomti River will improve the depth of the channel for any navigational requirement. The Riverbanks are well connected with the road network and are moderately connected with Railway Network. The road is near parallel on both sides throughout the River stretch.

The 219.01 km of river length is having depth below 1.2 m, 132.36 km of river length is having depth between1.2 m to 1.4 m, 85.25 km of river length is having depth between 1.5 m to 1.7 m and 39.55 km of river length is having depth between 1.8 m to 2.0 m. The length of river having depth more than 2 m is 38.14 km only. The only barrage, i.e. Gomti Barrage is located at Ch. 507.87 km. However, this being an open barrage, no navigational hindrance is perceived. Minimum and maximum horizontal clearance of cross structures are 5.50m and 35.0m respectively. Minimum and maximum vertical clearances of cross structures are 1.8m & 4.60m wrtHFL respectively. Min & max vertical clearance of power cables are 10.5m &20.5m wrt HFL respectively.

There is neither any protected area (Atomic/ Port/ Wildlife/ Research) nor any hindrance exist in the whole waterway. Information gather from local populace that the availability of maximum water is only during monsoon season. There is no cargo, passenger ferry and tourism facility is available in the river stretch. Both banks of the Gomti River is very much fertile. Cultivation of wheat, mustard, peas, potato and carrot etc. has been noticed during the course of survey. Land along the river is mainly utilized for agricultural purpose. However, in some places, it is also used as residential purposes. The whole river stretch is well connected with the rail and road

networks within 5 to 7 Km. Prominent cities are Ghazipur, Jaunpur, Amethi, Sultanpur, Gosainganj and Lucknow.

Small wooden boats being utilized for ferry services across the river at following locations:- Ch. 1.90 km, Ch. 16.5 km, Ch. 34.2 km, Ch. 34.8 km, Ch. 59.7 km, Ch. 62.8 km, Ch. 79.3 km, Ch. 94.4 km, Ch. 102.2 km, Ch. 106.4 km, Ch. 164.8 km, Ch. 176.8 km, Ch. 181.5 km, Ch. 183 km, Ch. 186.5 km, Ch. 204.6 km, Ch. 206.6 km, Ch. 210.4 km, Ch. 214.4 km, Ch. 218 km, Ch. 221.2 km, Ch. 247.2 km, Ch. 255.4 km, Ch. 259.1 km, Ch. 280.5 km, Ch. 284.4 km, Ch. 287.2 km, Ch. 331.1 km, Ch. 334.6 km, Ch. 336.1 km, Ch. 352.9 km, Ch. 384 km, Ch. 393.1 km, Ch. 443.2 km and Ch. 448.7 km. There is no water sport facility available in the whole river portion. Tourism facilities are present at Jaunpur and Lucknow. Cities along the river viz. Ghazipur, Jaunpur, Sultanpur& Lucknow, etc. are well connected with both rail and road networks.

There is no terminal present in this waterway. However, development of terminals at Lucknow (Ch. 505 km), Sultanpur (Ch. 231.5 km), Jaunpur (Ch. 98 km) and Rajwari, Ghazipur (Ch. 3.6 km) seems viable. These places are well connected by rail and road networks. These proposed terminals will cater for passenger as well as cargo movement throughout the river.

The feasibility survey were carried out at river Gomti (length 514.31 km) from Ganga confluence at Kaithi, Ghazipur to Bara Imambara, Lucknow. The Dredging quantity being tabulated below: -.

Class	Dredging. Qty. (cu.m)
Class I	89,33,317.17
Class II	1,59,63,917.64
Class III	2,86,89,338.00
Class IV	3,79,81,407.10

Consultant Recommendation

- Average width of the river is 80-110 mtr.
- Average discharge of the river is 201 cu.m/s
- Total 66 (64+02 Pipa pul) numbers of bridges were found and 54 no's of bridges required to be modified for development as Class-I waterway.
- UP State Agro, fertilizers & chemical, plastic and carpet industries are prominent at Jaunpur city large scale industries are Hindustan Aeronautics Limited, Scooter India Ltd and Tata Motors Ltd at Lucknow.
- No cargo movement or IWT operation is observed along the entire stretch.
- Ferry ghats are available at about 35 location for cross-river ferry services, using small wooden boats. Major cities are Ghazipur, Kaithi, Jaunpur, Sultanpur & Lucknow.
- The dredging required is as follow.

Class	Reduced (Cu.m)
Class-I	89,33,317.17

Conclusion of feasibility study.

1. U.P. Govt. had done some dredging and beautification works for tourism around Lucknow.

2. Assessment of tourism aspect and proposal from the State Govt. is recommended.