

COVER PAGE

**GHAGHRA RIVER – FINAL REPORT ON
DETAILED HYDROGRAPHIC SURVEYS
FROM FAIZABAD (UTTAR PRADESH) TO CHHAPRA (BIHAR)
NATIONAL WATERWAY NO-40
LENGTH 353.6 KM**

SURVEY PERIOD: FROM 25 APRIL 2016 TO 18 JULY 2016

CLIENT

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DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



ACKNOWLEDGEMENT:-

Global Marine Infratech Pvt Limited, Bhubaneswar(GMI) express their gratitude to **Shri Amitabh Verma, IAS, Chairman** for spending their valuable time and guidance for completing this Project of detailed hydrographic survey. GMI conveys their thanks to **Shri Pravir Pandey, Vice Chairman**. GMI also conveys our sincere thanks to various Government departments viz. **Govt. of Uttar Pradesh, Bihar and CWC Department** etc. for providing the data utilised in this report.

Shri Shrikant Mahiyaria, Member (Traffic) IWAI for his guidance and inspiration for this project survey. GMI is kind enough to thank **Cdr. P.K. Srivastava, Hydrographic Chief** and **Shri Rajiv Singhal, A.H.S.** for thier invaluable support and suggestions provided throughout the survey period. GMI is pleased to place on record our sincere thanks to other staff and officers of IWAI for their excellent support and co-operation throughout the survey period.



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List of abbreviations:-

- CD:** Chart Datum
- HFL:** High Flood Line
- MSL:** Mean Sea Level
- BM:** Bench Mark
- BS:** Bottom Sample
- WS:** Water Sample
- CM:** Current Meter

SALIENT FEATURES AT A GLANCE

<i>Particulars</i>		<i>Details</i>								
1.	Name of Consultant	Global Marine Infratech Pvt. Ltd.								
2.	Region number & State(s)	Category 1 , U.P. and Bihar								
3.	Waterway stretch, NW # (from.... to; total length)	Faizabad (Uttar Pradesh) to Chhapra (Bihar)								
4.	Navigability status	Ferry services are available in Ghaghra River, Partly Navigable.								
a)	Tidal & non tidal portions (from... to, length, average tidal variation)	There are no Tidal influence or portions found in this zone of River.								
b)	LAD status (w.r.t. CD)									
	i) Survey period (25 th Apr to 18 th July, 2016)									
	ii) < 1.2 m (km)	0– 50 km	50– 100 km	100– 150 km	150– 200 km	200– 250 km	250– 300km	300– 353.3 km	Total	
	iii) 1.2 m to 1.4 m (km)	2.3	26.4	8.4	21.0	2.5	0.1	0.1	60.8	
	iv) 1.5 m to 1.7 m (km)	2.8	5.8	9.1	3.7	5.0	0.1	0.1	26.5	
	v) 1.8 m to 2.0 m (km)	3.2	4.3	4.2	7.6	4.9	4.3	5.1	33.7	
	vi) > 2.0 m (km)	1.9	2.6	2.3	1.7	4.0	5.6	4.0	22.0	
		40.5	11.6	29.7	21.3	36.5	40.0	30.7	210.3	



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



.	Particulars	Details								
		Total	50.6	50.7	53.8	55.3	52.9	50.0	40.0	353.3
c)	Cross structures i) Dams, weirs, barrages etc (total number; with navigation locks or not) ii) Bridges, Power cables etc [total number; range of horizontal and vertical clearances]	i) No Dams, weirs or Barrages are found in this zone of river. ii) Total number of Cross over Bridges – Seventeen (17) a) Total number of Rail Bridge- Four(04) b) Total number of RCC Road bridges – Ten (10) c) Total number of Temporary Bridges –Three (03) iii) Total number of HTL Crossing – seven (07) The details of the vertical and Horizontal Clearance for above structures is provide in Para 2.18 and 2.20 of this report								
d)	Avg. discharge & no. of days	Avg. Discharge – 362.578 Cu.m for 36 days								
e)	Slope (1 in)	Slope in 1 : 7								
5.	Traffic potential	No Present Traffic is available. However Huge potential for cargo traffic is foresee considering its length and connectivity with the industrial hubs.								
a)	Present IWT operations, ferry services, tourism, cargo, if any	Gola Ghat, Dohari Ghat, Guptar Ghat , Sarwa ghat, and Naya ghat Ferry services are available at Chainage 187.5,168,352.92,302,and 342 respectively.								
b)	Important industries within 50 km	Cement, Wood, oil Refinery, Petro Chemical industries found here.								
c)	Distance of Rail & Road from Industry	The Distance of Rail and Road from industry is near about 20km.								
6.	Consultant's recommendation for going ahead with TEF / DPR preparation	1)Recommend for Dredging								
7.	Any other information/ comment									

Date:

(Signature)

Name of Consultant



Section-1: Introductory Considerations

1.1 River course background Information, Historical Information, Origin, End.(one page)

Karnali or **Ghaghara** is a perennial trans-boundary river originating on the Tibetan Plateau near Lake Mansarovar. It cuts through the Himalayas in Nepal and joins the Sarda River at Brahmaghat in India. Together they form the Ghaghra River, a major left bank tributary of the Ganges. With a length of 507 kilometres (315 mi) it is the largest river in Nepal. The total length of Ghaghara River up to its confluence with the Ganges at Doriganj in Bihar is 1,080 kilometres (670 mi). It is the largest tributary of the Ganges by volume and the second longest tributary of the Ganges by length after Yamuna. It rises in the southern slopes of the Himalayas in Tibet, in the glaciers of Mapchachungo, at an elevation of about 3,962 metres (12,999 ft) above sea level. The river flows south through one of the most remote and least explored areas of Nepal as the Karnali River. The 202-kilometre (126 mi) Seti River drains the western part of the catchment and joins the Karnali River in Doti District north of Dundras hill. Another tributary, the 264-kilometre (164 mi) long Bheri, rises in the western part of Dhaulagiri Himalaya and drains the eastern part of the catchment, meeting the Karnali near Kuineghat in Surkhet. Cutting southward across the Siwalik Hills, it splits into two branches, the Geruwa on the left and Kauriala on the right near Chisapani to rejoin south of the Indian border and form the proper Ghaghara. Other tributaries originating in Nepal are the West Rapti, the Kali (or Mahakali) and the little Gandak. Another important tributary of Ghaghara in India is the Sarayu river, famous for the location of Ayodhya, the capital of Dasarath's Kingdom. It flows southeast through Uttar Pradesh and Bihar states to join the Ganges downstream of the town of Chhapra, after a course of 1,080 kilometres (670 mi). Sarayu river is stated to be synonymous with the modern Ghaghara river or as a tributary of it.

In India, the administrative districts in the Ghaghra catchment are Ambedkarnagar, Azamgarh, Barabanki, Basti, Ballia, Bahraich, Deoria, Faizabad, Gonda, Gorakhpur, Sant Kabir Nagar, Jaunpur, Kheri, Lakhimpur, Sitapur of Uttar Pradesh and Siwan district in Bihar.

Important towns in India include Akabarpur, Ayodhya Faizabad, Bahraich, Barabanki, Basti, Deoria, Barhalganj, Gonda, Gorakhpur, Khaililabad, Sitapur, Siddharthnagar, Saint Kabir Nagar, Kamhariya, Rajesultanpur and Tanda in Uttar Pradesh and Chapra, Siwan, and Sonapur in Bihar.

In India, water is diverted from the Karnali River at the Girijapur Barrage into the Sarda Sahayak Irrigation Scheme and the Saryu Nahar Irrigation Scheme, which have command areas of 20,000 square kilometres (7,700 sq mi) and 12,000 square kilometres (4,600 sq mi) respectively. The combined annual irrigation demand of these two schemes is approximately 10,000 million cubic metres (8,100,000 acre-ft).

The Sarda Sahayak Irrigation Project uses the combined flows from the rivers Ghaghara and Sarda in the Girija Barrage built across the Ghaghara river below a catchment area of 45,500 square kilometres (17,600 sq mi). This barrage is situated about 9 kilometres (6 mi) downstream of Khatria Ghat Rly station and 16 kilometres (10 mi) from the international border to Nepal in Bahraich district. It is linked to the Lower Sarda Barrage built across the Sarda river, with a catchment area of 17,818 square kilometres (6,880 sq mi), about 28 kilometres (17 mi) northeast of Lakhimpur Kheri Rly station in Lakhimpur Kheri district. The link canal from Girija Barrage to the Sarda Barrage is 28 kilometres (17 mi) long and is designed to divert a discharge of 480 cubic metres per second (17,000 cu ft/s) from Gandak to Sarda river. The feeder channel taking off from the Lower Sarda Barrage is 258.8 kilometres (160.8 mi) long, feeds the five branches of Dariyabad, Barabani, Haideganj, Raei Bareil and Purva, and is designed to carry a discharge of 765 cubic metres per second (27,000 cu ft/s). The Sarda Sahayak feeder channel meets the Haidergarh branch at 171 kilometres (106 mi) and Raibareli branch at 187 kilometres (116 mi). The entire canal system is considered the largest in Asia and designed to provide irrigation to a Culturalable Command Area (CCA) of 20,000 square kilometres (7,700 sq mi) covering 14 districts in 168 blocks with a gross command area of 40,000 square kilometres (15,000 sq mi).

On account of high silt flows during the flood season, Sarda Sahayak supplies (from Karnali) are suspended for 100 days between June and October, when the Lower Sarda Canal (feeder canal) draws water from the Sarda River, which is then flooded.

In the past the Karnali River was considered to be attractive for the development of navigation right from the Indo-Nepal border till the confluence of this river and the Ganges. The lower reach of this river called the Ghaghra in India was used in the past for navigation by steamers. Apart from in the foothills of the Himalayas where most of the streams were simply fast-moving water throughout the greater part of the year and not navigable when flowing rapidly, most of the rivers with steadier currents had boats on them. The Ganges, the Ghaghra, the Yamuna, the Gomti, the Sharda and the Rapti were the most important navigable rivers in the Northwestern provinces and Oudh.





Many trade items such as timber, food grains, sugar, indigo, cotton seed, poppy seed and mustard seed were transported by boats. April, May and June were the most suitable months and were a busy trading period. Different kinds of cargo boats were used on the Ganges, the smaller ones were known as palwars, while the larger ones were known as katris. The latter half of the 19th century when the railways came into existence, the significance of waterways as inland trade routes declined, as the railways were faster and safer. With the exception of eastern parts of Bengal where abundance of water in the natural network of channels sustained and continued to provide a suitable mode of transport of goods and people, the railways had almost entirely replaced the waterways as communication lines throughout the country by the end of the 19th century.

The possibilities for further extension of the steamer services to the north had also been explored in the past. The Central Water and Power Commission of the Government of India had carried out hydrographical survey of the Karnali River from the Bahramghat to the confluence of this river and the Ganges a distance of 446 kilometres (277 mi). This survey was done in the years 1943–53 to explore the possibility of improvement and extension of navigation on this river by powered crafts. These surveys revealed that there were only 5 shoals under 90 centimetres (35 in) at low water between Burhaj and Bahramghat a distance of about 300 kilometres (190 mi). The minimum depth was 75 centimetres (30 in). These depths were available without any river conservancy works. All other conditions of navigable channel such as the width and current of flow etc. were also found to be very favourable. The low water stage in this river is only for a short duration. There is a great urgency to carry out detailed study of the Karnali river to develop modern inland waterway by applying various channel improvement technologies.

1.2 Tributaries/Network of rivers/Basin

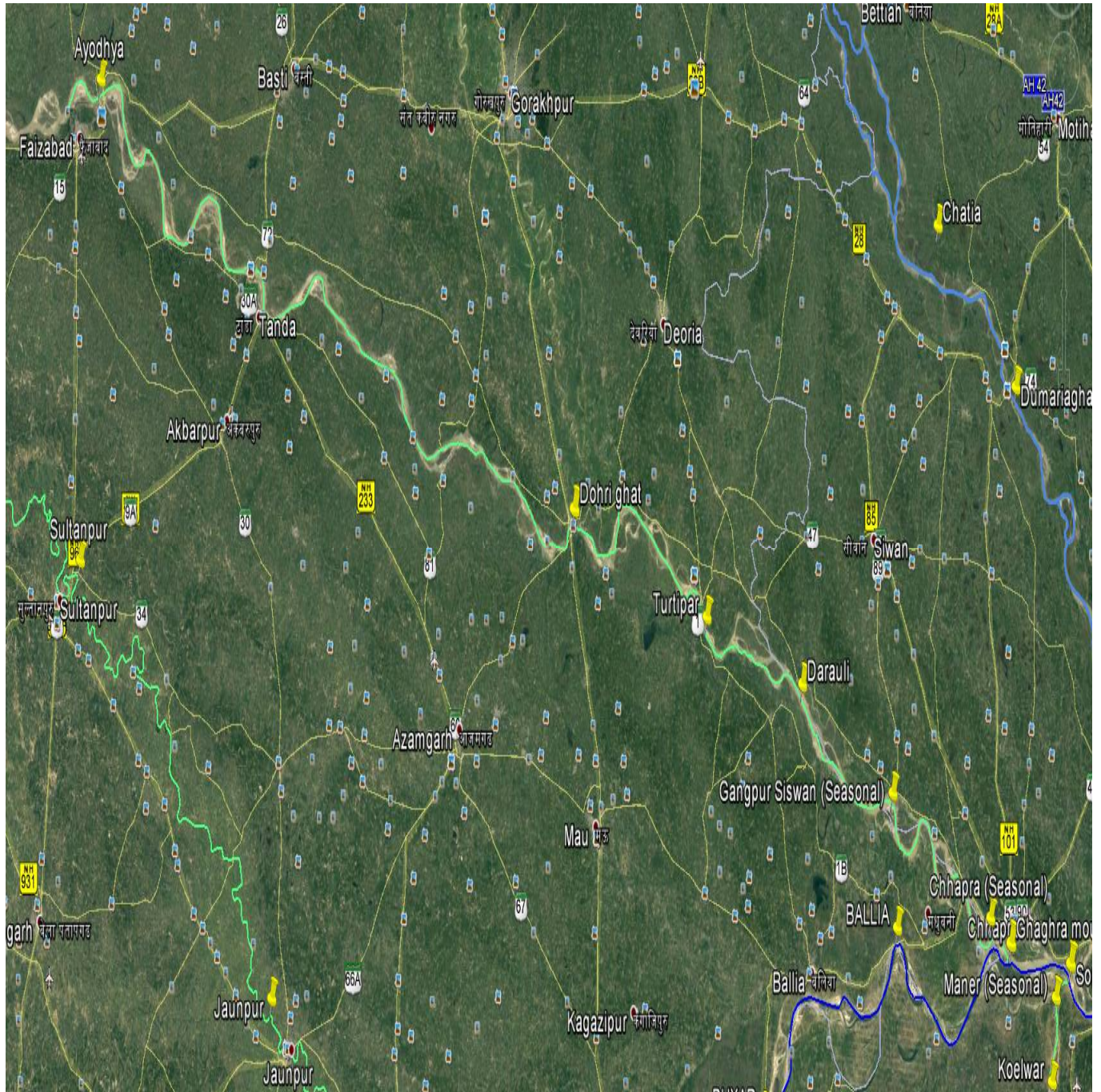
Left- Bheri, Sarju, Kuwana, Rapti, Little Gandak
Right-Seti, Dahawar, Sarda

1.3 State /District through which river passes

It flows southeast through Uttar Pradesh

and Bihar states to join the Ganges downstream of the town of Chhapra in Bihar .

1.4 Google Image of Ghaghra River Route.





1.5 Scope of work

M/s. Global Marine Infratech Pvt Ltd was awarded work order No. IWAI/HY/3NW/PH-I/2016/1 dated 05.04.2016 to carryout detailed Hydrographic Survey in river Ghaghra.

Awarded stretch:

353.6 kms length of the river from Faizabad at Lat 26°47'51"N, Lon 82°06'46"E to Ghaghra and Ganga river confluence at Manjhi Ghat Lat 25°44'13"N, Lon 84°42'03"E.

- Hydrographic Survey in river Ghaghra is to be conducted for 500 m width.
- Continuous soundings are to be taken by running the sounding boat at constant speed on the cross section, so as to get smooth contours. Intermediate line is to be run at bends, if the line spacing is more than 200 m.
- Shallow area depths to be measured with the help of Total Station/DGPS/RTK and required to submit csv files.
- Surveys in non-approachable area are to be informed and joint inspection to be carried out.
- The soundings are to be reduced to the chart datum/sounding datum established at every gauge stations.
- The current velocity and discharge at every 10 KM interval shall be observed once in a day during the survey period. Current velocity and discharge at every 10 KM interval are to be measured only once while carrying out survey in the river.
- Current meter measurement should be taken at 1m below water surface or 0.5d (if depth is 1 m), where d is measured depth of water and values indicated in the report along with position.
- Measurement of current velocity is to be measured for at least 15 minutes or as per listed calibration period of the equipment.
- Water and bottom sample are to be collected from the deepest route at every 10 KM interval.
- Collection of existing cargo details through proposed waterway, road and rail.
- Type of crops in different seasons and industries along the waterway.
- Historical and tourist places.
- Obstructions to the navigation and non-approachable areas.
- Photographs of all cross structures, gauges, obstructions- annotated with locations and chainage.
- Permanent structures located within this corridor.
- Collection of Topographical features.
- Survey chart is to be prepared on a scale of 1:1000 for Waterways width less than 100m. On a scale of 1:2000 for waterways width between 100m to 300m. On a scale of 1:5000 for waterways width between 300m to 500m and on a scale of 1:10000 for waterways width more than 500m.
- Contours of 0m, 1m, 2m, 5m, 10m are to be indicated in the charts with respect to chart datum/sounding datum.
- Dredging quantity is to be indicated in the report for per km longitudinal length of the canal/river.



Section-2: Methodology Adopted to undertake Study

2.1 Methodology Adopted in brief including Resources and Equipment used and calibration (2 pages).

The Bathymetric survey of river Ghaghrawas commenced on **25th Apr, 2016** and completed on **18th July, 2016**. The area intended to be surveyed has been completely sounded as per the required specifications and availability of depths for movement of depth. The bathymetric survey was carried out using a small fiber boat. The sounding of the River was carried out at a cross section line spacing of 200 metres.

The survey was carried on WGS 84 Datum. The projection used was Transverse Mercator and the grid used was Universe Transverse Mercator Grid (Zone 44). Differential GPS signal corrections for the DGPS system onboard the vessel, were automatically obtained from the nearest DGLL Beacon (i.e. Krishnapatnam Port Light House) throughout the survey area.

HYPACK Ver. 2012 Hydrographic Survey Software developed by Coastal Oceanographical INC., USA was used for the data logging during the survey and for data processing thereafter.

The data logging during the survey was achieved by interfacing both the echo sounder and DGPS Receiver to the HYPACK software on a laptop/PC carried onboard the sounding boat. The entire system was supported by battery power and backed by an onboard generator supply. The position and depth data were logged in continuously during the survey, once every 500 millisecond. All digitally logged data were automatically stored in the assigned files. No significant difficulties were experienced in the operation of the digital surveying system during the survey.

Horizontal Control and Vertical Clearance.

The survey boat used for the survey operations throughout the project was positioned by the Differential Global Positioning System (DGPS). Differential corrections were received continuously from the nearest existing DGLL beacon which is capable of transmitting corrections up to range of 250 kilometres. The Hemisphere DGPS Receiver was used for positioning of the depths.

The position correction details were received from the nearest DGLL Beacon at Krishnapatnam Port and position data were found to be in differential mode and in order.



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



2.2 Description of Bench Marks (B.M.) / authentic Reference Level used, with photographs.

SI NO 40: GHAGHRA RIVER		
40/1	63 J	GTS Standard Bench Mark 1904 (Type P) at Fyzabad. It is situated in the compound of and east of PWD office, 23.9 metres and 28.8 metres respectively from North and south corners of same and 15.8 metres central arch of the building.
40/2	63 J	BOM on brick along N. Edge of brick flooring around Hanumanji temple on S edge of main road from Lucknow to Akbarpur in Fyzabad Town.
40/3	63 J	GTS o BM on brick on second step from bottom of stairs of front or North verandah of post and Telegraph office, Fyzabad.
40/4	63 J	(Type B) at Sarai Rasi. Embedded 0.6 metre below ground level, W of Sarai Rasi Village, 2.7 metres south-east of milestone No 7 from Fyzabad, 6.7 metres from centre of Fyzabad-Sarai Rasi Road and 2.2 metres from an indicating pillar which bears 160 dg from the bench mark
40/5	63 J	B.OM near SE. Corner of an indicating pillar to type B bench mark at sarai Rasi
40/6	63 J	B o M on Cement platform of an octagonal well, 26.9 metres south of SW corner of a masjid (Temporary mode) and about 40 metres N of cost - track may a bhikhi to tanda.
40/7	63 J	B o M on cement on F seat of N or front gate to Jeya Lal's garden on S Edge of cart-track from Maya bhikhi to Tonda.
40/8	63 J	B o M on cement, 1.2 metres from W. corner of the outer plinth of a masjid, 18.3 metres south of the centre of the cart-track from Maya bhikhi to Tanda, about 60 metres south -east of Rajghat toll chowki in Tanda Town
40/9	63 J	Standard Bench-mark (Type M) at Basti. It is situated in the compound of ad on W side of the inspection Bungalow. The distances and bearings to the surrounding objects are:- NW corner of the kitchen, attached to the bungalow, 7.3 mt and 84 dg, SW corner of the same, 11.9 mt and 142dg.
40/10	63 J	GTS o BM on top of standard Bench mark (Type M) at Munderwa. It is situated in the compound of PWD inspection bungalow. The distances and bearings of the surrounding objects are:- SE corner of the main building of inspection ungalow, 20 mt and 8 1/2dg SW corner of the same , 17.7mt and 320dg.
40/11	63 N	GTS o BM on top of standard Bench mark (Type M) at Khaliabad. It is sitauted 13.1 mt S of the entrance to S or main veranda of the PWD Inspection Bungalow. The distance and bearings of the surrounding objects are:- SE corner of the main building of the inspection Bungalwo, 16 m and 51 dg; SW corner of the same, 15.9 m and 342 dg.
40/12	63 N	GTS o BM (Type B) at Khalilabad. Interred 0.6 mt below ground level, in the compound of PWD Inspection Bungalow. The distances and bearings of the surrounding objects are:- NE corner of the kitchen, attached to the bungalow, 5.1 mt and 162 1/2 dg, NW corner of the same, 5.8 mt and 244dg; centre of a pakka well, 17.3 mt and 29dg. A masonry reference pillar stands 2.7 m NNE of the bench mark



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



SI NO 40: GHAGHRA RIVER		
40/13	63 N	GTS 1904 Standard bench Mark at Gorakhpur. It is situated in the compound of commissioner's court, W of W face of the building, 45.7 mt and 48.2 mt respectively from NW and Sw corners of it and 30.8 mt from centre of portion.
40/14	63 N	GTS o BM on E parapet of culvert on road to parcel office, E of Gorakhpur Railway station
40/15	63 N	(Type 'M) at Padrauna. Situated in NE corner of the premises of Inspection Bungalow, Padrauna. The bearing and distances to the surrounding objects are:- NE corner of the inspection house, 208dg and 22.0 metres; NW corner of kitchen house, 161dg and 35.4 metres.
40/16	72 B	BoM on the brick floor of W veranda, under the 3rd window from NW corner along W. Flank of upper Primary School in Siswa-Buzurg area. The school is about 61 metres E. from the main Mairwa-Darauli Kachcha Road.
40/17	72 B	(Type M) at Darauli. Situated in NW corner of the compund of the Dak Bungalow. The distances and bearings to the surrounding objects are:- NE corner of the garage, 26.8 metres and 296dg; NW corner of the dak bungalow, 21.6 metres and 186dg; NE corner of the dak bungalow, 28.0 metres and 171dg.
40/18	72 C	B o M on brick on is portion of the parapet wall of Mahadev Rai's Wall, 12.2 metres NE of the centre of the Chapra - Darauli Road and 800 metres SW of Bishunpura Village. Subhata vilalge lies about 800 metres SW of the benchmark
40/19	72 C	(Type B) at Siswan. Consists of a brass bolt, 2.5 centimetres in diameter set in cement concrete interred 10.6 metre below ground level in SW corner of the compound of district Board Inspection Bungalow. Situated 23.2 metres WSW from the SW corner of inspectin Bungalow and 18.6 metres SSE from the Se corner of the Middle School Building. A reference pillar bearing the inscription reference pillor on its E face stands N of the bench mark B type BM adjoining to it.
40/20	72 C	(Type B) at Manjhi. Consists of a brass rod 2.5 centimetres in diameter fixed in cement concrete interred about 0.6 metre below ground level. Situated in the compound of Inspetion Bungalow of O I Railway, 11.9 metres N. from the centre of a pakka well and 36.3 metres N from the N. corner of Inspection bungalow. A reference pillar bearing the inscription B type BM on its SE. face stands adjoining and SW of the bench mark
40/21		(Type M) at Chapra. Situated 45.7 metres NW of a pakka well north of the circuit house and 55.2 metres NNW of the NW corner of railing of the Veranda surrounding the circuit House. The distance and beaing to the surrounding objects are:- NW corner of the kitchen house, 51.5 metre and 128 dg; NW corner of the plinth of the circuit house, 55.2 metres and 179dg; W. Pillar of the main entrance to the circuit house about 143 metres and 30dg



DETAILED HYDROGRAPHIC SURVEYS IN RIVER GHAGHRA (NW-40)



General Station Characteristics		Water Level	Discharge	X-Section	Sediment
Station Characteristics		Establishment Details		General Characteristics	Data Handling
Station Characteristics		FF/WaterQuality/AWS Details			
General Details					
Station Name	Ayodhya				
Station Code	GGU00M9				
Operational Status	Existing				
Activity	HO/FF				
Station Type (Current)	GDSQ				
Tehsil/Taluk	--				
District	--				
State	Uttar Pradesh				
Latitude (DMS)	26°49'08"		N		
Longitude (DMS)	82°12'21"		E		
Altitude (m)	--				
Distance to Outlet (km)	--				
Topo Sheet No.	--				
Catchment Area (sq km)	80889.00				
Basin Details					
Basin	Ganga				
Independent River	Ganga				
Tributary	Ghaghra				
		Nearest GTS B.M	--		
		Musto Type B.M	--		
		Musto Type B.M Value(m)	196.070		
		Type of Bed	Rocky		
		River Width(m)	--		
		Type of River	Perennial		
		Station Bank	Right		
		Method of Discharge Obs.	Bridge		
		Zero of Gauge(m)	85.00		
		U/S GaugeLine Dist.(m)	--		
		D/S GaugeLine Dist.(m)	--		
		River Origin Location	--		
		Station History	--		

General Station Characteristics		Water Level	Discharge	X-Section	Sediment
Station Characteristics		Establishment Details		General Characteristics	Data Handling
Station Characteristics		FF/WaterQuality/AWS Details			
General Details					
Station Name	Turtipar				
Station Code	GGU00F1				
Operational Status	Existing				
Activity	HO/FF				
Station Type (Current)	GDSQ				
Tehsil/Taluk	--				
District	--				
State	Uttar Pradesh				
Latitude (DMS)	26°09'30"		N		
Longitude (DMS)	83°52'04"		E		
Altitude (m)	--				
Distance to Outlet (km)	--				
Topo Sheet No.	--				
Catchment Area (sq km)	113088.00				
Basin Details					
Basin	Ganga				
Independent River	Ganga				
Tributary	Ghaghra				
		Nearest GTS B.M	district board, belthra road		
		Musto Type B.M	--		
		Musto Type B.M Value(m)	66.431		
		Type of Bed	Sandy		
		River Width(m)	--		
		Type of River	Perennial		
		Station Bank	Right		
		Method of Discharge Obs.	Bridge		
		Zero of Gauge(m)	58.07		
		U/S GaugeLine Dist.(m)	--		
		D/S GaugeLine Dist.(m)	--		
		River Origin Location	--		
		Station History	--		



DETAILED HYDROGRAPHIC SURVEYS IN RIVER GHAGHRA (NW-40)



General Station Characteristics			
Station Characteristics		Establishment Details	
General Details			
Station Name	Darauli	Nearest GTS B.M	darauli dak bunglaw
Station Code	N/A-115	Musto Type B.M	temperary BM
Operational Status	Existing	Musto Type B.M Value(m)	61.7
Activity	HO/FF	Type of Bed	Sandy
Station Type (Current)	G	River Width(m)	--
Tehsil/Taluk	--	Type of River	Perenial
District	--	Station Bank	Left
State	Bihar	Method of Discharge Obs.	--
Latitude (DMS)	26°03'18" N	Zero of Gauge(m)	56.00
Longitude (DMS)	84°08'18" E	U/S GaugeLine Dist.(m)	--
Altitude (m)	--	D/S GaugeLine Dist.(m)	--
Distance to Outlet (km)	--	River Origin Location	--
Topo Sheet No.	--	Station History	--
Catchment Area (sq km)	124730.00		
Basin Details			
Basin	Ganga		
Independent River	Ganga		
Tributary	Ghaghra		

General Station Characteristics			
Station Characteristics		Establishment Details	
General Details			
Station Name	Gangpur Siswan	Nearest GTS B.M	at river bank
Station Code	N/A-124	Musto Type B.M	--
Operational Status	Existing	Musto Type B.M Value(m)	57.985
Activity	HO/FF	Type of Bed	Sandy
Station Type (Current)	G	River Width(m)	--
Tehsil/Taluk	--	Type of River	Non Perenial
District	--	Station Bank	Left
State	Bihar	Method of Discharge Obs.	--
Latitude (DMS)	25°55'13" N	Zero of Gauge(m)	51.00
Longitude (DMS)	84°22'48" E	U/S GaugeLine Dist.(m)	--
Altitude (m)	--	D/S GaugeLine Dist.(m)	--
Distance to Outlet (km)	--	River Origin Location	--
Topo Sheet No.	--	Station History	--
Catchment Area (sq km)	127000.00		
Basin Details			
Basin	Ganga		
Independent River	Ganga		
Tributary	Ghaghra		

General Station Characteristics		Water Level	Discharge	Assessment	Establishment
Station Characteristics		Establishment Details		General Characteristics	FF/WaterQuality/AWS Details
General Details					
Station Name	Chhapra (Makhdumganj)				
Station Code	N/A-113				
Operational Status	Existing				
Activity	HO/FF				
Station Type (Current)	G				
Tehsil/Taluk	--				
District	--				
State	Bihar				
Latitude (DMS)	25°46'20"	N			
Longitude (DMS)	84°38'49"	E			
Altitude (m)	--				
Distance to Outlet (km)	--				
Topo Sheet No.	--				
Catchment Area (sq km)	127825.00				
Basin Details					
Basin	Ganga				
Independent River	Ganga				
Tributary	Chaghra				
Nearest GTS B.M	near gauge site				
Musto Type B.M	TBM				
Musto Type B.M Value(m)	54.796				
Type of Bed	Sandy				
River Width(m)	--				
Type of River	Perennial				
Station Bank	Left				
Method of Discharge Obs.	--				
Zero of Gauge(m)	43.33				
U/S GaugeLine Dist.(m)	--				
D/S GaugeLine Dist.(m)	--				
River Origin Location	--				
Station History	--				



GTS POINT IS INSIDE OF INSPECTION BUNGLOW AT BASTI



GTS POINT IS INSIDE OF PWD OFFICE AT FYZABAD



(Image: TBM POINT) CWC MBM AT AYODHYA NAYA GHAT



(Image: TBM POINT)



(Image: TBM POINT) CWC MBM AT AYODHYA NAYA GHAT



CWC TIDE POLE POINT



(TBM POINT)



(TBM POINT)



CWC POINT ATMAKHDUMGANJNEAR CHAPRA



CWC POINT IS NEAR PURANA DAKKHANA AT BASTI



CWC POINT IS SITUATED IN NAHAR COLONY AT TURTIPAR

2.3 Tidal Influence Zone and tidal variation in different stretches:-

There are no Tidal influences or effects found.

2.4 Methodology to fix Chart Datum/ Sounding Datum:-

IWAI had provided Sounding Datum at CWC Chhapra , CWC Siswan and Ayodhya on Ghaghra River. The same was used to arrive the Sounding Datum values at BM Pillars and at tide gauges.

2.5 Yearly minimum and maximum Water Levels Average of 06 years minimum Water Levels to arrive at Chart Datum (CD) / Sounding Datum (SD):-

Yearly minimum and maximum Water Levels.Average of 06 years minimum Water Levels to be used to arrive at Chart Datum (CD) / Sounding Datum (SD).FSL in case of Canals.10 years minimum and maximum data at Dam, Barrages, Weirs, Anicut, Locks, Aqueducts to be collected. Average of 10 years minimum Water level data is to take as SD. Maximum WL/Full Reservoir Level (MWL/FRL) as HFL. **Ponding limit** of Pond Level / Minimum Draw Down Level (MDDL) is also to be collected / observed / measured.



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



S. NO	R/C	Site Name	River name	CD	Warning Level	Danger Level	HFL	Date	HFL in last 20 yrs.	HFL to adopt
1	Ghaghara	Chhapra (Seasonal)	Ghaghara	43.589	52.680	53.680	54.590	9/3/1982	54.310	54.310
2	Ghaghara	Gangpur Siswan (Seasonal)	Ghaghara	51.851	56.040	57.040	58.010	9/18/1983	57.980	57.980
3	Ghaghara	Darauli	Ghaghara	55.647	59.820	60.820	61.740	8/29/1998	61.740	61.740
4	Ghaghara	Turtipar	Ghaghara	58.743	63.010	64.010	66.000	8/28/1998	66.000	66.000
5	Ghaghara	Ayodhya	Ghaghara	87.925	91.730	92.730	94.010	10/11/2009	94.010	94.010

2.6 Transfer of Sounding Datum table for Tidal Rivers :-

NA

2.7 Table indicating tidal variation at different observation points (say at every 10KM):-

As Tide poles have been erected at every 10 km ,we have observed water level from 06:00 hrs to 18:00 hrs throughout the survey. To find out tidal variation at different observation points (say at every 10 km) ,we have taken the difference between lowest and highest water level reading .

Tide pole #	Chainage (km)	Tidal variation (m)	Remarks
1	352.76	0	Tide data enclosed
2	344.044	0	Tide data enclosed
3	334.788	0	Tide data enclosed
4	320.86	0.05	Tide data enclosed
5	314.84	0.12	Tide data enclosed



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



Tide pole #	Chainage (km)	Tidal variation (m)	Remarks
6	305.708	0.05	Tide data enclosed
7	294.916	0	Tide data enclosed
8	287.494	0	Tide data enclosed
9	276.584	0	Tide data enclosed
10	266.669	0	Tide data enclosed
11	256.872	0.06	Tide data enclosed
12	248.32	0	Tide data enclosed
13	238.095	0	Tide data enclosed
14	229.447	0.02	Tide data enclosed
15	218.782	0	Tide data enclosed
16	209.828	0	Tide data enclosed
17	196.517	0	Tide data enclosed
18	188	0	Tide data enclosed
19	177.874	0	Tide data enclosed
20	166.955	0	Tide data enclosed
21	156.253	0	Tide data enclosed
22	148.594	0	Tide data enclosed
23	137.315	0	Tide data enclosed
24	125.421	0	Tide data enclosed
25	114.594	0.03	Tide data enclosed
26	114.193	0.02	Tide data enclosed
27	104.756	0.02	Tide data enclosed
28	96.55	0	Tide data enclosed
29	74.5	0.02	Tide data enclosed

Tide pole #	Chainage (km)	Tidal variation (m)	Remarks
30	67.926	0.02	Tide data enclosed
31	53.557	0.03	Tide data enclosed
32	43.037	0	Tide data enclosed
33	32.184	0.02	Tide data enclosed
34	20.678	0.05	Tide data enclosed
35	13.881	0.03	Tide data enclosed
36	5.372	0.02	Tide data enclosed

The Data is provided in digital format in Enclosure.

2.8 Salient features of Dam, Barrages, Weirs, Anicut, Locks, Aqueducts etc.:-

There are no Dams, Barrage, weirs, Anicut, Locks, Aqueducts found in this zone of Rivers.

2.9 Description of erected Bench mark Pillars in following format (details of erected BMs with photographs in Annexure):-

BM no.	Location	Chainage (km)	Latitude (N)	Longitude (E)	Easting	Northing	BM Height above MSL (m)	BM Height above SD (m)
1	GUPTTAR GHAT, NEAR LAL HANUMAN TEMPLE	352.76	26°48'04.54112"	82°07'06.19485"	611159.64	2964912.6	95.5	89.206
2	AYODHYA, LAXMAN GHAT, SIDE WALL OF OLD BUILDING	344.044	26°48'21.10303"	82°11'46.07961"	618882.86	2965492.6	96.114	88.082
AYODHYA		343						87.925
3	KAIYANPUR SITARAMPUR	334.788	26°48'34.07782"	82°16'59.11974"	627522.11	2965976.2	92.854	86.905



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM no.	Location	Chainage (km)	Latitude (N)	Longitude (E)	Easting	Northing	BM Height above MSL (m)	BM Height above SD (m)
	INSIDE SCHOOL CAMPUS							
4	ARJUNPURVILLAGE	320.86	26°44'59.45587"	82°20'37.85841"	633631.38	2959434.6	93.532	85.114
5	PUREMOTIRAM VILLAGE	314.84	26°42'31.15054"	82°23'32.08166"	638494.22	2954922.9	90.852	84.356
6	UNIAR GHAT(FOR BASTI TERMINAL)	305.708	26°38'46.84042"	82°25'57.99383"	642604.08	2948065.4	89.273	83.114
7	CHANDPUR,INSIDE PRIMARY SCHOOL CAMPUS	294.916	26°41'37.13389"	82°31'15.74747"	651327.83	2953407.2	87.204	81.702
8	KARMI,GOSAIN	287.494	26°38'15.55738"	82°34'30.27113"	656781.03	2947269.6	87.211	80.786
9	RAIPUR BRIDGE NH	276.584	26°36'24.22875"	82°38'20.06335"	663179.66	2943923.6	88.671	79.322
10	DUHIYA(RASHULPUR,MUBARAKPUR)	266.669	26°32'37.15289"	82°41'34.94465"	668662.88	2937006.1	84.815	78.015
11	NAURANIRAMPUR	256.872	26°33'59.50712"	82°47'17.49443"	678108.55	2939669.2	86.087	76.733
12	VANGINIZAMPUR	248.32	26°33'14.60475"	82°49'58.83246"	682593.03	2938350.5	84.073	75.648
13	CHODASAMPUR	238.095	26°29'52.83810"	82°55'19.97970"	691574.38	2932271.4	82.839	74.275
14	RAMBAG,NEAR RAMBABA TEMPLE	229.447	26°28'07.29499"	83°00'13.43506"	699751.11	2929147.5	82.179	73.151
15	JAINPUR	218.782	26°24'07.32478"	83°04'11.60805"	706467.04	2921866.7	77.984	71.791
16	ARAZIPAHARPUR	209.828	26°21'06.22722"	83°09'02.67702"	714627.15	2916425.3	77.341	70.745
17	RATANPUR	196.517	26°22'40.02122"	83°16'29.10391"	726955.05	2919524.4	78.949	68.967



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM no.	Location	Chainage (km)	Latitude (N)	Longitude (E)	Easting	Northing	BM Height above MSL (m)	BM Height above SD (m)
18	DUCK BANGLA GOLABAZAR	188	26°20'57.91845"	83°20'50.08108"	734247.47	2916511.5	76.793	67.817
19	BELAPUR SHIV TEMPLE	177.874	26°16'58.84429"	83°25'30.89155"	742172.88	2909296.7	75.325	66.522
20	DOHARIGHAT	166.955	26°16'30.42991"	83°30'33.07578"	750574.9	2908582.1	71.411	65.045
21	RASHULPUR, NEAR HANDPUMP	156.253	26°13'48.70878"	83°35'14.31690"	758479.15	2903757.7	72.233	63.711
22	KHARATIDAVA, NEAR SHIV TEMPLE	148.594	26°16'20.12789"	83°37'50.61283"	762723.61	2908506.2	70.24	62.822
23	NEAR SHIV TEMPLE, AJAYPUR RIVER EDGE	137.315	26°16'13.57301"	83°43'49.91245"	772699.72	2908511.1	67.471	61.449
24	NAGPUR VILLAGE	125.421	26°12'55.63177"	83°50'00.56170"	783120.59	2902638.5	66.344	59.894
TURTIPUR								58.743
25	RAILWAY BRIDGE TURTIPAR, MUJOUNA GAWN TEMPLE	114.594	26°08'28.15576"	83°52'09.25461"	786876.42	2894482.4	66.169	58.577
26	DUHA BIHARA VILLAGE,	114.193	26°07'02.04940"	83°57'31.40466"	795888.73	2892032.2	66.292	57.633
27	KATHADA VILLAGE	104.756	26°05'51.69438"	84°01'51.83769"	203040.17	2889889.3	65.719	56.893
28	DARALIGHTAT	96.55	26°04'14.91739"	84°08'06.69344"	213395.06	2886676.4	61.31	55.793
DAURLI		83.373						55.647
29	TURTIPUR BRIDGE	74.5	26°01'21.47672"	84°14'07.76229"	223320.79	2881120.2	61.928	54.681
30	NARHAN VILLAGE	67.926	25°58'33.83079"	84°15'05.34647"	224813.82	2875925.5	60.368	53.945



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM no.	Location	Chainage (km)	Latitude (N)	Longitude (E)	Easting	Northing	BM Height above MSL (m)	BM Height above SD (m)
31	GAMHARITULA,SI SWAN	53.557	25°56'37.85677"	84°21'23.16224"	235254.05	2872138.8	58.497	52.288
CWC SISWA N		50.78	25°56'28.78719"	84°23'26.48961"			57.985	51.851
32	SHEOPUR VILLAGE, PRIMARY SCHOOL COMPOUND	43.037	25°52'34.94688"	84°24'35.98928"	240472.75	2864554.4	56.872	51.613
33	CHOOTFLKIRAI VILLAGE,NEAR RAMJANKI TEMPLE	32.184	25°53'26.32354"	84°29'38.83784"	248935.95	2865972	58.74	48.514
34	MEHADIGANJ VILLAGE,NEAR SHIV TEMPLE	20.678	25°50'30.02681"	84°34'02.30463"	256170.57	2860407.6	57.099	46.153
35	SEANRAIJA VILLAGE,NEAR BABA NATH TEMPLE	13.881	25°47'51.34702"	84°37'12.30463"	261374.03	2855426.9	55.531	44.851
CWC CHHAP RA		8.095	25°45'19.97425'	84°47'11.05019'			53.618	43.589
36	ENAI VILLAGE. NEAR SHIV TEMPLE	5.372	25°46'45.98815"	84°40'44.99815"	267264.57	2853309.4	56.9	43.101



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



2.10 Description of erected Tide Gauges in following format (details of erected tide Gauges with photographs in Annexure):-

Tide Gauge no.	Location	Chainage (km)	Easting	Northing	Zero of Tide Gauge w.r.t. MSL (m)	Period of observation
1	GUPTTAR GHAT, NEAR LAL HANUMAN TEMPLE	352.76	611531.85	2965241.13	87.488	06:00 HRS TO 18:00 HRS
2	AYODHYA, LAXMAN GHAT, SIDE WALL OF OLD BULIDING	344.044	619063.44	2965682.76	86.369	06:00 HRS TO 18:00 HRS
3	KAIYANPUR SITARAMPUR INSIDE SCHOOL CAMPUS	334.788	627347.23	2965988.66	85.205	06:00 HRS TO 18:00 HRS
4	ARJUNPUR VILLAGE	320.86	633263.51	2959453.17	82.235	06:00 HRS TO 18:00 HRS
5	PUREMOTIRAM VILLAGE	314.84	637891.24	2955338.51	82.831	06:00 HRS TO 18:00 HRS
6	UNIAR GHAT (FOR BASTI TERMINAL)	305.708	642187.48	2947472.16	80.892	06:00 HRS TO 18:00 HRS
7	CHANDPUR, INSIDE PRIMARY SCHOOL CAMPUS	294.916	651398.30	2953368.56	80	06:00 HRS TO 18:00 HRS
8	KARMI, GOSAIN	287.494	653858.18	2947207.26	78.35	06:00 HRS TO 18:00 HRS
9	RAIPUR BRIDGE NH	276.584	662473.95	2943946.40	77.201	06:00 HRS TO 18:00 HRS
10	DUHIYA (RASHULPUR, MUBA RAK PUR)	266.669	668762.31	2937187.55	75.846	06:00 HRS TO 18:00 HRS
11	NAURANIRAMPUR	256.872	678072.16	2939765.99	75.087	06:00 HRS TO 18:00 HRS
12	VANGINIZAMPUR	248.32	683816.49	2939111.90	74.322	06:00 HRS TO 18:00 HRS
13	CHODASAMPUR	238.095	692114.73	2933731.14	73.186	06:00 HRS TO 18:00 HRS
14	RAMBAG, NEAR RAMBABA TEMPLE	229.447	700208.30	2929032.05	71.531	06:00 HRS TO 18:00 HRS



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



Tide Gauge no.	Location	Chainage (km)	Easting	Northing	Zero of Tide Gauge w.r.t. MSL (m)	Period of observation
15	JAINPUR	218.782	706428.97	2921948.26	69.602	06:00 HRS TO 18:00 HRS
16	ARAZIPAHARPUR	209.828	713974.67	2918518.59	69.013	06:00 HRS TO 18:00 HRS
17	RATANPUR	196.517	726289.67	2918899.31	68.297	06:00 HRS TO 18:00 HRS
18	DUCK BANGLA GOLABAZAR	188	734385.79	2915282.21	69.097	06:00 HRS TO 18:00 HRS
19	BELAPUR SHIV TEMPLE	177.874	742124.10	2909169.49	65.4	06:00 HRS TO 18:00 HRS
20	DOHARIGHAT	166.955	750566.81	2908765.69	62.242	06:00 HRS TO 18:00 HRS
21	RASHULPUR, NEAR HANDPUMP	156.253	759287.53	2904084.78	61.271	06:00 HRS TO 18:00 HRS
22	KHARATIDAVA, NEAR SHIV TEMPLE	148.594	763197.64	2908020.31	61.952	06:00 HRS TO 18:00 HRS
23	NEAR SHIV TEMPLE, AJAYPUR RIVER EDGE	137.315	771455.39	2908050.61	60.256	06:00 HRS TO 18:00 HRS
24	NAGPUR VILLAGE	125.421	780697.66	2901277.55	56.836	06:00 HRS TO 18:00 HRS
25	RAILWAY BRIDGE TURTIPAR, MUJOUNA GAWN TEMPLE	114.594	787213.55	2894874.12	58.07	06:00 HRS TO 18:00 HRS
26	DUHA BIHARA VILLAGE,	114.193	795870.47	2892118.14	56.65	06:00 HRS TO 18:00 HRS
27	KATHADA VILLAGE	104.756	203231.39	2890104.00	54.117	06:00 HRS TO 18:00 HRS
28	DARALIGHAT	96.55	212693.14	2885837.25	50.046	06:00 HRS TO 18:00 HRS
29	TURTIPUR BRIDGE	74.5	223304.40	2876128.46	50.955	06:00 HRS TO 18:00 HRS



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



Tide Gauge no.	Location	Chainage (km)	Easting	Northing	Zero of Tide Gauge w.r.t. MSL (m)	Period of observation
30	NARHAN VILLAGE	67.926	224702.10	2875414.40	48.486	06:00 HRS TO 18:00 HRS
31	GAMHARITULA,SISWAN	53.557	235845.87	2870529.33	48.43	06:00 HRS TO 18:00 HRS
32	SHEOPUR VILLAGE, PRIMARY SCHOOL COMPOUND	43.037	240227.41	2864982.21	47.031	06:00 HRS TO 18:00 HRS
33	CHOOTFLKIRAI VILLAGE,NEAR RAMJANKI TEMPLE	32.184	248901.77	2865541.44	46.511	06:00 HRS TO 18:00 HRS
34	MEHADIGANJ VILLAGE,NEAR SHIV TEMPLE	20.678	256056.04	2860245.80	44.382	06:00 HRS TO 18:00 HRS
35	SEANRAIJA VILLAGE,NEAR BABA NATH TEMPLE	13.881	258961.25	2853883.62	44.614	06:00 HRS TO 18:00 HRS
36	ENAI VILLAGE. NEAR SHIV TEMPLE	5.372	266424.62	2850291.92	44.031	06:00 HRS TO 18:00 HRS

2.11 Chart Datum / Sounding Datum and Reductions details

BM	LOCATION	Chainage (km)	Stretch for corrected soundings and topo levels (km)	Sounding Datum (m) w.r.t. MSL	MSL VALUE OF ZERO OF GAUGE (m)	Correction in WL data for Bathymetric survey (m)
1	Gupttar ghat, near lal Hanuman temple	352.760	348.4-353.6	89.170	87.488	All the observed Water Levels were referenced with MSL. Details of corrections applied in soundings are
2	Ayodhya, Laxman ghat, side wall of old building	344.044	339.4-348.4	88.058	86.369	
CWC AYODHYA		343.000		87.925	85.000	
3	Kaiyanpur Sitarampur inside school campus	334.788	327.8-339.4	86.878	85.205	
4	Arjunpur village	320.860	317.9-327.8	85.101	82.235	



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



BM	LOCATION	Chainage (km)	Stretch for corrected soundings and topo levels (km)	Sounding Datum (m) w.r.t. MSL	MSL VALUE OF ZERO OF GAUGE (m)	Correction in WL data for Bathymetric survey (m)
5	Puremotiram village	314.840	310.3-317.9	84.333	82.831	at Annexure-2 .
6	Uniar ghat (For basti terminal)	305.708	300.3-310.3	83.169	80.892	
7	Chandpur ,inside primary school campus	294.916	291.2-300.3	81.792	80.000	
8	Karmi, gosain	287.494	282.0-291.2	80.846	78.350	
9	Raipur bridge nh	276.584	271.6-282.0	79.454	77.201	
10	Duhiya (Rashulpur, mubarak pur)	266.669	261.8-271.6	78.190	75.846	
11	Nauranirampur	256.872	252.6-261.8	76.940	75.087	
12	Vanginizampur	248.320	243.2-252.6	75.850	74.322	
13	Chodasampur	238.095	233.8-243.2	74.545	73.186	
14	Rambag, Near rambaba temple	229.447	224.1-233.8	73.442	71.531	
15	Jainpur	218.782	214.3-224.1	72.082	69.602	
16	Arazipaharpur	209.828	203.2-214.3	70.940	69.013	
17	Ratanpur	196.517	192.3-203.2	69.243	68.297	
18	Dak bangla Golabazar	188.000	182.9-192.3	68.156	69.097	
19	Belapur shiv temple	177.874	172.4-182.9	66.865	65.400	
20	Doharighat	166.955	161.6-172.4	65.472	62.242	
21	Rashulpur, near handpump	156.253	152.4-161.6	64.107	61.271	
22	kharatidava, near shiv temple	148.594	143.0-152.4	63.130	61.952	
23	Near shiv temple, Ajaypur river edge	137.315	131.4-143.0	61.692	60.256	
24	Nagpur village	125.421	120.0-131.4	60.175	56.836	
25		114.594	109.7-120.0	58.794	56.027	
CWC TURTIPAR	RAILWAY BRIDGE TURTIPAR , MUJOUNA GAAV TEMPLE	114.193		58.743	58.070	
26	DUHA BIHARA VILLAGE	104.756	100.7-109.7	57.795	56.650	
27	KATHADA VILLAGE	96.550	90.6-100.7	56.971	54.117	
28	DARALIGHAT	84.729	79.6-90.6	55.783	50.046	
CWC DARAULI		83.373		55.647	56.000	
29	TURTIPUR BRIDGE	74.500	71.2-79.6	54.614	50.955	
30	NARHAN VILLAGE	67.926	60.7-71.2	53.848	48.486	
31	GAMHARITULA, SISWAN	53.557	48.3-60.7	52.174	48.430	
CWC GANGPUR SISWAN		50.780		51.851	51.000	
32	SHEOPUR VILLAGE, PRIMARY SCHOOL COMPOUND	43.037	37.6-48.3	50.352	47.031	
33	CHOOTFLKIRAI VILLAGE, NEAR RAMJANKI TEMPLE	32.184	26.4-37.6	48.252	46.511	
34	MEHADIGANJ VILLAGE, NEAR SHIV TEMPLE	20.678	17.3-26.4	46.025	44.382	
35	SEANRAIJA VILLAGE, NEAR BABA NATH TEMPLE	13.881	9.6-17.3	44.709	44.614	



**DETAILED HYDROGRAPHIC SURVEYS IN
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2.12 High Flood Level (H.F.L.) at known gauge stations and cross-structures:-

MHWS (Mean High Water Springs) is to be taken in tidal stretches and HFL in non-tidal stretches.

BM	LOCATION	Chainage (km)	Sounding Datum (m) w.r.t. MSL	Established HFL	Computed HFL
1	Gupttar ghat, near lal Hanuman temple	352.760	89.170		95.19
2	Ayodhya, Laxman ghat, side wall of old building	344.044	88.058		94.13
CWC AYODHYA		343.000	87.925	94.0	
3	Kaiyanpur Sitarampur inside school campus	334.788	86.878		93.0
4	Arjunpur village	320.860	85.101		91.29
5	Puremotiram village	314.840	84.333		90.55
6	Uniar ghat (For basti terminal)	305.708	83.169		89.44
7	Chandpur ,inside primary school campus	294.916	81.792		88.12
8	Karmi, gosain	287.494	80.846		87.21
9	Raipur bridge nh	276.584	79.454		85.87
10	Duhiya (Rashulpur, mubarak pur)	266.669	78.190		84.66
11	Nauranirampur	256.872	76.940		83.46
12	Vanginizampur	248.320	75.850		82.41
13	Chodasampur	238.095	74.545		81.16
14	Rambag, Near rambaba temple	229.447	73.442		80.10
15	Jainpur	218.782	72.082		78.80
16	Arazipaharpur	209.828	70.940		77.70
17	Ratanpur	196.517	69.243		76.07
18	Dak bangla Golabazar	188.000	68.156		75.03
19	Belapur shiv temple	177.874	66.865		73.79
20	Doharighat	166.955	65.472		72.46
21	Rashulpur, near handpump	156.253	64.107		71.15
22	kharatidava, near shiv temple	148.594	63.130		70.21
23	Near shiv temple, Ajaypur river edge	137.315	61.692		68.83
24	Nagpur village	125.421	60.175		67.37
25		114.594	58.794		66.05
CWC TURTIPAR	RAILWAY BRIDGE TURTIPAR , MUJOUNA GAAV TEMPLE	114.193	58.743	66.0	
26	DUHA BIHARA VILLAGE	104.756	57.795		64.70
27	KATHADA VILLAGE	96.550	56.971		63.56
28	DARALIGHAT	84.729	55.783		61.93
CWC DARAULI		83.373	55.647	61.74	
29	TURTIPUR BRIDGE	74.500	54.614		60.72



**DETAILED HYDROGRAPHIC SURVEYS IN
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BM	LOCATION	Chainage (km)	Sounding Datum (m) w.r.t. MSL	Established HFL	Computed HFL
30	NARHAN VILLAGE	67.926	53.848		59.96
31	GAMHARITULA, SISWAN	53.557	52.174		58.30
CWC GANGPUR SISWAN		50.780	51.851	57.98	
32	SHEOPUR VILLAGE, PRIMARY SCHOOL COMPOUND	43.037	50.352		57.31
33	CHOOTFLKIRAI VILLAGE, NEAR RAMJANKI TEMPLE	32.184	48.252		56.38
34	MEHADIGANJ VILLAGE, NEAR SHIV TEMPLE	20.678	46.025		55.39
35	SEANRAIJA VILLAGE, NEAR BABA NATH TEMPLE	13.881	44.709		54.81
CWC CHHAPRA (MAKHDUM GANJ)		8.095	43.589	54.31	
36	ENAI VILLAGE. NEAR SHIV TEMPLE	5.372	43.062		54.08

2.13 Average Bed Slope:-

Reach		River / Canal Bed Level Change (m)	Distance (km)	Slope
From	To			
0.00	30.00	2.1	30	1:14.28
30.00	60.000	5.05	30	1:5.940594
60.00	90.00	2.75	30	1:10.90909
90.00	120.00	2.8	30	1:10.71429
120.00	150.00	5.4	30	1:5.555556
150.00	180.00	6.7	30	1:4.477612
180.00	210.00	0.2	30	1:150
210.00	240.00	3.2	30	1:9.375
240.00	270.00	4.9	30	1:6.122449



**DETAILED HYDROGRAPHIC SURVEYS IN
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Reach		River / Canal Bed Level Change (m)	Distance (km)	Slope
270.00	300.00	3.6	30	1:8.333333
300.00	330.00	2.9	30	1:10.34483
330.00	360.00	3.6	30	1:8.333333

2.14 Details of Dam, Barrages, Weirs, Anicut, etc. in following formats w.r.t. MSL:-

There are no Dams, Barrages, weirs, Anicut found in this zone of River.

2.15 Details of Locks in following formats:-

There are no locks found in this zone of river.

2.16 Details of Aqueducts in following formats:-

Sl No	Type of line	Chainage (km)	Location	Position (Lat Long)		Position (UTM)		No of Piers	Horizontal clearance (clear distance Between piers) (m)	Vertical clearance w.r.t. HFL / MHGH (m)	Remarks (complete / under - construction)
				Left Bank	RiGHt Bank	Left Bank	RiGHt Bank				
1	HT L	165.65	BALHAR GANJ	26°16'33.89"N	26°16'46.34"N	751676.00 E	751758.00 E	2	800	8	Complete
				83°31'12.83"E	83°31'16.05"E	2908710.00 N	2909095.00 N				
2	HT L	166	BALHAR GANJ	26°16'32.40"N	26°16'45.35"N	751223.82 E	751246.96 E	2	350	15	Complete
				83°30'56.50"E	83°30'57.62"E	2908655.27 N	2909054.45 N				
3	HT L	255.8	NAWARI RAMPUR	26°34'2.02"N	26°35'26.62"N	678704.00 E	678853.00 E	3	1200	8	Complete
				82°47'39.05"E	82°47'45.76"E	2939755.00 N	2942361.00 N				
4	HT L	306.2	MEHA BOOB GANJ	26°38'24.69"N	26°38'37.06"N	642008.00 E	642403.00 E	2	1050	20	Complete
				82°25'36.16"E	82°25'50.60"E	2947377.00 N	2947762.00 N				
5	HT L	306.7	MEHA BOOB GANJ	26°38'29.20"N	26°38'55.59"N	641356.00 E	641785.78 E	2	1050	20	Complete
				82°25'12.66"E	82°25'38.22"E	2947508.00 N	2948305.19 N				



**DETAILED HYDROGRAPHIC SURVEYS IN
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Sl No	Type of line	Chainage (km)	Location	Position (Lat Long)		Position (UTM)		No of Piers	Horizontal clearance (clear distance Between piers) (m)	Vertical clearance w.r.t. HFL / MHG H (m)	Remarks (complete / under - construction)
				Left Bank	RiGHt Bank	Left Bank	RiGHt Bank				
6	HT L	306.8	MEHA BOOB GANJ	26°38'28.33 "N	26°38'54.9 3"N	641145.00 E	642054.3 1 N	2	1050	15	Complete
				82°25'5.01" E	82°25'28.5 0"E	2947479.0 0 N	619761.0 0 E				
7	HT L	343.2	AYOUDH YA	26°48'40.21 "N	26°48'56.1 9"N	619942.50 E	2966580. 00 N	2	1100	14	Complete
				82°12'24.66 "E	82°12'18.2 8"E	2966090.6 3 N	619761.0 0 E				

2.17 Details of existing Bridges and crossing over waterways in following format:-

Sl No	Structure Name and for road / rail	Chainage (km)	Type of Structure (RCC / Iron / Wooden)	Location	Position (UTM)		Position (Lat Long)		Length (m)	Width (m)	No of Piers	Horizontal clearance (clear distance Between piers) (m)	Vertical clearance w.r.t. HFL / MHG H (m)	Remarks (complete / under - construction), in use or not, condition
					Left Bank	Right Bank	Left Bank	Right Bank						
1	MANJI BRIDGE	17.7	RCC	MANJI	257460.0 0 m E	257969.0 0 m E	25°49'4.48 "N	25°49'23.3 7"N	12 50	10	32	40M	7M	
					2857750. 00 m N	2858322. 00 m N	84°34'50.3 4"E	84°35'8.23 "E						
2	MANJI RLY BRIDGE	18.12	IRON	MANJI	257221.0 0 m E	257637.0 0 m E	25°49'17.3 6"N	25°49'32.7 5"N	-	-	-	-	-	Under- Constructi on
	2858151. 00 m N				2858617. 00 m N	84°34'41.5 0"E	84°34'56.1 2"E							
3	MANJI RLY BRIDGE	18.16	IRON	MANJI	257204.0 0 m E	257611.0 0 m E	25°49'18.3 9"N	25°49'33.5 4"N	12 50	6	17	43M	6M	
	2858183. 00 m N				2858642. 00 m N	84°34'40.8 7"E	84°34'55.1 7"E							
4	DARAUL I PIPE BRIDGE	86.5	PONT OON	DARAUL I	211485.0 0 m E	212043.0 0E	26° 4'16.65"N	26° 4'42.35"N	95 0	9	-	-	-	Pontoon- Bridge
	2886772. 00 m N				2887551. 00 m N	84° 6'57.95"E	84° 7'17.39"E							
5	TRUTIPAR RLY BRIDGE	114.7 2	IRON	TRUTIP AR	787025.6 4 m E	787849.9 7 m E	26° 8'38.18"N	26° 9'3.58"N	11 25	6	17	45M	6M	
	2894794. 49 m N				2895595. 10 m N	83°52'14.8 7"E	83°52'45.1 6"E							
6	TRUTIPAR BRIDGE	116.6 5	RCC	TRUTIP AR	786456.2 1 m E	786831.3 9 m E	26° 9'40.48"N	26° 9'46.84"N	80 0	9	18	40M	7M	
	2896700. 85 m N				2896905. 03 m N	83°51'55.9 0"E	83°52'9.56 "E							



**DETAILED HYDROGRAPHIC SURVEYS IN
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Sl No	Structure Name and for road / rail	Chainage (km)	Type of Structure (RCC / Iron / Wooden)	Location	Position (UTM)		Position (Lat Long)		Length (m)	Width (m)	No of Piers	Horizontal clearance (clear distance Between piers) (m)	Vertical clearance w.r.t. HFL / MHG H (m)	Remarks (complete / under - construction), in use or not, condition
					Left Bank	Right Bank	Left Bank	Right Bank						
7	BARHAJ Pipe Bridge	138.07	PONTON	BARHAJ	771139.55 m E	771619.58 m E	26°15'52.09"N	26°16'20.20"N	990	7	-	-	-	Pontoon-Bridge
					2907816.61 m N	2908692.43 m N	83°42'53.20"E	83°43'11.15"E						
8	BARHAJ BRIDGE UNC	138.6	RCC	BARHAJ	--	--	--	--	-	-	-	-	-	Under-Construction
9	DohariGhat bridge	166.2	RCC	BALHARGANJ	750998.53 m E EE750981.00 m E	751026.00 m E 2909111.00 m N	26°16'38.26"N 83°30'48.51"E	26°16'47.35"N 83°30'49.73"E	390	10	8	45M	17M	
10	KAMHARIA PIPEBRIDGE	21218.13	PONTON	KAMHARIA	707012.93 m E	707333.00 m E	26°23'55.32"N 83°43'1.09"E	26°24'3.79"N 83°44'2.79"E	410	8	-	-	-	Pontoon-Bridge
					2921505.95 m N	2921771.00 m N								
11	KAMHARIA BRIDGE	218.92	RCC	KAMHARIA	706631.00 m E	707000.00 m E	26°24'5.92"N 83°4'17.50"E	26°24'24.47"N 83°4'31.14"E	-	-	-	-	-	Under-Construction
	2921826.00 m N				E2922403.00 m N									
12	BIRHAR GHAT BRIDGE	232.73	RCC	BIRHAR	696783.00 m E	697537.12 m E	26°28'56.46"N	26°29'18.86"N	1000	8.5	35	38M	6M	
					2930615.00 m N	2931316.32 m N	82°58'27.15"E	82°58'54.72"E						
13	TENDA BRIDGE	277.34	RCC	TENDA	661310.00 m E	662912.49 m E	26°35'42.32"N	26°36'28.79"N	2200	8.5	73	40M	10M	
					2942610.00 m N	2944060.59 m N	82°37'11.88"E	82°38'10.47"E						
14	NH28 ROAD BRIDGE	342.12	RCC	AYOUDHYA	621230.00 m E	621115.00 m E	26°48'29.99"N	26°49'6.44"N	1220	10	20	37M	5M	
					2965788.00 m N	2966909.00 m N	82°13'11.21"E	82°13'7.41"E						
15	NH28 ROAD BRIDGE	342.21	RCC	AYOUDHYA	621206.00 m E	621087.92 m E	26°48'30.25"N	26°49'6.71"N	1220	10	20	37M	5M	
					2965796.00 m N	2966917.04 m N	82°13'10.33"E	82°13'6.43"E						
16	RLY BRIDGE AYODHYA	342.76	IRON	AYOUDHYA	620765.00 m E	620689.00 m E	26°48'38.08"N	26°49'1.89"N	780	8	20	40M	8M	
					2966033.00 m N	2966765.00 m N	82°12'54.43"E	82°12'51.93"E						
17	SARYU ROAD BRIDGE	343.58	RCC	AYOUDHYA	619845.08 m E	619689.82 m E	26°48'40.08"N	26°48'54.12"N	460	9	20	40M	6M	
					2966085.70 m N	E2966516.34 m N	82°12'21.13"E	82°12'15.66"E						



**DETAILED HYDROGRAPHIC SURVEYS IN
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2.18 Details of other cross structures, pipe-line, underwater cables:-

NA

2.19 High Tension Lines/ Electric lines / Tele-communication lines in following format:-

Sl No	Type of line	Chainage (km)	Location	Position (Lat Long)		Position (UTM)		No of Piers	Horizontal clearance (clear distance Between piers) (m)	Vertical clearance w.r.t. HFL / MHG H (m)	Remarks (complete / under-construction)
				Left Bank	RiGHt Bank	Left Bank	RiGHt Bank				
1	HTL	165.65	BALHARGA NJ	26°16'33.89" N	26°16'46.34"N	751676.00 E	751758.00 E	2	800	8	Complete
				83°31'12.83" E	83°31'16.05"E	2908710.00N	2909095.00 N				
2	HTL	166	BALHARGA NJ	26°16'32.40" N	26°16'45.35"N	751223.82 E	751246.96 E	2	350	15	Complete
				83°30'56.50" E	83°30'57.62"E	2908655.27 N	2909054.45 N				
3	HTL	255.8	NAWARAMPUR	26°34'2.02"N	26°35'26.62"N	678704.00 E	678853.00 E	3	1200	8	Complete
				82°47'39.05" E	82°47'45.76"E	2939755.00 N	2942361.00 N				
4	HTL	306.2	MEHA BOBGA NJ	26°38'24.69" N	26°38'37.06"N	642008.00 E	642403.00 E				
				82°25'36.16" E	82°25'50.60"E	2947377.00 N	2947762.00 N				
5	HTL	306.7	MEHA BOB	26°38'29.20" N	26°38'55.59"N	641356.00 E	641785.78 E	2	1050	20	Complete
				82°25'12.66" E	82°25'38.2	2947508.0	2948305.19 N				



**DETAILED HYDROGRAPHIC SURVEYS IN
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			GA NJ	E 2"E 0 N							
6	HTL	306.8	ME HA BO OB GA NJ	26°38'28.33" N	26°38'54.9 3"N	641145.00 E	642054.31 N	2	1050	15	Compl ete
				82°25'5.01"E	82°25'28.5 0"E	2947479.0 0 N	619761.00 E				
7	HTL	343.2	AY OU DH YA	26°48'40.21" N	26°48'56.1 9"N	619942.50 E	2966580.00 N	2	1100	14	Compl ete
				82°12'24.66" E	82°12'18.2 8"E	2966090.6 3 N	619761.00 E				

2.20 Current meter and discharge details

Stret ch No.	Chain age (km)	Position				Observed Depth (m) (D)	Velo city (m/s ec.) 0.5 D	Averag e Velocit y (m/sec.)	X- Section al area (sq. m.)	Discharge (Cu.m)
		Latitude	Longitude	Easting (m)	Northing(m)					
ZONE-44										
CM 1	353. 16	26° 48' 14".2149 N	082° 06' 44".1443 E	610548.19	2965204.95	2.8	1.98	1.95	370.5	722.475
CM 2	343. 39	26° 48' 39".8326 N	082° 12' 12".6898 E	619612.12	2966075.88	9.4	1.96	1.93	388.5	749.805
CM3	335. 86	26° 49' 9".783 N	082° 16' 37".463 E	626913.13	2967068.85	4.6	1.82	1.83	217.8	398.574
CM 4	326. 35	26° 44' 20".3766 N	082° 17' 43".0513 E	628814.59	2958182.1	3.3	1.84	1.79	118.8	212.652
CM 5	316. 60	26° 43' 9".5973 N	082° 22' 34".5403 E	636891.27	2956088.67	2.4	1.73	1.74	474.6	825.804
CM 6	306. 24	26° 38' 26".0711 N	082° 25' 35".7003 E	641994.79	2947419.41	4.5	1.76	1.72	87.5	150.5



**DETAILED HYDROGRAPHIC SURVEYS IN
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Stret ch No.	Chain age (km)	Position				Observed Depth (m) (D)	Velocity (m/sec.)	Average Velocity (m/sec.)	X- Section al area (sq. m.)	Discharge (Cu.m)
		Latitude	Longitude	Easting (m)	Northing(m)		0.5 D			
ZONE-44										
CM 7	297. 20	26° 41' 12".0184 N	082° 29' 49".131 E	648942.84	2952606.01	2.8	1.62	1.62	338.2	547.884
CM 8	289. 25	26° 38' 54".9662 N	082° 32' 41".3701 E	653754.85	2948445.45	1.2	1.64	1.61	255	410.55
CM 9	278. 65	26° 36' 32".7873 N	082° 37' 4".8408 E	661095.54	2944160.5	2.7	1.52	1.52	383.8	583.376
CM 10	268. 23	26° 32' 47".4351 N	082° 40' 38".8883 E	667107.24	2937302.12	4.5	1.68	1.67	219.2	366.064
CM 11	258. 04	26° 33' 42".2159 N	082° 46' 37".7808 E	677016.95	2939121.79	9.1	1.62	1.60	315	504
CM 12	248. 28	26° 33' 28".6096 N	082° 50' 50".2292 E	684009.29	2938801.91	2.8	1.5	1.48	174.3	257.964
CM 13	238. 37	26° 30' 41".916 N	082° 55' 42".645 E	692179.3	2933791.19	2.2	1.46	1.47	154	226.38
CM 14	229. 23	26° 28' 8".5905 N	083° 00' 21".7019 E	699979.47	2929190.96	4.3	1.28	1.27	234.6	297.942
CM 15	219. 01	26° 24' 16".7761 N	083° 04' 10".3657 E	706427.93	2922157.04	8.4	1.34	1.30	1170.3	1521.39
CM 16	208. 51	26° 22' 44".7223 N	083° 09' 12".9257 E	714860.7	2919461.39	2.3	1.22	1.21	342	413.82
CM 17	198. 30	26° 22' 32".7841 N	083° 15' 12".4835 E	724834.79	2919264.36	2.3	1.12	1.11	184.8	205.128
CM 18	188. 57	26° 20' 11".4738 N	083° 20' 24".1585 E	733554.54	2915068.89	2.6	1.02	1.01	743.4	750.834
CM 19	178. 90	26° 17' 0".5732 N	083° 24' 43".5518 E	740858.32	2909325.38	2.2	0.96	0.97	819.0	794.43
CM 20	167. 26	26° 16' 30".4601 N	083° 30' 17".4577 E	750141.47	2908574.61	9.1	0.92	0.91	2324.0	2114.84



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



Stret ch No.	Chain age (km)	Position				Observed Depth (m) (D)	Velo city (m/s ec.) 0.5 D	Averag e Velocit y (m/sec.)	X- Section al area (sq. m.)	Discharge (Cu.m)
		Latitude	Longitude	Easting (m)	Northing(m)					
ZONE-44										
CM 21	158. 24	26° 14' 56".2408 N	083° 34' 40".1958 E	757490.49	2905817.58	1.6	0.83	0.85	146.4	124.44
CM 22	146. 73	26° 16' 50".068 N	083° 38' 57".4571 E	764559.85	2909465.74	2.1	0.87	0.87	133.2	115.884
CM 23	136. 200	26° 15' 19".1652 N	083° 43' 48".5104 E	772696.13	2906835.34	2.8	0.88	0.87	417.6	363.312
CM 24	125. 95	26° 12' 10".4589 N	083° 48' 34".0826 E	780749.29	2901195.52	6.6	0.91	0.90	1642.2	1477.98
CM 25	114. 93	26° 08' 48".9503 N	083° 52' 16".9386 E	787075.79	2895127.34	1.3	0.82	0.83	280.8	233.064
CM 26	105. 01	26° 07' 4".6422 N	083° 57' 22".5057 E	795639.57	2892106.36	4.4	0.84	0.82	496.8	407.376
ZONE-45										
CM 27	94.4 4	26° 06' 25".8581 N	078° 03' 13".7895 E	205342.18	2890889.39	5.0	0.94	0.91	691.2	628.9
CM 28	84.5 7	26° 03' 44".5277 N	078° 07' 46".1582 E	212803.48	2885753.36	9.1	2.14	2.11	600	1260
CM 29	74.9 5	26° 00' 16".5854 N	078° 11' 50".419 E	219457.78	2879203.99	2.0	1.56	1.57	780	780
CM 30	64.8 5	25° 57' 0".0346 N	078° 16' 5".3275 E	226422.46	2873003.14	2.3	1.64	1.62	390	1224.6
CM 31	54.7 5	25° 55' 35".159 N	078° 21' 36".7445 E	235593.14	2870201.15	3.2	1.05	1.03	279	287.3
CM 32	42.4 4	25° 52' 33".6127 N	078° 24' 59".0206 E	241113.27	2864500.65	4.1	0.86	0.87	825.6	718.2
CM 33	32.2 8	25° 53' 26".5164 N	078° 29' 25".8693 E	248574.99	2865984.8	8.8	0.92	0.91	1026.6	934.2



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



Stret ch No.	Chain age (km)	Position				Observed Depth (m) (D)	Velo city (m/s ec.)	Averag e Velocit y (m/sec.)	X- Section al area (sq. m.)	Discharge (Cu.m)
		Latitude	Longitude	Easting (m)	Northing(m)		0.5 D			
ZONE-44										
CM 34	22.2 7	25° 50' 11".2908 N	078° 32' 53".4255 E	254241.38	2859866.61	2.1	0.87	0.85	220.8	187.6
CM 35	12.2 0	25° 46' 18".1662 N	078° 36' 4".397 E	259429.73	2852593.28	2.7	0.84	0.84	106.5	89.46
CM 36	02.2 4	25° 44' 7".0814 N	078° 41' 14".0672 E	267988.7	2848404.55	2.4	0.76	0.77	540	415.8

2.21 (a) Soil sample locations

Sample No.	Chainage (km)	Latitude	Longitude	Easting (m)	Northing (m)	Depth (m)
BS1	353.16	26° 48' 14".2149 N	082° 06' 44".1443 E	610548.19	2965204.95	2.8
BS2	343.39	26° 48' 39".8326 N	082° 12' 12".6898 E	619612.12	2966075.88	9.4
BS3	335.86	26° 49' 12".671 N	082° 16' 36".8467 E	626895.21	2967157.54	2.7
BS4	326.35	26° 44' 20".3766 N	082° 17' 43".0513 E	628814.59	2958182.1	3.3
BS5	316.60	26° 43' 9".5973 N	082° 22' 34".5403 E	636891.27	2956088.67	2.4
BS6	306.24	26° 38' 26".0711 N	082° 25' 35".7003 E	641994.79	2947419.41	4.5
BS7	297.20	26° 41' 12".0184 N	082° 29' 49".131 E	648942.84	2952606.01	2.8
BS8	289.25	26° 38' 54".9662 N	082° 32' 41".3701 E	653754.85	2948445.45	1.2
BS9	278.65	26° 36' 32".7873 N	082° 37' 4".8408 E	661095.54	2944160.5	2.7
BS10	268.23	26° 32' 47".4351 N	082° 40' 38".8883 E	667107.24	2937302.12	4.5
BS11	258.04	26° 33' 42".2159 N	082° 46' 37".7808 E	677016.95	2939121.79	9.1
BS12	248.28	26° 33' 28".6096 N	082° 50' 50".2292 E	684009.29	2938801.91	2.8



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



Sample No.	Chainage (km)	Latitude	Longitude	Easting (m)	Northing (m)	Depth (m)
BS13	238.37	26° 30' 41".916 N	082° 55' 42".645 E	692179.3	2933791.19	2.2
BS14	229.23	26° 28' 8".5905 N	083° 00' 21".7019 E	699979.47	2929190.96	4.3
BS15	219.01	26° 24' 16".7761 N	083° 04' 10".3657 E	706427.93	2922157.04	8.4
BS16	208.51	26° 22' 44".7223 N	083° 09' 12".9257 E	714860.7	2919461.39	2.3
BS17	198.30	26° 22' 32".7841 N	083° 15' 12".4835 E	724834.79	2919264.36	2.3
BS18	188.57	26° 20' 11".4738 N	083° 20' 24".1585 E	733554.54	2915068.89	2.6
BS19	178.90	26° 17' 0".5732 N	083° 24' 43".5518 E	740858.32	2909325.38	2.2
BS20	167.26	26° 16' 30".4601 N	083° 30' 17".4577 E	750141.47	2908574.61	9.1
BS21	158.24	26° 14' 56".2408 N	083° 34' 40".1958 E	757490.49	2905817.58	1.6
BS22	146.73	26° 16' 50".068 N	083° 38' 57".4571 E	764559.85	2909465.74	2.1
BS23	136.200	26° 15' 19".1652 N	083° 43' 48".5104 E	772696.13	2906835.34	2.8
BS24	125.95	26° 12' 10".4589 N	083° 48' 34".0826 E	780749.29	2901195.52	6.6
BS25	114.93	26° 08' 48".9503 N	083° 52' 16".9386 E	787075.79	2895127.34	1.3
BS26	105.01	26° 07' 4".6422 N	083° 57' 22".5057 E	795639.57	2892106.36	4.4
BS 27	94.44	26° 06' 25".8581 N	078° 03' 13".7895 E	205342.18	2890889.39	5.0
BS 28	84.57	26° 03' 44".5277 N	078° 07' 46".1582 E	212803.48	2885753.36	9.1
BS 29	74.95	26° 00' 16".5854 N	078° 11' 50".419 E	219457.78	2879203.99	2.0
BS 30	64.85	25° 57' 0".0346 N	078° 16' 5".3275 E	226422.46	2873003.14	2.3
BS 31	54.75	25° 55' 35".159 N	078° 21' 36".7445 E	235593.14	2870201.15	3.2
BS 32	42.44	25° 52' 33".6127 N	078° 24' 59".0206 E	241113.27	2864500.65	4.1
BS 33	32.28	25° 53' 26".5164 N	078° 29' 25".8693 E	248574.99	2865984.8	8.8
BS 34	22.27	25° 50' 11".2908 N	078° 32' 53".4255 E	254241.38	2859866.61	2.1
BS 35	12.20	25° 46' 18".1662 N	078° 36' 4".397 E	259429.73	2852593.28	2.7
BS 36	02.24	25° 44' 7".0814 N	078° 41' 14".0672 E	267988.7	2848404.55	2.4



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



Bottom samples were collected every 10 km . reports are as follows

Bottom Sample Sediment Content Report

SI No.	Fine Gravel In % (20 mm to 4.75 mm)	Coarse Sand In % (4.75 mm to 2.00 mm)	Medium Sand In % (2.00 mm to 0.425 mm)	Fine Sand In % (0.425 mm to 0.075 mm)	Silt & Clay In % (0.075 mm to 0.001 mm)	Silt Size In % (0.075 mm to 0.002 mm)	Clay Size In % (<0.002 mm)	Specific Gravity	Ph value
BS1	0.00	0.12	0.34	33.22	66.32	1.51	64.81	2.64	7.867@27.2°C
BS2	0.00	0.10	0.32	34.32	57.27	1.72	63.21	2.66	7.832@27.3°C
BS3	0.00	0.00	0.3	36.41	48.32	1.63	42.16	2.65	7.762@27.1°C
BS4	0.00	0.00	0.28	38.23	41.16	1.92	39.18	2.66	7.786@27.4°C
BS5	0.00	0.02	0.31	32.18	39.23	1.67	32.67	2.63	7.782@27.4°C
BS6	0.00	0.03	0.27	37.96	38.42	2.13	37.42	2.64	7.781@27.3°C
BS7	0.00	0.00	0.29	38.12	32.16	1.92	22.18	2.62	7.773@27.2°C
BS8	0.00	0.00	0.25	39.49	36.12	NIL	NIL	2.63	7.774@27.2°C
BS9	0.00	0.00	0.26	42.19	33.69	NIL	NIL	2.65	7.779@27.1°C
BS10	0.00	0.00	0.23	47.14	31.46	1.97	22.14	2.61	7.784@27.0°C
BS11	0.00	0.00	0.25	56.18	30.67	2.13	26.62	2.69	7.762@26.1°C
BS12	0.00	0.00	0.27	69.24	30.49	2.16	28.33	2.67	7.754@25.3°C
BS13	0.00	0.00	0.26	70.56	27.18	1.18	27.32	2.61	7.758@25.4°C
BS14	0.00	0.00	0.27	71.74	26.23	1.2	20.16	2.62	7.762@25.3°C
BS15	0.00	0.00	0.28	76.15	18.19	NIL	NIL	2.71	7.763@25.2°C
BS16	0.00	0.00	0.23	82.13	16.13	1.42	20.62	2.7	7.784@25.2°C
BS17	0.00	0.00	0.24	86.69	9.42	NIL	NIL	2.68	7.782@25.1°C
BS18	0.00	0.00	0.25	93.51	6.25	NIL	NIL	2.67	7.786@25.0°C
BS19	0.00	0.00	0.26	82.45	21.14	1.16	19.84	2.68	7.779@26.1°C
BS20	0.00	0.00	0.29	82.19	23.16	1.12	18.25	2.72	7.762@26.4°C
BS21	0.00	0.00	0.23	79.64	32.19	NIL	NIL	2.71	7.768@26.5°C
BS22	0.00	0.00	0.26	77.56	34.62	NIL	NIL	2.66	7.773@26.3°C
BS23	0.00	0.00	0.25	71.82	38.12	NIL	NIL	2.61	7.781@27.0°C
BS24	0.00	0.00	0.27	69.52	39.64	NIL	NIL	2.63	7.823@27.1°C
BS25	0.00	0.01	0.22	63.48	40.12	NIL	NIL	2.64	7.794@27.3°C
BS26	0.00	0.02	0.23	48.96	41.16	NIL	NIL	2.66	7.892@27.1°C
BS27	0.00	0.00	0.24	52.41	41.94	NIL	NIL	2.65	7.920@27.1°C
BS28	0.00	0.03	0.25	56.98	42.74	2.34	40.4	2.66	7.946@27.1°C
BS29	0.00	0.01	0.27	69.14	26.24	2.12	29.18	2.79	7.862@27.6°C



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



SI No.	Fine Gravel In % (20 mm to 4.75)	Coarse Sand In % (4.75 mm to 2.00 mm)	Medium Sand In % (2.00 mm to 0.425 mm)	Fine Sand In % (0.425 mm to 0.075)	Silt & Clay In % (0.075 mm to 0.001)	Silt Size In % (0.075 mm to 0.002 mm)	Clay Size In % (<0.002 mm)	Specific Gravity	Ph value
BS30	0.00	0.00	0.26	77.85	1.89	NIL	NIL	2.7	7.863@27.7°C
BS31	0.00	0.00	0.28	73.12	1.92	NIL	NIL	2.71	7.882@27.7°C
BS32	0.00	0.00	0.25	60.16	1.98	NIL	NIL	2.66	7.820@27.7°C
BS33	0.00	0.00	0.32	69.84	2.1	NIL	NIL	2.65	7.791@26.5°C
BS34	0.00	0.00	0.34	84.22	2.15	NIL	NIL	2.64	7.764@26.4°C
BS35	0.00	0.06	0.38	91.16	2.2	NIL	NIL	2.68	7.742@26.1°C
BS36	0.00	0.08	0.49	97.15	2.28	NIL	NIL	2.7	7.728@26.0°C

(b) Water sample locations

Water samples were collected at 0.5d depth at every 10 km interval. The report on sediment concentration are as follows:

Sample No.	Chainage (km)	Latitude	Longitude	Easting (m)	Northing (m)	Total Depth (d) (m)	Mid-Depth (0.5d) (m)
WS1	353.16	26° 48' 14".2149 N	082° 06' 44".1443 E	610548.19	2965204.95	2.8	21
WS2	343.39	26° 48' 39".8326 N	082° 12' 12".6898 E	619612.12	2966075.88	9.4	23
WS3	335.86	26° 49' 12".671 N	082° 16' 36".8467 E	626895.21	2967157.54	2.7	20
WS4	326.35	26° 44' 20".3766 N	082° 17' 43".0513 E	628814.59	2958182.1	3.3	18
WS5	316.60	26° 43' 9".5973 N	082° 22' 34".5403 E	636891.27	2956088.67	2.4	13
WS6	306.24	26° 38' 26".0711 N	082° 25' 35".7003 E	641994.79	2947419.41	4.5	16
WS7	297.20	26° 41' 12".0184 N	082° 29' 49".131 E	648942.84	2952606.01	2.8	19
WS8	289.25	26° 38' 54".9662 N	082° 32' 41".3701 E	653754.85	2948445.45	1.2	24
WS9	278.65	26° 36' 32".7873 N	082° 37' 4".8408 E	661095.54	2944160.5	2.7	22
WS10	268.23	26° 32' 47".4351 N	082° 40' 38".8883 E	667107.24	2937302.12	4.5	28
WS11	258.04	26° 33' 42".2159 N	082° 46' 37".7808 E	677016.95	2939121.79	9.1	32
WS12	248.28	26° 33' 28".6096 N	082° 50' 50".2292 E	684009.29	2938801.91	2.8	17
WS13	238.37	26° 30' 41".916 N	082° 55' 42".645 E	692179.3	2933791.19	2.2	16



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



Sample No.	Chainage (km)	Latitude	Longitude	Easting (m)	Northing (m)	Total Depth (d) (m)	Mid-Depth (0.5d) (m)
WS14	229.23	26° 28' 8".5905 N	083° 00' 21".7019 E	699979.47	2929190.96	4.3	29
WS15	219.01	26° 24' 16".7761 N	083° 04' 10".3657 E	706427.93	2922157.04	8.4	21
WS16	208.51	26° 22' 44".7223 N	083° 09' 12".9257 E	714860.7	2919461.39	2.3	18
WS17	198.30	26° 22' 32".7841 N	083° 15' 12".4835 E	724834.79	2919264.36	2.3	17
WS18	188.57	26° 20' 11".4738 N	083° 20' 24".1585 E	733554.54	2915068.89	2.6	24
WS19	178.90	26° 17' 0".5732 N	083° 24' 43".5518 E	740858.32	2909325.38	2.2	32
WS20	167.26	26° 16' 30".4601 N	083° 30' 17".4577 E	750141.47	2908574.61	9.1	36
WS21	158.24	26° 14' 56".2408 N	083° 34' 40".1958 E	757490.49	2905817.58	1.6	42
WS22	146.73	26° 16' 50".068 N	083° 38' 57".4571 E	764559.85	2909465.74	2.1	48
WS23	136.200	26° 15' 19".1652 N	083° 43' 48".5104 E	772696.13	2906835.34	2.8	62
WS24	125.95	26° 12' 10".4589 N	083° 48' 34".0826 E	780749.29	2901195.52	6.6	104
WS25	114.93	26° 08' 48".9503 N	083° 52' 16".9386 E	787075.79	2895127.34	1.3	116
WS26	105.01	26° 07' 4".6422 N	083° 57' 22".5057 E	795639.57	2892106.36	4.4	118
WS27	94.44	26° 06' 25".8581 N	078° 03' 13".7895 E	205342.18	2890889.39	5.0	120
WS28	84.57	26° 03' 44".5277 N	078° 07' 46".1582 E	212803.48	2885753.36	9.1	123
WS29	74.95	26° 00' 16".5854 N	078° 11' 50".419 E	219457.78	2879203.99	2.0	134
WS30	64.85	25° 57' 0".0346 N	078° 16' 5".3275 E	226422.46	2873003.14	2.3	149
WS31	54.75	25° 55' 35".159 N	078° 21' 36".7445 E	235593.14	2870201.15	3.2	196
WS32	42.44	25° 52' 33".6127 N	078° 24' 59".0206 E	241113.27	2864500.65	4.1	218
WS33	32.28	25° 53' 26".5164 N	078° 29' 25".8693 E	248574.99	2865984.8	8.8	362
WS34	22.27	25° 50' 11".2908 N	078° 32' 53".4255 E	254241.38	2859866.61	2.1	483
WS35	12.20	25° 46' 18".1662 N	078° 36' 4".397 E	259429.73	2852593.28	2.7	562
WS36	02.24	25° 44' 7".0814 N	078° 41' 14".0672 E	267988.7	2848404.55	2.4	691



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



Water Sample Sediment Content Report

S.NO	PARAMETERS	UNITS	TOTAL DEPTH(m)	SEDIMENT CONCENTRATION(mg/l)
				MIDDEPTH
WS1	Soil Content	mg/l	2.80	21
WS2	Soil Content	mg/l	9.00	23
WS3	Soil Content	mg/l	4.00	20
WS4	Soil Content	mg/l	3.30	18
WS5	Soil Content	mg/l	2.50	13
WS6	Soil Content	mg/l	4.50	16
WS7	Soil Content	mg/l	2.80	19
WS8	Soil Content	mg/l	1.50	24
WS9	Soil Content	mg/l	2.70	22
WS10	Soil Content	mg/l	4.30	28
WS11	Soil Content	mg/l	8.60	32
WS12	Soil Content	mg/l	2.70	17
WS13	Soil Content	mg/l	2.10	16
WS14	Soil Content	mg/l	4.30	29
WS15	Soil Content	mg/l	8.40	21
WS16	Soil Content	mg/l	2.30	18
WS17	Soil Content	mg/l	2.30	17
WS18	Soil Content	mg/l	2.60	24
WS19	Soil Content	mg/l	2.10	32
WS20	Soil Content	mg/l	8.50	36
WS21	Soil Content	mg/l	1.6	42
WS22	Soil Content	mg/l	2.1	48
WS23	Soil Content	mg/l	2.8	62
WS24	Soil Content	mg/l	8.8	104
WS25	Soil Content	mg/l	1.3	116
WS26	Soil Content	mg/l	4.4	118
WS27	Soil Content	mg/l	4.9	120
WS28	Soil Content	mg/l	9.5	123
WS29	Soil Content	mg/l	2.0	134
WS30	Soil Content	mg/l	2.3	149

S.NO	PARAMETERS	UNITS	TOTAL DEPTH(m)	SEDIMENT CONCENTRATION(mg/l)
				MIDDEPTH
WS31	Soil Content	mg/l	3.2	196
WS32	Soil Content	mg/l	4.1	218
WS33	Soil Content	mg/l	8.8	362
WS34	Soil Content	mg/l	2.0	483
WS35	Soil Content	mg/l	2.7	562
WS36	Soil Content	mg/l	2.3	691

Section-3: Description of Waterways

➤ **Chainage 0.000 to 48.0 (Zone 45):**

The maximum width of the river is one kilometre and minimum width is eight hundred meters. There are three in numbers bridges in this stretch, one in number concrete road bridge at chainage 17.44, two in numbers railway bridges, one is completed and another one is under construction at chainage 18.99 and 18.98 respectively. The River Ganga is connected at chainage 6.0 in this stretch. There is no High Tension Line (HTL) crossing the stretch. Sand Chur is used for agriculture purpose. The major crops are Cucumber and watermelon. Zone 45 falls in this stretch.

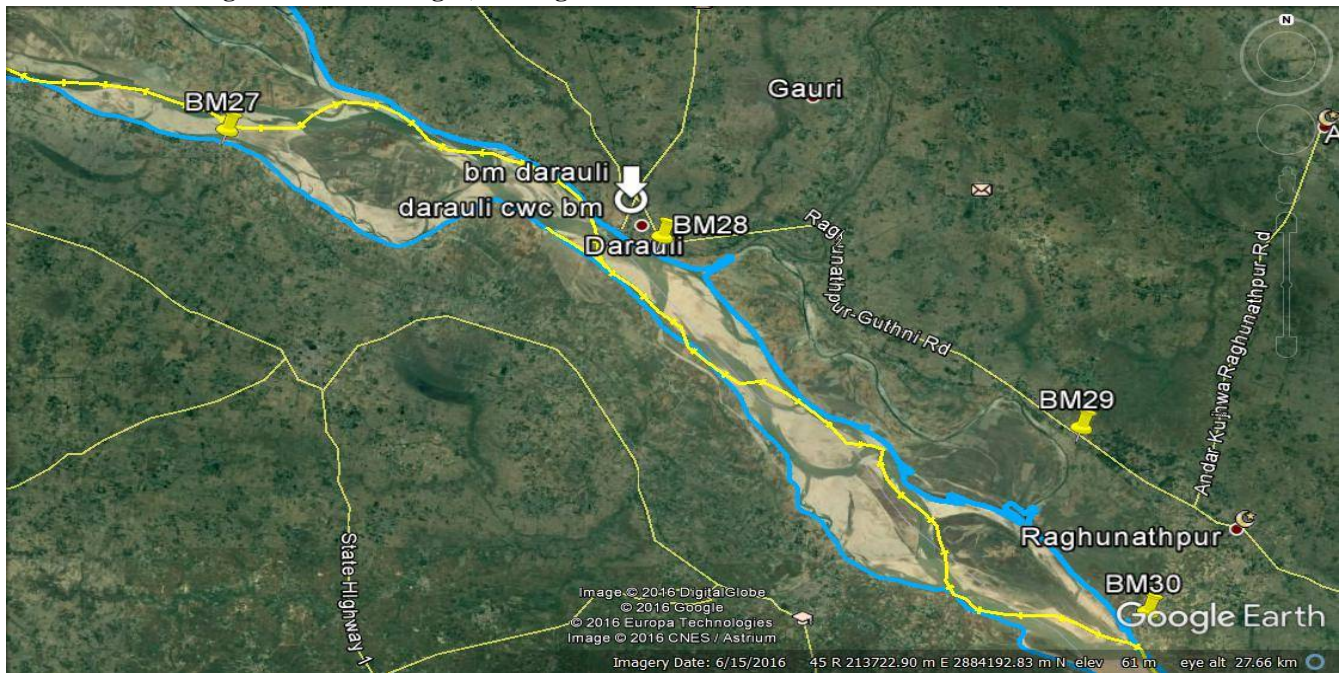
Google Image From Enai village , chappra to Narhan Village



➤ **Chainage 48.0 to 100.351:**

The maximum width of the stretch is fifteen hundred meters and minimum is one kilometre. There is one in numbers pipe bridge at chainage 83.36. No High Tension Line (HTL) crossing the river. Sand Chur is used for agriculture purpose. The major crops are Cucumber and watermelon. Zone 45 ends at Chainage 100.351.

From .Narhan village.toKathada village (Chainage 68.000km to 97.000 km



Chainage 100.351 to 180.0:

The maximum width of the canal is eighty metres and minimum is thirty metres. There are five in numbers bridges found in this stretch out of them three in numbers are concrete road bridge, two in numbers are completed and one in number is under construction at chainage 113.44 near Trutipar, 135.12 near Barhaj and 160.65 near Doharighat respectively. One in number pipe bridge at chainage 134.43 near Barhaj and one in number railway bridge at chainage 111.53 near Trutipar. Two in numbers High Tension Line (HTL) crossing the river. It is noticed that, near Doharighat bridge there is a Graveyard. Also birds like Sarus crane were seen in this stretch. Beyond both the banks, accessible road is available up to 10 kilometers. The main activity on land in both banks is agriculture. The major crops are Cucumber and watermelon. Zone 44 starts from this stretch.

From .Kathada village.toNagpur village (Chainage 97.000km to 126.000 km)



From .Nagpur village to Rasulpur village (Chainage 126.000 km to 156.000 km)



From Rasulpur village to Gola Bazar (Chainage 156.000 km to 188.000 km)



➤ **Chainage 180.0 to 263.0:**

The maximum width of the canal is two kilometers and minimum is one kilometer. There are three in numbers bridges in this stretch out of them two are concrete bridges at chainage 212.77 and 226.52 respectively. The bridge at chainage 212.77 near Kamharia is under construction. The bridge at chainage 226.52 near Birhar ghat is completed. One in number pipe bridge exists at chainage 212.11 near Kamharia. There is one in number High Tension Line (HTL) at chainage 249.28 near Nawari Rampur village. One graveyard near Kamharia at chainage 212.77 is found on the bank of the river. The main activity on land in both banks is agriculture and major crops are watermelon, cucumber and vegetables.

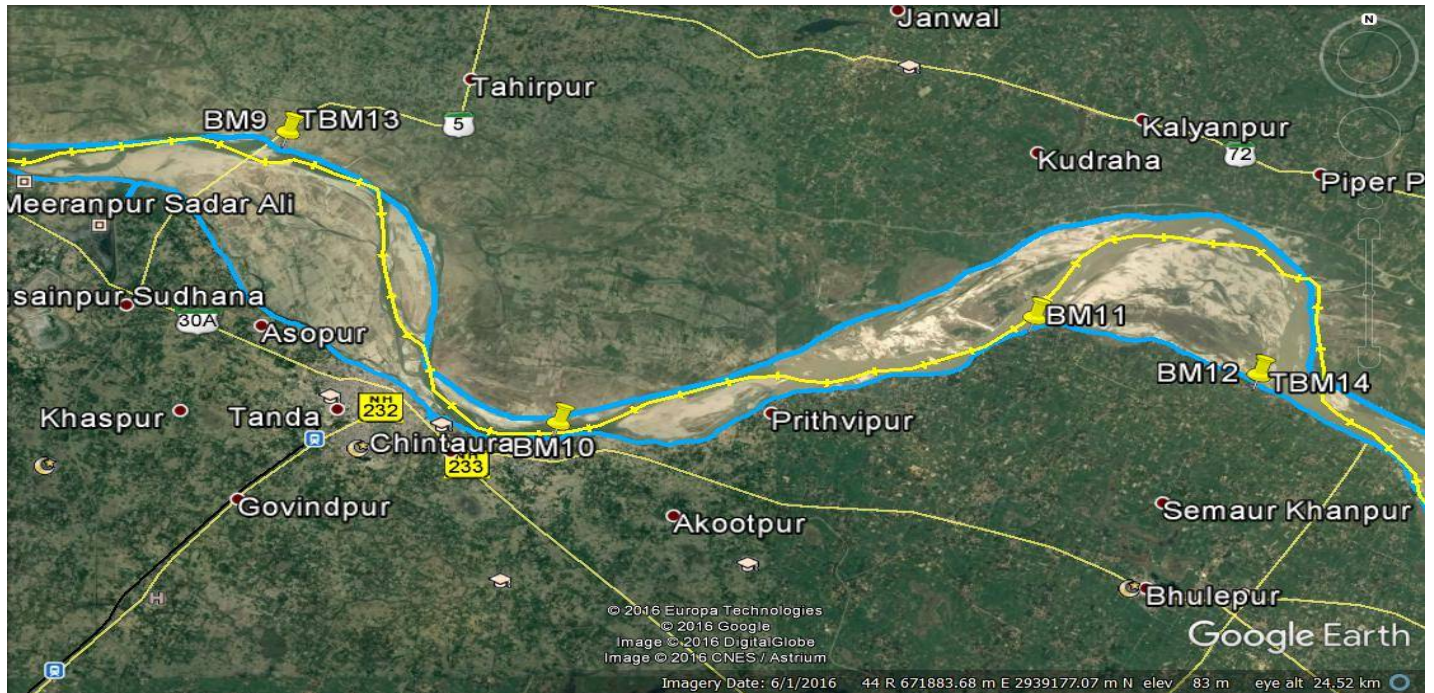
From .Gola Bazar to Jainpur (Chainage 188.000 km to 219.000 km)



From Jainpu to Barge Nizam (Chainage 219.000 km to 249.000 km)



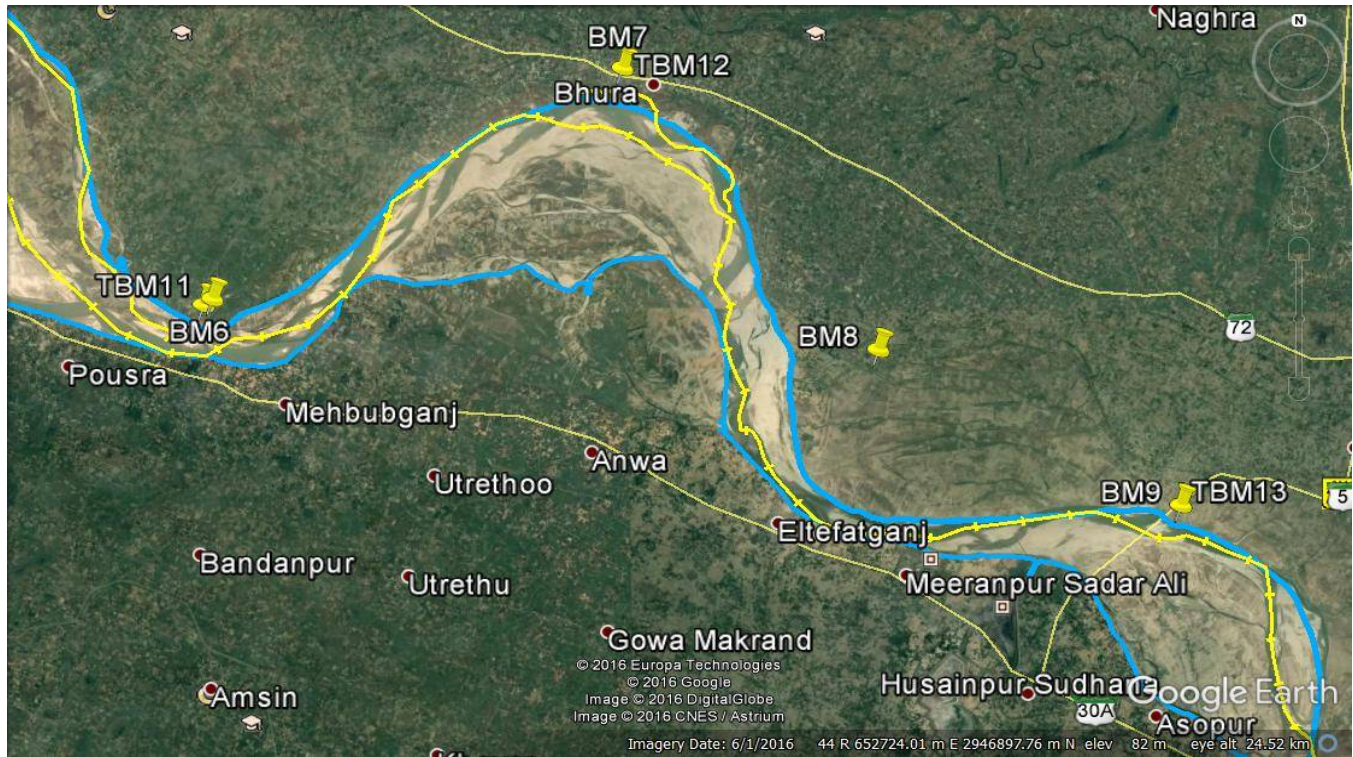
From Barge Nizam to Raipur (Chainage 249.000 km to 277.000 km)



➤ **Chainage 263.0 to 353.6:**

The maximum width of the stretch is fifteen hundred meters and minimum is five hundred metres. There are five in numbers bridges found in this stretch, four in numbers are concrete road bridges at chainage 270.96 near Tenda, 335.10, 335.90 and 336.48 near Ayoudhya respectively. One railway bridge at chainage 335.50 near Ayoudhya exists. There are four High Tension Line (HTL) crossing the river at chainage 299.90, 300.52, 300.68 near Mehaboob ganj and 336.39 near Ayoudhya. There is one Power Plant of NTPC falls at chainage 274.22 near Tenda. There is one graveyard at Saryu. Boating activities is also available for tourist in this stretch. Agriculture is the main livelihood.

From Raipur to Uniyar pur (Chainage 277.000 km to 306.000 km)



From Uniyarpur to Kalyanpur (Chainage 306.000 km to 335.000 km)



From Kalyanpur to Guptar Faizabad (Chainage 335.000 km to 353.3000 km)



Section-4: Terminals

4.1 Details of Terminal survey carried out / proposed with Chainage, Lat/Long, Google images:-

Sl No	Chainage (km)	Location	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	Area (sq.m)	Land owner	Present land use
			Left Bank	Right Bank	Left Bank	Right Bank					
1	342.40	AYODHYA	26°48'38.72"N 82°12'48.31"E	26°48'39.18"N 82°12'40.35"E	620596.30E 2966051.54N	620376.00E 2966063.00N	210	140	29400	-	SAMSA N GHAT
2	269.00	TANDA	26°32'55.74"N 82°40'12.19"E	26°32'57.59"N 82°40'9.40"E	666365.00E 2937548.00N	666287.00E 2937604.00N	85	70	5950	-	CULTIV ATION



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



Sl No	Chainage (km)	Location	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	Area (sq.m)	Land owner	Present land use
			Left Bank	Right Bank	Left Bank	Right Bank					
3	166.00	DOHRIGHAT	26°16'35.52"N 83°31'3.31"E	26°16'36.76"N 83°30'55.38"E	741411.00E 2908755.00 N	751190.00E 2908789.00N	210	120	25200	-	CULTIVATION
4	116.00	TURTIPTAR	26°9'20.19"N 83°51'58.74"E	26°9'30.21"N 83°51'59.74"E	786549.00E 2896078.00 N	786570.00 E 2896387.00 N	140	130	18200	-	CULTIVATION
5	18.00	MANJHIGHAT	25°49'23.30"N 84°35'10.35"E	25°49'20.28"N 84°35'16.19"E	2908755.00 N 2858319.00 N	258189.00 E 2858223.00 N	140	130	18200	-	CULTIVATION

TERMINAL-1 (AYODHYA) 210m × 140m

The proposed terminal is situated near Ayodhya bus stand on right bank of Ghaghra River at Ayodhya. It is proposed between Rly bridge and National high way 28 to facilitate better road communication and transportation. It will cover districts of Faizabad, Gonda, and Basti as the North end of the bridge opens in to district Gonda. Districts of Sultanpur, Bara Banki, Bahraich and Siddharth nagar are falling under the secondary catchment area of Ayodhya. Requirement of Terminal area is 210m × 140m. The area is used for cultivation purpose which can be developed and better communication for transportation of man and material and ferry service can be established. Ayodhya being a tourist and religious place can be a better approach for visitors through water ways and will minimize road traffic problem.



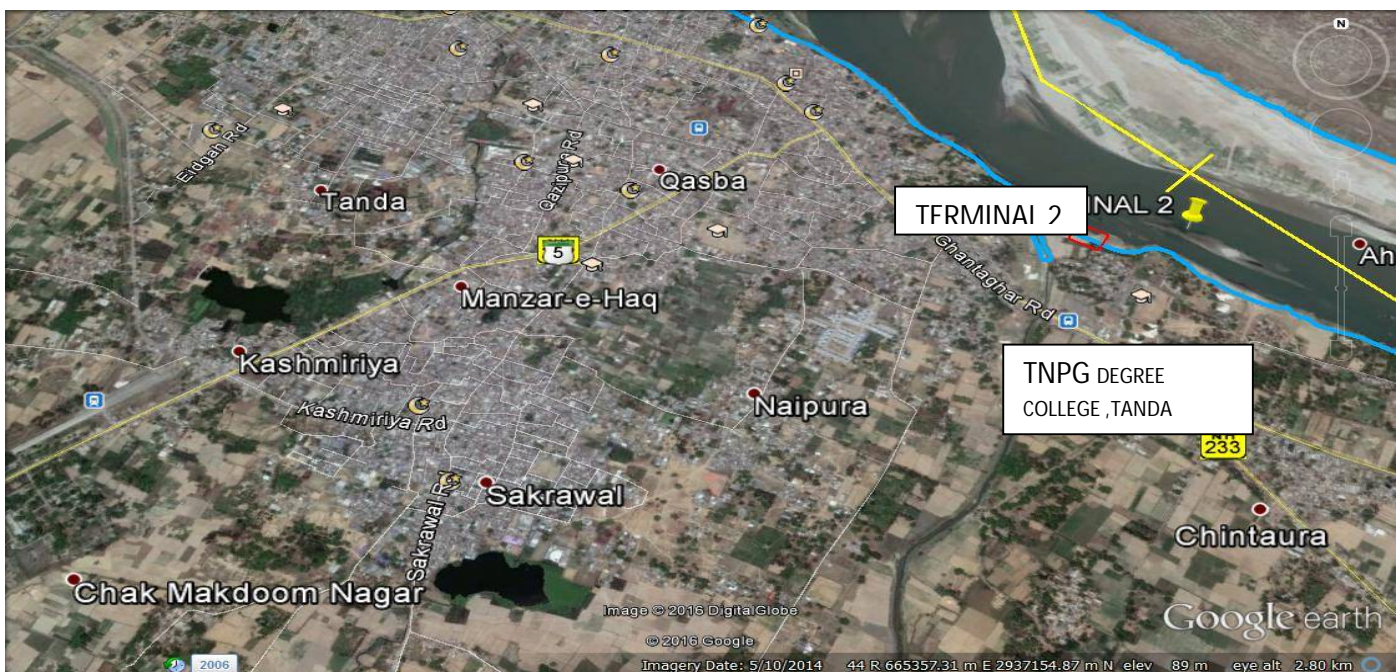
TERMINAL 2(TANDA) 85m × 70m

The proposed Terminal 2 at Mahirpur by IWAI may lead to more expensive, as the area is full of sand. As per survey done and availability of flow of water the same terminal can be developed on right bank of Ghaghra river beside TNPG DEGREE COLLEGE at TANDA, which can be connected to NH232, NH233, SH30A, TANDA RLY STATION, and the area is densely populated, also a place where a lot of educational institutions are present, which can be a proper place for ferry services. Tanda is the main business place in this locality.

TERMINAL 2 AT MAHIRPUR PROPOSED BY IWAI (Not suitable location)



TERMINAL 2 BESIDE TNPG DEGREE COLLEGE, TANDA PROPOSED BY GMI (Suitable location)



TERMINAL 3(DOHRIGHAT) 210m × 120m

The proposed terminal 3 at Dohrighat on right bank of Ghagra river after NH28 bridge is a suitable place for the development of the terminal. Size of the terminal is 210m × 120m. The area is open and wide for future development of roads and other utilities .It is connected to rail,road and is for better handling for commodities like cement,fertiliser,food grains and coal etc . Dohrighat being at nearly center of ghagra river and being an open area can be developed as center point for control and management of waterways.



TERMINAL 4(TURTIPAR) 140m×130m

Proposed terminal 4 is on rt bank of Ghaghara river ,after Balia Deoria High way bridge .Rail way at Turtipur is near about and Balthara is at about 10 km .Proposed size is 140m×130m. The area is cultivated area and Turtipur village is the approximately 250m to 300 m from the bank. Terminal can be developed and can be a business centre for farmers and vegetable growers.

TERMINAL 4



TERMINAL 5 (MANJHIGHAT) 140m × 130m

The proposed terminal is on left bank of Ghaghara River between Rly bridge and Balia Chhapra NH 19 road. Manjhighat is well connected to road and railway. The area is full of cultivation. It can be developed as export point of food corps and vegetables.



4.2 Proposed terminal site shall have following considerations:-

- a) Availability of suitable depths for vessel berthing
- b) Availability of land for construction of terminal and Warehouse
- c) Connectivity to hinterland
- d) Distance from city traffic limits
- e) Possibility of future expansion
- f) Possibility of new industrial setup along the river stretch in future

4.3 Description of terminal as per above considerations:-

Sl No	Chainage (km)	Location	Position (Lat Long)		Position (UTM)		Length (m)	Width (m)	Area (sq. m.)	Land owner	Present land use
			Left Bank	Right Bank	Left Bank	Right Bank					
1	342.40	AYODHYA	26°48'38.72"N 82°12'48.31"E	26°48'39.18"N 82°12'40.35"E	620596.30E 2966051.54N	620376.00E 2966063.00N	210	140	29400	- NA-	SAMSAN GHAT
2	269.00	TANDA	26°32'55.74"N 82°40'12.19"E	26°32'57.59"N 82°40'9.40"E	666365.00E 2937548.00N	666287.00NE293 7604.00N	85	70	5950	- NA-	CULTIVAT ION
3	166.00	DOHRIGHAT	26°16'35.52"N 83°31'3.31"E	26°16'36.76"N 83°30'55.38"E	741411.00E 2908755.00 N	751190.00E 2908789.00N	210	120	25200	- NA-	CULTIVAT ION
4	116.00	TURTIPTAR	26°9'20.19"N 83°51'58.74"E	26°9'30.21"N 83°51'59.74"E	786549.00E 2896078.00 N	786570.00 E 2896387.00 N	140	130	18200	- NA-	CULTIVAT ION
5	18.00	MANJHIGHAT	25°49'23.30"N 84°35'10.35"E	25°49'20.28"N 84°35'16.19"E	2908755.00 N 2858319.00 N	258189.00 E 2858223.00 N	140	130	18200	- NA-	CULTIVAT ION

4.4 Details of Land use, owner etc.:-

The both side bank of the River Ghaghra used for cultivation. The Farmers are cultivated their crops with using this fertile land and grows a huge amount of crops every year. Besides, some portions of the land are surrounded by small industries and Forests. Though bolder pitching is found in some places, But in Recent times, the bank of the river has been worn away in some places for lack of trees. Sometimes, the land of the river has been changed into a heap of garbage. As a result, the river side becomes polluted land. In the Monsoon period, Flood and erosion has been affected both side of the river bank.



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



Section -5: Fairway development:-

Dredging sections, summary of depths and dredging quantity for different classification of waterways (stretch-wise)

GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Ganga Confluence (Near Doriganj)	0	1	1	5	4.2	2.6	-	0.00	0.00	3.2	2.1	-	0.00	0.00
	1	2	6	10	5.9	2.7	-	0.00	0.00	4.3	2.0	-	0.00	0.00
	2	3	11	15	3.7	1.1	1,000.00	2,455.47	2,455.47	1.9	-0.3	600.00	698.47	698.47
	3	4	16	20	4.1	1.3	800.00	7,756.39	10,211.86	2.6	-0.3	-	0.00	698.47
	4	5	21	27	6.1	0.8	800.00	8,223.77	18,435.63	4.8	-0.3	1,000.00	570.93	1,269.40
Enai Village	5	6	28	33	3.3	1.2	1,000.00	13,066.94	31,502.57	1.5	-0.3	1,000.00	395.44	1,664.84
	6	7	34	40	5.2	1.2	1,000.00	6,553.64	38,056.21	3.6	-0.3	1,000.00	902.90	2,567.74
	7	8	41	45	2.3	0.8	1,000.00	22,210.41	60,266.62	0.6	-0.3	1,000.00	552.67	3,120.41
CHHAPRA	8	9	46	51	2.3	0.7	1,000.00	22,976.11	83,242.73	0.5	-0.3	1,000.00	8,890.42	12,010.83
	9	10	52	57	3.2	0.1	1,000.00	22,632.42	105,875.15	1.9	-0.3	1,000.00	27,624.75	39,635.58
	10	11	58	62	3.2	1.0	1,000.00	10,715.26	116,590.41	2.6	-0.3	1,000.00	16,917.16	56,552.74
	11	12	63	67	2.4	0.7	1,000.00	13,637.24	130,227.65	1.8	-0.3	1,000.00	23,142.92	79,695.66
	12	13	68	72	3.2	0.7	1,000.00	15,670.15	145,897.80	2.4	-0.3	1,000.00	24,805.75	104,501.41
Seanraja Village	13	14	73	77	2.5	0.8	1,000.00	18,893.88	164,791.68	1.8	-0.3	1,000.00	26,738.46	131,239.87
Revelganj Ghat	14	15	78	83	3.2	1.2	1,000.00	10,253.52	175,045.20	2.5	-0.3	1,000.00	17,190.60	148,430.47
	15	16	84	88	2.7	1.7	1,000.00	83.13	175,128.33	2.0	-0.3	1,000.00	2,636.22	151,066.69
	16	17	89	93	2.7	0.8	1,000.00	13,786.62	188,914.95	2.1	-0.3	1,000.00	20,299.84	171,366.53
	17	18	94	98	2.5	0.9	1,000.00	21,511.56	210,426.51	3.2	-0.3	1,000.00	75,041.12	246,407.65
MANJHI BRIDGE	18	19	99	103	6.5	1.5	600.00	1,258.03	211,684.54	6.8	-0.3	1,000.00	20,552.56	266,960.21
	19	20	104	108	6.4	3.0	-	0.00	211,684.54	7.1	-0.3	200.00	491.70	267,451.91
Mehadiganj Village	20	21	109	113	4.4	1.0	800.00	3,662.20	215,346.74	5.2	-0.3	400.00	37,194.50	304,646.41
	21	22	114	119	2.7	0.9	1,000.00	22,421.47	237,768.21	3.4	-0.3	800.00	87,178.30	391,824.71
	22	23	120	124	3.5	1.0	1,000.00	20,035.67	257,803.88	4.2	-0.3	1,000.00	76,350.89	468,175.60
	23	24	125	130	3.5	0.7	1,000.00	21,665.53	279,469.41	4.1	-0.3	600.00	84,356.54	552,532.14
	24	25	131	136	2.7	1.0	1,000.00	16,681.26	296,150.67	3.4	-0.3	800.00	76,347.31	628,879.45



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Dumri	25	26	137	143	3.3	0.6	1,000.00	14,506.64	310,657.31	4.0	-0.3	1,000.00	75,808.68	704,688.13
	26	27	144	149	2.0	0.9	1,000.00	25,077.50	335,734.81	2.6	-0.3	1,000.00	75,586.39	780,274.52
	27	28	150	154	2.8	1.6	800.00	2,753.50	338,488.31	2.7	-0.3	1,000.00	23,490.78	803,765.30
	28	29	155	159	5.1	1.8	400.00	264.91	338,753.22	5.0	-0.3	400.00	13,718.26	817,483.56
	29	30	160	164	5.9	0.8	400.00	6,529.08	345,282.30	5.8	-0.3	400.00	18,620.41	836,103.97
	30	31	165	169	2.7	1.1	1,000.00	11,127.19	356,409.49	2.6	-0.3	1,000.00	44,378.53	880,482.50
Dumaigarh	31	32	170	174	6.1	1.4	400.00	3,149.12	359,558.61	6.0	-0.3	600.00	12,903.88	893,386.38
	32	33	175	179	7.6	2.6	-	0.00	359,558.61	7.5	2.4	-	0.00	893,386.38
	33	34	180	184	4.6	1.1	800.00	7,468.32	367,026.93	4.5	-0.3	800.00	28,130.66	921,517.04
Narwan	34	35	185	189	8.9	3.6	-	0.00	367,026.93	8.8	2.6	-	0.00	921,517.04
	35	36	190	193	4.7	2.8	-	0.00	367,026.93	4.5	2.4	-	0.00	921,517.04
	36	37	194	198	3.6	2.0	-	0.00	367,026.93	3.5	-0.3	200.00	2,191.72	923,708.76
	37	38	199	203	6.7	2.1	-	0.00	367,026.93	6.6	-0.3	400.00	3,692.65	927,401.41
	38	39	204	209	2.7	1.0	1,000.00	19,984.93	387,011.86	2.6	-0.3	1,000.00	58,433.34	985,834.75
	39	40	210	214	2.1	1.0	1,000.00	17,123.26	404,135.12	4.3	-0.3	1,000.00	51,130.13	1,036,964.88
	40	41	215	219	3.0	1.1	600.00	7,019.58	411,154.70	3.0	-0.3	600.00	31,352.73	1,068,317.61
	41	42	220	224	3.0	1.1	800.00	12,178.77	423,333.47	3.0	-0.3	1,000.00	38,889.27	1,107,206.88
42	43	225	229	5.5	3.0	-	0.00	423,333.47	5.6	1.3	200.00	51.61	1,107,258.49	
43	44	230	234	6.7	1.1	200.00	1,309.40	424,642.87	6.6	-0.3	400.00	6,926.60	1,114,185.09	
44	45	235	239	2.0	0.7	1,000.00	17,466.41	442,109.28	2.1	-0.3	1,000.00	52,825.60	1,167,010.69	
45	46	240	245	2.2	0.8	1,000.00	23,283.09	465,392.37	2.1	-0.3	1,000.00	62,092.40	1,229,103.09	
46	47	246	250	2.3	1.1	1,000.00	8,358.57	473,750.94	2.3	-0.3	1,000.00	39,160.11	1,268,263.20	
47	48	251	255	3.1	0.9	1,000.00	16,789.09	490,540.03	3.2	-0.3	1,000.00	46,277.56	1,314,540.76	
48	49	256	261	1.4	0.8	1,000.00	31,938.46	522,478.49	1.6	-0.3	1,000.00	86,880.92	1,401,421.68	
49	50	262	266	2.4	0.7	1,000.00	29,241.59	551,720.08	2.5	-0.3	1,000.00	66,701.99	1,468,123.67	
50	51	267	272	1.8	1.0	1,000.00	11,643.44	563,363.52	1.8	-0.3	1,000.00	88,554.09	1,556,677.76	
Gangapur	51	52	273	277	2.0	0.7	1,000.00	24,151.36	587,514.88	2.0	-0.3	1,000.00	69,651.80	1,626,329.56
Kachnar	52	53	278	282	3.2	0.9	1,000.00	8,426.44	595,941.32	3.3	-0.3	1,000.00	44,394.32	1,670,723.88
	53	54	283	287	5.4	1.0	1,000.00	9,333.48	605,274.80	5.1	-0.3	1,000.00	40,385.27	1,711,109.15



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	54	55	288	293	2.9	1.1	1,000.00	16,132.17	621,406.97	3.0	-0.3	1,000.00	61,069.29	1,772,178.44
	55	56	294	298	2.6	1.2	1,000.00	9,211.01	630,617.98	2.6	-0.3	1,000.00	45,316.07	1,817,494.51
	56	57	299	303	2.7	1.0	1,000.00	20,307.69	650,925.67	2.8	-0.3	1,000.00	66,146.55	1,883,641.06
	57	58	304	308	4.8	1.9	200.00	1,702.65	652,628.32	4.9	-0.3	400.00	13,914.46	1,897,555.52
	58	59	309	313	4.7	1.1	400.00	2,131.29	654,759.61	4.8	-0.3	1,000.00	13,353.74	1,910,909.26
	59	60	314	318	3.0	1.2	800.00	10,924.66	665,684.27	3.0	-0.3	1,000.00	44,856.93	1,955,766.19
	60	61	319	323	4.5	3.1	-	0.00	665,684.27	4.3	-0.3	200.00	406.45	1,956,172.64
	61	62	324	328	4.8	1.7	400.00	767.00	666,451.27	4.6	-0.3	200.00	6,889.94	1,963,062.58
	62	63	329	333	3.6	1.7	400.00	631.09	667,082.36	3.4	-0.3	600.00	7,435.56	1,970,498.14
	63	64	334	338	4.0	1.5	600.00	396.19	667,478.55	4.0	-0.3	600.00	10,230.14	1,980,728.28
	64	65	339	344	2.4	0.8	1,000.00	32,750.66	700,229.21	1.5	-0.3	1,000.00	69,514.84	2,050,243.12
Raghu- nathur	65	66	345	349	4.2	0.9	1,000.00	23,917.41	724,146.62	4.0	-0.3	1,000.00	51,212.39	2,101,455.51
	66	67	350	354	3.0	1.0	1,000.00	18,691.39	742,838.01	2.8	-0.3	1,000.00	47,734.60	2,149,190.11
	67	68	355	360	1.8	0.7	1,000.00	35,535.00	778,373.01	1.7	-0.3	1,000.00	74,438.05	2,223,628.16
Narhan	68	69	361	365	2.0	0.8	1,000.00	27,020.43	805,393.44	1.9	-0.3	1,000.00	56,267.39	2,279,895.55
	69	70	366	370	2.6	0.9	1,000.00	17,874.67	823,268.11	2.4	-0.3	1,000.00	44,959.39	2,324,854.94
	70	71	371	375	1.2	0.7	1,000.00	34,348.60	857,616.71	1.1	-0.3	1,000.00	65,710.37	2,390,565.31
	71	72	376	380	2.5	0.7	1,000.00	19,459.95	877,076.66	2.6	-0.3	1,000.00	48,431.83	2,438,997.14
	72	73	381	385	7.4	1.3	400.00	41.54	877,118.20	7.7	-0.3	200.00	8,533.35	2,447,530.49
	73	74	386	390	3.7	0.7	1,000.00	16,348.85	893,467.05	3.8	-0.3	1,000.00	48,593.16	2,496,123.65
	74	75	391	395	2.0	0.7	1,000.00	31,854.28	925,321.33	2.1	-0.3	1,000.00	74,211.69	2,570,335.34
	75	76	396	400	1.8	0.7	1,000.00	23,336.64	948,657.97	2.0	-0.3	1,000.00	61,684.40	2,632,019.74
	76	77	401	406	3.4	0.7	1,000.00	23,159.65	971,817.62	3.5	-0.3	1,000.00	65,397.35	2,697,417.09
	77	78	407	412	2.6	0.7	1,000.00	31,967.81	1,003,785.43	3.1	-0.3	1,000.00	73,852.85	2,771,269.94
	78	79	413	417	2.9	0.7	1,000.00	23,840.35	1,027,625.78	3.1	-0.3	1,000.00	59,183.33	2,830,453.27
	79	80	418	422	3.3	0.7	1,000.00	23,325.56	1,050,951.34	3.4	-0.3	1,000.00	54,746.92	2,885,200.19
	80	81	423	429	2.0	0.7	1,000.00	28,044.45	1,078,995.79	2.0	-0.3	1,000.00	61,405.05	2,946,605.24
	81	82	430	434	2.5	0.8	1,000.00	23,407.27	1,102,403.06	2.4	-0.3	1,000.00	60,468.43	3,007,073.67



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	82	83	435	439	2.3	0.7	1,000.00	23,599.11	1,126,002.17	3.6	-0.3	1,000.00	58,055.28	3,065,128.95
	83	84	440	444	1.7	0.7	1,000.00	32,932.93	1,158,935.10	6.8	-0.3	1,000.00	69,129.81	3,134,258.76
	84	85	445	449	2.7	0.7	1,000.00	18,075.00	1,177,010.10	2.7	-0.3	1,000.00	48,513.72	3,182,772.48
	85	86	450	454	2.4	0.9	1,000.00	15,665.67	1,192,675.77	2.3	-0.3	1,000.00	47,062.33	3,229,834.81
	86	87	455	460	1.9	0.7	1,000.00	29,408.26	1,222,084.03	4.8	-0.3	1,000.00	72,700.03	3,302,534.84
Darauli	87	88	461	465	2.3	0.7	1,000.00	16,765.82	1,238,849.85	2.3	-0.3	1,000.00	42,383.43	3,344,918.27
	88	89	466	470	2.8	0.7	1,000.00	17,936.58	1,256,786.43	3.0	-0.3	1,000.00	48,230.43	3,393,148.70
	89	90	471	475	1.9	0.7	1,000.00	24,369.62	1,281,156.05	1.8	-0.3	1,000.00	59,222.25	3,452,370.95
	90	91	476	480	3.4	1.2	1,000.00	3,832.09	1,284,988.14	3.3	-0.3	1,000.00	29,547.79	3,481,918.74
	91	92	481	485	2.6	0.8	1,000.00	10,445.04	1,295,433.18	3.3	-0.3	800.00	44,606.19	3,526,524.93
	92	93	486	490	5.3	0.7	1,000.00	22,856.41	1,318,289.59	2.8	-0.3	1,000.00	55,879.59	3,582,404.52
	93	94	491	495	1.7	0.8	1,000.00	29,510.85	1,347,800.44	2.4	-0.3	1,000.00	67,041.20	3,649,445.72
	94	95	496	500	2.6	0.7	1,000.00	18,414.28	1,366,214.72	3.3	-0.3	600.00	55,632.21	3,705,077.93
	95	96	501	506	2.7	0.7	1,000.00	28,412.17	1,394,626.89	3.5	-0.3	1,000.00	67,042.98	3,772,120.91
	96	97	507	511	2.4	0.8	1,000.00	12,391.50	1,407,018.39	3.1	-0.3	800.00	45,605.71	3,817,726.62
	97	98	512	516	2.3	1.1	1,000.00	12,261.72	1,419,280.11	3.0	-0.3	600.00	45,949.90	3,863,676.52
	98	99	517	521	3.6	1.5	1,000.00	2,498.48	1,421,778.59	4.3	-0.3	1,000.00	24,228.10	3,887,904.62
	99	100	522	526	1.9	0.7	1,000.00	25,870.57	1,447,649.16	2.6	-0.3	800.00	60,674.53	3,948,579.15
	100	100.4	527	528	1.8	1.0	400.00	8,013.88	1,455,663.04	2.4	-0.3	350.00	22,239.07	3,970,818.22
	100.4	101	529	532	1.9	0.9	800.00	11,010.51	1,466,673.55	2.1	-0.3	650.00	45,558.56	4,016,376.78
	101	102	533	537	2.2	0.8	1,000.00	15,651.33	1,482,324.88	2.2	-0.3	1,000.00	51,319.67	4,067,696.45
	102	103	538	542	4.4	1.3	800.00	3,509.80	1,485,834.68	4.6	-0.3	800.00	28,198.46	4,095,894.91
	103	104	543	548	2.3	0.7	1,000.00	24,144.32	1,509,979.00	2.3	-0.3	1,000.00	67,016.59	4,162,911.50
	104	105	549	553	2.3	0.8	1,000.00	12,315.34	1,522,294.34	2.4	-0.3	1,000.00	48,267.00	4,211,178.50
	105	106	554	558	1.5	0.8	1,000.00	24,673.89	1,546,968.23	1.4	-0.3	1,000.00	66,645.10	4,277,823.60
	106	107	559	563	5.2	1.6	400.00	2,207.48	1,549,175.71	5.2	-0.3	400.00	14,768.70	4,292,592.30
Rampur Village	107	108	564	568	3.2	1.7	400.00	822.32	1,549,998.03	3.2	-0.3	800.00	31,389.40	4,323,981.70
Harnatar Dayalpur	108	109	569	572	3.0	1.2	600.00	5,906.00	1,555,904.03	3.0	-0.3	400.00	30,774.64	4,354,756.34



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	109	110	573	577	2.0	0.7	1,000.00	27,561.89	1,583,465.92	2.3	-0.3	1,000.00	53,953.90	4,408,710.24
	110	111	578	582	2.3	0.7	1,000.00	24,081.29	1,607,547.21	2.7	-0.3	1,000.00	74,482.01	4,483,192.25
	111	112	583	587	3.2	0.7	800.00	10,777.19	1,618,324.40	3.6	-0.3	800.00	38,725.06	4,521,917.31
Manthala Bajar	112	113	588	592	1.9	0.7	1,000.00	16,430.61	1,634,755.01	2.4	-0.3	800.00	56,648.92	4,578,566.23
	113	114	593	897	1.9	0.7	1,000.00	25,112.26	1,659,867.27	2.2	-0.3	1,000.00	47,121.27	4,625,687.50
Turtipar	114	115	898	602	2.6	0.7	1,000.00	23,479.93	1,683,347.20	2.9	-0.3	1,000.00	37,430.65	4,663,118.15
Turtipar Rly. Brg.	115	116	603	607	2.0	0.9	1,000.00	21,045.02	1,704,392.22	2.6	-0.3	200.00	644.30	4,663,762.45
	116	117	608	612	4.3	2.4	200.00	94.17	1,704,486.39	4.8	-0.3	1,000.00	47,121.32	4,710,883.77
	117	118	613	618	6.4	0.8	1,000.00	23,872.48	1,728,358.87	7.0	-0.3	600.00	45,249.33	4,756,133.10
	118	119	619	623	1.7	0.8	1,000.00	20,427.59	1,748,786.46	2.2	-0.3	1,000.00	47,375.14	4,803,508.24
Esharou	119	120	624	628	2.5	0.7	1,000.00	14,154.14	1,762,940.60	3.0	-0.3	1,000.00	43,267.86	4,846,776.10
	120	121	629	633	2.8	1.2	1,000.00	7,599.85	1,770,540.45	3.3	-0.3	800.00	90,363.91	4,937,140.01
	121	122	634	638	3.4	1.2	800.00	3,830.15	1,774,370.60	3.9	-0.3	200.00	72,845.12	5,009,985.13
Chanpur Gloura Village	122	123	639	643	5.5	0.9	200.00	2,011.87	1,776,382.47	6.1	-0.3	200.00	64,206.00	5,074,191.13
	123	124	644	648	2.2	1.1	800.00	17,565.12	1,793,947.59	2.7	-0.3	1,000.00	64,067.41	5,138,258.54
	124	125	649	653	1.6	0.7	1,000.00	28,079.96	1,822,027.55	2.1	-0.3	1,000.00	67,464.17	5,205,722.71
	125	126	654	658	1.7	0.7	1,000.00	22,076.79	1,844,104.34	6.0	-0.3	1,000.00	66,486.63	5,272,209.34
Chakimusa Dohi Ghat	126	127	659	663	2.8	0.7	1,000.00	24,048.83	1,868,153.17	3.9	-0.3	1,000.00	75,667.71	5,347,877.05
	127	128	664	668	3.1	0.7	1,000.00	25,192.03	1,893,345.20	3.6	-0.3	1,000.00	74,285.03	5,422,162.08
	128	129	669	674	2.8	0.7	1,000.00	29,406.14	1,922,751.34	3.3	-0.3	1,000.00	70,278.83	5,492,440.91
	129	130	675	679	1.6	0.7	1,000.00	32,127.10	1,954,878.44	2.2	-0.3	1,000.00	45,210.88	5,537,651.79
	130	131	680	685	1.5	0.7	1,000.00	42,302.54	1,997,180.98	1.7	-0.3	1,000.00	53,256.18	5,590,907.97
	131	132	686	690	2.0	1.1	1,000.00	16,752.41	2,013,933.39	2.4	-0.3	1,000.00	74,707.72	5,665,615.69
	132	133	691	695	4.7	1.0	1,000.00	6,408.28	2,020,341.67	5.1	-0.3	600.00	28,578.09	5,694,193.78
	133	134	696	700	1.7	0.7	1,000.00	32,265.48	2,052,607.15	2.2	-0.3	1,000.00	21,813.79	5,716,007.57
	134	135	701	705	2.4	0.8	1,000.00	23,104.17	2,075,711.32	2.9	-0.3	1,000.00	29,300.70	5,745,308.27
	135	136	706	710	4.3	2.1	200.00	296.59	2,076,007.91	4.9	-0.3	200.00	19,143.83	5,764,452.10



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	136	137	711	715	2.2	1.5	1,000.00	3,618.37	2,079,626.28	2.7	-0.3	1,000.00	26,926.58	5,791,378.68
	137	138	716	720	2.7	2.0	200.00	65.83	2,079,692.11	3.3	-0.3	1,000.00	37,800.07	5,829,178.75
	138	139	721	725	3.5	1.5	600.00	2,818.23	2,082,510.34	3.5	-0.3	1,000.00	50,804.18	5,879,982.93
Barhaj Bridge (UNC)	139	140	726	730	3.9	1.4	800.00	1,624.64	2,084,134.98	4.4	-0.3	1,000.00	8,443.67	5,888,426.60
Nabideswar Mishra Ghat	140	141	731	736	2.4	1.1	1,000.00	16,737.76	2,100,872.74	4.2	-0.3	1,000.00	25,369.11	5,913,795.71
Katelwa Village	141	142	737	741	6.6	1.0	800.00	3,120.79	2,103,993.53	7.1	-0.3	1,000.00	72,161.96	5,985,957.67
Kudhe Ghat	142	143	742	746	4.3	1.2	400.00	2,264.40	2,106,257.93	4.7	-0.3	1,000.00	51,420.93	6,037,378.60
	143	144	747	752	1.4	0.7	800.00	40,943.43	2,147,201.36	5.2	-0.3	1,000.00	48,882.21	6,086,260.81
Kaparwar	144	145	753	757	2.2	0.9	1,000.00	18,048.17	2,165,249.53	2.2	-0.3	1,000.00	61,129.95	6,147,390.76
	145	146	758	763	3.8	0.7	1,000.00	23,193.55	2,188,443.08	5.2	-0.3	1,000.00	49,228.79	6,196,619.55
	146	147	764	768	1.7	0.7	1,000.00	26,635.14	2,215,078.22	1.8	-0.3	1,000.00	57,506.15	6,254,125.70
Netavar patti	147	148	769	773	2.9	0.8	1,000.00	18,683.04	2,233,761.26	3.0	-0.3	1,000.00	90,748.78	6,344,874.48
	148	149	774	779	2.0	0.7	1,000.00	21,636.85	2,255,398.11	2.1	-0.3	1,000.00	60,031.58	6,404,906.06
	149	150	780	784	2.3	0.7	1,000.00	22,321.17	2,277,719.28	2.3	-0.3	1,000.00	75,581.74	6,480,487.80
	150	151	785	790	2.5	1.0	1,000.00	21,164.65	2,298,883.93	2.6	-0.3	1,000.00	76,652.43	6,557,140.23
	151	152	791	795	1.9	0.7	1,000.00	22,058.21	2,320,942.14	2.0	-0.3	1,000.00	67,372.65	6,624,512.88
	152	153	796	800	2.1	0.7	1,000.00	31,420.87	2,352,363.01	1.7	-0.3	1,000.00	51,086.30	6,675,599.18
	153	154	801	806	2.0	0.7	1,000.00	40,969.76	2,393,332.77	1.6	-0.3	1,000.00	52,298.41	6,727,897.59
	154	155	807	811	2.2	0.7	1,000.00	22,386.65	2,415,719.42	1.7	-0.3	1,000.00	19,259.35	6,747,156.94
	155	156	812	816	2.6	0.7	1,000.00	22,056.37	2,437,775.79	2.1	-0.3	1,000.00	51,239.12	6,798,396.06
	156	157	817	822	3.7	1.1	600.00	4,996.38	2,442,772.17	3.3	-0.3	1,000.00	70,661.70	6,869,057.76
	157	158	823	827	3.1	0.7	800.00	19,510.70	2,462,282.87	2.7	-0.3	600.00	11,393.64	6,880,451.40
	158	159	828	833	2.9	0.7	1,000.00	28,325.55	2,490,608.42	2.4	-0.3	1,000.00	55,542.70	6,935,994.10
	159	160	834	838	5.8	1.9	200.00	1,714.33	2,492,322.75	5.4	-0.3	600.00	48,846.31	6,984,840.41
	160	161	839	843	3.8	0.8	1,000.00	20,411.33	2,512,734.08	3.4	-0.3	800.00	64,146.90	7,048,987.31
	161	162	844	848	3.5	0.8	1,000.00	16,040.08	2,528,774.16	3.1	-0.3	1,000.00	55,060.62	7,104,047.93
	162	163	849	853	2.2	0.7	1,000.00	23,576.93	2,552,351.09	2.3	-0.3	1,000.00	57,822.78	7,161,870.71



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	163	164	854	858	2.3	0.8	1,000.00	18,365.98	2,570,717.07	2.5	-0.3	1,000.00	4,480.64	7,166,351.35
Khadesari	164	165	859	863	2.1	0.7	1,000.00	19,406.19	2,590,123.26	2.3	-0.3	1,000.00	51.37	7,166,402.72
DOHRI GHAT	165	166	864	868	9.2	2.4	200.00	57.87	2,590,181.13	9.5	-0.3	200.00	7,143.85	7,173,546.57
Barhalganj	166	167	869	873	7.7	2.5	-	0.00	2,590,181.13	8.2	-0.3	200.00	4,482.65	7,178,029.22
	167	168	874	878	7.7	1.8	400.00	517.22	2,590,698.35	7.8	-0.3	1,000.00	42,706.00	7,220,735.22
	168	169	879	884	8.0	1.3	200.00	1,982.11	2,592,680.46	9.4	-0.3	1,000.00	62,293.63	7,283,028.85
	169	170	885	889	2.4	0.7	1,000.00	14,623.74	2,607,304.20	2.5	-0.3	1,000.00	53,509.88	7,336,538.73
	170	171	890	894	2.3	0.7	1,000.00	23,639.08	2,630,943.28	2.5	-0.3	1,000.00	55,370.49	7,391,909.22
	171	172	895	899	7.2	0.7	600.00	10,210.98	2,641,154.26	3.3	-0.3	1,000.00	66,576.56	7,458,485.78
	172	173	900	905	2.6	0.7	1,000.00	26,611.41	2,667,765.67	2.5	-0.3	1,000.00	62,197.28	7,520,683.06
	173	174	906	910	3.6	0.9	1,000.00	18,407.78	2,686,173.45	2.4	-0.3	1,000.00	30,406.87	7,551,089.93
	174	175	911	916	5.1	0.9	800.00	17,907.38	2,704,080.83	4.8	-0.3	1,000.00	59,203.18	7,610,293.11
	175	176	917	923	5.9	0.7	1,000.00	34,907.18	2,738,988.01	2.3	-0.3	1,000.00	45,145.75	7,655,438.86
Parsiya	176	177	924	928	7.0	0.7	800.00	18,699.31	2,757,687.32	2.2	-0.3	1,000.00	55,801.36	7,711,240.22
	177	178	929	934	6.2	0.7	1,000.00	32,453.64	2,790,140.96	2.1	-0.3	1,000.00	73,007.54	7,784,247.76
	178	179	935	939	1.8	0.7	1,000.00	29,954.81	2,820,095.77	2.2	-0.3	1,000.00	64,058.85	7,848,306.61
	179	180	940	944	1.6	0.7	1,000.00	24,786.90	2,844,882.67	2.1	-0.3	1,000.00	44,752.25	7,893,058.86
	180	181	945	949	2.4	1.0	1,000.00	9,531.93	2,854,414.60	2.9	-0.3	600.00	58,148.45	7,951,207.31
Khutahan Khas	181	182	950	954	2.0	0.7	1,000.00	23,188.92	2,877,603.52	2.5	-0.3	1,000.00	74,268.34	8,025,475.65
	182	183	955	960	1.7	0.9	1,000.00	31,067.83	2,908,671.35	2.3	-0.3	1,000.00	70,522.14	8,095,997.79
	183	184	961	965	2.0	1.2	1,000.00	12,083.29	2,920,754.64	1.0	-0.3	1,000.00	36,679.35	8,132,677.14
	184	185	966	970	4.4	1.5	400.00	613.53	2,921,368.17	2.3	-0.3	1,000.00	58,483.00	8,191,160.14
	185	186	971	975	1.9	0.9	1,000.00	17,978.64	2,939,346.81	-0.1	-0.3	1,000.00	59,484.19	8,250,644.33
	186	187	976	980	2.2	1.2	1,000.00	9,602.86	2,948,949.67	0.1	-0.3	1,000.00	61,632.82	8,312,277.15
Gola Ghat	187	188	981	986	6.4	0.7	1,000.00	19,450.55	2,968,400.22	0.0	-0.3	1,000.00	62,070.33	8,374,347.48
	188	189	987	991	2.1	0.7	1,000.00	22,490.93	2,990,891.15	0.4	-0.3	1,000.00	57,478.24	8,431,825.72
	189	190	992	996	2.7	0.8	1,000.00	9,266.32	3,000,157.47	0.9	-0.3	1,000.00	65,285.57	8,497,111.29
	190	191	997	1002	2.1	0.9	1,000.00	29,350.19	3,029,507.66	0.1	-0.3	1,000.00	65,016.77	8,562,128.06



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	191	192	1003	1008	3.2	1.5	1,000.00	1,311.85	3,030,819.51	1.0	-0.3	1,000.00	29,000.77	8,591,128.83
Dewara Achal Singh	192	193	1009	1014	4.2	1.3	1,000.00	6,972.71	3,037,792.22	4.1	-0.3	1,000.00	18,470.05	8,609,598.88
Kauriya	193	194	1015	1019	2.1	1.3	1,000.00	10,521.16	3,048,313.38	2.3	-0.3	1,000.00	37,777.15	8,647,376.03
	194	195	1020	1024	2.4	1.3	1,000.00	1,896.62	3,050,210.00	2.8	-0.3	200.00	55,595.79	8,702,971.82
	195	196	1025	1029	2.5	0.9	1,000.00	17,296.11	3,067,506.11	2.8	-0.3	600.00	42,317.02	8,745,288.84
Bara Kalika Sthan	196	197	1030	1035	2.1	0.9	1,000.00	21,533.78	3,089,039.89	2.4	-0.3	1,000.00	45,591.72	8,790,880.56
	197	198	1036	1040	3.0	0.8	1,000.00	14,197.18	3,103,237.07	3.3	-0.3	1,000.00	37,104.15	8,827,984.71
	198	199	1041	1045	1.9	0.7	1,000.00	22,896.55	3,126,133.62	2.1	-0.3	800.00	61,290.76	8,889,275.47
	199	200	1046	1051	1.7	0.9	1,000.00	28,015.89	3,154,149.51	1.8	-0.3	1,000.00	45,754.96	8,935,030.43
Jhptia Ghat	200	201	1052	1056	2.8	0.8	1,000.00	17,094.84	3,171,244.35	3.0	-0.3	1,000.00	49,551.12	8,984,581.55
	201	202	1057	1061	2.4	0.7	1,000.00	21,161.26	3,192,405.61	2.5	-0.3	1,000.00	47,901.02	9,032,482.57
	202	203	1062	1066	1.6	0.7	1,000.00	28,763.91	3,221,169.52	1.9	-0.3	1,000.00	49,875.86	9,082,358.43
Basahi	203	204	1067	1071	4.4	1.0	1,000.00	15,251.55	3,236,421.07	3.0	-0.3	1,000.00	66,141.51	9,148,499.94
	204	205	1072	1077	6.8	0.8	1,000.00	24,876.53	3,261,297.60	2.9	-0.3	1,000.00	88,291.49	9,236,791.43
Sahapur Ghat	205	206	1078	1082	2.3	1.2	1,000.00	11,727.06	3,273,024.66	3.6	-0.3	1,000.00	75,505.41	9,312,296.84
Belikur Village	206	207	1083	1088	2.3	1.3	1,000.00	6,203.55	3,279,228.21	3.5	-0.3	1,000.00	72,138.14	9,384,434.98
	207	208	1089	1094	2.8	0.7	1,000.00	22,055.32	3,301,283.53	4.1	-0.3	1,000.00	70,759.33	9,455,194.31
Khairati	208	209	1095	1099	2.3	1.1	800.00	10,696.11	3,311,979.64	3.4	-0.3	1,000.00	82,174.65	9,537,368.96
	209	210	1100	1104	3.5	1.2	600.00	4,075.93	3,316,055.57	4.8	-0.3	1,000.00	61,656.07	9,599,025.03
	210	211	1105	1108	3.6	1.4	800.00	5,751.01	3,321,806.58	4.8	-0.3	1,000.00	60,166.11	9,659,191.14
Belwa Ghat	211	212	1109	1114	5.8	2.2	-	0.00	3,321,806.58	4.0	-0.3	1,000.00	3,862.78	9,663,053.92
	212	213	1115	1119	2.6	0.7	1,000.00	14,568.07	3,336,374.65	3.9	-0.3	1,000.00	57,273.47	9,720,327.39
Indorepur urf Dinhapur	213	214	1120	1124	1.9	0.7	1,000.00	22,489.99	3,358,864.64	3.2	-0.3	1,000.00	82,817.21	9,803,144.60
	214	215	1125	1129	2.2	0.7	1,000.00	23,542.07	3,382,406.71	3.5	-0.3	1,000.00	88,157.84	9,891,302.44
	215	216	1130	1134	1.5	0.7	1,000.00	36,174.01	3,418,580.72	3.0	-0.3	1,000.00	92,335.16	9,983,637.60
	216	217	1135	1139	2.1	0.8	1,000.00	25,495.48	3,444,076.20	3.4	-0.3	1,000.00	92,194.95	10,075,832.55
Babhanpura	217	218	1140	1145	1.5	0.7	1,000.00	38,225.64	3,482,301.84	2.8	-0.3	1,000.00	92,560.69	10,168,393.24



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Kamariya Pontoon Brg.	218	219	1146	1150	3.5	0.8	1,000.00	11,435.94	3,493,737.78	6.7	-0.3	400.00	86,515.01	10,254,908.25
Dandwa	219	220	1151	1155	2.3	0.7	1,000.00	31,405.52	3,525,143.30	3.8	-0.3	-	88,614.07	10,343,522.32
Chadipur Village	220	221	1156	1161	7.7	1.0	1,000.00	7,048.10	3,532,191.40	2.2	-0.3	1,000.00	83,679.32	10,427,201.64
Gangasagar	221	222	1162	1166	2.2	0.7	1,000.00	27,204.18	3,559,395.58	3.6	-0.3	600.00	45,665.15	10,472,866.79
	222	223	1167	1173	1.9	0.7	1,000.00	32,443.05	3,591,838.63	3.3	-0.3	200.00	89,839.06	10,562,705.85
	223	224	1174	1178	1.9	0.8	1,000.00	22,367.54	3,614,206.17	3.2	-0.3	-	89,952.06	10,652,657.91
	224	225	1179	1183	3.3	0.8	1,000.00	11,364.95	3,625,571.12	4.2	-0.3	200.00	86,835.74	10,739,493.65
	225	226	1184	1189	1.5	0.7	1,000.00	38,668.53	3,664,239.65	2.4	-0.3	1,000.00	66,262.11	10,805,755.76
Daulatpur Village	226	227	1190	1195	2.4	0.7	1,000.00	21,130.34	3,685,369.99	3.2	-0.3	1,000.00	87,484.98	10,893,240.74
	227	228	1196	1202	1.8	0.7	1,000.00	13,480.60	3,698,850.59	2.3	-0.3	1,000.00	83,422.52	10,976,663.26
	228	229	1203	1207	1.6	0.7	1,000.00	39,939.62	3,738,790.21	2.3	-0.3	1,000.00	89,636.79	11,066,300.05
Tetriya	229	230	1208	1212	4.5	0.7	800.00	5,123.06	3,743,913.27	5.2	-0.3	200.00	88,794.45	11,155,094.50
	230	231	1213	1217	2.9	0.7	1,000.00	17,924.34	3,761,837.61	3.7	-0.3	1,000.00	85,073.00	11,240,167.50
Bhagapur	231	232	1218	1223	3.4	1.5	400.00	704.05	3,762,541.66	4.3	-0.3	600.00	52,249.59	11,292,417.09
Birhar Ghat Brg.	232	233	1224	1228	2.1	0.8	1,000.00	20,219.49	3,782,761.15	2.5	-0.3	1,000.00	70,418.47	11,362,835.56
	233	234	1229	1233	2.8	1.6	400.00	4,893.42	3,787,654.57	3.7	-0.3	400.00	34,911.27	11,397,746.83
Bidhar Village	234	235	1234	1238	4.2	1.1	400.00	969.21	3,788,623.78	4.5	-0.3	1,000.00	62,793.73	11,460,540.56
Addopur	235	236	1239	1243	2.5	0.7	1,000.00	21,712.78	3,810,336.56	2.8	-0.3	1,000.00	30,451.63	11,490,992.19
Gobardhan pur Village	236	237	1244	1249	3.1	0.7	1,000.00	37,104.78	3,847,441.34	3.1	-0.3	1,000.00	21,814.76	11,512,806.95
	237	238	1250	1254	1.7	0.7	1,000.00	32,540.72	3,879,982.06	2.0	-0.3	1,000.00	63,090.43	11,575,897.38
	238	239	1255	1259	2.1	0.8	1,000.00	28,598.02	3,908,580.08	2.5	-0.3	1,000.00	75,306.04	11,651,203.42
	239	240	1260	1266	1.3	0.7	1,000.00	48,681.69	3,957,261.77	1.6	-0.3	1,000.00	75,956.27	11,727,159.69
	240	241	1267	1271	2.2	0.7	1,000.00	26,794.76	3,984,056.53	2.4	-0.3	1,000.00	81,936.64	11,809,096.33
	241	242	1272	1278	3.0	0.9	1,000.00	19,440.04	4,003,496.57	3.1	-0.3	1,000.00	72,069.84	11,881,166.17
	242	243	1279	1283	3.3	1.7	-	0.00	4,003,496.57	3.6	-0.3	1,000.00	86,131.11	11,967,297.28
	243	244	1284	1289	6.0	2.4	-	0.00	4,003,496.57	7.0	-0.3	1,000.00	73,197.25	12,040,494.53
	244	245	1290	1295	3.5	1.0	1,000.00	9,536.95	4,013,033.52	4.1	-0.3	200.00	49,520.03	12,090,014.56



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	245	246	1296	1300	2.3	0.9	1,000.00	16,863.83	4,029,897.35	3.1	-0.3	1,000.00	18,055.17	12,108,069.73
	246	247	1301	1305	2.0	0.7	1,000.00	15,496.90	4,045,394.25	3.8	-0.3	200.00	3,924.17	12,111,993.90
Mahendi Ghat	247	248	1306	1311	4.2	0.7	1,000.00	26,676.62	4,072,070.87	2.9	-0.3	800.00	25,373.72	12,137,367.62
	248	249	1312	1315	2.9	0.7	800.00	18,331.71	4,090,402.58	3.7	-0.3	600.00	69,964.84	12,207,332.46
	249	250	1316	1320	2.6	0.7	1,000.00	17,344.13	4,107,746.71	3.4	-0.3	600.00	61,983.80	12,269,316.26
	250	251	1321	1328	5.8	0.5	1,000.00	27,508.96	4,135,255.67	5.2	-0.3	600.00	75,346.36	12,344,662.62
	251	252	1329	1334	6.6	0.9	1,000.00	19,446.17	4,154,701.84	3.6	-0.3	800.00	71,614.43	12,416,277.05
	252	253	1335	1340	5.3	0.6	1,000.00	14,616.90	4,169,318.74	5.4	-0.3	1,000.00	63,489.59	12,479,766.64
	253	254	1341	1346	3.5	1.1	1,000.00	17,356.71	4,186,675.45	5.0	-0.3	1,000.00	45,668.52	12,525,435.16
Babu Tangedia Village	254	255	1347	1351	2.1	1.3	1,000.00	8,601.13	4,195,276.58	3.0	-0.3	1,000.00	65,583.28	12,591,018.44
	255	256	1352	1357	3.4	2.3	-	0.00	4,195,276.58	4.4	-0.3	1,000.00	64,205.30	12,655,223.74
Nawari Rampur Ghat	256	257	1358	1362	3.4	2.2	-	0.00	4,195,276.58	4.4	-0.3	400.00	61,225.06	12,716,448.80
NasiraBad Village	257	258	1363	1367	9.5	2.9	-	0.00	4,195,276.58	9.8	-0.3	400.00	76,313.29	12,792,762.09
	258	259	1368	1372	5.7	0.9	800.00	15,863.23	4,211,139.81	7.1	-0.3	600.00	81,149.54	12,873,911.63
	259	260	1373	1377	3.1	0.8	800.00	14,168.13	4,225,307.94	3.9	-0.3	400.00	56,705.04	12,930,616.67
	260	261	1378	1382	2.4	0.7	1,000.00	19,092.51	4,244,400.45	3.5	-0.3	800.00	23,811.56	12,954,428.23
Darjipur Murda Ghat	261	262	1383	1388	2.1	0.7	1,000.00	34,369.17	4,278,769.62	2.9	-0.3	1,000.00	25,820.02	12,980,248.25
Prithvipur	262	263	1389	1393	2.4	1.3	1,000.00	6,621.38	4,285,391.00	3.5	-0.3	200.00	0.00	12,980,248.25
	263	264	1394	1398	2.7	1.2	800.00	8,581.10	4,293,972.10	3.9	-0.3	1,000.00	78,948.70	13,059,196.95
	264	265	1399	1403	2.0	1.2	1,000.00	9,131.38	4,303,103.48	3.2	-0.3	1,000.00	64,066.45	13,123,263.40
	265	266	1404	1408	2.4	0.9	1,000.00	12,994.15	4,316,097.63	3.5	-0.3	1,000.00	78,795.27	13,202,058.67
	266	267	1409	1414	2.7	0.9	1,000.00	13,509.61	4,329,607.24	3.7	-0.3	1,000.00	91,866.24	13,293,924.91
Mobarkpur Village	267	268	1415	1419	2.0	0.7	1,000.00	23,091.64	4,352,698.88	3.1	-0.3	1,000.00	86,674.22	13,380,599.13
Chintaura	268	269	1420	1424	2.5	0.8	1,000.00	20,502.26	4,373,201.14	3.3	-0.3	1,000.00	83,737.55	13,464,336.68
	269	270	1425	1429	3.0	0.7	1,000.00	22,842.43	4,396,043.57	4.2	-0.3	1,000.00	76,511.07	13,540,847.75
Tanda	270	271	1430	1435	2.5	0.7	1,000.00	21,944.17	4,417,987.74	3.7	-0.3	1,000.00	89,163.46	13,630,011.21
	271	272	1436	1440	2.2	1.0	1,000.00	15,809.59	4,433,797.33	3.4	-0.3	1,000.00	83,307.73	13,713,318.94



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	272	273	1441	1445	2.0	0.8	1,000.00	21,278.21	4,455,075.54	3.3	-0.3	1,000.00	94,011.38	13,807,330.32
	273	274	1446	1449	2.1	0.7	800.00	23,559.73	4,478,635.27	3.3	-0.3	1,000.00	85,956.80	13,893,287.12
	274	275	1450	1455	4.0	1.0	800.00	10,073.95	4,488,709.22	5.3	-0.3	1,000.00	85,390.97	13,978,678.09
	275	276	1456	1460	2.6	1.2	800.00	4,726.80	4,493,436.02	3.9	-0.3	1,000.00	84,088.69	14,062,766.78
	276	277	1461	1465	2.8	0.7	800.00	20,000.36	4,513,436.38	3.7	-0.3	1,000.00	92,540.72	14,155,307.50
	277	278	1466	1470	2.0	0.7	1,000.00	29,289.36	4,542,725.74	3.1	-0.3	1,000.00	92,605.72	14,247,913.22
	278	279	1471	1475	2.6	1.4	800.00	7,336.75	4,550,062.49	3.8	-0.3	1,000.00	92,154.45	14,340,067.67
	279	280	1476	1480	2.6	0.7	1,000.00	15,361.71	4,565,424.20	4.0	-0.3	1,000.00	71,099.27	14,411,166.94
	280	281	1481	1485	2.3	1.0	1,000.00	18,281.68	4,583,705.88	3.5	-0.3	1,000.00	66,425.46	14,477,592.40
NTPC Power Plant	281	282	1486	1490	2.1	0.8	1,000.00	22,772.84	4,606,478.72	3.3	-0.3	1,000.00	70,589.15	14,548,181.55
	282	283	1491	1495	5.5	1.0	400.00	2,642.93	4,609,121.65	6.2	-0.3	1,000.00	91,838.80	14,640,020.35
Katariyan Village	283	284	1496	1501	3.6	1.0	1,000.00	5,274.20	4,614,395.85	5.2	-0.3	1,000.00	88,081.02	14,728,101.37
Eltefat Ganj	284	285	1502	1506	2.4	1.0	1,000.00	14,257.55	4,628,653.40	4.2	-0.3	1,000.00	81,247.81	14,809,349.18
Aurangabad Village	285	286	1507	1511	3.3	0.7	1,000.00	14,914.61	4,643,568.01	5.0	-0.3	1,000.00	81,838.94	14,891,188.12
Salona Village	286	287	1512	1517	7.0	0.7	1,000.00	24,084.17	4,667,652.18	3.2	-0.3	1,000.00	90,114.70	14,981,302.82
	287	288	1518	1523	2.2	0.7	1,000.00	33,454.07	4,701,106.25	4.0	-0.3	1,000.00	65,346.73	15,046,649.55
	288	289	1524	1528	1.5	0.7	1,000.00	28,079.66	4,729,185.91	3.3	-0.3	1,000.00	73,835.41	15,120,484.96
	289	290	1529	1534	1.5	0.7	1,000.00	40,236.56	4,769,422.47	3.3	-0.3	1,000.00	77,888.94	15,198,373.90
	290	291	1535	1539	2.0	1.0	1,000.00	14,565.22	4,783,987.69	3.8	-0.3	1,000.00	93,172.34	15,291,546.24
	291	292	1540	1545	1.7	0.8	1,000.00	26,893.34	4,810,881.03	2.7	-0.3	1,000.00	86,665.13	15,378,211.37
	292	293	1546	1549	1.9	0.7	800.00	22,349.13	4,833,230.16	2.5	-0.3	1,000.00	70,417.88	15,448,629.25
	293	294	1550	1554	5.9	0.7	1,000.00	29,950.96	4,863,181.12	3.0	-0.3	1,000.00	92,149.47	15,540,778.72
Bhura	294	295	1555	1559	2.4	0.8	1,000.00	21,362.29	4,884,543.41	2.3	-0.3	1,000.00	90,911.72	15,631,690.44
	295	296	1560	1564	4.3	0.8	1,000.00	14,101.70	4,898,645.11	3.1	-0.3	1,000.00	90,803.99	15,722,494.43
	296	297	1565	1569	2.7	0.7	1,000.00	20,395.60	4,919,040.71	3.5	-0.3	1,000.00	92,928.81	15,815,423.24
	297	298	1570	1574	3.4	1.3	400.00	1,744.47	4,920,785.18	4.1	-0.3	1,000.00	89,216.07	15,904,639.31
	298	299	1575	1579	4.6	1.6	-	0.00	4,920,785.18	5.5	-0.3	1,000.00	91,583.70	15,996,223.01
	299	300	1580	1584	5.0	0.7	600.00	9,454.87	4,930,240.05	4.2	-0.3	1,000.00	85,558.61	16,081,781.62



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	300	301	1585	1589	2.5	0.7	1,000.00	14,815.73	4,945,055.78	3.4	-0.3	1,000.00	83,240.81	16,165,022.43
	301	302	1590	1594	2.8	1.5	800.00	5,108.78	4,950,164.56	4.1	-0.3	1,000.00	68,099.18	16,233,121.61
Sarwa Ghat	302	303	1595	1600	4.0	0.7	800.00	12,893.38	4,963,057.94	5.4	-0.3	1,000.00	90,670.06	16,323,791.67
Singirisi Temple	303	304	1601	1605	2.1	1.2	1,000.00	14,405.81	4,977,463.75	3.4	-0.3	1,000.00	44,510.73	16,368,302.40
	304	305	1606	1610	2.3	1.0	1,000.00	6,164.69	4,983,628.44	3.6	-0.3	1,000.00	36,964.47	16,405,266.87
Mehboob Ganj	305	306	1611	1616	3.3	0.7	1,000.00	31,028.64	5,014,657.08	3.2	-0.3	1,000.00	41,135.25	16,446,402.12
	306	307	1617	1621	3.7	0.7	1,000.00	21,849.60	5,036,506.68	5.1	-0.3	1,000.00	88,498.41	16,534,900.53
	307	308	1622	1627	5.4	0.7	1,000.00	14,882.19	5,051,388.87	4.2	-0.3	1,000.00	91,820.74	16,626,721.27
Posra Village	308	309	1628	1632	4.4	0.7	1,000.00	17,727.89	5,069,116.76	4.7	-0.3	1,000.00	57,832.03	16,684,553.30
	309	310	1633	1638	6.0	0.7	1,000.00	18,644.79	5,087,761.55	8.1	-0.3	1,000.00	92,950.38	16,777,503.68
	310	311	1639	1644	5.8	0.8	1,000.00	18,429.91	5,106,191.46	7.6	-0.3	1,000.00	88,912.04	16,866,415.72
	311	312	1645	1651	2.6	0.9	1,000.00	25,862.77	5,132,054.23	3.0	-0.3	1,000.00	82,127.87	16,948,543.59
	312	313	1652	1655	7.8	1.8	200.00	2,355.23	5,134,409.46	9.0	-0.3	1,000.00	77,229.60	17,025,773.19
	313	314	1656	1660	8.5	1.8	800.00	141.58	5,134,551.04	9.6	-0.3	1,000.00	76,353.86	17,102,127.05
	314	315	1661	1665	4.3	1.5	400.00	424.83	5,134,975.87	5.0	-0.3	1,000.00	80,691.54	17,182,818.59
Baburi Babu	315	316	1666	1671	2.0	0.7	1,000.00	24,762.71	5,159,738.58	2.8	-0.3	1,000.00	64,409.45	17,247,228.04
	316	317	1672	1676	6.8	1.1	600.00	10,781.27	5,170,519.85	7.1	-0.3	1,000.00	70,415.64	17,317,643.68
	317	318	1677	1681	9.5	3.3	-	0.00	5,170,519.85	9.8	-0.3	1,000.00	68,624.19	17,386,267.87
Balwa Ghat	318	319	1682	1686	2.4	0.7	1,000.00	19,039.92	5,189,559.77	4.1	-0.3	1,000.00	59,240.64	17,445,508.51
	319	320	1687	1692	2.4	0.8	1,000.00	20,655.28	5,210,215.05	4.2	-0.3	1,000.00	68,437.65	17,513,946.16
Arjunpur Village	320	321	1693	1696	3.3	0.9	600.00	12,087.81	5,222,302.86	5.5	-0.3	1,000.00	13,016.65	17,526,962.81
	321	322	1697	1700	3.2	1.4	400.00	1,469.35	5,223,772.21	5.2	-0.3	1,000.00	41,695.92	17,568,658.73
	322	323	1701	1705	5.4	1.1	1,000.00	9,108.01	5,232,880.22	4.2	-0.3	1,000.00	40,889.93	17,609,548.66
	323	324	1706	1711	4.9	1.2	8,500.00	4,365.33	5,237,245.55	6.6	-0.3	1,000.00	87,007.44	17,696,556.10
	324	325	1712	1716	2.7	1.0	1,000.00	9,226.64	5,246,472.19	4.5	-0.3	1,000.00	17,840.96	17,714,397.06
	325	326	1717	1721	5.9	0.7	1,000.00	24,309.88	5,270,782.07	4.2	-0.3	1,000.00	40,030.93	17,754,427.99
	326	327	1722	1726	2.9	0.7	1,000.00	21,219.84	5,292,001.91	4.7	-0.3	1,000.00	92,604.11	17,847,032.10
	327	328	1727	1731	3.2	0.7	1,000.00	25,614.51	5,317,616.42	4.8	-0.3	1,000.00	93,090.50	17,940,122.60



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	328	329	1732	1737	2.0	0.7	1,000.00	29,262.43	5,346,878.85	2.8	-0.3	1,000.00	82,655.24	18,022,777.84
	329	330	1738	1744	2.7	0.7	1,000.00	33,060.39	5,379,939.24	3.8	-0.3	1,000.00	92,771.95	18,115,549.79
	330	331	1745	1749	4.8	0.8	1,000.00	23,567.37	5,403,506.61	2.7	-0.3	1,000.00	75,710.96	18,191,260.75
	331	332	1750	1754	2.0	0.7	1,000.00	17,257.22	5,420,763.83	2.7	-0.3	1,000.00	85,518.25	18,276,779.00
	332	333	1755	1759	3.3	0.7	1,000.00	10,833.63	5,431,597.46	3.9	-0.3	1,000.00	85,122.25	18,361,901.25
	333	334	1760	1765	3.2	1.2	1,000.00	16,335.35	5,447,932.81	3.0	-0.3	1,000.00	94,273.98	18,456,175.23
	334	335	1766	1771	3.8	1.2	1,000.00	5,835.42	5,453,768.23	4.5	-0.3	1,000.00	93,533.53	18,549,708.76
Gauria Village	335	336	1772	1776	3.0	0.7	800.00	13,818.05	5,467,586.28	3.7	-0.3	1,000.00	84,675.43	18,634,384.19
Keshawapur	336	337	1777	1782	5.5	0.9	1,000.00	12,808.79	5,480,395.07	2.6	-0.3	1,000.00	90,608.01	18,724,992.20
	337	338	1783	1788	2.5	1.1	1,000.00	11,897.34	5,492,292.41	3.2	-0.3	1,000.00	78,813.23	18,803,805.43
	338	339	1789	1793	9.7	1.1	800.00	8,982.91	5,501,275.32	10.4	-0.3	1,000.00	86,174.92	18,889,980.35
	339	340	1794	1798	6.7	1.9	-	0.00	5,501,275.32	7.4	-0.3	1,000.00	79,380.36	18,969,360.71
	340	341	1799	1803	1.8	1.1	1,000.00	12,761.88	5,514,037.20	2.7	-0.3	1,000.00	64,490.35	19,033,851.06
	341	342	1804	1808	2.5	1.0	1,000.00	12,000.18	5,526,037.38	3.4	-0.3	1,000.00	85,663.89	19,119,514.95
	342	343	1809	1813	4.9	1.9	200.00	70.17	5,526,107.55	5.7	-0.3	1,000.00	64,711.84	19,184,226.79
AYODHYA	343	344	1814	1818	4.9	0.7	600.00	10,360.32	5,536,467.87	6.0	-0.3	1,000.00	61,032.45	19,245,259.24
Durga Ganj Village	344	345	1819	1823	3.0	0.8	1,000.00	23,693.23	5,560,161.10	3.9	-0.3	1,000.00	59,667.29	19,304,926.53
	345	346	1824	1829	4.4	0.8	1,000.00	8,637.28	5,568,798.38	5.4	-0.3	1,000.00	74,857.59	19,379,784.12
	346	347	1830	1834	2.6	1.0	1,000.00	14,951.26	5,583,749.64	3.6	-0.3	1,000.00	72,913.23	19,452,697.35
	347	348	1835	1839	3.9	1.5	800.00	1,219.05	5,584,968.69	4.8	-0.3	1,000.00	46,726.74	19,499,424.09
	348	349	1840	1875	3.2	0.7	1,000.00	5,847.18	5,590,815.87	4.2	-0.3	1,000.00	10,825.92	19,510,250.01
	349	350	1876	1850	1.9	1.2	1,000.00	14,633.22	5,605,449.09	2.9	-0.3	1,000.00	81,112.48	19,591,362.49
	350	351	1851	1855	3.5	1.7	600.00	3,914.98	5,609,364.07	4.5	-0.3	1,000.00	75,748.21	19,667,110.70
Fatehpur Sariya Manjh	351	352	1856	1860	4.1	1.9	200.00	14.82	5,609,378.89	5.1	-0.3	1,000.00	46,062.19	19,713,172.89
	352	353	1861	1865	3.8	1.1	800.00	7,684.60	5,617,063.49	4.6	-0.3	1,000.00	55,624.71	19,768,797.60
FAIZABAD	353	354	1866	1868	2.0	0.8	600.00	6,772.65	5,623,836.14	3.1	-0.3	1,000.00	145,424.37	19,914,221.97
TOTAL DREDGING QUANTITY (cu.m.)							307,700.00	5,623,836.14				311,800.00	19,914,221.97	



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulati ve drg.	Max .	Min .		Per km drg	Accumulati ve drg.
Ganga Confluence (Near Doriganj)	0	1	1	5	4.2	2.6	-	0.00	0.00	3.2	2.1	-	0	0
	1	2	6	10	5.9	2.7	-	0.00	0.00	4.3	2.0	-	0	0
	2	3	11	15	3.7	1.1	1,000.00	3,281.08	3,281.08	1.9	-0.3	1,000.00	1,087	1087.28
	3	4	16	20	4.1	1.3	800.00	10,331.98	13,613.06	2.6	2.1	-	0	1087.28
	4	5	21	27	6.1	0.8	1,000.00	11,171.41	24,784.47	4.8	-0.3	1,000.00	1,187	2274.34
Enai Village	5	6	28	33	3.3	1.2	1,000.00	17,472.62	42,257.09	1.5	-0.3	1,000.00	695	2969.72
	6	7	34	40	5.2	1.2	1,000.00	8,568.30	50,825.39	3.6	-0.3	1,000.00	1,279	4249.15
	7	8	41	45	2.3	0.8	1,000.00	27,725.55	78,550.94	0.6	-0.3	1,000.00	716	4964.79
CHHAPRA	8	9	46	51	2.3	0.7	1,000.00	30,226.10	108,777.04	0.5	-0.3	1,000.00	11,455	16420.06
	9	10	52	57	3.2	0.1	1,000.00	29,170.71	137,947.75	1.9	-0.3	1,000.00	35,344	51763.59
	10	11	58	62	3.2	1.0	1,000.00	14,317.12	152,264.87	2.6	-0.3	1,000.00	22,397	74161
	11	12	63	67	2.4	0.7	1,000.00	18,417.34	170,682.21	1.8	-0.3	1,000.00	30,269	104430.15
	12	13	68	72	3.2	0.7	1,000.00	20,716.07	191,398.28	2.4	-0.3	1,000.00	32,211	136641.14
Seanraja Village	13	14	73	77	2.5	0.8	1,000.00	24,025.68	215,423.96	1.8	-0.3	1,000.00	33,844	170484.91
Revelganj Ghat	14	15	78	83	3.2	1.2	1,000.00	13,380.63	228,804.59	2.5	-0.3	1,000.00	22,375	192860.29
	15	16	84	88	2.7	1.7	800.00	369.69	229,174.28	2.0	-0.3	1,000.00	4,110	196969.79
	16	17	89	93	2.7	0.8	1,000.00	18,317.57	247,491.85	2.1	-0.3	1,000.00	26,676	223646.11
	17	18	94	98	2.5	0.9	1,000.00	27,303.82	274,795.67	3.2	-0.3	1,000.00	119,955	343600.69
MANJHI BRIDGE	18	19	99	103	6.5	1.5	600.00	1,785.69	276,581.36	6.8	-0.3	1,000.00	696	344297.1
	19	20	104	108	6.4	3.0	-	0.00	276,581.36	7.1	-0.3	1,000.00	47,653	391949.72
Mehadiganj Village	20	21	109	113	4.4	1.0	800.00	4,856.90	281,438.26	5.2	-0.3	400.00	3,100	395049.72
	21	22	114	119	2.7	0.9	1,000.00	29,829.36	311,267.62	3.4	-0.3	1,000.00	106,696	501746.1
	22	23	120	124	3.5	1.0	1,000.00	26,103.66	337,371.28	4.2	-0.3	1,000.00	95,594	597340.22
	23	24	125	130	3.5	0.7	1,000.00	28,173.05	365,544.33	4.1	-0.3	1,000.00	105,156	702495.88
	24	25	131	136	2.7	1.0	1,000.00	22,788.50	388,332.83	3.4	-0.3	800.00	96,876	799371.89
Dumri	25	26	137	143	3.3	0.6	-	18,252.8	406,585.66	4.0	-0.3	-	95,907	895278.99



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
							1,000.00	3				1,000.00		
	26	27	144	149	2.0	0.9	1,000.00	32,740.32	439,325.98	2.6	-0.3	1,000.00	95,348	990626.62
	27	28	150	154	2.8	1.6	800.00	3,657.19	442,983.17	2.7	-0.3	1,000.00	31,054	1021680.13
	28	29	155	159	5.1	1.8	600.00	455.69	443,438.86	5.0	-0.3	800.00	18,736	1040415.64
	29	30	160	164	5.9	0.8	600.00	8,381.15	451,820.01	5.8	-0.3	600.00	24,999	1065414.84
	30	31	165	169	2.7	1.1	1,000.00	14,945.10	466,765.11	2.6	-0.3	1,000.00	56,836	1122250.89
Dumaigarh	31	32	170	174	6.1	1.4	400.00	3,984.37	470,749.48	6.0	-0.3	600.00	16,701	1138951.46
	32	33	175	179	7.6	2.6	-	-0.03	470,749.45	7.5	1.5	-	0	1138951.46
	33	34	180	184	4.6	1.1	800.00	9,222.10	479,971.55	4.5	-0.3	800.00	35,948	1174899.67
Narwan	34	35	185	189	8.9	3.6	-	0.00	479,971.55	8.8	1.5	-	0	1174899.67
	35	36	190	193	4.7	2.8	-	0.00	479,971.55	4.5	1.5	-	0	1174899.67
	36	37	194	198	3.6	2.0	-	0.00	479,971.55	3.5	1.5	-	2,910	1177809.71
	37	38	199	203	6.7	2.1	-	0.00	479,971.55	6.6	1.5	-	4,842	1182651.21
	38	39	204	209	2.7	1.0	1,000.00	26,265.08	506,236.63	2.6	-0.3	1,000.00	73,886	1256537.65
	39	40	210	214	2.1	1.0	1,000.00	22,263.43	528,500.06	4.3	-0.3	1,000.00	64,859	1321396.6
	40	41	215	219	3.0	1.1	800.00	9,081.49	537,581.55	3.0	-0.3	800.00	40,345	1361741.11
	41	42	220	224	3.0	1.1	800.00	15,932.10	553,513.65	3.0	-0.3	1,000.00	50,028	1411769.38
	42	43	225	229	5.5	3.0	-	0.00	553,513.65	5.6	1.4	100.00	168	1411937.81
	43	44	230	234	6.7	1.1	400.00	2,037.29	555,550.94	6.6	-0.3	600.00	9,989	1421926.61
	44	45	235	239	2.0	0.7	1,000.00	23,114.89	578,665.83	2.1	-0.3	1,000.00	67,394	1489321.01
	45	46	240	245	2.2	0.8	1,000.00	30,150.28	608,816.11	2.1	-0.3	1,000.00	79,630	1568950.96
	46	47	246	250	2.3	1.1	1,000.00	12,014.86	620,830.97	2.3	-0.3	1,000.00	51,637	1620588.35
	47	48	251	255	3.1	0.9	1,000.00	22,181.18	643,012.15	3.2	-0.3	1,000.00	59,848	1680436.3
	48	49	256	261	1.4	0.8	1,000.00	41,844.24	684,856.39	1.6	-0.3	1,000.00	109,177	1789613.74
	49	50	262	266	2.4	0.7	1,000.00	16,022.98	700,879.37	2.5	-0.3	1,000.00	84,176	1873790.21
	50	51	267	272	1.8	1.0	1,000.00	35,663.97	736,543.34	1.8	-0.3	1,000.00	109,702	1983492.56
Gangapur	51	52	273	277	2.0	0.7	1,000.00	31,559.92	768,103.26	2.0	-0.3	1,000.00	87,846	2071338.08
Kachnar	52	53	278	282	3.2	0.9	1,000.00	11,889.82	779,993.08	3.3	-0.3	1,000.00	57,549	2128886.7



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	53	54	283	287	5.4	1.0	1,000.00	12,497.23	792,490.31	5.1	-0.3	1,000.00	51,276	2180163.13
	54	55	288	293	2.9	1.1	1,000.00	20,901.37	813,391.68	3.0	-0.3	1,000.00	76,186	2256348.66
	55	56	294	298	2.6	1.2	1,000.00	11,995.74	825,387.42	2.6	-0.3	1,000.00	57,355	2313703.79
	56	57	299	303	2.7	1.0	1,000.00	26,593.61	851,981.03	2.8	-0.3	1,000.00	82,818	2396521.97
	57	58	304	308	4.8	1.9	200.00	2,186.65	854,167.68	4.9	-0.3	400.00	17,882	2414404.31
	58	59	309	313	4.7	1.1	400.00	2,849.62	857,017.30	4.8	-0.3	400.00	16,910	2431314.3
	59	60	314	318	3.0	1.2	800.00	13,972.18	870,989.48	3.0	-0.3	1,000.00	56,639	2487952.84
	60	61	319	323	4.5	3.1	-	0.00	870,989.48	4.3	-0.3	200.00	551	2488503.96
	61	62	324	328	4.8	1.7	400.00	1,066.51	872,055.99	4.6	-0.3	200.00	8,897	2497400.49
	62	63	329	333	3.6	1.7	400.00	992.19	873,048.18	3.4	-0.3	600.00	10,146	2507546
	63	64	334	338	4.0	1.5	800.00	854.47	873,902.65	4.0	-0.3	600.00	13,653	2521198.78
	64	65	339	344	2.4	0.8	1,000.00	41,342.91	915,245.56	1.5	-0.3	1,000.00	87,501	2608700.12
Raghu	65	66	345	349	4.2	0.9	1,000.00	30,963.71	946,209.27	4.0	-0.3	1,000.00	64,636	2673336.34
nathpu	66	67	350	354	3.0	1.0	1,000.00	24,703.82	970,913.09	2.8	-0.3	1,000.00	60,501	2733837.69
	67	68	355	360	1.8	0.7	1,000.00	38,836.77	1,009,749.86	1.7	-0.3	1,000.00	94,948	2828785.53
Narhan	68	69	361	365	2.0	0.8	1,000.00	41,843.09	1,051,592.95	1.9	-0.3	1,000.00	70,577	2899362.19
	69	70	366	370	2.6	0.9	1,000.00	24,114.55	1,075,707.50	2.4	-0.3	1,000.00	57,910	2957271.73
	70	71	371	375	1.2	0.7	1,000.00	44,238.79	1,119,946.29	1.1	-0.3	1,000.00	83,036	3040308.14
	71	72	376	380	2.5	0.7	1,000.00	24,647.06	1,144,593.35	2.6	-0.3	1,000.00	61,389	3101697.47
	72	73	381	385	7.4	1.3	400.00	594.05	1,145,187.40	7.7	-0.3	400.00	12,676	3114373.94
	73	74	386	390	3.7	0.7	1,000.00	21,772.96	1,166,960.36	3.8	-0.3	1,000.00	62,297	3176670.89
	74	75	391	395	2.0	0.7	1,000.00	41,131.44	1,208,091.80	2.1	-0.3	1,000.00	93,022	3269692.83
	75	76	396	400	1.8	0.7	1,000.00	29,937.18	1,238,028.98	2.0	-0.3	1,000.00	77,664	3347356.66
	76	77	401	406	3.4	0.7	1,000.00	29,736.59	1,267,765.57	3.5	-0.3	1,000.00	82,108	3429464.25
	77	78	407	412	2.6	0.7	1,000.00	40,971.62	1,308,737.19	3.1	-0.3	1,000.00	93,604	3523068.6
	78	79	413	417	2.9	0.7	1,000.00	30,476.19	1,339,213.38	3.1	-0.3	1,000.00	74,224	3597292.89
	79	80	418	422	3.3	0.7	1,000.00	30,634.40	1,369,847.78	3.4	-0.3	1,000.00	69,404	3666696.5
	80	81	423	429	2.0	0.7	1,000.00	36,004.24	1,405,852.02	2.0	-0.3	1,000.00	78,541	3745237.1



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	81	82	430	434	2.5	0.8	1,000.00	29,414.37	1,435,266.39	2.4	-0.3	1,000.00	75,617	3820854.36
	82	83	435	439	2.3	0.7	1,000.00	30,786.27	1,466,052.66	3.6	-0.3	1,000.00	73,469	3894323.15
	83	84	440	444	1.7	0.7	1,000.00	41,966.49	1,508,019.15	6.8	-0.3	1,000.00	86,073	3980396.21
	84	85	445	449	2.7	0.7	1,000.00	24,688.48	1,532,707.63	2.7	-0.3	1,000.00	63,524	4043920.68
	85	86	450	454	2.4	0.9	1,000.00	20,696.85	1,553,404.48	2.3	-0.3	1,000.00	60,016	4103936.64
	86	87	455	460	1.9	0.7	1,000.00	37,945.91	1,591,350.39	4.8	-0.3	1,000.00	91,556	4195492.91
Darauli	87	88	461	465	2.3	0.7	1,000.00	22,382.31	1,613,732.70	2.3	-0.3	1,000.00	55,270	4250763.29
	88	89	466	470	2.8	0.7	1,000.00	22,641.01	1,636,373.71	3.0	-0.3	1,000.00	61,791	4312554.06
	89	90	471	475	1.9	0.7	1,000.00	31,629.33	1,668,003.04	1.8	-0.3	1,000.00	73,721	4386274.94
	90	91	476	480	3.4	1.2	1,000.00	5,055.90	1,673,058.94	3.3	-0.3	1,000.00	37,644	4423918.44
	91	92	481	485	2.6	0.8	1,000.00	13,766.97	1,686,825.91	3.3	-0.3	800.00	56,517	4480435.68
	92	93	486	490	5.3	0.7	1,000.00	30,809.72	1,717,635.63	2.8	-0.3	1,000.00	72,187	4552622.74
	93	94	491	495	1.7	0.8	1,000.00	37,864.18	1,755,499.81	2.4	-0.3	1,000.00	84,149	4636771.92
	94	95	496	500	2.6	0.7	1,000.00	23,743.04	1,779,242.85	3.3	-0.3	800.00	69,607	4706378.77
	95	96	501	506	2.7	0.7	1,000.00	36,905.41	1,816,148.26	3.5	-0.3	1,000.00	85,169	4791547.63
	96	97	507	511	2.4	0.8	1,000.00	16,475.37	1,832,623.63	3.1	-0.3	800.00	58,382	4849929.97
	97	98	512	516	2.3	1.1	1,000.00	16,172.30	1,848,795.93	3.0	-0.3	600.00	58,700	4908629.48
	98	99	517	521	3.6	1.5	1,000.00	3,221.04	1,852,016.97	4.3	-0.3	-	31,148	4939777.09
	99	100	522	526	1.9	0.7	1,000.00	32,606.18	1,884,623.15	2.6	-0.3	800.00	75,534	5015310.75
	100	100.4	527	528	1.8	1.0	400.00	10,434.99	1,895,058.14	2.4	-0.3	400.00	28,280	5043590.7
	100.4	101	529	532	1.9	0.9	800.00	14,800.74	1,909,858.88	2.1	-0.3	600.00	58,629	5102219.61
	101	102	533	537	2.2	0.8	1,000.00	20,444.68	1,930,303.56	2.2	-0.3	1,000.00	64,914	5,167,133.77
	102	103	538	542	4.4	1.3	800.00	4,166.87	1,934,470.43	4.6	-0.3	1,000.00	34,620	5,201,753.78
	103	104	543	548	2.3	0.7	1,000.00	31,202.09	1,965,672.52	2.3	-0.3	1,000.00	101,107	5,302,860.44
	104	105	549	553	2.3	0.8	1,000.00	17,650.39	1,983,322.91	2.4	-0.3	1,000.00	62,820	5,365,680.49
	105	106	554	558	1.5	0.8	1,000.00	32,613.47	2,015,936.38	1.4	-0.3	1,000.00	77,195	5,442,875.55
	106	107	559	563	5.2	1.6	200.00	2,863.34	2,018,799.72	5.2	-0.3	1,000.00	17,853	5,460,728.27
Rampur Village	107	108	564	568	3.2	1.7	400.00	1,056.99	2,019,856.71	3.2	-0.3	1,000.00	32,256	5,492,984.34



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Harnatar Dayalpur	108	109	569	572	3.0	1.2	800.00	7,967.81	2,027,824.52	3.0	-0.3	1,000.00	39,091	5,532,075.04
	109	110	573	577	2.0	0.7	1,000.00	36,357.94	2,064,182.46	2.3	-0.3	1,000.00	69,571	5,601,646.47
	110	111	578	582	2.3	0.7	1,000.00	31,764.99	2,095,947.45	2.7	-0.3	1,000.00	60,019	5,661,665.83
	111	112	583	587	3.2	0.7	800.00	14,080.01	2,110,027.46	3.6	-0.3	1,000.00	35,538	5,697,203.48
Manthala Bajar	112	113	588	592	1.9	0.7	1,000.00	21,453.31	2,131,480.77	2.4	-0.3	1,000.00	50,208	5,747,411.86
	113	114	593	897	1.9	0.7	1,000.00	33,133.29	2,164,614.06	2.2	-0.3	1,000.00	72,661	5,820,072.97
Turtipar	114	115	898	602	2.6	0.7	1,000.00	31,100.23	2,195,714.29	2.9	-0.3	1,000.00	61,532	5,881,604.95
Turtipar Rly. Brg.	115	116	603	607	2.0	0.9	1,000.00	27,557.66	2,223,271.95	2.6	-0.3	1,000.00	47,948	5,929,553.22
	116	117	608	612	4.3	2.4	200.00	173.35	2,223,445.30	4.8	-0.3	1,000.00	975	5,930,527.98
	117	118	613	618	6.4	0.8	1,000.00	31,276.79	2,254,722.09	7.0	-0.3	1,000.00	70,328	6,000,855.87
	118	119	619	623	1.7	0.8	1,000.00	26,764.70	2,281,486.79	2.2	-0.3	1,000.00	57,135	6,057,990.84
Esharou	119	120	624	628	2.5	0.7	1,000.00	18,783.94	2,300,270.73	3.0	-0.3	1,000.00	59,121	6,117,111.70
	120	121	629	633	2.8	1.2	1,000.00	10,265.21	2,310,535.94	3.3	-0.3	1,000.00	57,292	6,174,404.06
	121	122	634	638	3.4	1.2	800.00	5,200.17	2,315,736.11	3.9	-0.3	1,000.00	23,755	6,198,159.29
Chanpur Gloura Village	122	123	639	643	5.5	0.9	600.00	2,780.98	2,318,517.09	6.1	-0.3	1,000.00	37,246	6,235,405.34
	123	124	644	648	2.2	1.1	1,000.00	23,015.27	2,341,532.36	2.7	-0.3	1,000.00	82,880	6,318,285.80
	124	125	649	653	1.6	0.7	1,000.00	36,772.33	2,378,304.69	2.1	-0.3	1,000.00	84,944	6,403,229.59
	125	126	654	658	1.7	0.7	1,000.00	28,518.29	2,406,822.98	6.0	-0.3	1,000.00	85,644	6,488,873.21
Chakimusa Dohi Ghat	126	127	659	663	2.8	0.7	1,000.00	30,909.62	2,437,732.60	3.9	-0.3	1,000.00	81,541	6,570,414.43
	127	128	664	668	3.1	0.7	1,000.00	32,233.27	2,469,965.87	3.6	-0.3	1,000.00	80,496	6,650,910.11
	128	129	669	674	2.8	0.7	1,000.00	37,197.12	2,507,162.99	3.3	-0.3	1,000.00	104,165	6,755,075.54
	129	130	675	679	1.6	0.7	1,000.00	39,700.65	2,546,863.64	2.2	-0.3	1,000.00	95,188	6,850,263.24
	130	131	680	685	1.5	0.7	1,000.00	52,884.79	2,599,748.43	1.7	-0.3	1,000.00	108,150	6,958,413.19
	131	132	686	690	2.0	1.1	1,000.00	20,369.97	2,620,118.40	2.4	-0.3	1,000.00	61,002	7,019,414.86
	132	133	691	695	4.7	1.0	1,000.00	8,891.05	2,629,009.45	5.1	-0.3	1,000.00	59,898	7,079,312.87
	133	134	696	700	1.7	0.7	1,000.00	40,642.15	2,669,651.60	2.2	-0.3	1,000.00	93,537	7,172,850.28
	134	135	701	705	2.4	0.8	1,000.00	30,222.79	2,699,874.39	2.9	-0.3	1,000.00	55,627	7,228,477.49
	135	136	706	710	4.3	2.1		451.30	2,700,325.69	4.9	-0.3		19,061	7,247,538.50



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
							200.00					1,000.00		
	136	137	711	715	2.2	1.5	1,000.00	5,405.71	2,705,731.40	2.7	-0.3	1,000.00	45,029	7,292,567.05
	137	138	716	720	2.7	2.0	200.00	120.59	2,705,851.99	3.3	-0.3	1,000.00	20,641	7,313,208.02
	138	139	721	725	3.5	1.5	600.00	3,794.15	2,709,646.14	3.5	-0.3	1,000.00	35,469	7,348,676.54
Barhaj Bridge (UNC)	139	140	726	730	3.9	1.4	800.00	2,450.87	2,712,097.01	4.4	-0.3	1,000.00	48,269	7,396,945.47
Nabideswar Mishra Ghat	140	141	731	736	2.4	1.1	1,000.00	21,276.57	2,733,373.58	4.2	-0.3	1,000.00	70,103	7,467,048.06
Katelwa Village	141	142	737	741	6.6	1.0	800.00	4,179.36	2,737,552.94	7.1	-0.3	1,000.00	11,963	7,479,011.44
Kudhe Ghat	142	143	742	746	4.3	1.2	400.00	2,792.21	2,740,345.15	4.7	-0.3	1,000.00	60,321	7,539,332.15
	143	144	747	752	1.4	0.7	1,000.00	42,322.18	2,782,667.33	5.2	-0.3	1,000.00	89,406	7,628,738.24
Kaparwar	144	145	753	757	2.2	0.9	1,000.00	23,912.69	2,806,580.02	2.2	-0.3	1,000.00	68,562	7,697,300.60
	145	146	758	763	3.8	0.7	1,000.00	28,691.56	2,835,271.58	5.2	-0.3	1,000.00	81,118	7,778,418.33
	146	147	764	768	1.7	0.7	1,000.00	34,355.20	2,869,626.78	1.8	-0.3	1,000.00	61,495	7,839,912.87
Netavar patti	147	148	769	773	2.9	0.8	1,000.00	24,979.43	2,894,606.21	3.0	-0.3	1,000.00	66,145	7,906,057.41
	148	149	774	779	2.0	0.7	1,000.00	31,614.92	2,926,221.13	2.1	-0.3	1,000.00	95,310	8,001,366.96
	149	150	780	784	2.3	0.7	1,000.00	27,815.77	2,954,036.90	2.3	-0.3	1,000.00	83,072	8,084,438.63
	150	151	785	790	2.5	1.0	1,000.00	13,562.88	2,967,599.78	2.6	-0.3	1,000.00	103,811	8,188,249.32
	151	152	791	795	1.9	0.7	1,000.00	28,408.94	2,996,008.72	2.0	-0.3	1,000.00	93,201	8,281,450.75
	152	153	796	800	2.1	0.7	1,000.00	37,489.74	3,033,498.46	1.7	-0.3	1,000.00	86,107	8,367,557.50
	153	154	801	806	2.0	0.7	1,000.00	50,429.05	3,083,927.51	1.6	-0.3	1,000.00	100,300	8,467,857.33
	154	155	807	811	2.2	0.7	1,000.00	28,182.89	3,112,110.40	1.7	-0.3	1,000.00	66,178	8,534,035.04
	155	156	812	816	2.6	0.7	1,000.00	28,727.37	3,140,837.77	2.1	-0.3	1,000.00	24,989	8,559,023.57
	156	157	817	822	3.7	1.1	600.00	6,716.65	3,147,554.42	3.3	-0.3	1,000.00	79,905	8,638,928.87
	157	158	823	827	3.1	0.7	800.00	25,152.61	3,172,707.03	2.7	-0.3	1,000.00	84,476	8,723,405.07
	158	159	828	833	2.9	0.7	1,000.00	37,293.60	3,210,000.63	2.4	-0.3	1,000.00	21,234	8,744,638.93
	159	160	834	838	5.8	1.9	400.00	2,277.01	3,212,277.64	5.4	-0.3	1,000.00	73,148	8,817,787.29
	160	161	839	843	3.8	0.8	1,000.00	26,055.19	3,238,332.83	3.4	-0.3	1,000.00	78,852	8,896,639.26
	161	162	844	848	3.5	0.8	1,000.00	20,748.33	3,259,081.16	3.1	-0.3	1,000.00	61,856	8,958,495.73
	162	163	849	853	2.2	0.7	1,000.00	30,897.77	3,289,978.93	2.3	-0.3	1,000.00	78,117	9,036,612.61



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	163	164	854	858	2.3	0.8	1,000.00	24,231.39	3,314,210.32	2.5	-0.3	1,000.00	51,919	9,088,531.26
Khadesari	164	165	859	863	2.1	0.7	1,000.00	24,785.53	3,338,995.85	2.3	-0.3	1,000.00	0	9,088,531.26
DOHRI GHAT	165	166	864	868	9.2	2.4	200.00	61.31	3,339,057.16	9.5	-0.3	1,000.00	9,338	9,097,869.47
Barhalganj	166	167	869	873	7.7	2.5	-	0.00	3,339,057.16	8.2	-0.3	1,000.00	16	9,097,885.40
	167	168	874	878	7.7	1.8	400.00	589.27	3,339,646.43	7.8	-0.3	1,000.00	25,138	9,123,023.74
	168	169	879	884	8.0	1.3	200.00	2,537.37	3,342,183.80	9.4	-0.3	1,000.00	77,557	9,200,580.72
	169	170	885	889	2.4	0.7	1,000.00	19,232.05	3,361,415.85	2.5	-0.3	1,000.00	93,088	9,293,668.53
	170	171	890	894	2.3	0.7	1,000.00	30,004.25	3,391,420.10	2.5	-0.3	1,000.00	130,444	9,424,112.54
	171	172	895	899	7.2	0.7	600.00	12,386.81	3,403,806.91	3.3	-0.3	1,000.00	95,393	9,519,505.47
	172	173	900	905	2.6	0.7	1,000.00	34,335.41	3,438,142.32	2.5	-0.3	1,000.00	38,005	9,557,510.81
	173	174	906	910	3.6	0.9	1,000.00	24,725.97	3,462,868.29	2.4	-0.3	1,000.00	89,474	9,646,985.28
	174	175	911	916	5.1	0.9	800.00	23,457.60	3,486,325.89	4.8	-0.3	1,000.00	88,210	9,735,194.82
	175	176	917	923	5.9	0.7	1,000.00	44,045.24	3,530,371.13	2.3	-0.3	1,000.00	72,741	9,807,935.69
Parsiya	176	177	924	928	7.0	0.7	800.00	23,751.74	3,554,122.87	2.2	-0.3	1,000.00	105,363	9,913,298.68
	177	178	929	934	6.2	0.7	1,000.00	42,420.83	3,596,543.70	2.1	-0.3	1,000.00	72,842	9,986,140.82
	178	179	935	939	1.8	0.7	1,000.00	37,590.34	3,634,134.04	2.2	-0.3	1,000.00	62,366	10,048,506.76
	179	180	940	944	1.6	0.7	1,000.00	32,179.34	3,666,313.38	2.1	-0.3	1,000.00	80,746	10,129,252.47
	180	181	945	949	2.4	1.0	1,000.00	13,417.78	3,679,731.16	2.9	-0.3	1,000.00	94,688	10,223,940.55
Khutahan Khas	181	182	950	954	2.0	0.7	1,000.00	29,996.66	3,709,727.82	2.5	-0.3	1,000.00	79,224	10,303,164.76
	182	183	955	960	1.7	0.9	1,000.00	40,181.04	3,749,908.86	2.3	-0.3	1,000.00	57,871	10,361,035.88
	183	184	961	965	2.0	1.2	1,000.00	16,140.80	3,766,049.66	1.0	-0.3	1,000.00	80,132	10,441,168.21
	184	185	966	970	4.4	1.5	400.00	823.99	3,766,873.65	2.3	-0.3	1,000.00	72,957	10,514,124.93
	185	186	971	975	1.9	0.9	1,000.00	23,442.24	3,790,315.89	-0.1	-0.3	1,000.00	75,559	10,589,684.34
	186	187	976	980	2.2	1.2	1,000.00	12,662.09	3,802,977.98	0.1	-0.3	1,000.00	91,857	10,681,541.68
Gola Ghat	187	188	981	986	6.4	0.7	1,000.00	24,004.20	3,826,982.18	0.0	-0.3	1,000.00	81,509	10,763,050.24
	188	189	987	991	2.1	0.7	1,000.00	29,060.33	3,856,042.51	0.4	-0.3	1,000.00	81,556	10,844,606.65
	189	190	992	996	2.7	0.8	1,000.00	12,295.84	3,868,338.35	0.9	-0.3	1,000.00	40,016	10,884,622.55
	190	191	997	1002	2.1	0.9	1,000.00	37,520.52	3,905,858.87	0.1	-0.3	1,000.00	44,203	10,928,825.57



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	191	192	1003	1008	3.2	1.5	1,000.00	2,092.94	3,907,951.81	1.0	-0.3	1,000.00	48,155	10,976,980.27
Dewara Achal Singh	192	193	1009	1014	4.2	1.3	1,000.00	9,881.18	3,917,832.99	4.1	-0.3	1,000.00	26,033	11,003,013.66
Kauriya	193	194	1015	1019	2.1	1.3	1,000.00	14,381.05	3,932,214.04	2.3	-0.3	1,000.00	63,331	11,066,344.32
	194	195	1020	1024	2.4	1.3	1,000.00	2,775.26	3,934,989.30	2.8	-0.3	1,000.00	53,579	11,119,923.74
	195	196	1025	1029	2.5	0.9	1,000.00	22,451.65	3,957,440.95	2.8	-0.3	1,000.00	58,071	11,177,994.25
Bara Kalika Sthan	196	197	1030	1035	2.1	0.9	1,000.00	27,995.33	3,985,436.28	2.4	-0.3	1,000.00	73,080	11,251,073.90
	197	198	1036	1040	3.0	0.8	1,000.00	18,650.28	4,004,086.56	3.3	-0.3	1,000.00	68,173	11,319,246.96
	198	199	1041	1045	1.9	0.7	1,000.00	29,669.60	4,033,756.16	2.1	-0.3	1,000.00	0	11,319,246.96
	199	200	1046	1051	1.7	0.9	1,000.00	37,478.17	4,071,234.33	1.8	-0.3	1,000.00	69,774	11,389,021.24
Jhptia Ghat	200	201	1052	1056	2.8	0.8	1,000.00	22,464.92	4,093,699.25	3.0	-0.3	1,000.00	60,773	11,449,794.08
	201	202	1057	1061	2.4	0.7	1,000.00	27,461.03	4,121,160.28	2.5	-0.3	1,000.00	62,930	11,512,723.74
	202	203	1062	1066	1.6	0.7	1,000.00	36,679.25	4,157,839.53	1.9	-0.3	1,000.00	82,275	11,594,998.43
Basahi	203	204	1067	1071	4.4	1.0	1,000.00	19,784.69	4,177,624.22	3.0	-0.3	1,000.00	109,750	11,704,748.84
	204	205	1072	1077	6.8	0.8	1,000.00	31,510.18	4,209,134.40	2.9	-0.3	1,000.00	113,697	11,818,446.28
Sahapur Ghat	205	206	1078	1082	2.3	1.2	1,000.00	15,207.62	4,224,342.02	3.6	-0.3	1,000.00	87,256	11,905,701.79
Belikur Village	206	207	1083	1088	2.3	1.3	1,000.00	8,751.22	4,233,093.24	3.5	-0.3	1,000.00	120,258	12,025,960.23
	207	208	1089	1094	2.8	0.7	1,000.00	28,841.84	4,261,935.08	4.1	-0.3	1,000.00	95,804	12,121,764.32
Khairati	208	209	1095	1099	2.3	1.1	800.00	14,265.53	4,276,200.61	3.4	-0.3	1,000.00	118,994	12,240,758.40
	209	210	1100	1104	3.5	1.2	800.00	5,451.09	4,281,651.70	4.8	-0.3	1,000.00	11,085	12,251,843.82
	210	211	1105	1108	3.6	1.4	800.00	7,825.38	4,289,477.08	4.8	-0.3	1,000.00	123,883	12,375,726.42
Belwa Ghat	211	212	1109	1114	5.8	2.2	-	0.00	4,289,477.08	4.0	-0.3	1,000.00	111,113	12,486,859.53
	212	213	1115	1119	2.6	0.7	1,000.00	19,452.19	4,308,929.27	3.9	-0.3	1,000.00	108,848	12,595,707.53
Indorepur urf Dinhapur	213	214	1120	1124	1.9	0.7	1,000.00	29,392.58	4,338,321.85	3.2	-0.3	1,000.00	114,290	12,709,997.69
	214	215	1125	1129	2.2	0.7	1,000.00	30,594.37	4,368,916.22	3.5	-0.3	1,000.00	115,815	12,825,812.39
	215	216	1130	1134	1.5	0.7	1,000.00	46,167.57	4,415,083.79	3.0	-0.3	1,000.00	114,226	12,940,038.66
	216	217	1135	1139	2.1	0.8	1,000.00	33,315.43	4,448,399.22	3.4	-0.3	1,000.00	123,321	13,063,359.51
Babhanpura	217	218	1140	1145	1.5	0.7	1,000.00	48,829.77	4,497,228.99	2.8	-0.3	1,000.00	126,504	13,189,863.74
Kamariya Pontoon Brg.	218	219	1146	1150	3.5	0.8	1,000.00	15,316.21	4,512,545.20	6.7	-0.3	1,000.00	55,805	13,245,668.87



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Dandwa	219	220	1151	1155	2.3	0.7	1,000.00	39,611.85	4,552,157.05	3.8	-0.3	1,000.00	132,669	13,378,338.16
Chadipur Village	220	221	1156	1161	7.7	1.0	1,000.00	9,775.57	4,561,932.62	2.2	-0.3	1,000.00	107,925	13,486,263.18
Gangasagar	221	222	1162	1166	2.2	0.7	1,000.00	34,799.19	4,596,731.81	3.6	-0.3	1,000.00	140,114	13,626,377.50
	222	223	1167	1173	1.9	0.7	1,000.00	42,866.94	4,639,598.75	3.3	-0.3	1,000.00	204,097	13,830,474.14
	223	224	1174	1178	1.9	0.8	1,000.00	29,600.88	4,669,199.63	3.2	-0.3	1,000.00	124,362	13,954,836.58
	224	225	1179	1183	3.3	0.8	1,000.00	14,229.22	4,683,428.85	4.2	-0.3	1,000.00	124,362	13,830,474.14
	225	226	1184	1189	1.5	0.7	1,000.00	47,108.29	4,730,537.14	2.4	-0.3	1,000.00	124,362	13,954,836.58
Daulatpur Village	226	227	1190	1195	2.4	0.7	1,000.00	27,900.58	4,758,437.72	3.2	-0.3	1,000.00	133,010	14,087,846.34
	227	228	1196	1202	1.8	0.7	1,000.00	16,703.18	4,775,140.90	2.3	-0.3	1,000.00	121,067	14,208,913.10
	228	229	1203	1207	1.6	0.7	1,000.00	48,217.94	4,823,358.84	2.3	-0.3	1,000.00	94,733	14,303,645.68
Tetriya	229	230	1208	1212	4.5	0.7	800.00	6,957.16	4,830,316.00	5.2	-0.3	1,000.00	53,710	14,357,355.74
	230	231	1213	1217	2.9	0.7	1,000.00	23,561.56	4,853,877.56	3.7	-0.3	1,000.00	79,930	14,437,285.58
Bhagapur	231	232	1218	1223	3.4	1.5	400.00	1,009.54	4,854,887.10	4.3	-0.3	1,000.00	68,556	14,505,841.98
Birhar Ghat Brg.	232	233	1224	1228	2.1	0.8	1,000.00	26,019.32	4,880,906.42	2.5	-0.3	1,000.00	24,862	14,530,704.27
	233	234	1229	1233	2.8	1.6	400.00	6,366.93	4,887,273.35	3.7	-0.3	1,000.00	68,832	14,599,536.35
Bidhar Village	234	235	1234	1238	4.2	1.1	600.00	1,730.52	4,889,003.87	4.5	-0.3	1,000.00	92,407	14,691,943.39
Addopur	235	236	1239	1243	2.5	0.7	1,000.00	27,895.69	4,916,899.56	2.8	-0.3	1,000.00	95,770	14,787,713.59
Gobardhanpur Village	236	237	1244	1249	3.1	0.7	1,000.00	48,173.58	4,965,073.14	3.1	-0.3	1,000.00	122,571	14,910,284.78
	237	238	1250	1254	1.7	0.7	1,000.00	41,760.74	5,006,833.88	2.0	-0.3	1,000.00	90,053	15,000,337.42
	238	239	1255	1259	2.1	0.8	1,000.00	37,382.92	5,044,216.80	2.5	-0.3	1,000.00	107,361	15,107,698.20
	239	240	1260	1266	1.3	0.7	1,000.00	61,465.40	5,105,682.20	1.6	-0.3	1,000.00	91,687	15,199,385.07
	240	241	1267	1271	2.2	0.7	1,000.00	34,905.91	5,140,588.11	2.4	-0.3	1,000.00	68,842	15,268,227.49
	241	242	1272	1278	3.0	0.9	1,000.00	25,018.37	5,165,606.48	3.1	-0.3	1,000.00	22,896	15,291,123.58
	242	243	1279	1283	3.3	1.7	-	0.00	5,165,606.48	3.6	-0.3	1,000.00	26,784	15,317,907.62
	243	244	1284	1289	6.0	2.4	-	0.00	5,165,606.48	7.0	-0.3	1,000.00	190,309	15,508,216.61
	244	245	1290	1295	3.5	1.0	1,000.00	12,243.35	5,177,849.83	4.1	-0.3	1,000.00	88,843	15,597,059.90
	245	246	1296	1300	2.3	0.9	1,000.00	21,740.49	5,199,590.32	3.1	-0.3	1,000.00	94,021	15,691,081.24
	246	247	1301	1305	2.0	0.7	1,000.00	20,381.2	5,219,971.53	3.8	-0.3	1,000.00	97,498	15,788,579.3



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
							1,000.00	1				1,000.00		3
Mahendi Ghat	247	248	1306	1311	4.2	0.7	1,000.00	33,524.60	5,253,496.13	2.9	-0.3	1,000.00	27,739	15,816,318.28
	248	249	1312	1315	2.9	0.7	800.00	23,918.53	5,277,414.66	3.7	-0.3	1,000.00	93,955	15,910,273.28
	249	250	1316	1320	2.6	0.7	1,000.00	23,128.75	5,300,543.41	3.4	-0.3	1,000.00	0	15,910,273.28
	250	251	1321	1328	5.8	0.5	1,000.00	35,780.92	5,336,324.33	5.2	-0.3	1,000.00	120,166	16,030,439.73
	251	252	1329	1334	6.6	0.9	1,000.00	25,510.20	5,361,834.53	3.6	-0.3	1,000.00	117,421	16,147,860.81
	252	253	1335	1340	5.3	0.6	1,000.00	19,844.43	5,381,678.96	5.4	-0.3	1,000.00	120,591	16,268,452.28
	253	254	1341	1346	3.5	1.1	1,000.00	23,153.45	5,404,832.41	5.0	-0.3	1,000.00	64,260	16,332,712.43
Babu Tangedia Village	254	255	1347	1351	2.1	1.3	1,000.00	11,217.77	5,416,050.18	3.0	-0.3	1,000.00	35,104	16,367,816.19
	255	256	1352	1357	3.4	2.3	200.00	4.85	5,416,055.03	4.4	-0.3	1,000.00	17,864	16,385,679.84
Nawari Rampur Ghat	256	257	1358	1362	3.4	2.2	-	0.00	5,416,055.03	4.4	-0.3	1,000.00	57,435	16,443,114.67
NasiraBad Village	257	258	1363	1367	9.5	2.9	-	0.00	5,416,055.03	9.8	-0.3	1,000.00	98,249	16,541,364.15
	258	259	1368	1372	5.7	0.9	800.00	20,710.63	5,436,765.66	7.1	-0.3	1,000.00	83,806	16,625,170.26
	259	260	1373	1377	3.1	0.8	800.00	18,499.02	5,455,264.68	3.9	-0.3	1,000.00	107,384	16,732,554.75
	260	261	1378	1382	2.4	0.7	1,000.00	24,742.06	5,480,006.74	3.5	-0.3	1,000.00	112,654	16,845,208.58
Darjipur Murda Ghat	261	262	1383	1388	2.1	0.7	1,000.00	43,423.19	5,523,429.93	2.9	-0.3	1,000.00	130,986	16,976,194.38
Prithvipur	262	263	1389	1393	2.4	1.3	1,000.00	9,081.51	5,532,511.44	3.5	-0.3	1,000.00	88,855	17,065,049.48
	263	264	1394	1398	2.7	1.2	800.00	11,212.57	5,543,724.01	3.9	-0.3	1,000.00	111,979	17,177,028.13
	264	265	1399	1403	2.0	1.2	1,000.00	12,051.52	5,555,775.53	3.2	-0.3	1,000.00	103,892	17,280,919.96
	265	266	1404	1408	2.4	0.9	1,000.00	17,179.52	5,572,955.05	3.5	-0.3	1,000.00	115,970	17,396,890.16
	266	267	1409	1414	2.7	0.9	1,000.00	18,355.54	5,591,310.59	3.7	-0.3	1,000.00	131,053	17,527,943.05
Mobarkpur Village	267	268	1415	1419	2.0	0.7	1,000.00	30,034.04	5,621,344.63	3.1	-0.3	1,000.00	107,562	17,635,505.46
Chintaura	268	269	1420	1424	2.5	0.8	1,000.00	27,439.87	5,648,784.50	3.3	-0.3	1,000.00	104,863	17,740,368.31
	269	270	1425	1429	3.0	0.7	1,000.00	29,247.97	5,678,032.47	4.2	-0.3	1,000.00	114,894	17,855,262.17
Tanda	270	271	1430	1435	2.5	0.7	1,000.00	28,977.88	5,707,010.35	3.7	-0.3	1,000.00	137,979	17,993,241.05
	271	272	1436	1440	2.2	1.0	1,000.00	20,868.30	5,727,878.65	3.4	-0.3	1,000.00	114,071	18,107,312.16
	272	273	1441	1445	2.0	0.8	1,000.00	28,229.58	5,756,108.23	3.3	-0.3	1,000.00	72,769	18,180,081.11



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	273	274	1446	1449	2.1	0.7	1,000.00	40,199.40	5,796,307.63	3.3	-0.3	1,000.00	77,285	18,257,366.42
	274	275	1450	1455	4.0	1.0	400.00	3,445.30	5,799,752.93	5.3	-0.3	1,000.00	112,412	18,369,778.51
	275	276	1456	1460	2.6	1.2	800.00	6,725.50	5,806,478.43	3.9	-0.3	1,000.00	113,873	18,483,651.80
	276	277	1461	1465	2.8	0.7	800.00	25,570.21	5,832,048.64	3.7	-0.3	1,000.00	102,553	18,586,204.66
	277	278	1466	1470	2.0	0.7	1,000.00	37,610.99	5,869,659.63	3.1	-0.3	1,000.00	105,192	18,691,396.66
	278	279	1471	1475	2.6	1.4	800.00	9,838.12	5,879,497.75	3.8	-0.3	1,000.00	104,471	18,795,868.02
	279	280	1476	1480	2.6	0.7	1,000.00	20,031.54	5,899,529.29	4.0	-0.3	1,000.00	113,983	18,909,850.79
	280	281	1481	1485	2.3	1.0	1,000.00	23,597.76	5,923,127.05	3.5	-0.3	1,000.00	67,993	18,977,843.51
NTPC Power Plant	281	282	1486	1490	2.1	0.8	1,000.00	29,171.18	5,952,298.23	3.3	-0.3	1,000.00	96,673	19,074,516.50
	282	283	1491	1495	5.5	1.0	400.00	3,490.45	5,955,788.68	6.2	-0.3	1,000.00	107,099	19,181,615.57
Katariyan Village	283	284	1496	1501	3.6	1.0	1,000.00	9,357.72	5,965,146.40	5.2	-0.3	1,000.00	135,906	19,317,521.85
Eltefat Ganj	284	285	1502	1506	2.4	1.0	1,000.00	18,852.63	5,983,999.03	4.2	-0.3	1,000.00	96,206	19,413,727.78
Aurangabad Village	285	286	1507	1511	3.3	0.7	1,000.00	20,167.84	6,004,166.87	5.0	-0.3	1,000.00	102,461	19,516,188.38
Salona Village	286	287	1512	1517	7.0	0.7	1,000.00	31,487.18	6,035,654.05	3.2	-0.3	1,000.00	136,399	19,652,587.38
	287	288	1518	1523	2.2	0.7	1,000.00	42,552.84	6,078,206.89	4.0	-0.3	1,000.00	133,807	19,786,394.54
	288	289	1524	1528	1.5	0.7	1,000.00	35,947.94	6,114,154.83	3.3	-0.3	1,000.00	116,057	19,902,451.39
	289	290	1529	1534	1.5	0.7	1,000.00	50,155.38	6,164,310.21	3.3	-0.3	1,000.00	134,196	20,036,647.40
	290	291	1535	1539	2.0	1.0	1,000.00	18,943.15	6,183,253.36	3.8	-0.3	1,000.00	113,939	20,150,586.45
	291	292	1540	1545	1.7	0.8	1,000.00	35,689.61	6,218,942.97	2.7	-0.3	1,000.00	124,237	20,274,823.71
	292	293	1546	1549	1.9	0.7	800.00	27,509.60	6,246,452.57	2.5	-0.3	1,000.00	84,109	20,358,933.00
	293	294	1550	1554	5.9	0.7	1,000.00	37,890.36	6,284,342.93	3.0	-0.3	1,000.00	84,067	20,442,999.33
Bhura	294	295	1555	1559	2.4	0.8	1,000.00	27,661.68	6,312,004.61	2.3	-0.3	1,000.00	112,558	20,555,557.78
	295	296	1560	1564	4.3	0.8	1,000.00	18,378.54	6,330,383.15	3.1	-0.3	1,000.00	56,506	20,612,063.30
	296	297	1565	1569	2.7	0.7	1,000.00	26,603.94	6,356,987.09	3.5	-0.3	1,000.00	49,329	20,661,392.14
	297	298	1570	1574	3.4	1.3	400.00	2,438.65	6,359,425.74	4.1	-0.3	1,000.00	54,003	20,715,395.08
	298	299	1575	1579	4.6	1.6	400.00	11.46	6,359,437.20	5.5	-0.3	1,000.00	110,105	20,825,500.25
	299	300	1580	1584	5.0	0.7	600.00	12,110.40	6,371,547.60	4.2	-0.3	1,000.00	114,099	20,939,599.19
	300	301	1585	1589	2.5	0.7	1,000.00	20,516.55	6,392,064.15	3.4	-0.3	1,000.00	71,962	21,011,561.10



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	301	302	1590	1594	2.8	1.5	800.00	6,768.85	6,398,833.00	4.1	-0.3	1,000.00	115,196	21,126,757.20
Sarwa Ghat	302	303	1595	1600	4.0	0.7	800.00	16,194.17	6,415,027.17	5.4	-0.3	1,000.00	132,771	21,259,527.82
Singirisi Temple	303	304	1601	1605	2.1	1.2	1,000.00	18,842.94	6,433,870.11	3.4	-0.3	1,000.00	98,783	21,358,310.60
	304	305	1606	1610	2.3	1.0	1,000.00	8,991.87	6,442,861.98	3.6	-0.3	1,000.00	100,382	21,458,692.21
Mehboob Ganj	305	306	1611	1616	3.3	0.7	1,000.00	40,701.32	6,483,563.30	3.2	-0.3	1,000.00	105,977	21,564,669.20
	306	307	1617	1621	3.7	0.7	1,000.00	27,958.87	6,511,522.17	5.1	-0.3	1,000.00	105,756	21,670,425.51
	307	308	1622	1627	5.4	0.7	1,000.00	25,052.65	6,536,574.82	4.2	-0.3	1,000.00	84,111	21,754,536.83
Posra Village	308	309	1628	1632	4.4	0.7	1,000.00	15,533.45	6,552,108.27	4.7	-0.3	1,000.00	95,576	21,850,113.06
	309	310	1633	1638	6.0	0.7	1,000.00	24,892.09	6,577,000.36	8.1	-0.3	1,000.00	111,280	21,961,392.96
	310	311	1639	1644	5.8	0.8	1,000.00	23,306.96	6,600,307.32	7.6	-0.3	1,000.00	88,662	22,050,055.34
	311	312	1645	1651	2.6	0.9	1,000.00	34,243.06	6,634,550.38	3.0	-0.3	1,000.00	45,444	22,095,498.86
	312	313	1652	1655	7.8	1.8	400.00	3,141.66	6,637,692.04	9.0	-0.3	1,000.00	23,515	22,119,013.89
	313	314	1656	1660	8.5	1.8	800.00	259.11	6,637,951.15	9.6	-0.3	1,000.00	90,484	22,209,498.07
	314	315	1661	1665	4.3	1.5	400.00	758.45	6,638,709.60	5.0	-0.3	1,000.00	89,079	22,298,576.97
Baburi Babu	315	316	1666	1671	2.0	0.7	1,000.00	32,680.66	6,671,390.26	2.8	-0.3	1,000.00	19,189	22,317,765.49
	316	317	1672	1676	6.8	1.1	600.00	14,159.90	6,685,550.16	7.1	-0.3	1,000.00	99,827	22,417,592.32
	317	318	1677	1681	9.5	3.3	-	0.00	6,685,550.16	9.8	-0.3	1,000.00	114,950	22,532,542.52
Balwa Ghat	318	319	1682	1686	2.4	0.7	1,000.00	25,228.31	6,710,778.47	4.1	-0.3	1,000.00	112,547	22,645,089.85
	319	320	1687	1692	2.4	0.8	1,000.00	28,050.08	6,738,828.55	4.2	-0.3	1,000.00	129,633	22,774,723.01
Arjunpur Village	320	321	1693	1696	3.3	0.9	800.00	15,469.37	6,754,297.92	5.5	-0.3	1,000.00	85,029	22,859,751.95
	321	322	1697	1700	3.2	1.4	600.00	2,448.33	6,756,746.25	5.2	-0.3	1,000.00	70,170	22,929,921.94
	322	323	1701	1705	5.4	1.1	1,000.00	11,771.37	6,768,517.62	4.2	-0.3	1,000.00	112,153	23,042,074.51
	323	324	1706	1711	4.9	1.2	1,000.00	6,145.58	6,774,663.20	6.6	-0.3	1,000.00	130,457	23,172,531.54
	324	325	1712	1716	2.7	1.0	1,000.00	12,489.04	6,787,152.24	4.5	-0.3	1,000.00	115,582	23,288,113.07
	325	326	1717	1721	5.9	0.7	1,000.00	30,876.84	6,818,029.08	4.2	-0.3	1,000.00	112,649	23,400,762.43
	326	327	1722	1726	2.9	0.7	1,000.00	27,987.75	6,846,016.83	4.7	-0.3	1,000.00	106,210	23,506,972.44
	327	328	1727	1731	3.2	0.7	1,000.00	33,468.14	6,879,484.97	4.8	-0.3	1,000.00	106,657	23,613,629.20
	328	329	1732	1737	2.0	0.7	1,000.00	37,967.10	6,917,452.07	2.8	-0.3	1,000.00	120,360	23,733,988.92



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	329	330	1738	1744	2.7	0.7	1,000.00	43,080.29	6,960,532.36	3.8	-0.3	1,000.00	142,673	23,876,661.80
	330	331	1745	1749	4.8	0.8	1,000.00	29,672.18	6,990,204.54	2.7	-0.3	1,000.00	77,014	23,953,676.16
	331	332	1750	1754	2.0	0.7	1,000.00	22,449.05	7,012,653.59	2.7	-0.3	1,000.00	108,097	24,061,773.63
	332	333	1755	1759	3.3	0.7	1,000.00	14,812.16	7,027,465.75	3.9	-0.3	1,000.00	73,179	24,134,952.64
	333	334	1760	1765	3.2	1.2	1,000.00	21,187.39	7,048,653.14	3.0	-0.3	1,000.00	105,339	24,240,292.13
	334	335	1766	1771	3.8	1.2	1,000.00	7,879.93	7,056,533.07	4.5	-0.3	1,000.00	96,154	24,336,446.53
Gauria Village	335	336	1772	1776	3.0	0.7	1,000.00	17,819.76	7,074,352.83	3.7	-0.3	1,000.00	79,026	24,415,472.85
Keshawapur	336	337	1777	1782	5.5	0.9	1,000.00	16,812.66	7,091,165.49	2.6	-0.3	1,000.00	102,790	24,518,262.74
	337	338	1783	1788	2.5	1.1	1,000.00	15,634.59	7,106,800.08	3.2	-0.3	1,000.00	14,764	24,533,027.12
	338	339	1789	1793	9.7	1.1	800.00	12,161.34	7,118,961.42	10.4	-0.3	1,000.00	101,722	24,634,749.41
	339	340	1794	1798	6.7	1.9	-	0.00	7,118,961.42	7.4	-0.3	1,000.00	95,462	24,730,211.60
	340	341	1799	1803	1.8	1.1	1,000.00	16,908.16	7,135,869.58	2.7	-0.3	1,000.00	59,102	24,789,313.75
	341	342	1804	1808	2.5	1.0	1,000.00	16,574.60	7,152,444.18	3.4	-0.3	1,000.00	68,947	24,858,260.45
	342	343	1809	1813	4.9	1.9	200.00	160.70	7,152,604.88	5.7	-0.3	1,000.00	105,685	24,963,944.97
AYODHYA	343	344	1814	1818	4.9	0.7	600.00	13,186.35	7,165,791.23	6.0	-0.3	1,000.00	76,681	25,040,626.30
Durga Ganj Village	344	345	1819	1823	3.0	0.8	1,000.00	31,363.80	7,197,155.03	3.9	-0.3	1,000.00	101,462	25,142,088.56
	345	346	1824	1829	4.4	0.8	1,000.00	12,115.97	7,209,271.00	5.4	-0.3	1,000.00	33,628	25,175,716.50
	346	347	1830	1834	2.6	1.0	1,000.00	19,874.25	7,229,145.25	3.6	-0.3	1,000.00	26,470	25,202,186.69
	347	348	1835	1839	3.9	1.5	800.00	1,870.09	7,231,015.34	4.8	-0.3	1,000.00	51,969	25,254,155.80
	348	349	1840	1875	3.2	0.7	1,000.00	7,989.45	7,239,004.79	4.2	-0.3	1,000.00	116,474	25,370,629.71
	349	350	1876	1850	1.9	1.2	1,000.00	18,935.08	7,257,939.87	2.9	-0.3	1,000.00	73,868	25,444,497.47
	350	351	1851	1855	3.5	1.7	600.00	5,017.30	7,262,957.17	4.5	-0.3	1,000.00	18,331	25,462,828.13
Fatehpur Sariya Manjh	351	352	1856	1860	4.1	1.9	200.00	14.82	7,262,971.99	5.1	-0.3	1,000.00	24,150	25,486,978.19
	352	353	1861	1865	3.8	1.1	800.00	9,609.57	7,272,581.56	4.6	-0.3	1,000.00	81,468	25,568,446.01
FAIZABAD	353	354	1866	1868	2.0	0.8	600.00	8,899.00	7,281,480.56	3.1	-0.3	1,000.00	39,317	25,607,763.10
TOTAL DREDGING QUANTITY (cu.m.)							303,800.00	7,281,480.56				336,100.00	25,607,763.10	



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Ganga Confluence (Near Doriganj)	0	1	1	5	4.2	2.6	-	0.00	0.00	3.2	2.1	-	0.00	0.00
	1	2	6	10	5.9	2.7	-	0.00	0.00	4.3	2.0	-	0.00	0.00
	2	3	11	15	3.7	1.1	400.00	9.31	9.31	1.9	1.6	200.00	156.90	156.9
	3	4	16	20	4.1	1.3	1,000.00	2,152.31	2,161.62	2.6	2.0	-	0.00	156.9
	4	5	21	27	6.1	0.8	600.00	4,869.26	7,030.88	4.8	2.0	-	0.00	156.9
Enai Village	5	6	28	33	3.3	1.2	1,000.00	4,575.41	11,606.29	1.5	2.0	-	0.00	156.9
	6	7	34	40	5.2	1.2	400.00	1,666.48	13,272.77	3.6	-0.3	1,000.00	40.14	197.04
	7	8	41	45	2.3	0.8	1,000.00	10,757.62	24,030.39	0.6	-0.3	1,000.00	0.00	197.04
CHHAPRA	8	9	46	51	2.3	0.7	1,000.00	14,910.49	38,940.88	0.5	-0.3	1,000.00	4,726.69	4923.73
	9	10	52	57	3.2	0.1	1,000.00	12,233.93	51,174.81	1.9	-0.3	1,000.00	17,970.04	22893.77
	10	11	58	62	3.2	1.0	1,000.00	6,206.13	57,380.94	2.6	-0.3	1,000.00	9,431.81	32325.58
	11	12	63	67	2.4	0.7	1,000.00	4,046.82	61,427.76	1.8	-0.3	1,000.00	14,062.13	46387.71
	12	13	68	72	3.2	0.7	1,000.00	10,992.30	72,420.06	2.4	-0.3	1,000.00	15,424.11	61811.82
Seanraja Village	13	14	73	77	2.5	0.8	1,000.00	10,878.13	83,298.19	1.8	-0.3	1,000.00	17,103.95	78915.77
Revelganj Ghat	14	15	78	83	3.2	1.2	1,000.00	4,273.41	87,571.60	2.5	-0.3	1,000.00	8,698.66	87614.43
	15	16	84	88	2.7	1.7	-	0.00	87,571.60	2.0	1.7	-	0.83	87615.26
	16	17	89	93	2.7	0.8	600.00	2,952.01	90,523.61	2.1	-0.3	1,000.00	13,372.55	100987.8
	17	18	94	98	2.5	0.9	1,000.00	18,474.67	108,998.28	3.2	-0.3	800.00	60,851.02	161838.8
MANJHI BRIDGE	18	19	99	103	6.5	1.5	800.00	217.42	109,215.70	6.8	-0.3	-	14,407.99	176246.8
	19	20	104	108	6.4	3.0	-	0.00	109,215.70	7.1	-0.3	1,000.00	18.10	176264.9
Mehadiganj Village	20	21	109	113	4.4	1.0	400.00	1,220.56	110,436.26	5.2	-0.3	1,000.00	27,951.45	204216.4
	21	22	114	119	2.7	0.9	1,000.00	8,468.80	118,905.06	3.4	-0.3	600.00	70,403.42	274619.8
	22	23	120	124	3.5	1.0	1,000.00	13,324.80	132,229.86	4.2	-0.3	200.00	62,457.21	337077
	23	24	125	130	3.5	0.7	1,000.00	8,429.24	140,659.10	4.1	-0.3	400.00	68,472.62	405549.6
	24	25	131	136	2.7	1.0	1,000.00	13,354.89	154,013.99	3.4	-0.3	600.00	60,297.02	465846.6
Dumri	25	26	137	143	3.3	0.6	-	5,259.67	159,273.6	4.0	-0.3	-	59,053.75	524900.4



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
							1,000.00		6			800.00		
	26	27	144	149	2.0	0.9	1,000.00	16,161.78	175,435.44	2.6	-0.3	800.00	59,476.77	584377.2
	27	28	150	154	2.8	1.6	400.00	1,572.04	177,007.48	2.7	-0.3	600.00	13,107.46	597484.6
	28	29	155	159	5.1	1.8	-	0.00	177,007.48	5.0	-0.3	400.00	5,602.06	603086.7
	29	30	160	164	5.9	0.8	200.00	907.50	177,914.98	5.8	-0.3	200.00	12,278.34	615365
	30	31	165	169	2.7	1.1	1,000.00	8,149.82	186,064.80	2.6	-0.3	1,000.00	32,787.17	648152.2
Dumaigarh	31	32	170	174	6.1	1.4	400.00	744.87	186,809.67	6.0	-0.3	600.00	8,535.67	656687.9
	32	33	175	179	7.6	2.6	-	0.00	186,809.67	7.5	-0.3	-	19,101.67	675789.5
	33	34	180	184	4.6	1.1	800.00	2,550.23	189,359.90	4.5	-0.3	800.00	0.00	675789.5
Narwan	34	35	185	189	8.9	3.6	-	0.00	189,359.90	8.8	-0.3	-	0.00	675789.5
	35	36	190	193	4.7	2.8	-	0.00	189,359.90	4.5	-0.3	-	11.95	675801.5
	36	37	194	198	3.6	2.0	-	0.00	189,359.90	3.5	-0.3	-	1,518.83	677320.3
	37	38	199	203	6.7	2.1	-	0.00	189,359.90	6.6	-0.3	-	44,262.04	721582.4
	38	39	204	209	2.7	1.0	1,000.00	8,673.43	198,033.33	2.6	-0.3	1,000.00	38,493.67	760076
	39	40	210	214	2.1	1.0	1,000.00	7,162.79	205,196.12	4.3	-0.3	1,000.00	20,650.22	780726.2
	40	41	215	219	3.0	1.1	400.00	2,452.26	207,648.38	3.0	-0.3	400.00	27,967.11	808693.4
	41	42	220	224	3.0	1.1	800.00	8,449.34	216,097.72	3.0	-0.3	800.00	0.00	808693.4
	42	43	225	229	5.5	3.0	-	0.00	216,097.72	5.6	-0.3	-	4,211.45	812904.8
	43	44	230	234	6.7	1.1	-	0.00	216,097.72	6.6	-0.3	-	0.00	812904.8
	44	45	235	239	2.0	0.7	1,000.00	7,352.62	223,450.34	2.1	-0.3	1,000.00	40,023.15	852928
	45	46	240	245	2.2	0.8	1,000.00	12,754.33	236,204.67	2.1	-0.3	1,000.00	46,943.92	899871.9
	46	47	246	250	2.3	1.1	1,000.00	4,365.44	240,570.11	2.3	-0.3	800.00	27,120.62	926992.5
	47	48	251	255	3.1	0.9	800.00	7,056.59	247,626.70	3.2	-0.3	800.00	35,075.88	962068.4
	48	49	256	261	1.4	0.8	1,000.00	18,375.73	266,002.43	1.6	-0.3	1,000.00	70,102.34	1032171
	49	50	262	266	2.4	0.7	1,000.00	8,431.69	274,434.12	2.5	-0.3	1,000.00	53,195.26	1085366
	50	51	267	272	1.8	1.0	1,000.00	14,755.89	289,190.01	1.8	-0.3	1,000.00	73,385.20	1158751
Gangapur	51	52	273	277	2.0	0.7	1,000.00	12,285.85	301,475.86	2.0	-0.3	1,000.00	55,756.09	1214507
Kachnar	52	53	278	282	3.2	0.9	800.00	4,350.26	305,826.12	3.3	-0.3	800.00	31,974.91	1246482



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	53	54	283	287	5.4	1.0	600.00	1,670.96	307,497.08	5.1	-0.3	200.00	29,971.07	1276453
	54	55	288	293	2.9	1.1	1,000.00	10,989.82	318,486.90	3.0	-0.3	1,000.00	46,197.75	1322651
	55	56	294	298	2.6	1.2	800.00	4,097.21	322,584.11	2.6	-0.3	800.00	33,122.01	1355773
	56	57	299	303	2.7	1.0	1,000.00	8,389.36	330,973.47	2.8	-0.3	1,000.00	52,672.19	1408445
	57	58	304	308	4.8	1.9	400.00	2,847.28	333,820.75	4.9	-0.3	400.00	9,007.30	1417452
	58	59	309	313	4.7	1.1	-	0.00	333,820.75	4.8	-0.3	900.00	9,767.85	1427220
	59	60	314	318	3.0	1.2	800.00	6,553.18	340,373.93	3.0	-0.3	800.00	33,189.96	1460410
	60	61	319	323	4.5	3.1	-	0.00	340,373.93	4.3	-0.3	-	0.00	1460410
	61	62	324	328	4.8	1.7	-	0.00	340,373.93	4.6	-0.3	200.00	3,646.75	1464057
	62	63	329	333	3.6	1.7	-	0.00	340,373.93	3.4	-0.3	600.00	4,148.97	1468206
	63	64	334	338	4.0	1.5	-	0.00	340,373.93	4.0	-0.3	900.00	4,553.36	1472759
	64	65	339	344	2.4	0.8	1,000.00	16,561.67	356,935.60	1.5	-0.3	1,000.00	54,133.38	1526893
Raghu	65	66	345	349	4.2	0.9	1,000.00	18,339.02	375,274.62	4.0	-0.3	1,000.00	39,094.21	1565987
nathpu	66	67	350	354	3.0	1.0	1,000.00	9,404.65	384,679.77	2.8	-0.3	1,000.00	36,038.90	1602026
	67	68	355	360	1.8	0.7	1,000.00	21,363.76	406,043.03	1.7	-0.3	1,000.00	58,346.32	1660372
Narhan	68	69	361	365	2.0	0.8	1,000.00	19,279.20	425,322.23	1.9	-0.3	1,000.00	43,961.14	1704333
	69	70	366	370	2.6	0.9	1,000.00	8,175.78	433,498.01	2.4	-0.3	1,000.00	32,775.58	1737109
	70	71	371	375	1.2	0.7	1,000.00	20,193.63	453,691.64	1.1	-0.3	1,000.00	51,967.31	1789076
	71	72	376	380	2.5	0.7	1,000.00	17,472.91	471,164.55	2.6	-0.3	1,000.00	36,080.21	1825156
	72	73	381	385	7.4	1.3	-	0.00	471,164.55	7.7	-0.3	1,000.00	3,800.09	1828957
	73	74	386	390	3.7	0.7	800.00	7,855.19	479,019.74	3.8	-0.3	800.00	35,981.46	1864938
	74	75	391	395	2.0	0.7	1,000.00	18,411.43	497,431.17	2.1	-0.3	1,000.00	59,903.03	1924841
	75	76	396	400	1.8	0.7	1,000.00	14,633.76	512,064.93	2.0	-0.3	1,000.00	48,469.57	1973311
	76	77	401	406	3.4	0.7	1,000.00	15,072.97	527,137.90	3.5	-0.3	1,000.00	52,329.81	2025640
	77	78	407	412	2.6	0.7	1,000.00	20,286.27	547,424.17	3.1	-0.3	1,000.00	58,681.51	2084322
	78	79	413	417	2.9	0.7	1,000.00	17,639.00	565,063.17	3.1	-0.3	1,000.00	46,656.75	2130979
	79	80	418	422	3.3	0.7	1,000.00	11,780.91	576,844.08	3.4	-0.3	1,000.00	42,194.07	2173173
	80	81	423	429	2.0	0.7	1,000.00	19,728.69	596,572.77	2.0	-0.3	1,000.00	48,529.00	2221702



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	81	82	430	434	2.5	0.8	1,000.00	13,049.44	609,622.21	2.4	-0.3	1,000.00	47,343.42	2269045
	82	83	435	439	2.3	0.7	1,000.00	14,517.71	624,139.92	3.6	-0.3	1,000.00	45,358.15	2314403
	83	84	440	444	1.7	0.7	1,000.00	21,540.00	645,679.92	6.8	-0.3	1,000.00	55,502.37	2369906
	84	85	445	449	2.7	0.7	1,000.00	11,558.35	657,238.27	2.7	-0.3	1,000.00	36,138.29	2406044
	85	86	450	454	2.4	0.9	1,000.00	8,979.34	666,217.61	2.3	-0.3	1,000.00	34,772.24	2440816
	86	87	455	460	1.9	0.7	1,000.00	15,726.01	681,943.62	4.8	-0.3	1,000.00	57,370.16	2498186
Darauli	87	88	461	465	2.3	0.7	1,000.00	6,104.43	688,048.05	2.3	-0.3	1,000.00	31,138.60	2529325
	88	89	466	470	2.8	0.7	1,000.00	14,970.60	703,018.65	3.0	-0.3	800.00	35,645.72	2564971
	89	90	471	475	1.9	0.7	1,000.00	15,590.62	718,609.27	1.8	-0.3	1,000.00	46,434.33	2611405
	90	91	476	480	3.4	1.2	600.00	584.55	719,193.82	3.3	-0.3	600.00	19,274.38	2630679
	91	92	481	485	2.6	0.8	400.00	2,483.05	721,676.87	3.3	-0.3	600.00	32,542.03	2663221
	92	93	486	490	5.3	0.7	1,000.00	12,390.28	734,067.15	2.8	-0.3	1,000.00	43,281.71	2706503
	93	94	491	495	1.7	0.8	1,000.00	19,096.81	753,163.96	2.4	-0.3	1,000.00	53,376.49	2759880
	94	95	496	500	2.6	0.7	800.00	9,002.68	762,166.64	3.3	-0.3	600.00	43,074.98	2802955
	95	96	501	506	2.7	0.7	1,000.00	20,442.86	782,609.50	3.5	-0.3	600.00	51,953.65	2854908
	96	97	507	511	2.4	0.8	1,000.00	8,019.32	790,628.82	3.1	-0.3	400.00	33,429.16	2888337
	97	98	512	516	2.3	1.1	1,000.00	7,018.72	797,647.54	3.0	-0.3	400.00	33,639.57	2921977
	98	99	517	521	3.6	1.5	600.00	417.38	798,064.92	4.3	-0.3	1,000.00	15,577.00	2937554
	99	100	522	526	1.9	0.7	1,000.00	16,196.52	814,261.44	2.6	-0.3	800.00	47,990.52	2985544
	100	100.4	527	528	1.8	1.0	400.00	3,890.51	818,151.95	2.4	-0.3	300.00	36,268.00	3038864
	100.4	101	529	532	1.9	0.9	400.00	4,762.86	822,914.81	2.1	-0.3	700.00	36,268.00	3038864
	101	102	533	537	2.2	0.8	1,000.00	7,044.10	829,958.91	2.2	-0.3	1,000.00	39,452.69	3078316
	102	103	538	542	4.4	1.3	400.00	4,094.41	834,053.32	4.6	-0.3	400.00	18,392.58	3096709
	103	104	543	548	2.3	0.7	1,000.00	8,987.47	843,040.79	2.3	-0.3	1,000.00	65,350.56	3162059
	104	105	549	553	2.3	0.8	1,000.00	10,069.98	853,110.77	2.4	-0.3	1,000.00	35,761.03	3197820
	105	106	554	558	1.5	0.8	1,000.00	14,673.22	867,783.99	1.4	-0.3	1,000.00	47,257.27	3245078
	106	107	559	563	5.2	1.6	400.00	2,390.83	870,174.82	5.2	-0.3	400.00	8,791.09	3253869
Rampur Village	107	108	564	568	3.2	1.7	-	0.00	870,174.82	3.2	-0.3	800.00	17,601.57	3271470



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Harnatar Dayalpur	108	109	569	572	3.0	1.2	200.00	1,014.37	871,189.19	3.0	-0.3	200.00	20,919.03	3292389
	109	110	573	577	2.0	0.7	1,000.00	15,947.95	887,137.14	2.3	-0.3	1,000.00	41,163.45	3333553
	110	111	578	582	2.3	0.7	1,000.00	14,492.25	901,629.39	2.7	-0.3	600.00	34,816.25	3368369
	111	112	583	587	3.2	0.7	800.00	9,682.10	911,311.49	3.6	-0.3	600.00	19,439.11	3387808
Manthala Bajar	112	113	588	592	1.9	0.7	1,000.00	6,514.83	917,826.32	2.4	-0.3	600.00	26,920.21	3414728
	113	114	593	897	1.9	0.7	1,000.00	11,818.58	929,644.90	2.2	-0.3	600.00	43,785.20	3458514
Turtipar	114	115	898	602	2.6	0.7	1,000.00	15,293.20	944,938.10	2.9	-0.3	1,000.00	35,103.27	3493617
Turtipar Rly. Brg.	115	116	603	607	2.0	0.9	1,000.00	15,232.63	960,170.73	2.6	-0.3	1,000.00	26,147.93	3519765
	116	117	608	612	4.3	2.4	200.00	74.75	960,245.48	4.8	1.7	-	0.00	3519765
	117	118	613	618	6.4	0.8	800.00	12,474.53	972,720.01	7.0	-0.3	600.00	41,174.18	3560939
	118	119	619	623	1.7	0.8	1,000.00	11,415.98	984,135.99	2.2	-0.3	1,000.00	32,599.39	3593538
Esharou	119	120	624	628	2.5	0.7	1,000.00	7,289.65	991,425.64	3.0	-0.3	600.00	33,875.58	3627414
	120	121	629	633	2.8	1.2	800.00	4,006.40	995,432.04	3.3	-0.3	400.00	32,316.92	3659731
	121	122	634	638	3.4	1.2	200.00	803.14	996,235.18	3.9	-0.3	800.00	11,844.24	3671575
Chanpur Gloura Village	122	123	639	643	5.5	0.9	200.00	818.83	997,054.01	6.1	-0.3	1,000.00	21,928.09	3693503
	123	124	644	648	2.2	1.1	1,000.00	6,489.28	1,003,543.29	2.7	-0.3	600.00	52,581.15	3746084
	124	125	649	653	1.6	0.7	1,000.00	17,651.95	1,021,195.24	2.1	-0.3	1,000.00	53,615.96	3799700
	125	126	654	658	1.7	0.7	1,000.00	9,629.00	1,030,824.24	6.0	-0.3	600.00	54,565.35	3854266
Chakimusa Dohi Ghat	126	127	659	663	2.8	0.7	1,000.00	15,691.82	1,046,516.06	3.9	-0.3	800.00	51,920.89	3906186
	127	128	664	668	3.1	0.7	1,000.00	12,857.06	1,059,373.12	3.6	-0.3	800.00	51,967.04	3958154
	128	129	669	674	2.8	0.7	1,000.00	19,698.33	1,079,071.45	3.3	-0.3	1,000.00	69,157.31	4027311
	129	130	675	679	1.6	0.7	1,000.00	20,809.95	1,099,881.40	2.2	-0.3	1,000.00	61,789.62	4089100
	130	131	680	685	1.5	0.7	1,000.00	29,834.33	1,129,715.73	1.7	-0.3	1,000.00	72,136.91	4161237
	131	132	686	690	2.0	1.1	1,000.00	12,122.26	1,141,837.99	2.4	-0.3	600.00	35,406.48	4196644
	132	133	691	695	4.7	1.0	800.00	2,009.58	1,143,847.57	5.1	-0.3	1,000.00	36,592.34	4233236
	133	134	696	700	1.7	0.7	1,000.00	18,910.51	1,162,758.08	2.2	-0.3	1,000.00	60,296.84	4293533
	134	135	701	705	2.4	0.8	1,000.00	16,423.24	1,179,181.32	2.9	-0.3	1,000.00	32,104.16	4325637



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	135	136	706	710	4.3	2.1	400.00	1,018.19	1,180,199.51	4.9	-0.3	1,000.00	8,747.45	4334385
	136	137	711	715	2.2	1.5	600.00	36.11	1,180,235.62	2.7	-0.3	1,000.00	23,162.68	4357547
	137	138	716	720	2.7	2.0	200.00	1.35	1,180,236.97	3.3	-0.3	1,000.00	5,923.06	4363470
	138	139	721	725	3.5	1.5	200.00	147.28	1,180,384.25	3.5	-0.3	1,000.00	18,064.42	4381535
Barhaj Bridge (UNC)	139	140	726	730	3.9	1.4	200.00	146.56	1,180,530.81	4.4	-0.3	1,000.00	26,022.47	4407557
Nabideswar Mishra Ghat	140	141	731	736	2.4	1.1	1,000.00	6,295.29	1,186,826.10	4.2	-0.3	1,000.00	44,031.68	4451589
Katelwa Village	141	142	737	741	6.6	1.0	600.00	3,711.83	1,190,537.93	7.1	-0.3	1,000.00	4,627.72	4456217
Kudhe Ghat	142	143	742	746	4.3	1.2	200.00	123.40	1,190,661.33	4.7	-0.3	1,000.00	39,679.49	4495896
	143	144	747	752	1.4	0.7	1,000.00	25,793.14	1,216,454.47	5.2	-0.3	1,000.00	57,433.29	4553329
Kaparwar	144	145	753	757	2.2	0.9	1,000.00	12,487.63	1,228,942.10	2.2	-0.3	1,000.00	41,369.00	4594698
	145	146	758	763	3.8	0.7	1,000.00	10,439.37	1,239,381.47	5.2	-0.3	1,000.00	51,930.85	4646629
	146	147	764	768	1.7	0.7	1,000.00	18,937.58	1,258,319.05	1.8	-0.3	1,000.00	36,497.52	4683127
Netavar patti	147	148	769	773	2.9	0.8	1,000.00	10,285.83	1,268,604.88	3.0	-0.3	1,000.00	38,400.12	4721527
	148	149	774	779	2.0	0.7	1,000.00	15,515.45	1,284,120.33	2.1	-0.3	1,000.00	60,693.93	4782221
	149	150	780	784	2.3	0.7	800.00	15,232.41	1,299,352.74	2.3	-0.3	1,000.00	51,159.97	4833381
	150	151	785	790	2.5	1.0	1,000.00	9,307.27	1,308,660.01	2.6	-0.3	1,000.00	67,122.30	4900503
	151	152	791	795	1.9	0.7	1,000.00	10,012.02	1,318,672.03	2.0	-0.3	1,000.00	117,552.23	5018055
	152	153	796	800	2.1	0.7	1,000.00	22,438.28	1,341,110.31	1.7	-0.3	1,000.00	64,597.33	5082653
	153	154	801	806	2.0	0.7	1,000.00	28,894.61	1,370,004.92	1.9	1.7	-	0.00	5082653
	154	155	807	811	2.2	0.7	1,000.00	18,444.35	1,388,449.27	1.7	-0.3	1,000.00	39,908.42	5122561
	155	156	812	816	2.6	0.7	1,000.00	12,913.18	1,401,362.45	2.1	-0.3	1,000.00	13,226.91	5135788
	156	157	817	822	3.7	1.1	800.00	2,569.25	1,403,931.70	3.3	-0.3	1,000.00	50,678.10	5186466
	157	158	823	827	3.1	0.7	600.00	12,437.00	1,416,368.70	2.7	-0.3	1,000.00	53,489.48	5239956
	158	159	828	833	2.9	0.7	1,000.00	25,625.06	1,441,993.76	2.4	-0.3	1,000.00	11,905.34	5251861
	159	160	834	838	5.8	1.9	400.00	-6,919.93	1,435,073.83	5.4	-0.3	1,000.00	47,395.34	5299256
	160	161	839	843	3.8	0.8	800.00	8,210.11	1,443,283.94	3.4	-0.3	1,000.00	50,140.24	5349397
	161	162	844	848	3.5	0.8	1,000.00	8,967.00	1,452,250.94	3.1	-0.3	1,000.00	35,242.15	5384639
	162	163	849	853	2.2	0.7	1,000.00	17,556.80	1,469,807.74	2.3	-0.3	1,000.00	48,074.48	5432713



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	163	164	854	858	2.3	0.8	1,000.00	7,405.18	1,477,212.92	2.5	-0.3	1,000.00	31,472.60	5464186
Khadesari	164	165	859	863	2.1	0.7	1,000.00	12,506.57	1,489,719.49	2.3	-0.3	1,000.00	0.00	5464186
DOHRI GHAT	165	166	864	868	9.2	1.6	200.00	1,092.59	1,490,812.08	9.5	-0.3	1,000.00	4,872.84	5469059
Barhalganj	166	167	869	873	7.7	2.5	-	0.00	1,490,812.08	8.2	1.7	-	0.00	5469059
	167	168	874	878	7.7	1.8	-	0.00	1,490,812.08	7.8	-0.3	1,000.00	13,798.78	5482857
	168	169	879	884	8.0	1.3	-	0.00	1,490,812.08	9.4	-0.3	1,000.00	45,953.01	5528810
	169	170	885	889	2.4	0.7	800.00	5,220.49	1,496,032.57	2.5	-0.3	1,000.00	60,766.01	5589576
	170	171	890	894	2.3	0.7	1,000.00	15,096.13	1,511,128.70	2.5	-0.3	1,000.00	37,400.25	5626977
	171	172	895	899	7.2	0.7	600.00	6,900.09	1,518,028.79	3.3	-0.3	1,000.00	44,908.17	5671885
	172	173	900	905	2.6	0.7	1,000.00	16,043.22	1,534,072.01	2.5	-0.3	1,000.00	59,846.42	5731731
	173	174	906	910	3.6	0.9	1,000.00	11,327.28	1,545,399.29	2.4	-0.3	1,000.00	22,347.20	5754078
	174	175	911	916	5.1	0.9	1,000.00	12,196.91	1,557,596.20	4.8	-0.3	1,000.00	59,661.87	5813740
	175	176	917	923	5.9	0.7	1,000.00	20,152.19	1,577,748.39	2.3	-0.3	1,000.00	55,558.93	5869299
Parsiya	176	177	924	928	7.0	0.7	800.00	13,637.51	1,591,385.90	2.2	-0.3	1,000.00	48,098.12	5917397
	177	178	929	934	6.2	0.7	1,000.00	18,535.66	1,609,921.56	2.1	-0.3	1,000.00	68,135.27	5985533
	178	179	935	939	1.8	0.7	1,000.00	20,962.55	1,630,884.11	2.2	-0.3	1,000.00	44,154.54	6029687
	179	180	940	944	1.6	0.7	1,000.00	14,894.30	1,645,778.41	2.1	-0.3	1,000.00	36,072.24	6065759
	180	181	945	949	2.4	1.0	800.00	4,498.69	1,650,277.10	2.9	-0.3	1,000.00	50,842.64	6116602
Khutahan Khas	181	182	950	954	2.0	0.7	1,000.00	12,046.00	1,662,323.10	2.5	-0.3	1,000.00	61,135.26	6177737
	182	183	955	960	1.7	0.9	1,000.00	19,244.73	1,681,567.83	2.3	-0.3	1,000.00	48,553.05	6226290
	183	184	961	965	2.0	1.2	1,000.00	5,796.46	1,687,364.29	1.0	-0.3	1,000.00	34,665.16	6260956
	184	185	966	970	4.4	1.5	200.00	70.17	1,687,434.46	2.3	-0.3	1,000.00	49,945.19	6310901
	185	186	971	975	1.9	0.9	1,000.00	8,551.38	1,695,985.84	-	-0.3	1,000.00	45,015.42	6355916
	186	187	976	980	2.2	1.2	1,000.00	1,493.41	1,697,479.25	0.1	-0.3	1,000.00	51,768.45	6407685
Gola Ghat	187	188	981	986	6.4	0.7	1,000.00	10,248.26	1,707,727.51	0.0	-0.3	1,000.00	56,467.18	6464152
	188	189	987	991	2.1	0.7	1,000.00	13,185.72	1,720,913.23	0.4	-0.3	1,000.00	52,544.95	6516697
	189	190	992	996	2.7	0.8	1,000.00	5,717.22	1,726,630.45	0.9	-0.3	1,000.00	51,874.64	6568571
	190	191	997	1002	2.1	0.9	1,000.00	20,203.82	1,746,834.27	0.1	-0.3	1,000.00	18,869.63	6587441



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	191	192	1003	1008	3.2	1.5	200.00	430.42	1,747,264.69	1.0	-0.3	1,000.00	22,005.48	6609446
Dewara Achal Singh	192	193	1009	1014	4.2	1.3	400.00	589.92	1,747,854.61	4.1	-0.3	1,000.00	23,553.88	6633000
Kauriya	193	194	1015	1019	2.1	1.3	1,000.00	3,363.01	1,751,217.62	2.3	-0.3	1,000.00	9,810.25	6642811
	194	195	1020	1024	2.4	1.3	200.00	17.37	1,751,234.99	2.8	-0.3	1,000.00	37,324.38	6680135
	195	196	1025	1029	2.5	0.9	800.00	7,290.96	1,758,525.95	2.8	-0.3	1,000.00	30,803.48	6710938
Bara Kalika Sthan	196	197	1030	1035	2.1	0.9	1,000.00	12,428.35	1,770,954.30	2.4	-0.3	1,000.00	31,917.41	6742856
	197	198	1036	1040	3.0	0.8	1,000.00	11,096.81	1,782,051.11	3.3	-0.3	1,000.00	45,258.90	6788115
	198	199	1041	1045	1.9	0.7	800.00	9,003.84	1,791,054.95	2.1	-0.3	1,000.00	40,406.22	6828521
	199	200	1046	1051	1.7	0.9	1,000.00	18,120.06	1,809,175.01	1.8	-0.3	1,000.00	41,382.95	6869904
Jhptia Ghat	200	201	1052	1056	2.8	0.8	1,000.00	7,448.37	1,816,623.38	3.0	-0.3	1,000.00	35,801.64	6905706
	201	202	1057	1061	2.4	0.7	1,000.00	13,417.49	1,830,040.87	2.5	-0.3	1,000.00	37,705.51	6943411
	202	203	1062	1066	1.6	0.7	1,000.00	17,327.86	1,847,368.73	1.9	-0.3	1,000.00	54,781.80	6998193
Basahi	203	204	1067	1071	4.4	1.0	1,000.00	10,501.21	1,857,869.94	3.0	-0.3	1,000.00	73,670.55	7071863
	204	205	1072	1077	6.8	0.8	1,000.00	14,908.78	1,872,778.72	2.9	-0.3	1,000.00	74,348.21	7146212
Sahapur Ghat	205	206	1078	1082	2.3	1.2	800.00	4,860.86	1,877,639.58	3.6	-0.3	1,000.00	55,073.36	7201285
Belikur Village	206	207	1083	1088	2.3	1.3	1,000.00	1,056.62	1,878,696.20	3.5	-0.3	1,000.00	79,248.13	7280533
	207	208	1089	1094	2.8	0.7	1,000.00	9,233.16	1,887,929.36	4.1	-0.3	1,000.00	60,009.87	7340543
Khairati	208	209	1095	1099	2.3	1.1	800.00	9,751.14	1,897,680.50	3.4	-0.3	1,000.00	63,213.88	7403757
	209	210	1100	1104	3.5	1.2	600.00	1,290.79	1,898,971.29	4.8	-0.3	1,000.00	11,169.96	7414927
	210	211	1105	1108	3.6	1.4	800.00	1,126.33	1,900,097.62	4.8	-0.3	1,000.00	5,391.42	7420318
Belwa Ghat	211	212	1109	1114	5.8	2.2	-	0.00	1,900,097.62	4.0	-0.3	1,000.00	81,482.74	7501801
	212	213	1115	1119	2.6	0.7	800.00	6,859.13	1,906,956.75	3.9	-0.3	1,000.00	73,976.14	7575777
Indorepur urf Dinhapur	213	214	1120	1124	1.9	0.7	1,000.00	9,656.07	1,916,612.82	3.2	-0.3	1,000.00	73,234.64	7649012
	214	215	1125	1129	2.2	0.7	1,000.00	14,390.93	1,931,003.75	3.5	-0.3	1,000.00	77,543.00	7726555
	215	216	1130	1134	1.5	0.7	1,000.00	22,813.97	1,953,817.72	3.0	-0.3	1,000.00	78,300.61	7804855
	216	217	1135	1139	2.1	0.8	1,000.00	14,891.96	1,968,709.68	3.4	-0.3	1,000.00	77,320.17	7882176
Babhanpura	217	218	1140	1145	1.5	0.7	1,000.00	25,863.72	1,994,573.40	2.8	-0.3	1,000.00	84,165.39	7966341



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Kamariya Pontoon Brg.	218	219	1146	1150	3.5	0.8	600.00	8,067.93	2,002,641.33	6.7	-0.3	1,000.00	85,879.11	8052220
Dandwa	219	220	1151	1155	2.3	0.7	1,000.00	22,871.80	2,025,513.13	3.8	-0.3	1,000.00	38,488.55	8090709
Chadipur Village	220	221	1156	1161	7.7	1.0	1,000.00	4,500.80	2,030,013.93	2.2	-0.3	1,000.00	90,153.87	8180862
Gangasagar	221	222	1162	1166	2.2	0.7	1,000.00	15,786.13	2,045,800.06	3.6	-0.3	1,000.00	74,687.63	8255550
	222	223	1167	1173	1.9	0.7	1,000.00	19,678.82	2,065,478.88	3.3	-0.3	1,000.00	93,206.65	8348757
	223	224	1174	1178	1.9	0.8	1,000.00	12,708.87	2,078,187.75	3.2	-0.3	1,000.00	64,022.76	8412780
	224	225	1179	1183	3.3	0.8	1,000.00	4,113.95	2,082,301.70	4.2	-0.3	1,000.00	74,901.09	8487681
	225	226	1184	1189	1.5	0.7	1,000.00	22,489.98	2,104,791.68	2.4	-0.3	1,000.00	82,035.74	8569716
Daulatpur Village	226	227	1190	1195	2.4	0.7	1,000.00	16,527.73	2,121,319.41	3.2	-0.3	1,000.00	90,542.98	8660259
	227	228	1196	1202	1.8	0.7	1,000.00	14,546.50	2,135,865.91	2.3	-0.3	1,000.00	78,052.09	8738311
	228	229	1203	1207	1.6	0.7	1,000.00	23,495.92	2,159,361.83	2.3	-0.3	1,000.00	62,162.49	8800474
Tetriya	229	230	1208	1212	4.5	0.7	800.00	4,181.67	2,163,543.50	5.2	-0.3	1,000.00	30,441.64	8830916
	230	231	1213	1217	2.9	0.7	1,000.00	9,492.31	2,173,035.81	3.7	-0.3	1,000.00	49,676.10	8880592
Bhagapur	231	232	1218	1223	3.4	1.5	200.00	825.02	2,173,860.83	4.3	-0.3	1,000.00	40,063.04	8920655
Birhar Ghat Brg.	232	233	1224	1228	2.1	0.8	1,000.00	6,914.41	2,180,775.24	2.5	-0.3	1,000.00	8,386.66	8929041
	233	234	1229	1233	2.8	1.6	400.00	6,222.61	2,186,997.85	3.7	-0.3	1,000.00	42,537.10	8971578
Bidhar Village	234	235	1234	1238	4.2	1.1	-	0.00	2,186,997.85	4.5	-0.3	1,000.00	60,495.19	9032074
Addopur	235	236	1239	1243	2.5	0.7	1,000.00	9,733.46	2,196,731.31	2.8	-0.3	1,000.00	62,873.55	9094947
Gobardhanpur Village	236	237	1244	1249	3.1	0.7	1,000.00	24,339.89	2,221,071.20	3.1	-0.3	1,000.00	80,919.94	9175867
	237	238	1250	1254	1.7	0.7	1,000.00	20,204.86	2,241,276.06	2.0	-0.3	1,000.00	58,995.93	9234863
	238	239	1255	1259	2.1	0.8	1,000.00	22,336.90	2,263,612.96	2.5	-0.3	1,000.00	71,548.99	9306412
	239	240	1260	1266	1.3	0.7	1,000.00	30,450.83	2,294,063.79	1.6	-0.3	1,000.00	78,641.73	9385054
	240	241	1267	1271	2.2	0.7	1,000.00	17,299.00	2,311,362.79	2.4	-0.3	1,000.00	20,109.15	9405163
	241	242	1272	1278	3.0	0.9	1,000.00	15,881.83	2,327,244.62	3.1	-0.3	1,000.00	8,065.43	9413228
	242	243	1279	1283	3.3	1.7	-	0.00	2,327,244.62	3.6	-0.3	1,000.00	15,405.91	9428634
	243	244	1284	1289	6.0	2.4	-	0.00	2,327,244.62	7.0	-0.3	1,000.00	58,750.61	9487385
	244	245	1290	1295	3.5	1.0	800.00	2,666.71	2,329,911.33	4.1	-0.3	1,000.00	60,256.40	9547641
	245	246	1296	1300	2.3	0.9	1,000.00	10,356.90	2,340,268.23	3.1	-0.3	1,000.00	57,984.75	9605626



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	246	247	1301	1305	2.0	0.7	1,000.00	3,619.94	2,343,888.17	3.8	-0.3	1,000.00	61,718.32	9667344
Mahendi Ghat	247	248	1306	1311	4.2	0.7	1,000.00	15,495.11	2,359,383.28	2.9	-0.3	1,000.00	60,777.40	9728122
	248	249	1312	1315	2.9	0.7	800.00	12,102.41	2,371,485.69	3.7	-0.3	1,000.00	13,751.12	9741873
	249	250	1316	1320	2.6	0.7	1,000.00	12,958.14	2,384,443.83	3.4	-0.3	1,000.00	62,238.84	9804112
	250	251	1321	1328	5.8	0.5	1,000.00	13,944.45	2,398,388.28	5.2	-0.3	1,000.00	77,524.40	9881636
	251	252	1329	1334	6.6	0.9	1,000.00	14,461.72	2,412,850.00	3.6	-0.3	1,000.00	75,793.43	9957430
	252	253	1335	1340	5.3	0.6	1,000.00	6,999.92	2,419,849.92	5.4	-0.3	1,000.00	79,250.96	10036681
	253	254	1341	1346	3.5	1.1	1,000.00	7,779.38	2,427,629.30	5.0	-0.3	1,000.00	35,946.19	10072627
Babu Tangedia Village	254	255	1347	1351	2.1	1.3	800.00	3,420.95	2,431,050.25	3.0	-0.3	1,000.00	15,844.94	10088472
	255	256	1352	1357	3.4	2.3	-	0.00	2,431,050.25	4.4	-0.3	1,000.00	8,813.96	10097286
Nawari Rampur Ghat	256	257	1358	1362	3.4	2.2	-	0.00	2,431,050.25	4.4	-0.3	1,000.00	38,668.66	10135954
NasiraBad Village	257	258	1363	1367	9.5	2.9	-	0.00	2,431,050.25	9.8	-0.3	1,000.00	63,775.68	10199730
	258	259	1368	1372	5.7	0.9	600.00	7,959.41	2,439,009.66	7.1	-0.3	1,000.00	51,356.62	10251087
	259	260	1373	1377	3.1	0.8	1,000.00	8,495.13	2,447,504.79	3.9	-0.3	1,000.00	71,956.78	10323043
	260	261	1378	1382	2.4	0.7	800.00	10,917.69	2,458,422.48	3.5	-0.3	1,000.00	75,448.84	10398492
Darjipur Murda Ghat	261	262	1383	1388	2.1	0.7	1,000.00	19,233.62	2,477,656.10	2.9	-0.3	1,000.00	87,269.30	10485761
Prithvipur	262	263	1389	1393	2.4	1.3	600.00	4,803.70	2,482,459.80	3.5	-0.3	1,000.00	56,382.00	10542143
	263	264	1394	1398	2.7	1.2	800.00	4,385.75	2,486,845.55	3.9	-0.3	1,000.00	75,034.69	10617178
	264	265	1399	1403	2.0	1.2	600.00	1,321.64	2,488,167.19	3.2	-0.3	1,000.00	68,672.14	10685850
	265	266	1404	1408	2.4	0.9	1,000.00	6,596.13	2,494,763.32	3.5	-0.3	1,000.00	78,402.22	10764253
	266	267	1409	1414	2.7	0.9	1,000.00	4,175.45	2,498,938.77	3.7	-0.3	1,000.00	86,985.68	10851238
Mobarkpur Village	267	268	1415	1419	2.0	0.7	1,000.00	12,649.60	2,511,588.37	3.1	-0.3	1,000.00	70,445.13	10921683
Chintaura	268	269	1420	1424	2.5	0.8	1,000.00	11,734.14	2,523,322.51	3.3	-0.3	1,000.00	69,657.99	10991341
	269	270	1425	1429	3.0	0.7	1,000.00	15,750.31	2,539,072.82	4.2	-0.3	1,000.00	77,701.74	11069043
Tanda	270	271	1430	1435	2.5	0.7	1,000.00	13,972.45	2,553,045.27	3.7	-0.3	1,000.00	92,940.08	11161983
	271	272	1436	1440	2.2	1.0	1,000.00	7,668.87	2,560,714.14	3.4	-0.3	1,000.00	77,355.46	11239339
	272	273	1441	1445	2.0	0.8	1,000.00	8,573.17	2,569,287.31	3.3	-0.3	1,000.00	44,631.84	11283970



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	273	274	1446	1449	2.1	0.7	800.00	14,724.48	2,584,011.79	3.3	-0.3	1,000.00	50,326.05	11334296
	274	275	1450	1455	4.0	1.0	800.00	8,457.91	2,592,469.70	5.3	-0.3	1,000.00	73,001.66	11407298
	275	276	1456	1460	2.6	1.2	600.00	1,516.60	2,593,986.30	3.9	-0.3	1,000.00	76,960.65	11484259
	276	277	1461	1465	2.8	0.7	600.00	8,832.02	2,602,818.32	3.7	-0.3	1,000.00	67,705.91	11551965
	277	278	1466	1470	2.0	0.7	1,000.00	19,561.76	2,622,380.08	3.1	-0.3	1,000.00	69,777.83	11621743
	278	279	1471	1475	2.6	1.4	800.00	5,818.82	2,628,198.90	3.8	-0.3	1,000.00	69,206.84	11690949
	279	280	1476	1480	2.6	0.7	800.00	8,721.86	2,636,920.76	4.0	-0.3	1,000.00	76,598.21	11767548
	280	281	1481	1485	2.3	1.0	800.00	8,456.00	2,645,376.76	3.5	-0.3	1,000.00	43,157.85	11810705
NTPC Power Plant	281	282	1486	1490	2.1	0.8	1,000.00	12,432.72	2,657,809.48	3.3	-0.3	1,000.00	63,283.33	11873989
	282	283	1491	1495	5.5	1.0	400.00	2,631.96	2,660,441.44	6.2	-0.3	1,000.00	71,146.47	11945135
Katariyan Village	283	284	1496	1501	3.6	1.0	1,000.00	2,578.30	2,663,019.74	5.2	-0.3	1,000.00	91,556.74	12036692
Eltefat Ganj	284	285	1502	1506	2.4	1.0	1,000.00	5,093.55	2,668,113.29	4.2	-0.3	1,000.00	63,780.43	12100472
Aurangabad Village	285	286	1507	1511	3.3	0.7	1,000.00	7,112.72	2,675,226.01	5.0	-0.3	1,000.00	68,811.79	12169284
Salona Village	286	287	1512	1517	7.0	0.7	1,000.00	11,065.20	2,686,291.21	3.2	-0.3	1,000.00	92,254.42	12261539
	287	288	1518	1523	2.2	0.7	1,000.00	20,228.29	2,706,519.50	4.0	-0.3	1,000.00	90,496.15	12352035
	288	289	1524	1528	1.5	0.7	1,000.00	18,904.86	2,725,424.36	3.3	-0.3	1,000.00	78,525.44	12430560
	289	290	1529	1534	1.5	0.7	1,000.00	26,491.99	2,751,916.35	3.3	-0.3	1,000.00	89,871.41	12520432
	290	291	1535	1539	2.0	1.0	1,000.00	10,990.46	2,762,906.81	3.8	-0.3	1,000.00	76,775.39	12597207
	291	292	1540	1545	1.7	0.8	1,000.00	12,236.80	2,775,143.61	2.7	-0.3	1,000.00	84,304.18	12681511
	292	293	1546	1549	1.9	0.7	800.00	14,490.36	2,789,633.97	2.5	-0.3	1,000.00	56,092.55	12737604
	293	294	1550	1554	5.9	0.7	1,000.00	21,631.40	2,811,265.37	3.0	-0.3	1,000.00	55,733.06	12793337
Bhura	294	295	1555	1559	2.4	0.8	1,000.00	12,200.82	2,823,466.19	2.3	-0.3	1,000.00	75,863.40	12869200
	295	296	1560	1564	4.3	0.8	1,000.00	5,504.18	2,828,970.37	3.1	-0.3	1,000.00	32,773.24	12901973
	296	297	1565	1569	2.7	0.7	1,000.00	16,674.70	2,845,645.07	3.5	-0.3	1,000.00	25,049.77	12927023
	297	298	1570	1574	3.4	1.3	200.00	375.65	2,846,020.72	4.1	-0.3	1,000.00	32,355.11	12959378
	298	299	1575	1579	4.6	1.6	200.00	376.68	2,846,397.40	5.5	-0.3	1,000.00	73,763.00	13033141
	299	300	1580	1584	5.0	0.7	400.00	3,133.85	2,849,531.25	4.2	-0.3	1,000.00	76,827.56	13109969
	300	301	1585	1589	2.5	0.7	1,000.00	7,234.71	2,856,765.96	3.4	-0.3	1,000.00	45,191.55	13155160



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	301	302	1590	1594	2.8	1.5	1,000.00	2,591.55	2,859,357.51	4.1	-0.3	1,000.00	77,997.22	13233158
Sarwa Ghat	302	303	1595	1600	4.0	0.7	600.00	2,730.18	2,862,087.69	5.4	-0.3	1,000.00	88,227.29	13321385
Singirisi Temple	303	304	1601	1605	2.1	1.2	1,000.00	9,591.63	2,871,679.32	3.4	-0.3	1,000.00	65,183.90	13386569
	304	305	1606	1610	2.3	1.0	1,000.00	1,012.12	2,872,691.44	3.6	-0.3	1,000.00	68,519.52	13455088
Mehboob Ganj	305	306	1611	1616	3.3	0.7	1,000.00	18,597.74	2,891,289.18	3.2	-0.3	1,000.00	70,415.15	13525504
	306	307	1617	1621	3.7	0.7	1,000.00	14,890.14	2,906,179.32	5.1	-0.3	1,000.00	70,050.53	13595554
	307	308	1622	1627	5.4	0.7	1,000.00	10,287.28	2,916,466.60	4.2	-0.3	1,000.00	50,658.91	13646213
Posra Village	308	309	1628	1632	4.4	0.7	1,000.00	11,280.80	2,927,747.40	4.7	-0.3	1,000.00	61,433.51	13707646
	309	310	1633	1638	6.0	0.7	1,000.00	9,417.15	2,937,164.55	8.1	-0.3	1,000.00	74,732.69	13782379
	310	311	1639	1644	5.8	0.8	1,000.00	12,387.55	2,949,552.10	7.6	-0.3	1,000.00	57,696.16	13840075
	311	312	1645	1651	2.6	0.9	1,000.00	14,419.98	2,963,972.08	3.0	-0.3	1,000.00	27,649.81	13867725
	312	313	1652	1655	7.8	1.8	400.00	3,419.81	2,967,391.89	9.0	-0.3	1,000.00	12,581.42	13880307
	313	314	1656	1660	8.5	1.8	-	0.00	2,967,391.89	9.6	-0.3	1,000.00	59,127.93	13939434
	314	315	1661	1665	4.3	1.5	-	0.00	2,967,391.89	5.0	-0.3	1,000.00	58,466.88	13997901
Baburi Babu	315	316	1666	1671	2.0	0.7	1,000.00	10,102.90	2,977,494.79	2.8	-0.3	1,000.00	12,610.53	14010512
	316	317	1672	1676	6.8	1.1	800.00	9,656.85	2,987,151.64	7.1	-0.3	1,000.00	67,024.70	14077537
	317	318	1677	1681	9.5	3.3	-	0.00	2,987,151.64	9.8	-0.3	1,000.00	77,574.25	14155111
Balwa Ghat	318	319	1682	1686	2.4	0.7	800.00	11,859.63	2,999,011.27	4.1	-0.3	1,000.00	75,898.31	14231009
	319	320	1687	1692	2.4	0.8	1,000.00	10,379.62	3,009,390.89	4.2	-0.3	1,000.00	85,822.20	14316831
Arjunpur Village	320	321	1693	1696	3.3	0.9	800.00	8,165.39	3,017,556.28	5.5	-0.3	1,000.00	55,849.17	14372681
	321	322	1697	1700	3.2	1.4	-	0.00	3,017,556.28	5.2	-0.3	1,000.00	46,781.71	14419462
	322	323	1701	1705	5.4	1.1	1,000.00	3,625.90	3,021,182.18	4.2	-0.3	1,000.00	78,339.83	14497802
	323	324	1706	1711	4.9	1.2	400.00	931.58	3,022,113.76	6.6	-0.3	1,000.00	88,409.10	14586211
	324	325	1712	1716	2.7	1.0	1,000.00	3,681.72	3,025,795.48	4.5	-0.3	1,000.00	78,284.57	14664496
	325	326	1717	1721	5.9	0.7	1,000.00	10,190.23	3,035,985.71	4.2	-0.3	1,000.00	75,940.03	14740436
	326	327	1722	1726	2.9	0.7	1,000.00	16,218.20	3,052,203.91	4.7	-0.3	1,000.00	71,857.65	14812293
	327	328	1727	1731	3.2	0.7	1,000.00	15,955.72	3,068,159.63	4.8	-0.3	1,000.00	73,317.30	14885611
	328	329	1732	1737	2.0	0.7	1,000.00	16,157.93	3,084,317.56	2.8	-0.3	1,000.00	81,119.26	14966730



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	329	330	1738	1744	2.7	0.7	1,000.00	19,151.32	3,103,468.88	3.8	-0.3	1,000.00	94,660.43	15061390
	330	331	1745	1749	4.8	0.8	1,000.00	17,617.64	3,121,086.52	2.7	-0.3	1,000.00	47,318.76	15108709
	331	332	1750	1754	2.0	0.7	800.00	6,812.35	3,127,898.87	2.7	-0.3	1,000.00	72,098.14	15180807
	332	333	1755	1759	3.3	0.7	800.00	6,619.00	3,134,517.87	3.9	-0.3	1,000.00	46,086.57	15226894
	333	334	1760	1765	3.2	1.2	1,000.00	11,780.64	3,146,298.51	3.0	-0.3	1,000.00	67,386.56	15294280
	334	335	1766	1771	3.8	1.2	800.00	1,212.27	3,147,510.78	4.5	-0.3	1,000.00	59,757.60	15354038
Gauria Village	335	336	1772	1776	3.0	0.7	1,000.00	8,785.65	3,156,296.43	3.7	-0.3	1,000.00	52,878.54	15406917
Keshawapur	336	337	1777	1782	5.5	0.9	800.00	5,170.55	3,161,466.98	2.6	-0.3	1,000.00	67,719.49	15474636
	337	338	1783	1788	2.5	1.1	800.00	3,733.71	3,165,200.69	3.2	-0.3	1,000.00	6,124.05	15480760
	338	339	1789	1793	9.7	1.1	1,000.00	6,394.79	3,171,595.48	10.4	-0.3	1,000.00	66,757.20	15547517
	339	340	1794	1798	6.7	1.9	-	0.00	3,171,595.48	7.4	-0.3	1,000.00	61,635.93	15609153
	340	341	1799	1803	1.8	1.1	800.00	3,138.96	3,174,734.44	2.7	-0.3	1,000.00	34,269.70	15643423
	341	342	1804	1808	2.5	1.0	1,000.00	6,032.11	3,180,766.55	3.4	-0.3	1,000.00	44,088.47	15687511
	342	343	1809	1813	4.9	1.9	200.00	1,074.61	3,181,841.16	5.7	-0.3	1,000.00	70,289.83	15757801
AYODHYA	343	344	1814	1818	4.9	0.7	200.00	2,044.75	3,183,885.91	6.0	-0.3	1,000.00	48,250.14	15806051
Durga Ganj Village	344	345	1819	1823	3.0	0.8	1,000.00	17,333.55	3,201,219.46	3.9	-0.3	1,000.00	67,765.20	15873817
	345	346	1824	1829	4.4	0.8	1,000.00	2,731.26	3,203,950.72	5.4	-0.3	1,000.00	495,837.89	15377979
	346	347	1830	1834	2.6	1.0	1,000.00	9,383.94	3,213,334.66	3.6	-0.3	1,000.00	54,058.75	15432037
	347	348	1835	1839	3.9	1.5	400.00	49.41	3,213,384.07	4.8	-0.3	1,000.00	54,058.75	15486096
	348	349	1840	1875	3.2	0.7	1,000.00	1,746.99	3,215,131.06	4.2	-0.3	1,000.00	54,058.75	15540155
	349	350	1876	1850	1.9	1.2	1,000.00	5,043.88	3,220,174.94	2.9	-0.3	1,000.00	54,058.75	15594214
	350	351	1851	1855	3.5	1.7	400.00	1,301.12	3,221,476.06	4.5	-0.3	1,000.00	54,058.75	15648272
Fatehpur Saria Manjh	351	352	1856	1860	4.1	1.9	-	0.00	3,221,476.06	5.1	-0.3	1,000.00	54,058.75	15702331
	352	353	1861	1865	3.8	1.1	600.00	4,112.15	3,225,588.21	4.6	-0.3	1,000.00	54,058.75	15756390
FAIZABAD	353	354	1866	1868	2.0	0.8	400.00	3,390.18	3,228,978.39	3.1	-0.3	1,000.00	54,058.75	15810449
TOTAL DREDGING QUANTITY (cu.m.)							275,400.00	3,228,978.39				315,000.00	15,829,665.69	



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Ma x.	Min.		Per km drg	Accumulati ve drg.	Ma x.	Min.		Per km drg	Accumulative drg.
Ganga Confluence (Near Doriganj)	0	1	1	5	3.3	2.1	-	0.00	0.00	1.6	1.5	-	0.00	0.00
	1	2	6	10	5.9	2.0	-	0.00	0.00	4.2	1.5	-	0.00	0.00
	2	3	11	15	3.5	1.5	-	0.00	0.00	1.8	1.5	-	0.00	0.00
	3	4	16	20	4.1	1.3	800.00	118.16	118.16	2.6	1.5	-	0.00	0.00
	4	5	21	27	5.9	0.8	400.00	3,365.99	3,484.15	4.4	1.5	-	0.00	0.00
Enai Village	5	6	28	33	3.3	1.2	600.00	1,353.60	4,837.75	1.5	1.5	-	0.00	0.00
	6	7	34	40	5.4	1.2	400.00	517.56	5,355.31	3.6	1.5	-	0.00	0.00
	7	8	41	45	2.3	0.9	1,000.00	6,077.29	11,432.60	1.8	1.5	-	0.00	0.00
CHHAPRA	8	9	46	51	2.3	0.7	1,000.00	8,755.49	20,188.09	1.8	-0.3	1,000.00	2,286.90	2286.9
	9	10	52	57	3.2	0.9	800.00	7,454.37	27,642.46	1.8	-0.3	1,000.00	12,283.72	14570.62
	10	11	58	62	3.4	1.0	800.00	2,981.12	30,623.58	2.8	0.3	1,000.00	5,512.97	20083.59
	11	12	63	67	2.4	0.7	600.00	1,539.27	32,162.85	1.7	0.1	1,000.00	9,704.39	29787.98
	12	13	68	72	3.1	0.7	800.00	7,800.12	39,962.97	2.4	0.1	1,000.00	10,762.85	40550.83
Seanraija Village	13	14	73	77	2.4	0.8	1,000.00	6,202.84	46,165.81	1.8	0.2	1,000.00	11,343.35	51894.18
Revelganj Ghat	14	15	78	83	3.1	1.2	600.00	1,707.86	47,873.67	2.5	0.5	1,000.00	4,834.85	56729.03
	15	16	84	88	2.7	1.7	-	0.00	47,873.67	2.0	1.5	-	0.00	56729.03
	16	17	89	93	2.7	0.7	400.00	1,589.87	49,463.54	2.1	0.1	1,000.00	9,481.01	66210.04
	17	18	94	98	2.5	0.9	1,000.00	12,230.88	61,694.42	3.2	0.5	1,000.00	51,953.52	118163.56
MANJHI BRIDGE	18	19	99	103	5.2	1.5	-	0.00	61,694.42	6.7	3.0	1,000.00	10,964.50	129128.06
	19	20	104	108	6.4	3.0	-	0.00	61,694.42	7.0	3.7	1,000.00	0.00	129128.06
Mehadiganj Village	20	21	109	113	4.4	1.0	400.00	375.75	62,070.17	5.2	1.7	1,000.00	22,428.38	151556.44
	21	22	114	119	2.7	0.9	1,000.00	3,988.57	66,058.74	3.4	0.9	1,000.00	59,873.13	211429.57
	22	23	120	124	3.4	0.9	1,000.00	7,134.79	73,193.53	4.2	1.6	1,000.00	53,835.30	265264.87
	23	24	125	130	3.3	0.7	1,000.00	4,447.19	77,640.72	4.0	1.4	1,000.00	58,645.68	323910.55
	24	25	131	136	2.7	0.9	800.00	9,236.63	86,877.35	3.4	0.3	1,000.00	50,286.57	374197.12



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Dumri	25	26	137	143	3.3	0.6	1,000.00	2,567.36	89,444.71	4.0	0.7	1,000.00	48,810.67	423007.79
	26	27	144	149	1.9	1.0	1,000.00	9,855.67	99,300.38	2.6	1.1	1,000.00	49,335.11	472342.9
	27	28	150	154	2.8	1.6	200.00	67.13	99,367.51	2.7	1.5	1,000.00	7,592.50	479935.4
	28	29	155	159	5.1	1.7	-	0.00	99,367.51	5.0	1.6	1,000.00	2,336.69	482272.09
	29	30	160	164	5.5	1.0	200.00	487.32	99,854.83	5.3	0.9	1,000.00	9,529.46	491801.55
	30	31	165	169	2.7	1.1	800.00	4,455.87	104,310.70	2.6	0.5	1,000.00	26,069.14	517870.69
Dumaigarh	31	32	170	174	6.1	1.4	400.00	31.55	104,342.25	5.9	1.3	1,000.00	6,252.74	524123.43
	32	33	175	179	7.6	2.8	-	0.00	104,342.25	7.4	2.7	-	0.00	524123.43
	33	34	180	184	4.6	1.2	800.00	825.71	105,167.96	4.4	1.0	1,000.00	13,684.22	537807.65
Narwan	34	35	185	189	8.9	3.6	-	0.00	105,167.96	8.8	3.5	-	0.00	537807.65
	35	36	190	193	4.7	2.8	-	0.00	105,167.96	4.5	2.7	-	0.00	537807.65
	36	37	194	198	3.7	2.1	-	0.00	105,167.96	3.6	2.0	-	0.00	537807.65
	37	38	199	203	6.5	2.1	-	0.00	105,167.96	6.4	1.4	200.00	350.26	538157.91
	38	39	204	209	2.8	1.0	1,000.00	4,479.24	109,647.20	2.5	0.2	1,000.00	35,445.66	573603.57
	39	40	210	214	2.1	1.1	1,000.00	2,864.35	112,511.55	4.4	1.1	1,000.00	30,602.00	604205.57
	40	41	215	219	2.9	1.1	400.00	1,236.58	113,748.13	3.0	1.1	1,000.00	14,495.66	618701.23
	41	42	220	224	2.9	1.1	800.00	4,227.55	117,975.68	3.0	1.2	1,000.00	21,846.80	640548.03
	42	43	225	229	5.4	3.0	-	0.00	117,975.68	5.5	3.0	-	0.00	640548.03
	43	44	230	234	6.6	1.2	-	0.00	117,975.68	6.7	1.3	1,000.00	3,021.94	643569.97
	44	45	235	239	2.0	0.7	1,000.00	3,673.61	121,649.29	2.1	0.8	1,000.00	32,086.19	675656.16
	45	46	240	245	2.2	0.8	1,000.00	7,008.22	128,657.51	2.1	0.5	1,000.00	37,697.90	713354.06
	46	47	246	250	2.3	1.1	800.00	1,591.84	130,249.35	2.3	1.2	1,000.00	19,556.04	732910.1
	47	48	251	255	3.1	1.0	800.00	3,599.05	133,848.40	3.2	1.0	1,000.00	28,230.92	761141.02
	48	49	256	261	1.4	0.9	1,000.00	10,921.23	144,769.63	1.6	0.5	1,000.00	59,528.26	820669.28
	49	50	262	266	2.1	0.7	1,000.00	3,617.74	148,387.37	2.1	-0.3	1,000.00	44,754.69	865423.97
	50	51	267	272	1.7	1.0	1,000.00	8,118.57	156,505.94	1.8	-0.3	1,000.00	61,925.54	927349.51
Gangapur	51	52	273	277	2.0	0.7	1,000.00	7,179.60	163,685.54	2.0	0.7	1,000.00	47,095.75	974445.26
Kachnar	52	53	278	282	3.1	1.0	800.00	1,182.39	164,867.93	3.2	1.0	1,000.00	24,239.38	998684.64



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	53	54	283	287	5.2	1.0	200.00	954.36	165,822.29	5.1	1.1	1,000.00	23,663.64	1022348.28
	54	55	288	293	3.0	1.1	800.00	6,084.01	171,906.30	3.0	1.2	1,000.00	37,004.12	1059352.4
	55	56	294	298	2.6	1.2	600.00	1,468.41	173,374.71	2.6	1.2	1,000.00	25,563.17	1084915.57
	56	57	299	303	2.3	1.0	800.00	4,232.07	177,606.78	2.7	0.5	1,000.00	44,138.47	1129054.04
	57	58	304	308	4.8	2.0	400.00	1,009.16	178,615.94	4.8	2.0	1,000.00	6,781.94	1135835.98
	58	59	309	313	4.7	1.2	-	0.00	178,615.94	4.8	1.2	1,000.00	7,521.30	1143357.28
	59	60	314	318	3.0	1.1	800.00	2,878.98	181,494.92	3.1	1.2	1,000.00	26,283.60	1169640.88
	60	61	319	323	4.5	3.1	-	0.00	181,494.92	4.3	3.1	-	0.00	1169640.88
	61	62	324	328	4.7	1.7	-	0.00	181,494.92	4.5	1.6	1,000.00	2,190.56	1171831.44
	62	63	329	333	3.5	1.7	-	0.00	181,494.92	3.4	1.6	1,000.00	2,290.41	1174121.85
	63	64	334	338	3.7	1.5	-	0.00	181,494.92	3.7	1.4	1,000.00	2,074.65	1176196.5
	64	65	339	344	2.2	0.8	1,000.00	11,188.83	192,683.75	1.5	0.4	1,000.00	44,620.09	1220816.59
Raghunathpur	65	66	345	349	4.1	0.9	1,000.00	11,801.40	204,485.15	4.1	0.8	1,000.00	31,481.95	1252298.54
	66	67	350	354	2.9	0.9	1,000.00	5,279.63	209,764.78	2.7	0.3	1,000.00	28,845.71	1281144.25
	67	68	355	360	1.8	0.7	1,000.00	14,834.49	224,599.27	1.7	0.0	1,000.00	48,328.57	1329472.82
Narhan	68	69	361	365	2.1	0.8	1,000.00	12,832.36	237,431.63	1.9	0.7	1,000.00	36,011.36	1365484.18
	69	70	366	370	2.5	0.9	800.00	4,491.51	241,923.14	2.3	0.8	1,000.00	25,320.57	1390804.75
	70	71	371	375	1.3	0.8	1,000.00	13,158.18	255,081.32	1.1	0.4	1,000.00	43,323.28	1434128.03
	71	72	376	380	2.5	0.7	1,000.00	11,358.28	266,439.60	2.6	0.9	1,000.00	28,624.06	1462752.09
	72	73	381	385	7.3	1.5	-	0.00	266,439.60	7.8	1.5	1,000.00	1,620.59	1464372.68
	73	74	386	390	3.2	0.7	800.00	4,873.65	271,313.25	3.4	0.6	1,000.00	28,037.83	1492410.51
	74	75	391	395	2.0	0.7	1,000.00	12,973.52	284,286.77	2.1	-0.3	1,000.00	50,958.41	1543368.92
	75	76	396	400	1.8	0.7	1,000.00	9,213.59	293,500.36	2.0	0.5	1,000.00	40,062.19	1583431.11
	76	77	401	406	3.4	0.7	1,000.00	10,359.99	303,860.35	3.5	0.5	1,000.00	44,140.89	1627572
	77	78	407	412	2.6	0.7	1,000.00	14,188.02	318,048.37	3.0	0.2	1,000.00	49,535.03	1677107.03
	78	79	413	417	2.9	0.7	1,000.00	11,079.22	329,127.59	3.1	0.9	1,000.00	39,006.91	1716113.94
	79	80	418	422	3.2	0.7	1,000.00	7,399.40	336,526.99	3.3	0.9	1,000.00	34,514.00	1750627.94
	80	81	423	429	2.1	0.7	1,000.00	12,853.32	349,380.31	2.0	0.4	1,000.00	41,020.11	1791648.05



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	81	82	430	434	2.5	0.8	800.00	9,407.24	358,787.55	2.4	-0.2	1,000.00	40,317.24	1831965.29
	82	83	435	439	2.3	0.7	1,000.00	9,358.14	368,145.69	4.8	0.2	1,000.00	37,218.58	1869183.87
	83	84	440	444	1.7	0.7	1,000.00	15,005.94	383,151.63	7.0	0.7	1,000.00	46,910.06	1916093.93
	84	85	445	449	2.7	0.7	1,000.00	7,090.48	390,242.11	2.7	0.7	1,000.00	28,746.40	1944840.33
	85	86	450	454	2.3	0.9	1,000.00	3,924.93	394,167.04	2.2	-0.2	1,000.00	27,173.85	1972014.18
	86	87	455	460	1.9	0.7	1,000.00	9,586.88	403,753.92	4.8	0.3	1,000.00	47,771.03	2019785.21
Darauli	87	88	461	465	2.3	0.7	800.00	3,691.67	407,445.59	2.2	0.7	1,000.00	24,782.62	2044567.83
	88	89	466	470	2.7	0.7	800.00	10,263.54	417,709.13	2.7	0.0	1,000.00	28,565.60	2073133.43
	89	90	471	475	1.9	0.7	1,000.00	10,173.12	427,882.25	1.7	0.7	1,000.00	38,077.59	2111211.02
	90	91	476	480	3.4	1.3	200.00	26.01	427,908.26	3.3	1.2	1,000.00	13,026.80	2124237.82
	91	92	481	485	2.6	0.8	400.00	1,643.37	429,551.63	3.3	0.2	1,000.00	25,101.55	2149339.37
	92	93	486	490	5.0	0.7	1,000.00	7,117.06	436,668.69	2.7	1.1	1,000.00	35,384.91	2184724.28
	93	94	491	495	1.7	0.8	1,000.00	12,677.07	449,345.76	2.3	1.1	1,000.00	44,769.40	2229493.68
	94	95	496	500	2.5	0.7	800.00	5,249.53	454,595.29	3.2	0.7	1,000.00	35,096.91	2264590.59
	95	96	501	506	2.8	0.7	1,000.00	14,704.21	469,299.50	3.5	1.5	1,000.00	42,920.49	2307511.08
	96	97	507	511	2.3	0.8	1,000.00	4,901.61	474,201.11	3.0	0.7	1,000.00	25,756.67	2333267.75
	97	98	512	516	2.3	1.1	600.00	3,624.86	477,825.97	3.0	1.8	1,000.00	25,941.73	2359209.48
	98	99	517	521	3.6	1.6	-	0.00	477,825.97	4.2	2.2	1,000.00	10,132.53	2369342.01
	99	100	522	526	1.9	0.7	800.00	7,931.07	485,757.04	2.6	1.4	1,000.00	39,966.83	2409308.84
	100	100.4	527	528	1.7	1.0	600.00	4,224.44	489,981.48	2.3	1.7	1,000.00	13,764.00	2423072.84
	100.35	101	529	532	1.8	1.0	400.00	2,720.22	492,701.70	2.1	1.2	1,000.00	21,906.81	2,444,979.65
	101	102	533	537	2.3	0.8	800.00	4,201.42	496,903.12	2.3	0.2	1,000.00	34,216.75	2,479,196.40
	102	103	538	542	3.5	1.4	400.00	2,381.25	499,284.37	3.8	1.4	1,000.00	12,136.64	2,491,333.04
	103	104	543	548	2.3	0.7	1,000.00	5,267.76	504,552.13	2.3	0.2	1,000.00	51,709.40	2,543,042.44
	104	105	549	553	2.4	0.7	-	7,031.90	511,584.03	2.5	0.7	-	27,733.28	2,570,775.72



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
							800.00					1,000.00		
	105	106	554	558	1.5	0.9	1,000.00	8,461.53	520,045.56	1.5	0.9	1,000.00	44,108.01	2,614,883.73
	106	107	559	563	5.3	1.7	400.00	519.55	520,565.11	5.3	1.7	1,000.00	6,660.68	2,621,544.41
Rampur Village	107	108	564	568	3.2	1.7	-	0.00	520,565.11	3.2	0.0	1,000.00	17,159.26	2,638,703.67
Harnatar Dayalpur	108	109	569	572	3.0	1.3	200.00	344.40	520,909.51	3.0	1.3	1,000.00	12,143.51	2,650,847.18
	109	110	573	577	1.9	0.7	1,000.00	10,440.58	531,350.09	2.3	0.2	1,000.00	32,741.34	2,683,588.52
	110	111	578	582	2.3	0.7	1,000.00	9,821.80	541,171.89	2.7	0.8	1,000.00	29,165.24	2,712,753.76
	111	112	583	587	3.2	0.7	600.00	6,651.27	547,823.16	3.7	1.2	1,000.00	12,933.92	2,725,687.68
Manthala Bajar	112	113	588	592	1.8	0.7	800.00	3,911.22	551,734.38	2.3	0.7	1,000.00	20,701.71	2,746,389.39
	113	114	593	897	1.8	0.7	600.00	7,413.17	559,147.55	2.2	0.4	1,000.00	31,368.61	2,777,758.00
Turtipar	114	115	898	602	2.6	0.7	1,000.00	9,536.47	568,684.02	2.9	0.3	1,000.00	26,976.07	2,804,734.07
Turtipar Rly. Brg.	115	116	603	607	2.0	0.9	1,000.00	9,012.62	577,696.64	2.5	1.3	1,000.00	25,706.05	2,830,440.12
	116	117	608	612	4.4	2.4	-	0.00	577,696.64	4.7	1.4	200.00	418.32	2,830,858.44
	117	118	613	618	6.7	0.8	600.00	8,548.79	586,245.43	6.9	1.2	1,000.00	28,401.11	2,859,259.55
	118	119	619	623	1.7	0.8	1,000.00	5,864.97	592,110.40	2.2	1.2	1,000.00	25,160.24	2,884,419.79
Esharou	119	120	624	628	2.5	0.7	600.00	4,009.34	596,119.74	3.0	1.2	1,000.00	27,197.01	2,911,616.80
	120	121	629	633	2.8	1.2	800.00	1,022.75	597,142.49	3.2	1.3	1,000.00	23,598.64	2,935,215.44
	121	122	634	638	3.4	1.1	200.00	182.23	597,324.72	3.9	1.7	1,000.00	12,311.51	2,947,526.95
Chanpur Gloura Village	122	123	639	643	5.4	0.9	400.00	186.05	597,510.77	6.1	1.4	1,000.00	17,813.06	2,965,340.01
	123	124	644	648	2.2	1.1	1,000.00	2,847.85	600,358.62	2.7	1.6	1,000.00	43,854.15	3,009,194.16
	124	125	649	653	1.6	0.8	1,000.00	10,647.39	611,006.01	2.7	0.8	1,000.00	44,693.35	3,053,887.51
	125	126	654	658	1.7	0.7	1,000.00	3,955.63	614,961.64	5.9	1.5	1,000.00	45,723.69	3,099,611.20
Chakimusa Dohi Ghat	126	127	659	663	2.8	0.7	1,000.00	9,287.47	624,249.11	3.9	0.9	1,000.00	43,154.93	3,142,766.13
	127	128	664	668	3.0	0.7	1,000.00	8,168.00	632,417.11	3.5	1.2	1,000.00	43,472.21	3,186,238.34
	128	129	669	674	2.7	0.7	1,000.00	12,857.26	645,274.37	3.3	-0.3	1,000.00	59,356.93	3,245,595.27
	129	130	675	679	1.6	0.7	1,000.00	14,458.63	659,733.00	2.1	0.2	1,000.00	53,313.37	3,298,908.64
	130	131	680	685	1.4	0.7	1,000.00	21,412.15	681,145.15	1.8	0.7	1,000.00	61,962.22	3,360,870.86



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	131	132	686	690	1.9	1.1	1,000.00	7,850.38	688,995.53	2.4	0.7	1,000.00	27,472.47	3,388,343.33
	132	133	691	695	4.6	1.0	600.00	229.73	689,225.26	4.9	-0.1	1,000.00	30,047.82	3,418,391.15
	133	134	696	700	1.6	0.7	1,000.00	13,415.14	702,640.40	2.2	0.1	1,000.00	51,098.91	3,469,490.06
	134	135	701	705	2.5	0.8	1,000.00	10,208.94	712,849.34	2.9	0.8	1,000.00	25,838.79	3,495,328.85
	135	136	706	710	4.2	2.2	200.00	354.15	713,203.49	4.5	1.3	1,000.00	5,904.40	3,501,233.25
	136	137	711	715	2.2	1.5	-	0.00	713,203.49	2.7	1.3	1,000.00	16,212.17	3,517,445.42
	137	138	716	720	2.7	2.0	-	0.00	713,203.49	3.2	1.3	1,000.00	1,690.71	3,519,136.13
	138	139	721	725	3.3	1.5	-	0.00	713,203.49	3.4	1.3	1,000.00	12,348.42	3,531,484.55
Barhaj Bridge (UNC)	139	140	726	730	3.8	1.4	-	0.00	713,203.49	4.3	1.9	1,000.00	18,836.96	3,550,321.51
Nabideswar Mishra Ghat	140	141	731	736	2.4	1.1	800.00	2,929.07	716,132.56	4.3	1.6	1,000.00	35,394.00	3,585,715.51
Katelwa Village	141	142	737	741	6.7	1.1	600.00	1,553.31	717,685.87	7.0	1.0	1,000.00	2,833.92	3,588,549.43
Kudhe Ghat	142	143	742	746	4.4	1.3	200.00	10.69	717,696.56	4.8	1.6	1,000.00	32,382.72	3,620,932.15
	143	144	747	752	1.3	0.7	1,000.00	18,788.56	736,485.12	5.1	0.0	1,000.00	47,779.57	3,668,711.72
Kaparwar	144	145	753	757	2.2	0.9	1,000.00	8,136.13	744,621.25	2.2	0.9	1,000.00	33,263.79	3,701,975.51
	145	146	758	763	3.7	0.7	1,000.00	5,949.58	750,570.83	5.1	-0.3	1,000.00	43,613.60	3,745,589.11
	146	147	764	768	1.8	0.7	1,000.00	12,682.19	763,253.02	1.8	0.6	1,000.00	29,483.75	3,775,072.86
Netavar patti	147	148	769	773	2.8	0.8	1,000.00	6,094.16	769,347.18	2.9	0.6	1,000.00	30,193.51	3,805,266.37
	148	149	774	779	1.9	0.7	1,000.00	10,225.41	779,572.59	2.1	0.1	1,000.00	50,643.83	3,855,910.20
	149	150	780	784	2.3	0.7	600.00	11,062.44	790,635.03	2.3	0.3	1,000.00	40,715.27	3,896,625.47
	150	151	785	790	2.5	1.0	1,000.00	5,037.62	795,672.65	2.6	1.1	1,000.00	56,534.67	3,953,160.14
	151	152	791	795	2.0	0.7	1,000.00	5,533.65	801,206.30	2.0	0.2	1,000.00	53,235.44	4,006,395.58
	152	153	796	800	2.1	0.7	1,000.00	16,797.13	818,003.43	1.7	-0.3	1,000.00	47,094.40	4,053,489.98
	153	154	801	806	1.9	0.7	1,000.00	20,947.38	838,950.81	1.5	0.0	1,000.00	56,216.15	4,109,706.13
	154	155	807	811	2.2	0.7	1,000.00	12,903.75	851,854.56	1.8	0.3	1,000.00	31,842.64	4,141,548.77
	155	156	812	816	2.4	0.7	1,000.00	8,798.60	860,653.16	2.1	0.3	1,000.00	9,497.36	4,151,046.13
	156	157	817	822	3.7	1.2	600.00	576.91	861,230.07	3.3	0.7	1,000.00	42,851.44	4,193,897.57
	157	158	823	827	3.2	0.7	600.00	8,880.22	870,110.29	2.7	-0.2	1,000.00	44,732.89	4,238,630.46



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	158	159	828	833	2.9	0.7	1,000.00	9,593.47	879,703.76	2.4	0.3	1,000.00	9,039.03	4,247,669.49
	159	160	834	838	5.9	1.9	400.00	1,187.36	880,891.12	5.5	1.4	1,000.00	39,606.79	4,287,276.28
	160	161	839	843	3.4	0.8	600.00	4,763.93	885,655.05	3.1	0.3	1,000.00	41,898.83	4,329,175.11
	161	162	844	848	3.5	0.8	800.00	5,011.60	890,666.65	3.0	0.4	1,000.00	27,151.13	4,356,326.24
	162	163	849	853	2.2	0.8	1,000.00	11,092.76	901,759.41	2.2	0.9	1,000.00	39,495.96	4,395,822.20
	163	164	854	858	2.3	0.8	600.00	3,825.34	905,584.75	2.5	0.6	1,000.00	25,710.38	4,421,532.58
Khadesari	164	165	859	863	2.1	0.7	1,000.00	7,224.62	912,809.37	2.3	1.5	-	0.00	4,421,532.58
DOHRI GHAT	165	166	864	868	9.2	1.4	200.00	483.19	913,292.56	9.5	2.6	1,000.00	3,434.57	4,424,967.15
Barhalganj	166	167	869	873	6.7	2.5	-	0.00	913,292.56	8.0	2.7	-	0.00	4,424,967.15
	167	168	874	878	7.7	1.8	-	0.00	913,292.56	7.8	1.9	1,000.00	10,084.53	4,435,051.68
	168	169	879	884	7.9	1.2	-	0.00	913,292.56	8.2	1.1	1,000.00	36,256.41	4,471,308.09
	169	170	885	889	2.4	0.7	800.00	2,583.11	915,875.67	2.4	0.3	1,000.00	51,683.69	4,522,991.78
	170	171	890	894	2.4	0.8	1,000.00	9,704.09	925,579.76	2.5	0.2	1,000.00	31,861.44	4,554,853.22
	171	172	895	899	7.3	0.7	600.00	4,294.15	929,873.91	3.4	0.1	1,000.00	36,585.20	4,591,438.42
	172	173	900	905	2.6	0.7	1,000.00	11,196.08	941,069.99	2.5	0.1	1,000.00	49,477.27	4,640,915.69
	173	174	906	910	3.5	1.0	1,000.00	6,449.19	947,519.18	2.5	0.8	1,000.00	17,535.02	4,658,450.71
	174	175	911	916	5.0	0.9	1,000.00	6,471.92	953,991.10	4.7	1.3	1,000.00	50,769.24	4,709,219.95
	175	176	917	923	5.9	0.7	1,000.00	14,001.48	967,992.58	1.6	0.4	1,000.00	46,164.56	4,755,384.51
Parsiya	176	177	924	928	6.9	0.7	800.00	8,819.37	976,811.95	2.2	0.9	1,000.00	41,004.65	4,796,389.16
	177	178	929	934	6.3	0.7	1,000.00	11,633.23	988,445.18	2.1	0.7	1,000.00	57,487.71	4,853,876.87
	178	179	935	939	1.7	0.7	1,000.00	14,281.92	1,002,727.10	2.2	1.0	1,000.00	35,589.49	4,889,466.36
	179	180	940	944	1.6	0.7	1,000.00	8,474.30	1,011,201.40	2.2	0.5	1,000.00	27,916.31	4,917,382.67
	180	181	945	949	2.4	1.1	800.00	1,694.67	1,012,896.07	2.9	1.6	1,000.00	42,123.27	4,959,505.94
Khutahan Khas	181	182	950	954	2.0	0.7	1,000.00	6,874.41	1,019,770.48	2.5	0.1	1,000.00	51,996.10	5,011,502.04
	182	183	955	960	1.8	0.9	1,000.00	11,279.07	1,031,049.55	2.3	1.4	1,000.00	39,245.41	5,050,747.45
	183	184	961	965	2.0	1.2	800.00	2,290.65	1,033,340.20	1.0	-0.3	1,000.00	27,899.00	5,078,646.45
	184	185	966	970	4.2	1.5	-	0.00	1,033,340.20	2.0	-0.3	1,000.00	41,332.84	5,119,979.29
	185	186	971	975	1.8	1.0	800.00	4,880.76	1,038,220.96	-0.1	-0.3	1,000.00	36,598.06	5,156,577.35



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	186	187	976	980	2.2	1.2	200.00	160.25	1,038,381.21	0.1	-0.3	1,000.00	44,984.62	5,201,561.97
Gola Ghat	187	188	981	986	6.4	0.7	1,000.00	6,464.55	1,044,845.76	0.1	-0.3	1,000.00	46,230.02	5,247,791.99
	188	189	987	991	2.1	0.7	800.00	9,510.10	1,054,355.86	0.5	-0.3	1,000.00	44,026.86	5,291,818.85
	189	190	992	996	3.2	0.8	600.00	3,233.38	1,057,589.24	0.9	-0.3	1,000.00	43,361.84	5,335,180.69
	190	191	997	1002	2.1	0.9	1,000.00	12,742.75	1,070,331.99	0.0	-0.3	1,000.00	12,936.66	5,348,117.35
	191	192	1003	1008	3.3	1.5	200.00	44.16	1,070,376.15	1.1	-0.3	1,000.00	14,936.01	5,363,053.36
Dewara Achal Singh	192	193	1009	1014	4.1	1.4	200.00	13.10	1,070,389.25	4.1	0.9	1,000.00	14,891.40	5,377,944.76
Kauriya	193	194	1015	1019	2.1	1.3	1,000.00	215.63	1,070,604.88	2.3	1.5	1,000.00	4,955.91	5,382,900.67
	194	195	1020	1024	2.5	1.3	-	0.00	1,070,604.88	2.9	1.6	1,000.00	29,229.72	5,412,130.39
	195	196	1025	1029	2.5	0.9	800.00	4,876.35	1,075,481.23	2.8	0.7	1,000.00	23,259.14	5,435,389.53
Bara Kalika Sthan	196	197	1030	1035	2.1	0.9	1,000.00	7,186.19	1,082,667.42	2.4	1.2	1,000.00	23,907.57	5,459,297.10
	197	198	1036	1040	2.9	0.8	1,000.00	6,446.83	1,089,114.25	3.3	1.0	1,000.00	36,984.67	5,496,281.77
	198	199	1041	1045	1.9	0.7	800.00	5,076.15	1,094,190.40	2.1	1.0	1,000.00	32,188.24	5,528,470.01
	199	200	1046	1051	1.7	0.9	1,000.00	11,043.07	1,105,233.47	1.8	0.7	1,000.00	32,436.69	5,560,906.70
Jhptia Ghat	200	201	1052	1056	2.8	0.9	1,000.00	3,301.19	1,108,534.66	3.0	1.1	1,000.00	28,370.46	5,589,277.16
	201	202	1057	1061	2.3	0.8	1,000.00	7,968.87	1,116,503.53	2.5	1.0	1,000.00	29,762.53	5,619,039.69
	202	203	1062	1066	1.6	0.7	1,000.00	10,465.72	1,126,969.25	1.9	0.9	1,000.00	47,257.87	5,666,297.56
Basahi	203	204	1067	1071	4.3	1.1	1,000.00	5,590.63	1,132,559.88	3.0	-0.2	1,000.00	63,999.80	5,730,297.36
	204	205	1072	1077	6.7	0.8	800.00	10,297.86	1,142,857.74	2.9	0.7	1,000.00	63,351.22	5,793,648.58
Sahapur Ghat	205	206	1078	1082	2.3	1.1	600.00	1,388.88	1,144,246.62	3.6	1.1	1,000.00	45,909.89	5,839,558.47
Belikur Village	206	207	1083	1088	2.3	1.5	-	0.00	1,144,246.62	3.5	1.2	1,000.00	68,010.92	5,907,569.39
	207	208	1089	1094	2.8	0.7	600.00	5,687.89	1,149,934.51	4.1	1.8	1,000.00	49,518.17	5,957,087.56
Khairati	208	209	1095	1099	2.3	1.2	600.00	6,150.13	1,156,084.64	3.4	1.1	1,000.00	53,918.67	6,011,006.23
	209	210	1100	1104	3.4	1.3	400.00	2.53	1,156,087.17	4.7	1.1	1,000.00	8,172.12	6,019,178.35
	210	211	1105	1108	3.6	1.4	400.00	59.80	1,156,146.97	4.9	1.1	1,000.00	4,261.93	6,023,440.28
Belwa Ghat	211	212	1109	1114	5.7	2.2	-	0.00	1,156,146.97	6.9	1.1	1,000.00	70,120.91	6,093,561.19
	212	213	1115	1119	2.5	0.7	800.00	3,450.15	1,159,597.12	3.9	1.9	1,000.00	64,081.67	6,157,642.86
Indorepur urf	213	214	1120	1124	1.9	0.7	1,000.00	5,872.85	1,165,469.97	3.2	1.9	1,000.00	63,642.23	6,221,285.09



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Dinhapur														
	214	215	1125	1129	2.1	0.7	1,000.00	8,362.77	1,173,832.74	3.4	1.2	1,000.00	67,803.09	6,289,088.18
	215	216	1130	1134	1.4	0.7	1,000.00	15,681.77	1,189,514.51	2.9	1.2	1,000.00	68,424.92	6,357,513.10
	216	217	1135	1139	2.0	0.8	1,000.00	8,955.72	1,198,470.23	3.4	1.3	1,000.00	67,563.25	6,425,076.35
Babhanpura	217	218	1140	1145	1.4	0.7	1,000.00	14,613.90	1,213,084.13	2.8	1.9	1,000.00	72,763.94	6,497,840.29
Kamariya Pontoon Brg.	218	219	1146	1150	2.9	0.7	400.00	8,562.14	1,221,646.27	6.4	1.2	1,000.00	74,967.36	6,572,807.65
Dandwa	219	220	1151	1155	2.3	0.7	1,000.00	16,369.28	1,238,015.55	3.7	1.2	1,000.00	33,701.80	6,606,509.45
Chadipur Village	220	221	1156	1161	7.6	1.0	1,000.00	2,569.30	1,240,584.85	2.2	0.0	1,000.00	78,418.35	6,684,927.80
Gangasagar	221	222	1162	1166	2.2	0.8	1,000.00	10,130.06	1,250,714.91	3.6	1.4	1,000.00	65,732.98	6,750,660.78
	222	223	1167	1173	1.9	0.7	1,000.00	11,845.09	1,262,560.00	3.3	1.0	1,000.00	80,209.49	6,830,870.27
	223	224	1174	1178	1.8	0.8	1,000.00	7,072.05	1,269,632.05	3.2	1.0	1,000.00	54,736.09	6,885,606.36
	224	225	1179	1183	3.3	0.9	1,000.00	1,030.38	1,270,662.43	4.2	1.6	1,000.00	65,749.37	6,951,355.73
	225	226	1184	1189	1.5	0.7	1,000.00	15,507.97	1,286,170.40	2.4	1.3	1,000.00	70,629.95	7,021,985.68
Daulatpur Village	226	227	1190	1195	2.4	0.7	1,000.00	11,269.81	1,297,440.21	3.2	0.1	1,000.00	79,203.01	7,101,188.69
	227	228	1196	1202	1.8	0.7	1,000.00	9,184.60	1,306,624.81	2.3	-0.3	1,000.00	66,674.22	7,167,862.91
	228	229	1203	1207	1.5	0.7	1,000.00	17,136.85	1,323,761.66	2.4	-0.3	1,000.00	53,213.33	7,221,076.24
Tetriya	229	230	1208	1212	4.4	0.8	400.00	1,999.67	1,325,761.33	5.1	1.7	1,000.00	23,821.29	7,244,897.53
	230	231	1213	1217	2.9	0.7	1,000.00	5,450.73	1,331,212.06	3.7	1.6	1,000.00	40,674.72	7,285,572.25
Bhagapur	231	232	1218	1223	3.4	1.5	200.00	304.96	1,331,517.02	4.3	0.3	1,000.00	32,004.95	7,317,577.20
Birhar Ghat Brg.	232	233	1224	1228	1.9	0.8	800.00	2,732.16	1,334,249.18	2.5	0.8	1,000.00	3,226.49	7,320,803.69
	233	234	1229	1233	2.9	1.4	400.00	4,136.40	1,338,385.58	3.7	1.0	1,000.00	34,448.61	7,355,252.30
Bidhar Village	234	235	1234	1238	4.2	1.4	-	0.00	1,338,385.58	4.5	1.7	1,000.00	51,576.05	7,406,828.35
Addopur	235	236	1239	1243	2.4	0.7	600.00	6,268.55	1,344,654.13	2.9	1.0	1,000.00	53,597.41	7,460,425.76
Gobardhanpur Village	236	237	1244	1249	3.1	0.7	1,000.00	16,681.72	1,361,335.85	3.2	0.7	1,000.00	69,740.64	7,530,166.40
	237	238	1250	1254	1.7	0.7	1,000.00	13,355.78	1,374,691.63	2.0	-0.1	1,000.00	50,368.99	7,580,535.39
	238	239	1255	1259	2.2	0.8	1,000.00	15,371.61	1,390,063.24	2.2	1.1	1,000.00	61,870.63	7,642,406.02
	239	240	1260	1266	1.3	0.7	1,000.00	21,349.06	1,411,412.30	1.5	0.7	1,000.00	66,164.41	7,708,570.43



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	240	241	1267	1271	2.2	0.7	1,000.00	11,384.36	1,422,796.66	2.4	1.0	1,000.00	15,524.61	7,724,095.04
	241	242	1272	1278	3.0	0.9	1,000.00	9,895.23	1,432,691.89	3.2	-0.3	1,000.00	4,536.41	7,728,631.45
	242	243	1279	1283	3.2	1.9	-	0.00	1,432,691.89	3.5	1.0	1,000.00	12,197.87	7,740,829.32
	243	244	1284	1289	6.0	2.6	-	0.00	1,432,691.89	6.8	1.0	1,000.00	48,672.21	7,789,501.53
	244	245	1290	1295	3.4	1.0	600.00	972.02	1,433,663.91	4.0	0.7	1,000.00	49,752.01	7,839,253.54
	245	246	1296	1300	2.3	0.9	1,000.00	5,257.37	1,438,921.28	3.1	1.3	1,000.00	49,497.78	7,888,751.32
	246	247	1301	1305	1.9	0.7	800.00	775.56	1,439,696.84	2.8	1.2	1,000.00	52,720.09	7,941,471.41
Mahendi Ghat	247	248	1306	1311	4.0	0.7	1,000.00	9,352.50	1,449,049.34	2.9	-0.3	1,000.00	50,515.37	7,991,986.78
	248	249	1312	1315	3.0	0.7	800.00	8,544.20	1,457,593.54	3.8	0.9	1,000.00	9,441.64	8,001,428.42
	249	250	1316	1320	2.6	0.7	1,000.00	8,216.30	1,465,809.84	3.4	-0.2	1,000.00	53,664.76	8,055,093.18
	250	251	1321	1328	5.4	0.7	800.00	9,654.90	1,475,464.74	5.3	1.0	1,000.00	65,229.84	8,120,323.02
	251	252	1329	1334	6.6	0.8	1,000.00	8,951.32	1,484,416.06	3.6	1.4	1,000.00	64,704.51	8,185,027.53
	252	253	1335	1340	5.1	0.7	1,000.00	3,206.84	1,487,622.90	3.8	-0.2	1,000.00	67,980.69	8,253,008.22
	253	254	1341	1346	3.4	1.1	1,000.00	3,388.75	1,491,011.65	4.7	0.7	1,000.00	27,023.91	8,280,032.13
Babu Tangedia Village	254	255	1347	1351	2.1	1.3	600.00	772.52	1,491,784.17	3.1	1.0	1,000.00	9,459.86	8,289,491.99
	255	256	1352	1357	3.4	2.3	-	0.00	1,491,784.17	4.4	1.0	1,000.00	6,397.34	8,295,889.33
Nawari Rampur Ghat	256	257	1358	1362	3.4	2.2	-	0.00	1,491,784.17	4.3	1.5	1,000.00	33,704.80	8,329,594.13
NasiraBad Village	257	258	1363	1367	9.4	3.6	-	0.00	1,491,784.17	9.8	1.0	1,000.00	54,388.37	8,383,982.50
	258	259	1368	1372	5.7	0.9	600.00	4,562.53	1,496,346.70	7.1	1.3	1,000.00	42,279.43	8,426,261.93
	259	260	1373	1377	3.3	0.8	800.00	5,003.51	1,501,350.21	3.9	1.7	1,000.00	62,370.27	8,488,632.20
	260	261	1378	1382	2.5	0.7	800.00	7,314.19	1,508,664.40	3.5	1.6	1,000.00	65,598.91	8,554,231.11
Darjipur Murda Ghat	261	262	1383	1388	2.0	0.7	1,000.00	12,018.83	1,520,683.23	2.8	1.4	1,000.00	75,501.83	8,629,732.94
Prithvipur	262	263	1389	1393	2.3	1.3	600.00	2,576.07	1,523,259.30	3.5	1.0	1,000.00	48,330.10	8,678,063.04
	263	264	1394	1398	2.7	1.2	800.00	1,395.60	1,524,654.90	3.9	1.0	1,000.00	65,293.02	8,743,356.06
	264	265	1399	1403	2.0	1.2	200.00	122.80	1,524,777.70	3.2	1.9	1,000.00	59,136.29	8,802,492.35
	265	266	1404	1408	2.4	1.1	800.00	2,497.99	1,527,275.69	3.5	1.1	1,000.00	68,453.90	8,870,946.25
	266	267	1409	141	2.7	1.0		1,354.55	1,528,630.2	3.8	1.6		75,373.49	8,946,319.74



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
				4			1,000.00		4			1,000.00		
Mobarkpur Village	267	268	1415	1419	2.0	0.7	1,000.00	7,037.37	1,535,667.61	3.1	1.9	1,000.00	60,688.55	9,007,008.29
Chintaura	268	269	1420	1424	2.6	0.8	1,000.00	7,259.00	1,542,926.61	3.4	0.2	1,000.00	60,121.72	9,067,130.01
	269	270	1425	1429	3.1	0.7	1,000.00	10,145.43	1,553,072.04	4.2	1.0	1,000.00	67,893.53	9,135,023.54
Tanda	270	271	1430	1435	2.5	0.7	1,000.00	9,405.23	1,562,477.27	3.7	-0.3	1,000.00	81,064.89	9,216,088.43
	271	272	1436	1440	2.2	1.0	1,000.00	3,150.90	1,565,628.17	3.4	-0.3	1,000.00	67,514.35	9,283,602.78
	272	273	1441	1445	2.0	0.8	1,000.00	3,506.04	1,569,134.21	3.2	0.6	1,000.00	37,244.40	9,320,847.18
	273	274	1446	1449	1.9	0.7	800.00	9,487.52	1,578,621.73	3.1	1.9	1,000.00	42,885.64	9,363,732.82
	274	275	1450	1455	4.0	1.0	800.00	4,519.71	1,583,141.44	5.2	1.0	1,000.00	62,149.06	9,425,881.88
	275	276	1456	1460	2.7	1.2	400.00	151.39	1,583,292.83	3.8	1.0	1,000.00	67,244.70	9,493,126.58
	276	277	1461	1465	2.5	0.7	400.00	6,279.07	1,589,571.90	3.9	1.1	1,000.00	58,293.62	9,551,420.20
	277	278	1466	1470	1.9	0.7	1,000.00	13,457.39	1,603,029.29	3.1	-0.1	1,000.00	60,147.76	9,611,567.96
	278	279	1471	1475	2.6	1.4	400.00	3,168.49	1,606,197.78	3.8	1.0	1,000.00	59,727.93	9,671,295.89
	279	280	1476	1480	2.7	0.7	800.00	4,640.44	1,610,838.22	3.9	1.0	1,000.00	66,712.43	9,738,008.32
	280	281	1481	1485	2.2	1.0	800.00	5,079.56	1,615,917.78	3.5	0.8	1,000.00	36,384.21	9,774,392.53
NTPC Power Plant	281	282	1486	1490	2.1	0.7	1,000.00	6,985.71	1,622,903.49	3.4	0.8	1,000.00	53,891.19	9,828,283.72
	282	283	1491	1495	5.4	1.0	200.00	1,910.89	1,624,814.38	6.2	0.8	1,000.00	61,330.69	9,889,614.41
Katariyan Village	283	284	1496	1501	3.7	1.0	800.00	941.68	1,625,756.06	5.4	0.8	1,000.00	79,661.24	9,969,275.65
Eltefat Ganj	284	285	1502	1506	2.3	1.0	800.00	1,781.02	1,627,537.08	4.1	0.8	1,000.00	55,332.26	10,024,607.91
Aurangabad Village	285	286	1507	1511	3.2	0.8	1,000.00	3,026.56	1,630,563.64	5.0	0.8	1,000.00	59,913.57	10,084,521.48
Salona Village	286	287	1512	1517	6.8	0.7	1,000.00	5,932.25	1,636,495.89	3.6	1.0	1,000.00	80,626.57	10,165,148.05
	287	288	1518	1523	2.2	0.7	1,000.00	14,050.61	1,650,546.50	4.0	-0.2	1,000.00	79,092.03	10,244,240.08
	288	289	1524	1528	1.5	0.7	1,000.00	11,934.02	1,662,480.52	3.3	1.2	1,000.00	68,632.99	10,312,873.07
	289	290	1529	1534	1.5	0.7	1,000.00	18,187.58	1,680,668.10	3.2	0.4	1,000.00	78,079.29	10,390,952.36
	290	291	1535	1539	2.0	1.1	1,000.00	6,303.93	1,686,972.03	3.8	1.0	1,000.00	66,980.12	10,457,932.48
	291	292	1540	1545	1.7	0.8	1,000.00	5,810.98	1,692,783.01	2.8	0.3	1,000.00	73,233.57	10,531,166.05
	292	293	1546	1549	1.9	0.7	1,000.00	9,369.49	1,702,152.50	2.5	1.3	1,000.00	48,446.35	10,579,612.40
	293	294	1550	1554	5.6	0.5	1,000.00	15,407.43	1,717,559.93	3.0	1.1	1,000.00	46,691.34	10,626,303.74



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Bhura	294	295	1555	1559	2.4	0.8	1,000.00	7,645.56	1,725,205.49	3.3	1.1	1,000.00	66,034.84	10,692,338.58
	295	296	1560	1564	4.2	0.8	1,000.00	3,034.23	1,728,239.72	3.1	0.9	1,000.00	25,141.76	10,717,480.34
	296	297	1565	1569	2.6	0.7	1,000.00	10,262.27	1,738,501.99	3.5	0.9	1,000.00	17,309.53	10,734,789.87
	297	298	1570	1574	3.3	1.2	200.00	141.90	1,738,643.89	4.1	1.0	1,000.00	26,822.04	10,761,611.91
	298	299	1575	1579	4.6	1.7	200.00	142.32	1,738,786.21	5.4	1.0	1,000.00	64,034.43	10,825,646.34
	299	300	1580	1584	4.5	0.8	400.00	1,830.74	1,740,616.95	4.4	1.7	1,000.00	66,933.62	10,892,579.96
	300	301	1585	1589	2.5	0.7	800.00	3,478.95	1,744,095.90	3.5	1.3	1,000.00	37,324.43	10,929,904.39
	301	302	1590	1594	2.8	1.5	400.00	996.22	1,745,092.12	4.1	1.3	1,000.00	68,093.50	10,997,997.89
Sarwa Ghat	302	303	1595	1600	4.0	0.7	400.00	1,222.79	1,746,314.91	5.3	1.3	1,000.00	76,383.77	11,074,381.66
Singirisi Temple	303	304	1601	1605	2.1	1.2	800.00	4,895.66	1,751,210.57	3.4	1.3	1,000.00	55,938.39	11,130,320.05
	304	305	1606	1610	2.3	1.1	600.00	109.04	1,751,319.61	3.6	1.3	1,000.00	58,979.14	11,189,299.19
Mehboob Ganj	305	306	1611	1616	3.2	0.7	1,000.00	12,375.66	1,763,695.27	3.2	0.1	1,000.00	60,070.41	11,249,369.60
	306	307	1617	1621	3.7	0.7	1,000.00	9,716.50	1,773,411.77	5.0	1.1	1,000.00	60,619.09	11,309,988.69
	307	308	1622	1627	5.5	0.7	1,000.00	6,394.79	1,779,806.56	4.0	1.1	1,000.00	41,674.85	11,351,663.54
Posra Village	308	309	1628	1632	4.4	0.7	1,000.00	13,634.81	1,793,441.37	4.7	0.7	1,000.00	53,890.55	11,405,554.09
	309	310	1633	1638	6.3	0.7	1,000.00	5,783.82	1,799,225.19	8.1	1.1	1,000.00	65,043.50	11,470,597.59
	310	311	1639	1644	7.0	0.8	1,000.00	7,862.64	1,807,087.83	7.6	0.7	1,000.00	48,576.60	11,519,174.19
	311	312	1645	1651	4.3	0.9	1,000.00	8,436.45	1,815,524.28	3.0	-0.3	1,000.00	21,341.51	11,540,515.70
	312	313	1652	1655	7.7	1.8	400.00	1,808.16	1,817,332.44	9.0	-0.3	1,000.00	8,862.95	11,549,378.65
	313	314	1656	1660	8.3	1.8	-	0.00	1,817,332.44	9.6	1.2	1,000.00	50,690.83	11,600,069.48
	314	315	1661	1665	4.3	1.5	-	0.00	1,817,332.44	5.1	1.2	1,000.00	49,978.06	11,650,047.54
Baburi Babu	315	316	1666	1671	1.9	0.7	1,000.00	5,757.15	1,823,089.59	2.8	1.1	1,000.00	10,823.82	11,660,871.36
	316	317	1672	1676	6.7	1.7	800.00	4,917.93	1,828,007.52	7.4	1.1	1,000.00	58,343.83	11,719,215.19
	317	318	1677	1681	9.7	3.5	-	0.00	1,828,007.52	9.8	0.1	1,000.00	67,723.28	11,786,938.47
Balwa Ghat	318	319	1682	1686	2.3	0.7	800.00	7,761.87	1,835,769.39	4.1	-0.2	1,000.00	66,098.61	11,853,037.08
	319	320	1687	1692	2.4	0.9	1,000.00	6,010.03	1,841,779.42	4.2	1.8	1,000.00	74,130.33	11,927,167.41
Arjunpur Village	320	321	1693	1696	3.0	0.9	800.00	4,555.55	1,846,334.97	5.4	1.1	1,000.00	48,119.21	11,975,286.62
	321	322	1697	1700	3.2	1.3	-	0.00	1,846,334.97	5.1	1.1	1,000.00	39,778.55	12,015,065.17



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	322	323	1701	1705	5.7	1.1	1,000.00	1,162.69	1,847,497.66	4.8	1.1	1,000.00	68,359.80	12,083,424.97
	323	324	1706	1711	4.7	1.2	400.00	179.29	1,847,676.95	6.5	1.9	1,000.00	77,621.11	12,161,046.08
	324	325	1712	1716	2.6	1.1	800.00	957.94	1,848,634.89	4.4	1.2	1,000.00	68,438.94	12,229,485.02
	325	326	1717	1721	6.2	0.7	1,000.00	6,083.20	1,854,718.09	4.2	1.2	1,000.00	66,089.60	12,295,574.62
	326	327	1722	1726	2.9	0.7	1,000.00	10,369.68	1,865,087.77	4.7	1.2	1,000.00	62,493.20	12,358,067.82
	327	328	1727	1731	3.2	0.7	1,000.00	9,590.39	1,874,678.16	4.6	0.0	1,000.00	63,950.39	12,422,018.21
	328	329	1732	1737	2.1	0.7	1,000.00	9,095.46	1,883,773.62	2.6	1.1	1,000.00	70,318.24	12,492,336.45
	329	330	1738	1744	2.6	0.7	1,000.00	11,640.42	1,895,414.04	3.7	0.9	1,000.00	81,525.51	12,573,861.96
	330	331	1745	1749	4.8	0.6	1,000.00	12,144.31	1,907,558.35	2.7	0.8	1,000.00	38,792.91	12,612,654.87
	331	332	1750	1754	2.0	0.7	800.00	4,132.46	1,911,690.81	2.7	1.4	1,000.00	62,446.44	12,675,101.31
	332	333	1755	1759	3.2	0.7	800.00	3,755.36	1,915,446.17	3.9	0.6	1,000.00	37,882.51	12,712,983.82
	333	334	1760	1765	2.2	1.1	1,000.00	6,556.42	1,922,002.59	3.0	0.6	1,000.00	56,848.35	12,769,832.17
	334	335	1766	1771	3.7	1.3	600.00	211.25	1,922,213.84	4.4	0.6	1,000.00	49,630.41	12,819,462.58
Gauria Village	335	336	1772	1776	3.0	0.7	600.00	5,699.51	1,927,913.35	3.7	0.6	1,000.00	43,391.69	12,862,854.27
Keshawapur	336	337	1777	1782	5.2	0.9	600.00	2,553.45	1,930,466.80	5.9	0.6	1,000.00	58,838.04	12,921,692.31
	337	338	1783	1788	2.5	1.1	800.00	1,735.01	1,932,201.81	3.2	0.6	1,000.00	3,567.90	12,925,260.21
	338	339	1789	1793	9.7	1.1	800.00	2,365.10	1,934,566.91	10.5	0.6	1,000.00	57,124.68	12,982,384.89
	339	340	1794	1798	6.7	1.9	-	0.00	1,934,566.91	7.4	0.8	1,000.00	52,408.21	13,034,793.10
	340	341	1799	1803	1.8	1.0	600.00	917.12	1,935,484.03	2.7	0.8	1,000.00	26,708.52	13,061,501.62
	341	342	1804	1808	2.4	1.1	800.00	3,345.94	1,938,829.97	3.4	0.8	1,000.00	36,812.17	13,098,313.79
	342	343	1809	1813	4.9	2.0	-	465.19	1,939,295.16	5.6	0.8	1,000.00	60,721.08	13,159,034.87
AYODHYA	343	344	1814	1818	5.1	0.7	200.00	1,356.04	1,940,651.20	6.2	1.0	1,000.00	40,310.00	13,199,344.87
Durga Ganj Village	344	345	1819	1823	2.8	0.8	1,000.00	10,778.57	1,951,429.77	3.8	1.0	1,000.00	58,541.89	13,257,886.76
	345	346	1824	1829	4.6	0.8	600.00	897.24	1,952,327.01	5.5	1.0	1,000.00	26,315.94	13,284,202.70
	346	347	1830	1834	2.6	1.1	1,000.00	4,329.62	1,956,656.63	3.5	1.0	1,000.00	29,645.70	13,313,848.40
	347	348	1835	1839	3.9	1.6	-	0.00	1,956,656.63	4.8	1.0	1,000.00	59,073.77	13,372,922.17
	348	349	1840	1875	3.2	0.7	400.00	960.03	1,957,616.66	4.2	0.2	1,000.00	46,442.84	13,419,365.01
	349	350	1876	1850	1.9	1.2	1,000.00	1,304.04	1,958,920.70	2.9	1.2	1,000.00	2,286.85	13,421,651.86

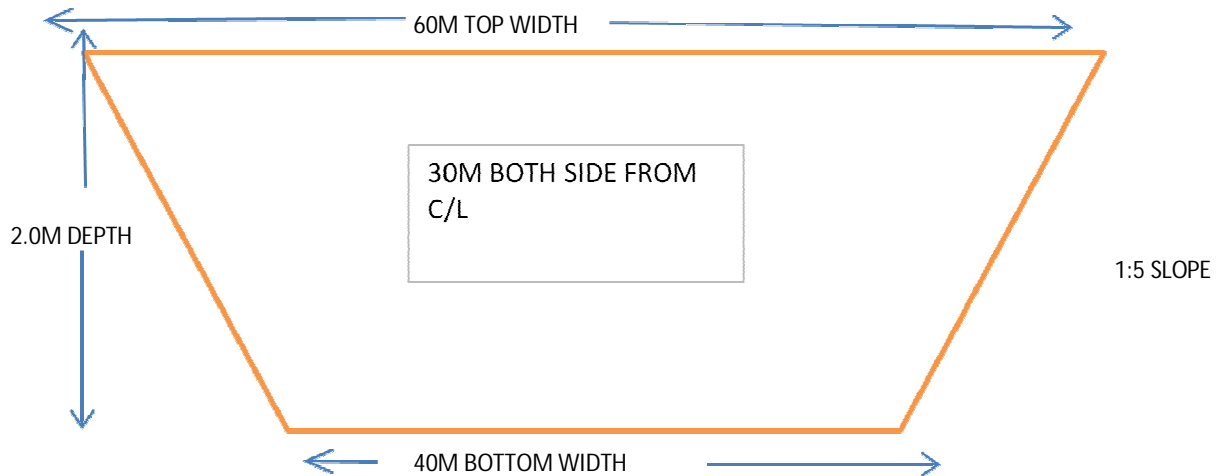


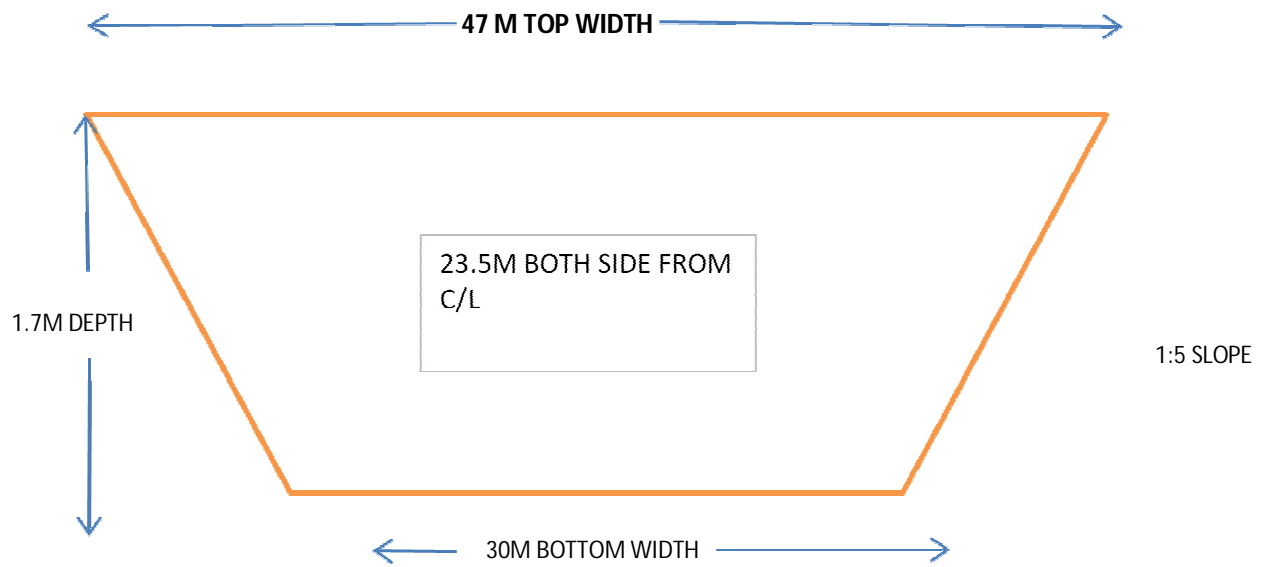
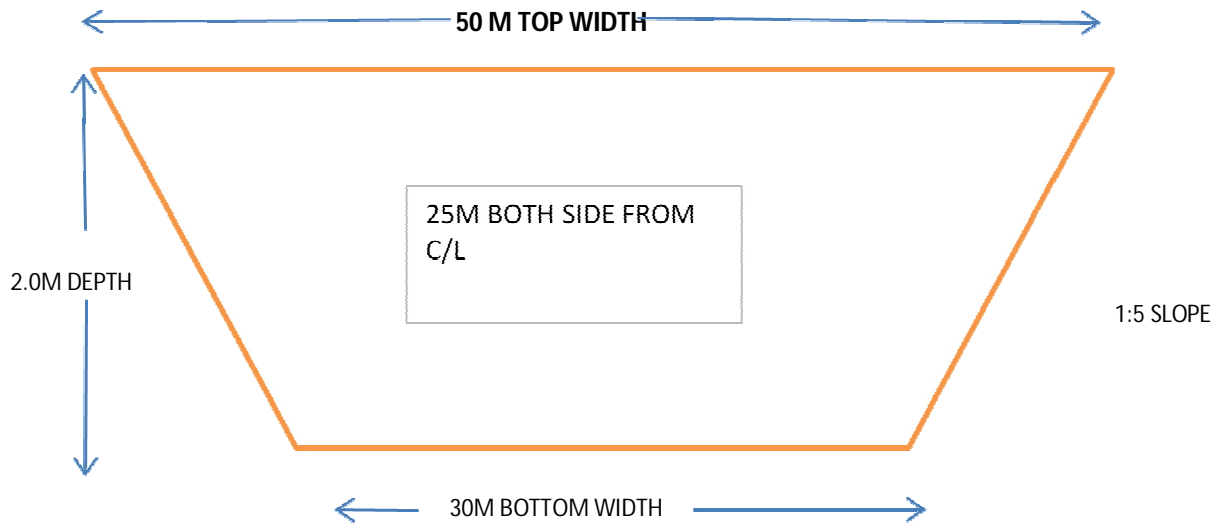
**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**

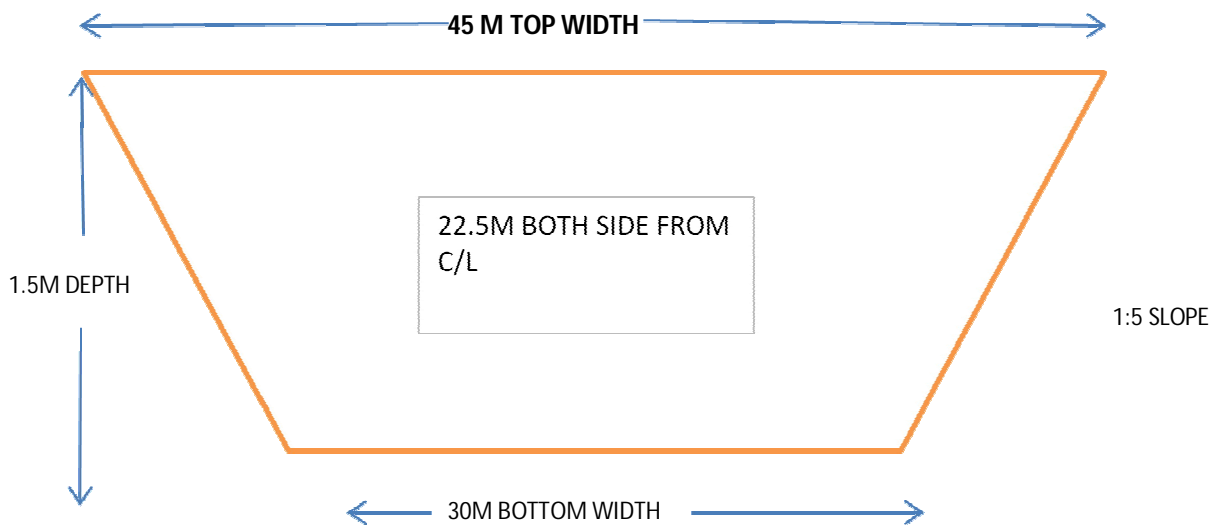


GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	350	351	1851	1855	3.5	1.6	400.00	18.69	1,958,939.39	4.5	1.2	1,000.00	40,666.53	13,462,318.39
Fatehpur Sariya Manjh	351	352	1856	1860	4.1	2.0	-	0.00	1,958,939.39	5.1	1.2	1,000.00	9,015.59	13,471,333.98
	352	353	1861	1865	3.8	1.1	600.00	1,769.57	1,960,708.96	4.6	1.2	1,000.00	10,824.82	13,482,158.80
FAIZABAD	353	354	1866	1868	2.0	0.8	400.00	2,106.95	1,962,815.91	3.1	1.4	1,000.00	11,362.85	13,493,521.65
TOTAL DREDGING QUANTITY (cu.m.)							252,400.00	1,962,815.91				336,400.00	13,493,521.65	







Section- 6: Conclusion

The aim of the survey undertakes a bathymetric survey, topographic survey, a collection of data on cargo movement, industry survey, tourism facilities etc., in the project area; prepare detailed hydrographic survey charts, topographic survey charts, and detailed project report.

6.1 Description of Waterways

The surveyed stretch of Ghaghra River (NW-40) is 353 km in length. This survey stretch starts from the Chhapra to Guptar, Faizabad. In the past the Karnali or Ghaghra River was considered to be attractive for the development of navigation right from the Indo–Nepal border till the confluence of this river and the Ganges. The lower reach of this river- called the Ghaghra in India- was used in the past for navigation by steamers. Apart from in the foothills of the Himalayas where most of the streams were simply fast-moving water throughout the greater part of the year and not navigable when flowing rapidly, most of the rivers with steadier currents had boats on them. The Ganges, the Ghaghra, the Yamuna, the Gomti, the Sharda and the Rapti were the most important navigable rivers in the Northwestern provinces and Oudh.

Many trade items such as timber, food grains, sugar, indigo, cotton seed, poppy seed and mustard seed were transported by boats. April, May and June were the most suitable months and were a busy trading period.

6.2 Condition of River bed

The river bed of Stretches is mainly sandy in nature. No prominent Dams and Barrages are present in the survey stretches. Fishing stakes available in the stretches at so many places.



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



6.3 Modifications/ improvement Measures

The minimum depth was 75 centimeters (30 in). These depths were available without any river conservancy works. All other conditions of navigable channel such as the width and current of flow etc. were also found to be very favorable. The low water stage in this river is only for a short duration. As per Detailed Hydrographic Survey there are possibilities in the Ghaghra/ Karnali River to develop modern inland waterway by applying channel improvement technologies / dredging to develop class-III waterways (Depth- 1.70M).

Annexure- 1: Source and type of data collected from various agencies:-

The Chart Datum value and HFL values were provided by the IWAI Staff. The Sounding Datum calculated with the help of IWAI Staff.

Annexure- 2: Dredging volume calculated

<u>GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH</u>														
Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Ganga Confluence (Near Doriganj)	0	1	1	5	4.2	2.6	-	0.00	0.00	3.2	2.1	-	0.00	0.00
	1	2	6	10	5.9	2.7	-	0.00	0.00	4.3	2.0	-	0.00	0.00
	2	3	11	15	3.7	1.1	1,000.00	2,455.47	2,455.47	1.9	-0.3	600.00	698.47	698.47
	3	4	16	20	4.1	1.3	800.00	7,756.39	10,211.86	2.6	-0.3	-	0.00	698.47
	4	5	21	27	6.1	0.8	800.00	8,223.77	18,435.63	4.8	-0.3	1,000.00	570.93	1,269.40
Enai Village	5	6	28	33	3.3	1.2	1,000.00	13,066.94	31,502.57	1.5	-0.3	1,000.00	395.44	1,664.84
	6	7	34	40	5.2	1.2	1,000.00	6,553.64	38,056.21	3.6	-0.3	1,000.00	902.90	2,567.74
	7	8	41	45	2.3	0.8	1,000.00	22,210.41	60,266.62	0.6	-0.3	1,000.00	552.67	3,120.41
CHHAPRA	8	9	46	51	2.3	0.7	1,000.00	22,976.11	83,242.73	0.5	-0.3	1,000.00	8,890.42	12,010.83
	9	10	52	57	3.2	0.1	1,000.00	22,632.42	105,875.15	1.9	-0.3	1,000.00	27,624.75	39,635.58
	10	11	58	62	3.2	1.0	1,000.00	10,715.26	116,590.41	2.6	-0.3	1,000.00	16,917.16	56,552.74
	11	12	63	67	2.4	0.7	1,000.00	13,637.24	130,227.65	1.8	-0.3	1,000.00	23,142.92	79,695.66
	12	13	68	72	3.2	0.7	1,000.00	15,670.15	145,897.80	2.4	-0.3	1,000.00	24,805.75	104,501.41
Seanraija Village	13	14	73	77	2.5	0.8	1,000.00	18,893.88	164,791.68	1.8	-0.3	1,000.00	26,738.46	131,239.87
Revelganj Ghat	14	15	78	83	3.2	1.2	1,000.00	10,253.52	175,045.20	2.5	-0.3	1,000.00	17,190.60	148,430.47
	15	16	84	88	2.7	1.7	1,000.00	83.13	175,128.33	2.0	-0.3	1,000.00	2,636.22	151,066.69
	16	17	89	93	2.7	0.8	1,000.00	13,786.62	188,914.95	2.1	-0.3	1,000.00	20,299.84	171,366.53



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	17	18	94	98	2.5	0.9	1,000.00	21,511.56	210,426.51	3.2	-0.3	1,000.00	75,041.12	246,407.65
MANJHI BRIDGE	18	19	99	103	6.5	1.5	600.00	1,258.03	211,684.54	6.8	-0.3	1,000.00	20,552.56	266,960.21
	19	20	104	108	6.4	3.0	-	0.00	211,684.54	7.1	-0.3	200.00	491.70	267,451.91
Mehadiganj Village	20	21	109	113	4.4	1.0	800.00	3,662.20	215,346.74	5.2	-0.3	400.00	37,194.50	304,646.41
	21	22	114	119	2.7	0.9	1,000.00	22,421.47	237,768.21	3.4	-0.3	800.00	87,178.30	391,824.71
	22	23	120	124	3.5	1.0	1,000.00	20,035.67	257,803.88	4.2	-0.3	1,000.00	76,350.89	468,175.60
	23	24	125	130	3.5	0.7	1,000.00	21,665.53	279,469.41	4.1	-0.3	600.00	84,356.54	552,532.14
	24	25	131	136	2.7	1.0	1,000.00	16,681.26	296,150.67	3.4	-0.3	800.00	76,347.31	628,879.45
Dumri	25	26	137	143	3.3	0.6	1,000.00	14,506.64	310,657.31	4.0	-0.3	1,000.00	75,808.68	704,688.13
	26	27	144	149	2.0	0.9	1,000.00	25,077.50	335,734.81	2.6	-0.3	1,000.00	75,586.39	780,274.52
	27	28	150	154	2.8	1.6	800.00	2,753.50	338,488.31	2.7	-0.3	1,000.00	23,490.78	803,765.30
	28	29	155	159	5.1	1.8	400.00	264.91	338,753.22	5.0	-0.3	400.00	13,718.26	817,483.56
	29	30	160	164	5.9	0.8	400.00	6,529.08	345,282.30	5.8	-0.3	400.00	18,620.41	836,103.97
	30	31	165	169	2.7	1.1	1,000.00	11,127.19	356,409.49	2.6	-0.3	1,000.00	44,378.53	880,482.50
Dumaigarh	31	32	170	174	6.1	1.4	400.00	3,149.12	359,558.61	6.0	-0.3	600.00	12,903.88	893,386.38
	32	33	175	179	7.6	2.6	-	0.00	359,558.61	7.5	2.4	-	0.00	893,386.38
	33	34	180	184	4.6	1.1	800.00	7,468.32	367,026.93	4.5	-0.3	800.00	28,130.66	921,517.04
Narwan	34	35	185	189	8.9	3.6	-	0.00	367,026.93	8.8	2.6	-	0.00	921,517.04
	35	36	190	193	4.7	2.8	-	0.00	367,026.93	4.5	2.4	-	0.00	921,517.04
	36	37	194	198	3.6	2.0	-	0.00	367,026.93	3.5	-0.3	200.00	2,191.72	923,708.76
	37	38	199	203	6.7	2.1	-	0.00	367,026.93	6.6	-0.3	400.00	3,692.65	927,401.41
	38	39	204	209	2.7	1.0	1,000.00	19,984.93	387,011.86	2.6	-0.3	1,000.00	58,433.34	985,834.75
	39	40	210	214	2.1	1.0	1,000.00	17,123.26	404,135.12	4.3	-0.3	1,000.00	51,130.13	1,036,964.88
	40	41	215	219	3.0	1.1	600.00	7,019.58	411,154.70	3.0	-0.3	600.00	31,352.73	1,068,317.61
	41	42	220	224	3.0	1.1	800.00	12,178.77	423,333.47	3.0	-0.3	1,000.00	38,889.27	1,107,206.88
	42	43	225	229	5.5	3.0	-	0.00	423,333.47	5.6	1.3	200.00	51.61	1,107,258.49
	43	44	230	234	6.7	1.1	200.00	1,309.40	424,642.87	6.6	-0.3	400.00	6,926.60	1,114,185.09
	44	45	235	239	2.0	0.7	1,000.00	17,466.41	442,109.28	2.1	-0.3	1,000.00	52,825.60	1,167,010.69
	45	46	240	245	2.2	0.8	1,000.00	23,283.09	465,392.37	2.1	-0.3	1,000.00	62,092.40	1,229,103.09



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	46	47	246	250	2.3	1.1	1,000.00	8,358.57	473,750.94	2.3	-0.3	1,000.00	39,160.11	1,268,263.20
	47	48	251	255	3.1	0.9	1,000.00	16,789.09	490,540.03	3.2	-0.3	1,000.00	46,277.56	1,314,540.76
	48	49	256	261	1.4	0.8	1,000.00	31,938.46	522,478.49	1.6	-0.3	1,000.00	86,880.92	1,401,421.68
	49	50	262	266	2.4	0.7	1,000.00	29,241.59	551,720.08	2.5	-0.3	1,000.00	66,701.99	1,468,123.67
	50	51	267	272	1.8	1.0	1,000.00	11,643.44	563,363.52	1.8	-0.3	1,000.00	88,554.09	1,556,677.76
Gangapur	51	52	273	277	2.0	0.7	1,000.00	24,151.36	587,514.88	2.0	-0.3	1,000.00	69,651.80	1,626,329.56
Kachnar	52	53	278	282	3.2	0.9	1,000.00	8,426.44	595,941.32	3.3	-0.3	1,000.00	44,394.32	1,670,723.88
	53	54	283	287	5.4	1.0	1,000.00	9,333.48	605,274.80	5.1	-0.3	1,000.00	40,385.27	1,711,109.15
	54	55	288	293	2.9	1.1	1,000.00	16,132.17	621,406.97	3.0	-0.3	1,000.00	61,069.29	1,772,178.44
	55	56	294	298	2.6	1.2	1,000.00	9,211.01	630,617.98	2.6	-0.3	1,000.00	45,316.07	1,817,494.51
	56	57	299	303	2.7	1.0	1,000.00	20,307.69	650,925.67	2.8	-0.3	1,000.00	66,146.55	1,883,641.06
	57	58	304	308	4.8	1.9	200.00	1,702.65	652,628.32	4.9	-0.3	400.00	13,914.46	1,897,555.52
	58	59	309	313	4.7	1.1	400.00	2,131.29	654,759.61	4.8	-0.3	1,000.00	13,353.74	1,910,909.26
	59	60	314	318	3.0	1.2	800.00	10,924.66	665,684.27	3.0	-0.3	1,000.00	44,856.93	1,955,766.19
	60	61	319	323	4.5	3.1	-	0.00	665,684.27	4.3	-0.3	200.00	406.45	1,956,172.64
	61	62	324	328	4.8	1.7	400.00	767.00	666,451.27	4.6	-0.3	200.00	6,889.94	1,963,062.58
	62	63	329	333	3.6	1.7	400.00	631.09	667,082.36	3.4	-0.3	600.00	7,435.56	1,970,498.14
	63	64	334	338	4.0	1.5	600.00	396.19	667,478.55	4.0	-0.3	600.00	10,230.14	1,980,728.28
	64	65	339	344	2.4	0.8	1,000.00	32,750.66	700,229.21	1.5	-0.3	1,000.00	69,514.84	2,050,243.12
Raghnathpur	65	66	345	349	4.2	0.9	1,000.00	23,917.41	724,146.62	4.0	-0.3	1,000.00	51,212.39	2,101,455.51
	66	67	350	354	3.0	1.0	1,000.00	18,691.39	742,838.01	2.8	-0.3	1,000.00	47,734.60	2,149,190.11
	67	68	355	360	1.8	0.7	1,000.00	35,535.00	778,373.01	1.7	-0.3	1,000.00	74,438.05	2,223,628.16
Narhan	68	69	361	365	2.0	0.8	1,000.00	27,020.43	805,393.44	1.9	-0.3	1,000.00	56,267.39	2,279,895.55
	69	70	366	370	2.6	0.9	1,000.00	17,874.67	823,268.11	2.4	-0.3	1,000.00	44,959.39	2,324,854.94
	70	71	371	375	1.2	0.7	1,000.00	34,348.60	857,616.71	1.1	-0.3	1,000.00	65,710.37	2,390,565.31
	71	72	376	380	2.5	0.7	1,000.00	19,459.95	877,076.66	2.6	-0.3	1,000.00	48,431.83	2,438,997.14
	72	73	381	385	7.4	1.3	400.00	41.54	877,118.20	7.7	-0.3	200.00	8,533.35	2,447,530.49
	73	74	386	390	3.7	0.7	1,000.00	16,348.85	893,467.05	3.8	-0.3	1,000.00	48,593.16	2,496,123.65



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	74	75	391	395	2.0	0.7	1,000.00	31,854.28	925,321.33	2.1	-0.3	1,000.00	74,211.69	2,570,335.34
	75	76	396	400	1.8	0.7	1,000.00	23,336.64	948,657.97	2.0	-0.3	1,000.00	61,684.40	2,632,019.74
	76	77	401	406	3.4	0.7	1,000.00	23,159.65	971,817.62	3.5	-0.3	1,000.00	65,397.35	2,697,417.09
	77	78	407	412	2.6	0.7	1,000.00	31,967.81	1,003,785.43	3.1	-0.3	1,000.00	73,852.85	2,771,269.94
	78	79	413	417	2.9	0.7	1,000.00	23,840.35	1,027,625.78	3.1	-0.3	1,000.00	59,183.33	2,830,453.27
	79	80	418	422	3.3	0.7	1,000.00	23,325.56	1,050,951.34	3.4	-0.3	1,000.00	54,746.92	2,885,200.19
	80	81	423	429	2.0	0.7	1,000.00	28,044.45	1,078,995.79	2.0	-0.3	1,000.00	61,405.05	2,946,605.24
	81	82	430	434	2.5	0.8	1,000.00	23,407.27	1,102,403.06	2.4	-0.3	1,000.00	60,468.43	3,007,073.67
	82	83	435	439	2.3	0.7	1,000.00	23,599.11	1,126,002.17	3.6	-0.3	1,000.00	58,055.28	3,065,128.95
	83	84	440	444	1.7	0.7	1,000.00	32,932.93	1,158,935.10	6.8	-0.3	1,000.00	69,129.81	3,134,258.76
	84	85	445	449	2.7	0.7	1,000.00	18,075.00	1,177,010.10	2.7	-0.3	1,000.00	48,513.72	3,182,772.48
	85	86	450	454	2.4	0.9	1,000.00	15,665.67	1,192,675.77	2.3	-0.3	1,000.00	47,062.33	3,229,834.81
	86	87	455	460	1.9	0.7	1,000.00	29,408.26	1,222,084.03	4.8	-0.3	1,000.00	72,700.03	3,302,534.84
Darauli	87	88	461	465	2.3	0.7	1,000.00	16,765.82	1,238,849.85	2.3	-0.3	1,000.00	42,383.43	3,344,918.27
	88	89	466	470	2.8	0.7	1,000.00	17,936.58	1,256,786.43	3.0	-0.3	1,000.00	48,230.43	3,393,148.70
	89	90	471	475	1.9	0.7	1,000.00	24,369.62	1,281,156.05	1.8	-0.3	1,000.00	59,222.25	3,452,370.95
	90	91	476	480	3.4	1.2	1,000.00	3,832.09	1,284,988.14	3.3	-0.3	1,000.00	29,547.79	3,481,918.74
	91	92	481	485	2.6	0.8	1,000.00	10,445.04	1,295,433.18	3.3	-0.3	800.00	44,606.19	3,526,524.93
	92	93	486	490	5.3	0.7	1,000.00	22,856.41	1,318,289.99	2.8	-0.3	1,000.00	55,879.59	3,582,404.52
	93	94	491	495	1.7	0.8	1,000.00	29,510.85	1,347,800.44	2.4	-0.3	1,000.00	67,041.20	3,649,445.72
	94	95	496	500	2.6	0.7	1,000.00	18,414.28	1,366,214.72	3.3	-0.3	600.00	55,632.21	3,705,077.93
	95	96	501	506	2.7	0.7	1,000.00	28,412.17	1,394,626.89	3.5	-0.3	1,000.00	67,042.98	3,772,120.91
	96	97	507	511	2.4	0.8	1,000.00	12,391.50	1,407,018.39	3.1	-0.3	800.00	45,605.71	3,817,726.62
	97	98	512	516	2.3	1.1	1,000.00	12,261.72	1,419,280.11	3.0	-0.3	600.00	45,949.90	3,863,676.52
	98	99	517	521	3.6	1.5	1,000.00	2,498.48	1,421,778.59	4.3	-0.3	1,000.00	24,228.10	3,887,904.62
	99	100	522	526	1.9	0.7	1,000.00	25,870.57	1,447,649.16	2.6	-0.3	800.00	60,674.53	3,948,579.15
	100	100.4	527	528	1.8	1.0	400.00	8,013.88	1,455,663.04	2.4	-0.3	350.00	22,239.07	3,970,818.22
	100.4	101	529	532	1.9	0.9	800.00	11,010.51	1,466,673.55	2.1	-0.3	650.00	45,558.56	4,016,376.78



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	101	102	533	537	2.2	0.8	1,000.00	15,651.33	1,482,324.88	2.2	-0.3	1,000.00	51,319.67	4,067,696.45
	102	103	538	542	4.4	1.3	800.00	3,509.80	1,485,834.68	4.6	-0.3	800.00	28,198.46	4,095,894.91
	103	104	543	548	2.3	0.7	1,000.00	24,144.32	1,509,979.00	2.3	-0.3	1,000.00	67,016.59	4,162,911.50
	104	105	549	553	2.3	0.8	1,000.00	12,315.34	1,522,294.34	2.4	-0.3	1,000.00	48,267.00	4,211,178.50
	105	106	554	558	1.5	0.8	1,000.00	24,673.89	1,546,968.23	1.4	-0.3	1,000.00	66,645.10	4,277,823.60
	106	107	559	563	5.2	1.6	400.00	2,207.48	1,549,175.71	5.2	-0.3	400.00	14,768.70	4,292,592.30
Rampur Village	107	108	564	568	3.2	1.7	400.00	822.32	1,549,998.03	3.2	-0.3	800.00	31,389.40	4,323,981.70
Harnatar Dayalpur	108	109	569	572	3.0	1.2	600.00	5,906.00	1,555,904.03	3.0	-0.3	400.00	30,774.64	4,354,756.34
	109	110	573	577	2.0	0.7	1,000.00	27,561.89	1,583,465.92	2.3	-0.3	1,000.00	53,953.90	4,408,710.24
	110	111	578	582	2.3	0.7	1,000.00	24,081.29	1,607,547.21	2.7	-0.3	1,000.00	74,482.01	4,483,192.25
	111	112	583	587	3.2	0.7	800.00	10,777.19	1,618,324.40	3.6	-0.3	800.00	38,725.06	4,521,917.31
Manthala Bajar	112	113	588	592	1.9	0.7	1,000.00	16,430.61	1,634,755.01	2.4	-0.3	800.00	56,648.92	4,578,566.23
	113	114	593	897	1.9	0.7	1,000.00	25,112.26	1,659,867.27	2.2	-0.3	1,000.00	47,121.27	4,625,687.50
Turtipar	114	115	898	602	2.6	0.7	1,000.00	23,479.33	1,683,347.20	2.9	-0.3	1,000.00	37,430.65	4,663,118.15
Turtipar Rly. Brg.	115	116	603	607	2.0	0.9	1,000.00	21,045.02	1,704,392.22	2.6	-0.3	200.00	644.30	4,663,762.45
	116	117	608	612	4.3	2.4	200.00	94.17	1,704,486.39	4.8	-0.3	1,000.00	47,121.32	4,710,883.77
	117	118	613	618	6.4	0.8	1,000.00	23,872.48	1,728,358.87	7.0	-0.3	600.00	45,249.33	4,756,133.10
	118	119	619	623	1.7	0.8	1,000.00	20,427.59	1,748,786.46	2.2	-0.3	1,000.00	47,375.14	4,803,508.24
Esharou	119	120	624	628	2.5	0.7	1,000.00	14,154.14	1,762,940.60	3.0	-0.3	1,000.00	43,267.86	4,846,776.10
	120	121	629	633	2.8	1.2	1,000.00	7,599.85	1,770,540.45	3.3	-0.3	800.00	90,363.91	4,937,140.01
	121	122	634	638	3.4	1.2	800.00	3,830.15	1,774,370.60	3.9	-0.3	200.00	72,845.12	5,009,985.13
Chanpur Gloura Village	122	123	639	643	5.5	0.9	200.00	2,011.87	1,776,382.47	6.1	-0.3	200.00	64,206.00	5,074,191.13
	123	124	644	648	2.2	1.1	800.00	17,565.12	1,793,947.59	2.7	-0.3	1,000.00	64,067.41	5,138,258.54
	124	125	649	653	1.6	0.7	1,000.00	28,079.96	1,822,027.55	2.1	-0.3	1,000.00	67,464.17	5,205,722.71
	125	126	654	658	1.7	0.7	1,000.00	22,076.79	1,844,104.34	6.0	-0.3	1,000.00	66,486.63	5,272,209.34
Chakimusa Dohi Ghat	126	127	659	663	2.8	0.7	1,000.00	24,048.83	1,868,153.17	3.9	-0.3	1,000.00	75,667.71	5,347,877.05
	127	128	664	668	3.1	0.7	1,000.00	25,192.03	1,893,345.20	3.6	-0.3	1,000.00	74,285.03	5,422,162.08



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	128	129	669	674	2.8	0.7	1,000.00	29,406.14	1,922,751.34	3.3	-0.3	1,000.00	70,278.83	5,492,440.91
	129	130	675	679	1.6	0.7	1,000.00	32,127.10	1,954,878.44	2.2	-0.3	1,000.00	45,210.88	5,537,651.79
	130	131	680	685	1.5	0.7	1,000.00	42,302.54	1,997,180.98	1.7	-0.3	1,000.00	53,256.18	5,590,907.97
	131	132	686	690	2.0	1.1	1,000.00	16,752.41	2,013,933.39	2.4	-0.3	1,000.00	74,707.72	5,665,615.69
	132	133	691	695	4.7	1.0	1,000.00	6,408.28	2,020,341.67	5.1	-0.3	600.00	28,578.09	5,694,193.78
	133	134	696	700	1.7	0.7	1,000.00	32,265.48	2,052,607.15	2.2	-0.3	1,000.00	21,813.79	5,716,007.57
	134	135	701	705	2.4	0.8	1,000.00	23,104.17	2,075,711.32	2.9	-0.3	1,000.00	29,300.70	5,745,308.27
	135	136	706	710	4.3	2.1	200.00	296.59	2,076,007.91	4.9	-0.3	200.00	19,143.83	5,764,452.10
	136	137	711	715	2.2	1.5	1,000.00	3,618.37	2,079,626.28	2.7	-0.3	1,000.00	26,926.58	5,791,378.68
	137	138	716	720	2.7	2.0	200.00	65.83	2,079,692.11	3.3	-0.3	1,000.00	37,800.07	5,829,178.75
	138	139	721	725	3.5	1.5	600.00	2,818.23	2,082,510.34	3.5	-0.3	1,000.00	50,804.18	5,879,982.93
Barhaj Bridge (UNC)	139	140	726	730	3.9	1.4	800.00	1,624.64	2,084,134.98	4.4	-0.3	1,000.00	8,443.67	5,888,426.60
Nabideswar Mishra Ghat	140	141	731	736	2.4	1.1	1,000.00	16,737.76	2,100,872.74	4.2	-0.3	1,000.00	25,369.11	5,913,795.71
Katelwa Village	141	142	737	741	6.6	1.0	800.00	3,120.79	2,103,993.53	7.1	-0.3	1,000.00	72,161.96	5,985,957.67
Kudhe Ghat	142	143	742	746	4.3	1.2	400.00	2,264.40	2,106,257.93	4.7	-0.3	1,000.00	51,420.93	6,037,378.60
	143	144	747	752	1.4	0.7	800.00	40,943.43	2,147,201.36	5.2	-0.3	1,000.00	48,882.21	6,086,260.81
Kaparwar	144	145	753	757	2.2	0.9	1,000.00	18,048.17	2,165,249.53	2.2	-0.3	1,000.00	61,129.95	6,147,390.76
	145	146	758	763	3.8	0.7	1,000.00	23,193.55	2,188,443.08	5.2	-0.3	1,000.00	49,228.79	6,196,619.55
	146	147	764	768	1.7	0.7	1,000.00	26,635.14	2,215,078.22	1.8	-0.3	1,000.00	57,506.15	6,254,125.70
Netavar patti	147	148	769	773	2.9	0.8	1,000.00	18,683.04	2,233,761.26	3.0	-0.3	1,000.00	90,748.78	6,344,874.48
	148	149	774	779	2.0	0.7	1,000.00	21,636.85	2,255,398.11	2.1	-0.3	1,000.00	60,031.58	6,404,906.06
	149	150	780	784	2.3	0.7	1,000.00	22,321.17	2,277,719.28	2.3	-0.3	1,000.00	75,581.74	6,480,487.80
	150	151	785	790	2.5	1.0	1,000.00	21,164.65	2,298,883.93	2.6	-0.3	1,000.00	76,652.43	6,557,140.23
	151	152	791	795	1.9	0.7	1,000.00	22,058.21	2,320,942.14	2.0	-0.3	1,000.00	67,372.65	6,624,512.88
	152	153	796	800	2.1	0.7	1,000.00	31,420.87	2,352,363.01	1.7	-0.3	1,000.00	51,086.30	6,675,599.18
	153	154	801	806	2.0	0.7	1,000.00	40,969.76	2,393,332.77	1.6	-0.3	1,000.00	52,298.41	6,727,897.59
	154	155	807	811	2.2	0.7	1,000.00	22,386.65	2,415,719.42	1.7	-0.3	1,000.00	19,259.35	6,747,156.94



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	155	156	812	816	2.6	0.7	1,000.00	22,056.37	2,437,775.79	2.1	-0.3	1,000.00	51,239.12	6,798,396.06
	156	157	817	822	3.7	1.1	600.00	4,996.38	2,442,772.17	3.3	-0.3	1,000.00	70,661.70	6,869,057.76
	157	158	823	827	3.1	0.7	800.00	19,510.70	2,462,282.87	2.7	-0.3	600.00	11,393.64	6,880,451.40
	158	159	828	833	2.9	0.7	1,000.00	28,325.55	2,490,608.42	2.4	-0.3	1,000.00	55,542.70	6,935,994.10
	159	160	834	838	5.8	1.9	200.00	1,714.33	2,492,322.75	5.4	-0.3	600.00	48,846.31	6,984,840.41
	160	161	839	843	3.8	0.8	1,000.00	20,411.33	2,512,734.08	3.4	-0.3	800.00	64,146.90	7,048,987.31
	161	162	844	848	3.5	0.8	1,000.00	16,040.08	2,528,774.16	3.1	-0.3	1,000.00	55,060.62	7,104,047.93
	162	163	849	853	2.2	0.7	1,000.00	23,576.93	2,552,351.09	2.3	-0.3	1,000.00	57,822.78	7,161,870.71
	163	164	854	858	2.3	0.8	1,000.00	18,365.98	2,570,717.07	2.5	-0.3	1,000.00	4,480.64	7,166,351.35
Khadesari	164	165	859	863	2.1	0.7	1,000.00	19,406.19	2,590,123.26	2.3	-0.3	1,000.00	51.37	7,166,402.72
DOHRI GHAT	165	166	864	868	9.2	2.4	200.00	57.87	2,590,181.13	9.5	-0.3	200.00	7,143.85	7,173,546.57
Barhalganj	166	167	869	873	7.7	2.5	-	0.00	2,590,181.13	8.2	-0.3	200.00	4,482.65	7,178,029.22
	167	168	874	878	7.7	1.8	400.00	517.22	2,590,698.35	7.8	-0.3	1,000.00	42,706.00	7,220,735.22
	168	169	879	884	8.0	1.3	200.00	1,982.11	2,592,680.46	9.4	-0.3	1,000.00	62,293.63	7,283,028.85
	169	170	885	889	2.4	0.7	1,000.00	14,623.74	2,607,304.20	2.5	-0.3	1,000.00	53,509.88	7,336,538.73
	170	171	890	894	2.3	0.7	1,000.00	23,639.08	2,630,943.28	2.5	-0.3	1,000.00	55,370.49	7,391,909.22
	171	172	895	899	7.2	0.7	600.00	10,210.98	2,641,154.26	3.3	-0.3	1,000.00	66,576.56	7,458,485.78
	172	173	900	905	2.6	0.7	1,000.00	26,611.41	2,667,765.67	2.5	-0.3	1,000.00	62,197.28	7,520,683.06
	173	174	906	910	3.6	0.9	1,000.00	18,407.78	2,686,173.45	2.4	-0.3	1,000.00	30,406.87	7,551,089.93
	174	175	911	916	5.1	0.9	800.00	17,907.38	2,704,080.83	4.8	-0.3	1,000.00	59,203.18	7,610,293.11
	175	176	917	923	5.9	0.7	1,000.00	34,907.18	2,738,988.01	2.3	-0.3	1,000.00	45,145.75	7,655,438.86
Parsiya	176	177	924	928	7.0	0.7	800.00	18,699.31	2,757,687.32	2.2	-0.3	1,000.00	55,801.36	7,711,240.22
	177	178	929	934	6.2	0.7	1,000.00	32,453.64	2,790,140.96	2.1	-0.3	1,000.00	73,007.54	7,784,247.76
	178	179	935	939	1.8	0.7	1,000.00	29,954.81	2,820,095.77	2.2	-0.3	1,000.00	64,058.85	7,848,306.61
	179	180	940	944	1.6	0.7	1,000.00	24,786.90	2,844,882.67	2.1	-0.3	1,000.00	44,752.25	7,893,058.86
	180	181	945	949	2.4	1.0	1,000.00	9,531.93	2,854,414.60	2.9	-0.3	600.00	58,148.45	7,951,207.31
Khutahan Khas	181	182	950	954	2.0	0.7	1,000.00	23,188.92	2,877,603.52	2.5	-0.3	1,000.00	74,268.34	8,025,475.65
	182	183	955	960	1.7	0.9	1,000.00	31,067.83	2,908,671.35	2.3	-0.3	1,000.00	70,522.14	8,095,997.79



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	183	184	961	965	2.0	1.2	1,000.00	12,083.29	2,920,754.64	1.0	-0.3	1,000.00	36,679.35	8,132,677.14
	184	185	966	970	4.4	1.5	400.00	613.53	2,921,368.17	2.3	-0.3	1,000.00	58,483.00	8,191,160.14
	185	186	971	975	1.9	0.9	1,000.00	17,978.64	2,939,346.81	-0.1	-0.3	1,000.00	59,484.19	8,250,644.33
	186	187	976	980	2.2	1.2	1,000.00	9,602.86	2,948,949.67	0.1	-0.3	1,000.00	61,632.82	8,312,277.15
Gola Ghat	187	188	981	986	6.4	0.7	1,000.00	19,450.55	2,968,400.22	0.0	-0.3	1,000.00	62,070.33	8,374,347.48
	188	189	987	991	2.1	0.7	1,000.00	22,490.93	2,990,891.15	0.4	-0.3	1,000.00	57,478.24	8,431,825.72
	189	190	992	996	2.7	0.8	1,000.00	9,266.32	3,000,157.47	0.9	-0.3	1,000.00	65,285.57	8,497,111.29
	190	191	997	1002	2.1	0.9	1,000.00	29,350.19	3,029,507.66	0.1	-0.3	1,000.00	65,016.77	8,562,128.06
	191	192	1003	1008	3.2	1.5	1,000.00	1,311.85	3,030,819.51	1.0	-0.3	1,000.00	29,000.77	8,591,128.83
Dewara Achal Singh	192	193	1009	1014	4.2	1.3	1,000.00	6,972.71	3,037,792.22	4.1	-0.3	1,000.00	18,470.05	8,609,598.88
Kauriya	193	194	1015	1019	2.1	1.3	1,000.00	10,521.16	3,048,313.38	2.3	-0.3	1,000.00	37,777.15	8,647,376.03
	194	195	1020	1024	2.4	1.3	1,000.00	1,896.62	3,050,210.00	2.8	-0.3	200.00	55,595.79	8,702,971.82
	195	196	1025	1029	2.5	0.9	1,000.00	17,296.11	3,067,506.11	2.8	-0.3	600.00	42,317.02	8,745,288.84
Bara Kalika Sthan	196	197	1030	1035	2.1	0.9	1,000.00	21,533.78	3,089,039.89	2.4	-0.3	1,000.00	45,591.72	8,790,880.56
	197	198	1036	1040	3.0	0.8	1,000.00	14,197.18	3,103,237.07	3.3	-0.3	1,000.00	37,104.15	8,827,984.71
	198	199	1041	1045	1.9	0.7	1,000.00	22,896.55	3,126,133.62	2.1	-0.3	800.00	61,290.76	8,889,275.47
	199	200	1046	1051	1.7	0.9	1,000.00	28,015.89	3,154,149.51	1.8	-0.3	1,000.00	45,754.96	8,935,030.43
Jhptia Ghat	200	201	1052	1056	2.8	0.8	1,000.00	17,094.84	3,171,244.35	3.0	-0.3	1,000.00	49,551.12	8,984,581.55
	201	202	1057	1061	2.4	0.7	1,000.00	21,161.26	3,192,405.61	2.5	-0.3	1,000.00	47,901.02	9,032,482.57
	202	203	1062	1066	1.6	0.7	1,000.00	28,763.91	3,221,169.52	1.9	-0.3	1,000.00	49,875.86	9,082,358.43
Basahi	203	204	1067	1071	4.4	1.0	1,000.00	15,251.55	3,236,421.07	3.0	-0.3	1,000.00	66,141.51	9,148,499.94
	204	205	1072	1077	6.8	0.8	1,000.00	24,876.53	3,261,297.60	2.9	-0.3	1,000.00	88,291.49	9,236,791.43
Sahapur Ghat	205	206	1078	1082	2.3	1.2	1,000.00	11,727.06	3,273,024.66	3.6	-0.3	1,000.00	75,505.41	9,312,296.84
Belikur Village	206	207	1083	1088	2.3	1.3	1,000.00	6,203.55	3,279,228.21	3.5	-0.3	1,000.00	72,138.14	9,384,434.98
	207	208	1089	1094	2.8	0.7	1,000.00	22,055.32	3,301,283.53	4.1	-0.3	1,000.00	70,759.33	9,455,194.31
Khairati	208	209	1095	1099	2.3	1.1	800.00	10,696.11	3,311,979.64	3.4	-0.3	1,000.00	82,174.65	9,537,368.96
	209	210	1100	1104	3.5	1.2	600.00	4,075.93	3,316,055.57	4.8	-0.3	1,000.00	61,656.07	9,599,025.03
	210	211	1105	1108	3.6	1.4	800.00	5,751.01	3,321,806.58	4.8	-0.3	1,000.00	60,166.11	9,659,191.14



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Belwa Ghat	211	212	1109	1114	5.8	2.2	-	0.00	3,321,806.58	4.0	-0.3	1,000.00	3,862.78	9,663,053.92
	212	213	1115	1119	2.6	0.7	1,000.00	14,568.07	3,336,374.65	3.9	-0.3	1,000.00	57,273.47	9,720,327.39
Indorepur Dinhapur	213	214	1120	1124	1.9	0.7	1,000.00	22,489.99	3,358,864.64	3.2	-0.3	1,000.00	82,817.21	9,803,144.60
	214	215	1125	1129	2.2	0.7	1,000.00	23,542.07	3,382,406.71	3.5	-0.3	1,000.00	88,157.84	9,891,302.44
	215	216	1130	1134	1.5	0.7	1,000.00	36,174.01	3,418,580.72	3.0	-0.3	1,000.00	92,335.16	9,983,637.60
	216	217	1135	1139	2.1	0.8	1,000.00	25,495.48	3,444,076.20	3.4	-0.3	1,000.00	92,194.95	10,075,832.55
Babhanpura	217	218	1140	1145	1.5	0.7	1,000.00	38,225.64	3,482,301.84	2.8	-0.3	1,000.00	92,560.69	10,168,393.24
Kamariya Pontoon Brg.	218	219	1146	1150	3.5	0.8	1,000.00	11,435.94	3,493,737.78	6.7	-0.3	400.00	86,515.01	10,254,908.25
Dandwa	219	220	1151	1155	2.3	0.7	1,000.00	31,405.52	3,525,143.30	3.8	-0.3	-	88,614.07	10,343,522.32
Chadipur Village	220	221	1156	1161	7.7	1.0	1,000.00	7,048.10	3,532,191.40	2.2	-0.3	1,000.00	83,679.32	10,427,201.64
Gangasagar	221	222	1162	1166	2.2	0.7	1,000.00	27,204.18	3,559,395.58	3.6	-0.3	600.00	45,665.15	10,472,866.79
	222	223	1167	1173	1.9	0.7	1,000.00	32,443.05	3,591,838.63	3.3	-0.3	200.00	89,839.06	10,562,705.85
	223	224	1174	1178	1.9	0.8	1,000.00	22,367.54	3,614,206.17	3.2	-0.3	-	89,952.06	10,652,657.91
	224	225	1179	1183	3.3	0.8	1,000.00	11,364.95	3,625,571.12	4.2	-0.3	200.00	86,835.74	10,739,493.65
	225	226	1184	1189	1.5	0.7	1,000.00	38,668.53	3,664,239.65	2.4	-0.3	1,000.00	66,262.11	10,805,755.76
Daulatpur Village	226	227	1190	1195	2.4	0.7	1,000.00	21,130.34	3,685,369.99	3.2	-0.3	1,000.00	87,484.98	10,893,240.74
	227	228	1196	1202	1.8	0.7	1,000.00	13,480.60	3,698,850.59	2.3	-0.3	1,000.00	83,422.52	10,976,663.26
	228	229	1203	1207	1.6	0.7	1,000.00	39,939.62	3,738,790.21	2.3	-0.3	1,000.00	89,636.79	11,066,300.05
Tetriya	229	230	1208	1212	4.5	0.7	800.00	5,123.06	3,743,913.27	5.2	-0.3	200.00	88,794.45	11,155,094.50
	230	231	1213	1217	2.9	0.7	1,000.00	17,924.34	3,761,837.61	3.7	-0.3	1,000.00	85,073.00	11,240,167.50
Bhagapur	231	232	1218	1223	3.4	1.5	400.00	704.05	3,762,541.66	4.3	-0.3	600.00	52,249.59	11,292,417.09
Birhar Ghat Brg.	232	233	1224	1228	2.1	0.8	1,000.00	20,219.49	3,782,761.15	2.5	-0.3	1,000.00	70,418.47	11,362,835.56
	233	234	1229	1233	2.8	1.6	400.00	4,893.42	3,787,654.57	3.7	-0.3	400.00	34,911.27	11,397,746.83
Bidhar Village	234	235	1234	1238	4.2	1.1	400.00	969.21	3,788,623.78	4.5	-0.3	1,000.00	62,793.73	11,460,540.56
Addopur	235	236	1239	1243	2.5	0.7	1,000.00	21,712.78	3,810,336.56	2.8	-0.3	1,000.00	30,451.63	11,490,992.19
Gobardhan pur Village	236	237	1244	1249	3.1	0.7	1,000.00	37,104.78	3,847,441.34	3.1	-0.3	1,000.00	21,814.76	11,512,806.95
	237	238	1250	1254	1.7	0.7	1,000.00	32,540.72	3,879,982.06	2.0	-0.3	1,000.00	63,090.43	11,575,897.38



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	238	239	1255	1259	2.1	0.8	1,000.00	28,598.02	3,908,580.08	2.5	-0.3	1,000.00	75,306.04	11,651,203.42
	239	240	1260	1266	1.3	0.7	1,000.00	48,681.69	3,957,261.77	1.6	-0.3	1,000.00	75,956.27	11,727,159.69
	240	241	1267	1271	2.2	0.7	1,000.00	26,794.76	3,984,056.53	2.4	-0.3	1,000.00	81,936.64	11,809,096.33
	241	242	1272	1278	3.0	0.9	1,000.00	19,440.04	4,003,496.57	3.1	-0.3	1,000.00	72,069.84	11,881,166.17
	242	243	1279	1283	3.3	1.7	-	0.00	4,003,496.57	3.6	-0.3	1,000.00	86,131.11	11,967,297.28
	243	244	1284	1289	6.0	2.4	-	0.00	4,003,496.57	7.0	-0.3	1,000.00	73,197.25	12,040,494.53
	244	245	1290	1295	3.5	1.0	1,000.00	9,536.95	4,013,033.52	4.1	-0.3	200.00	49,520.03	12,090,014.56
	245	246	1296	1300	2.3	0.9	1,000.00	16,863.83	4,029,897.35	3.1	-0.3	1,000.00	18,055.17	12,108,069.73
	246	247	1301	1305	2.0	0.7	1,000.00	15,496.90	4,045,394.25	3.8	-0.3	200.00	3,924.17	12,111,993.90
Mahendi Ghat	247	248	1306	1311	4.2	0.7	1,000.00	26,676.62	4,072,070.87	2.9	-0.3	800.00	25,373.72	12,137,367.62
	248	249	1312	1315	2.9	0.7	800.00	18,331.71	4,090,402.58	3.7	-0.3	600.00	69,964.84	12,207,332.46
	249	250	1316	1320	2.6	0.7	1,000.00	17,344.13	4,107,746.71	3.4	-0.3	600.00	61,983.80	12,269,316.26
	250	251	1321	1328	5.8	0.5	1,000.00	27,508.96	4,135,255.67	5.2	-0.3	600.00	75,346.36	12,344,662.62
	251	252	1329	1334	6.6	0.9	1,000.00	19,446.17	4,154,701.84	3.6	-0.3	800.00	71,614.43	12,416,277.05
	252	253	1335	1340	5.3	0.6	1,000.00	14,616.90	4,169,318.74	5.4	-0.3	1,000.00	63,489.59	12,479,766.64
	253	254	1341	1346	3.5	1.1	1,000.00	17,356.71	4,186,675.45	5.0	-0.3	1,000.00	45,668.52	12,525,435.16
Babu Tangedia Village	254	255	1347	1351	2.1	1.3	1,000.00	8,601.13	4,195,276.58	3.0	-0.3	1,000.00	65,583.28	12,591,018.44
	255	256	1352	1357	3.4	2.3	-	0.00	4,195,276.58	4.4	-0.3	1,000.00	64,205.30	12,655,223.74
Nawari Rampur Ghat	256	257	1358	1362	3.4	2.2	-	0.00	4,195,276.58	4.4	-0.3	400.00	61,225.06	12,716,448.80
NasiraBad Village	257	258	1363	1367	9.5	2.9	-	0.00	4,195,276.58	9.8	-0.3	400.00	76,313.29	12,792,762.09
	258	259	1368	1372	5.7	0.9	800.00	15,863.23	4,211,139.81	7.1	-0.3	600.00	81,149.54	12,873,911.63
	259	260	1373	1377	3.1	0.8	800.00	14,168.13	4,225,307.94	3.9	-0.3	400.00	56,705.04	12,930,616.67
	260	261	1378	1382	2.4	0.7	1,000.00	19,092.51	4,244,400.45	3.5	-0.3	800.00	23,811.56	12,954,428.23
Darjipur Murda Ghat	261	262	1383	1388	2.1	0.7	1,000.00	34,369.17	4,278,769.62	2.9	-0.3	1,000.00	25,820.02	12,980,248.25
Prithvipur	262	263	1389	1393	2.4	1.3	1,000.00	6,621.38	4,285,391.00	3.5	-0.3	200.00	0.00	12,980,248.25
	263	264	1394	1398	2.7	1.2	800.00	8,581.10	4,293,972.10	3.9	-0.3	1,000.00	78,948.70	13,059,196.95
	264	265	1399	1403	2.0	1.2	1,000.00	9,131.38	4,303,103.48	3.2	-0.3	1,000.00	64,066.45	13,123,263.40



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	265	266	1404	1408	2.4	0.9	1,000.00	12,994.15	4,316,097.63	3.5	-0.3	1,000.00	78,795.27	13,202,058.67
	266	267	1409	1414	2.7	0.9	1,000.00	13,509.61	4,329,607.24	3.7	-0.3	1,000.00	91,866.24	13,293,924.91
Mobarkpur Village	267	268	1415	1419	2.0	0.7	1,000.00	23,091.64	4,352,698.88	3.1	-0.3	1,000.00	86,674.22	13,380,599.13
Chintaura	268	269	1420	1424	2.5	0.8	1,000.00	20,502.26	4,373,201.14	3.3	-0.3	1,000.00	83,737.55	13,464,336.68
	269	270	1425	1429	3.0	0.7	1,000.00	22,842.43	4,396,043.57	4.2	-0.3	1,000.00	76,511.07	13,540,847.75
Tanda	270	271	1430	1435	2.5	0.7	1,000.00	21,944.17	4,417,987.74	3.7	-0.3	1,000.00	89,163.46	13,630,011.21
	271	272	1436	1440	2.2	1.0	1,000.00	15,809.59	4,433,797.33	3.4	-0.3	1,000.00	83,307.73	13,713,318.94
	272	273	1441	1445	2.0	0.8	1,000.00	21,278.21	4,455,075.54	3.3	-0.3	1,000.00	94,011.38	13,807,330.32
	273	274	1446	1449	2.1	0.7	800.00	23,559.73	4,478,635.27	3.3	-0.3	1,000.00	85,956.80	13,893,287.12
	274	275	1450	1455	4.0	1.0	800.00	10,073.95	4,488,709.22	5.3	-0.3	1,000.00	85,390.97	13,978,678.09
	275	276	1456	1460	2.6	1.2	800.00	4,726.80	4,493,436.02	3.9	-0.3	1,000.00	84,088.69	14,062,766.78
	276	277	1461	1465	2.8	0.7	800.00	20,000.36	4,513,436.38	3.7	-0.3	1,000.00	92,540.72	14,155,307.50
	277	278	1466	1470	2.0	0.7	1,000.00	29,289.36	4,542,725.74	3.1	-0.3	1,000.00	92,605.72	14,247,913.22
	278	279	1471	1475	2.6	1.4	800.00	7,336.75	4,550,062.49	3.8	-0.3	1,000.00	92,154.45	14,340,067.67
	279	280	1476	1480	2.6	0.7	1,000.00	15,361.71	4,565,424.20	4.0	-0.3	1,000.00	71,099.27	14,411,166.94
	280	281	1481	1485	2.3	1.0	1,000.00	18,281.68	4,583,705.88	3.5	-0.3	1,000.00	66,425.46	14,477,592.40
NTPC Power Plant	281	282	1486	1490	2.1	0.8	1,000.00	22,772.84	4,606,478.72	3.3	-0.3	1,000.00	70,589.15	14,548,181.55
	282	283	1491	1495	5.5	1.0	400.00	2,642.93	4,609,121.65	6.2	-0.3	1,000.00	91,838.80	14,640,020.35
Katariyan Village	283	284	1496	1501	3.6	1.0	1,000.00	5,274.20	4,614,395.85	5.2	-0.3	1,000.00	88,081.02	14,728,101.37
Eltefat Ganj	284	285	1502	1506	2.4	1.0	1,000.00	14,257.55	4,628,653.40	4.2	-0.3	1,000.00	81,247.81	14,809,349.18
Aurangabad Village	285	286	1507	1511	3.3	0.7	1,000.00	14,914.61	4,643,568.01	5.0	-0.3	1,000.00	81,838.94	14,891,188.12
Salona Village	286	287	1512	1517	7.0	0.7	1,000.00	24,084.17	4,667,652.18	3.2	-0.3	1,000.00	90,114.70	14,981,302.82
	287	288	1518	1523	2.2	0.7	1,000.00	33,454.07	4,701,106.25	4.0	-0.3	1,000.00	65,346.73	15,046,649.55
	288	289	1524	1528	1.5	0.7	1,000.00	28,079.66	4,729,185.91	3.3	-0.3	1,000.00	73,835.41	15,120,484.96
	289	290	1529	1534	1.5	0.7	1,000.00	40,236.56	4,769,422.47	3.3	-0.3	1,000.00	77,888.94	15,198,373.90
	290	291	1535	1539	2.0	1.0	1,000.00	14,565.22	4,783,987.69	3.8	-0.3	1,000.00	93,172.34	15,291,546.24
	291	292	1540	1545	1.7	0.8	1,000.00	26,893.34	4,810,881.03	2.7	-0.3	1,000.00	86,665.13	15,378,211.37
	292	293	1546	1549	1.9	0.7	800.00	22,349.13	4,833,230.16	2.5	-0.3	1,000.00	70,417.88	15,448,629.25



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	293	294	1550	1554	5.9	0.7	1,000.00	29,950.96	4,863,181.12	3.0	-0.3	1,000.00	92,149.47	15,540,778.72
Bhura	294	295	1555	1559	2.4	0.8	1,000.00	21,362.29	4,884,543.41	2.3	-0.3	1,000.00	90,911.72	15,631,690.44
	295	296	1560	1564	4.3	0.8	1,000.00	14,101.70	4,898,645.11	3.1	-0.3	1,000.00	90,803.99	15,722,494.43
	296	297	1565	1569	2.7	0.7	1,000.00	20,395.60	4,919,040.71	3.5	-0.3	1,000.00	92,928.81	15,815,423.24
	297	298	1570	1574	3.4	1.3	400.00	1,744.47	4,920,785.18	4.1	-0.3	1,000.00	89,216.07	15,904,639.31
	298	299	1575	1579	4.6	1.6	-	0.00	4,920,785.18	5.5	-0.3	1,000.00	91,583.70	15,996,223.01
	299	300	1580	1584	5.0	0.7	600.00	9,454.87	4,930,240.05	4.2	-0.3	1,000.00	85,558.61	16,081,781.62
	300	301	1585	1589	2.5	0.7	1,000.00	14,815.73	4,945,055.78	3.4	-0.3	1,000.00	83,240.81	16,165,022.43
	301	302	1590	1594	2.8	1.5	800.00	5,108.78	4,950,164.56	4.1	-0.3	1,000.00	68,099.18	16,233,121.61
Sarwa Ghat	302	303	1595	1600	4.0	0.7	800.00	12,893.38	4,963,057.94	5.4	-0.3	1,000.00	90,670.06	16,323,791.67
Singirisi Temple	303	304	1601	1605	2.1	1.2	1,000.00	14,405.81	4,977,463.75	3.4	-0.3	1,000.00	44,510.73	16,368,302.40
	304	305	1606	1610	2.3	1.0	1,000.00	6,164.69	4,983,628.44	3.6	-0.3	1,000.00	36,964.47	16,405,266.87
Mehboob Ganj	305	306	1611	1616	3.3	0.7	1,000.00	31,028.64	5,014,657.08	3.2	-0.3	1,000.00	41,135.25	16,446,402.12
	306	307	1617	1621	3.7	0.7	1,000.00	21,849.60	5,036,506.68	5.1	-0.3	1,000.00	88,498.41	16,534,900.53
	307	308	1622	1627	5.4	0.7	1,000.00	14,882.19	5,051,388.87	4.2	-0.3	1,000.00	91,820.74	16,626,721.27
Posra Village	308	309	1628	1632	4.4	0.7	1,000.00	17,727.89	5,069,116.76	4.7	-0.3	1,000.00	57,832.03	16,684,553.30
	309	310	1633	1638	6.0	0.7	1,000.00	18,644.79	5,087,761.55	8.1	-0.3	1,000.00	92,950.38	16,777,503.68
	310	311	1639	1644	5.8	0.8	1,000.00	18,429.91	5,106,191.46	7.6	-0.3	1,000.00	88,912.04	16,866,415.72
	311	312	1645	1651	2.6	0.9	1,000.00	25,862.77	5,132,054.23	3.0	-0.3	1,000.00	82,127.87	16,948,543.59
	312	313	1652	1655	7.8	1.8	200.00	2,355.23	5,134,409.46	9.0	-0.3	1,000.00	77,229.60	17,025,773.19
	313	314	1656	1660	8.5	1.8	800.00	141.58	5,134,551.04	9.6	-0.3	1,000.00	76,353.86	17,102,127.05
	314	315	1661	1665	4.3	1.5	400.00	424.83	5,134,975.87	5.0	-0.3	1,000.00	80,691.54	17,182,818.59
Baburi Babu	315	316	1666	1671	2.0	0.7	1,000.00	24,762.71	5,159,738.58	2.8	-0.3	1,000.00	64,409.45	17,247,228.04
	316	317	1672	1676	6.8	1.1	600.00	10,781.27	5,170,519.85	7.1	-0.3	1,000.00	70,415.64	17,317,643.68
	317	318	1677	1681	9.5	3.3	-	0.00	5,170,519.85	9.8	-0.3	1,000.00	68,624.19	17,386,267.87
Balwa Ghat	318	319	1682	1686	2.4	0.7	1,000.00	19,039.92	5,189,559.77	4.1	-0.3	1,000.00	59,240.64	17,445,508.51
	319	320	1687	1692	2.4	0.8	1,000.00	20,655.28	5,210,215.05	4.2	-0.3	1,000.00	68,437.65	17,513,946.16
Arjunpur Village	320	321	1693	1696	3.3	0.9	600.00	12,087.81	5,222,302.86	5.5	-0.3	1,000.00	13,016.65	17,526,962.81



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	321	322	1697	1700	3.2	1.4	400.00	1,469.35	5,223,772.21	5.2	-0.3	1,000.00	41,695.92	17,568,658.73
	322	323	1701	1705	5.4	1.1	1,000.00	9,108.01	5,232,880.22	4.2	-0.3	1,000.00	40,889.93	17,609,548.66
	323	324	1706	1711	4.9	1.2	8,500.00	4,365.33	5,237,245.55	6.6	-0.3	1,000.00	87,007.44	17,696,556.10
	324	325	1712	1716	2.7	1.0	1,000.00	9,226.64	5,246,472.19	4.5	-0.3	1,000.00	17,840.96	17,714,397.06
	325	326	1717	1721	5.9	0.7	1,000.00	24,309.88	5,270,782.07	4.2	-0.3	1,000.00	40,030.93	17,754,427.99
	326	327	1722	1726	2.9	0.7	1,000.00	21,219.84	5,292,001.91	4.7	-0.3	1,000.00	92,604.11	17,847,032.10
	327	328	1727	1731	3.2	0.7	1,000.00	25,614.51	5,317,616.42	4.8	-0.3	1,000.00	93,090.50	17,940,122.60
	328	329	1732	1737	2.0	0.7	1,000.00	29,262.43	5,346,878.85	2.8	-0.3	1,000.00	82,655.24	18,022,777.84
	329	330	1738	1744	2.7	0.7	1,000.00	33,060.39	5,379,939.24	3.8	-0.3	1,000.00	92,771.95	18,115,549.79
	330	331	1745	1749	4.8	0.8	1,000.00	23,567.37	5,403,506.61	2.7	-0.3	1,000.00	75,710.96	18,191,260.75
	331	332	1750	1754	2.0	0.7	1,000.00	17,257.22	5,420,763.83	2.7	-0.3	1,000.00	85,518.25	18,276,779.00
	332	333	1755	1759	3.3	0.7	1,000.00	10,833.63	5,431,597.46	3.9	-0.3	1,000.00	85,122.25	18,361,901.25
	333	334	1760	1765	3.2	1.2	1,000.00	16,335.35	5,447,932.81	3.0	-0.3	1,000.00	94,273.98	18,456,175.23
	334	335	1766	1771	3.8	1.2	1,000.00	5,835.42	5,453,768.23	4.5	-0.3	1,000.00	93,533.53	18,549,708.76
Gauria Village	335	336	1772	1776	3.0	0.7	800.00	13,818.05	5,467,586.28	3.7	-0.3	1,000.00	84,675.43	18,634,384.19
Keshawapur	336	337	1777	1782	5.5	0.9	1,000.00	12,808.79	5,480,395.07	2.6	-0.3	1,000.00	90,608.01	18,724,992.20
	337	338	1783	1788	2.5	1.1	1,000.00	11,897.34	5,492,292.41	3.2	-0.3	1,000.00	78,813.23	18,803,805.43
	338	339	1789	1793	9.7	1.1	800.00	8,982.91	5,501,275.32	10.4	-0.3	1,000.00	86,174.92	18,889,980.35
	339	340	1794	1798	6.7	1.9	-	0.00	5,501,275.32	7.4	-0.3	1,000.00	79,380.36	18,969,360.71
	340	341	1799	1803	1.8	1.1	1,000.00	12,761.88	5,514,037.20	2.7	-0.3	1,000.00	64,490.35	19,033,851.06
	341	342	1804	1808	2.5	1.0	1,000.00	12,000.18	5,526,037.38	3.4	-0.3	1,000.00	85,663.89	19,119,514.95
	342	343	1809	1813	4.9	1.9	200.00	70.17	5,526,107.55	5.7	-0.3	1,000.00	64,711.84	19,184,226.79
AYODHYA	343	344	1814	1818	4.9	0.7	600.00	10,360.32	5,536,467.87	6.0	-0.3	1,000.00	61,032.45	19,245,259.24
Durga Ganj Village	344	345	1819	1823	3.0	0.8	1,000.00	23,693.23	5,560,161.10	3.9	-0.3	1,000.00	59,667.29	19,304,926.53
	345	346	1824	1829	4.4	0.8	1,000.00	8,637.28	5,568,798.38	5.4	-0.3	1,000.00	74,857.59	19,379,784.12
	346	347	1830	1834	2.6	1.0	1,000.00	14,951.26	5,583,749.64	3.6	-0.3	1,000.00	72,913.23	19,452,697.35
	347	348	1835	1839	3.9	1.5	800.00	1,219.05	5,584,968.69	4.8	-0.3	1,000.00	46,726.74	19,499,424.09
	348	349	1840	1875	3.2	0.7	1,000.00	5,847.18	5,590,815.87	4.2	-0.3	1,000.00	10,825.92	19,510,250.01



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	349	350	1876	1850	1.9	1.2	1,000.00	14,633.22	5,605,449.09	2.9	-0.3	1,000.00	81,112.48	19,591,362.49
	350	351	1851	1855	3.5	1.7	600.00	3,914.98	5,609,364.07	4.5	-0.3	1,000.00	75,748.21	19,667,110.70
Fatehpur Sariya Manjh	351	352	1856	1860	4.1	1.9	200.00	14.82	5,609,378.89	5.1	-0.3	1,000.00	46,062.19	19,713,172.89
	352	353	1861	1865	3.8	1.1	800.00	7,684.60	5,617,063.49	4.6	-0.3	1,000.00	55,624.71	19,768,797.60
FAIZABAD	353	354	1866	1868	2.0	0.8	600.00	6,772.65	5,623,836.14	3.1	-0.3	1,000.00	145,424.37	19,914,221.97
TOTAL DREDGING QUANTITY (cu.m.)							307,700.00	5,623,836.14				311,800.00	19,914,221.97	

GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Ganga Confluence (Near Doriganj)	0	1	1	5	4.2	2.6	-	0.00	0.00	3.2	2.1	-	0	0
	1	2	6	10	5.9	2.7	-	0.00	0.00	4.3	2.0	-	0	0
	2	3	11	15	3.7	1.1	1,000.00	3,281.08	3,281.08	1.9	-0.3	1,000.00	1,087	1087.28
	3	4	16	20	4.1	1.3	800.00	10,331.98	13,613.06	2.6	2.1	-	0	1087.28
	4	5	21	27	6.1	0.8	1,000.00	11,171.41	24,784.47	4.8	-0.3	1,000.00	1,187	2274.34
Enai Village	5	6	28	33	3.3	1.2	1,000.00	17,472.62	42,257.09	1.5	-0.3	1,000.00	695	2969.72
	6	7	34	40	5.2	1.2	1,000.00	8,568.30	50,825.39	3.6	-0.3	1,000.00	1,279	4249.15
	7	8	41	45	2.3	0.8	1,000.00	27,725.55	78,550.94	0.6	-0.3	1,000.00	716	4964.79
CHHAPRA	8	9	46	51	2.3	0.7	1,000.00	30,226.10	108,777.04	0.5	-0.3	1,000.00	11,455	16420.06
	9	10	52	57	3.2	0.1	1,000.00	29,170.71	137,947.75	1.9	-0.3	1,000.00	35,344	51763.59
	10	11	58	62	3.2	1.0	1,000.00	14,317.12	152,264.87	2.6	-0.3	1,000.00	22,397	74161
	11	12	63	67	2.4	0.7	1,000.00	18,417.34	170,682.21	1.8	-0.3	1,000.00	30,269	104430.15



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	12	13	68	72	3.2	0.7	1,000.00	20,716.07	191,398.28	2.4	-0.3	1,000.00	32,211	136641.14
Seanraja Village	13	14	73	77	2.5	0.8	1,000.00	24,025.68	215,423.96	1.8	-0.3	1,000.00	33,844	170484.91
Revelganj Ghat	14	15	78	83	3.2	1.2	1,000.00	13,380.63	228,804.59	2.5	-0.3	1,000.00	22,375	192860.29
	15	16	84	88	2.7	1.7	800.00	369.69	229,174.28	2.0	-0.3	1,000.00	4,110	196969.79
	16	17	89	93	2.7	0.8	1,000.00	18,317.57	247,491.85	2.1	-0.3	1,000.00	26,676	223646.11
	17	18	94	98	2.5	0.9	1,000.00	27,303.82	274,795.67	3.2	-0.3	1,000.00	119,955	343600.69
MANJHI BRIDGE	18	19	99	103	6.5	1.5	600.00	1,785.69	276,581.36	6.8	-0.3	1,000.00	696	344297.1
	19	20	104	108	6.4	3.0	-	0.00	276,581.36	7.1	-0.3	1,000.00	47,653	391949.72
Mehadiganj Village	20	21	109	113	4.4	1.0	800.00	4,856.90	281,438.26	5.2	-0.3	400.00	3,100	395049.72
	21	22	114	119	2.7	0.9	1,000.00	29,829.36	311,267.62	3.4	-0.3	1,000.00	106,696	501746.1
	22	23	120	124	3.5	1.0	1,000.00	26,103.66	337,371.28	4.2	-0.3	1,000.00	95,594	597340.22
	23	24	125	130	3.5	0.7	1,000.00	28,173.05	365,544.33	4.1	-0.3	1,000.00	105,156	702495.88
	24	25	131	136	2.7	1.0	1,000.00	22,788.50	388,332.83	3.4	-0.3	800.00	96,876	799371.89
Dumri	25	26	137	143	3.3	0.6	1,000.00	18,252.83	406,585.66	4.0	-0.3	1,000.00	95,907	895278.99
	26	27	144	149	2.0	0.9	1,000.00	32,740.32	439,325.98	2.6	-0.3	1,000.00	95,348	990626.62
	27	28	150	154	2.8	1.6	800.00	3,657.19	442,983.17	2.7	-0.3	1,000.00	31,054	1021680.13
	28	29	155	159	5.1	1.8	600.00	455.69	443,438.86	5.0	-0.3	800.00	18,736	1040415.64
	29	30	160	164	5.9	0.8	600.00	8,381.15	451,820.01	5.8	-0.3	600.00	24,999	1065414.84
	30	31	165	169	2.7	1.1	1,000.00	14,945.10	466,765.11	2.6	-0.3	1,000.00	56,836	1122250.89
Dumaigarh	31	32	170	174	6.1	1.4	400.00	3,984.37	470,749.48	6.0	-0.3	600.00	16,701	1138951.46
	32	33	175	179	7.6	2.6	-	-0.03	470,749.45	7.5	1.5	-	0	1138951.46
	33	34	180	184	4.6	1.1	800.00	9,222.10	479,971.55	4.5	-0.3	800.00	35,948	1174899.67
Narwan	34	35	185	189	8.9	3.6	-	0.00	479,971.55	8.8	1.5	-	0	1174899.67
	35	36	190	193	4.7	2.8	-	0.00	479,971.55	4.5	1.5	-	0	1174899.67
	36	37	194	198	3.6	2.0	-	0.00	479,971.55	3.5	1.5	-	2,910	1177809.71
	37	38	199	203	6.7	2.1	-	0.00	479,971.55	6.6	1.5	-	4,842	1182651.21
	38	39	204	209	2.7	1.0	1,000.00	26,265.08	506,236.63	2.6	-0.3	1,000.00	73,886	1256537.65
	39	40	210	214	2.1	1.0	1,000.00	22,263.43	528,500.06	4.3	-0.3	1,000.00	64,859	1321396.6



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	40	41	215	219	3.0	1.1	800.00	9,081.49	537,581.55	3.0	-0.3	800.00	40,345	1361741.11
	41	42	220	224	3.0	1.1	800.00	15,932.10	553,513.65	3.0	-0.3	1,000.00	50,028	1411769.38
	42	43	225	229	5.5	3.0	-	0.00	553,513.65	5.6	1.4	100.00	168	1411937.81
	43	44	230	234	6.7	1.1	400.00	2,037.29	555,550.94	6.6	-0.3	600.00	9,989	1421926.61
	44	45	235	239	2.0	0.7	1,000.00	23,114.89	578,665.83	2.1	-0.3	1,000.00	67,394	1489321.01
	45	46	240	245	2.2	0.8	1,000.00	30,150.28	608,816.11	2.1	-0.3	1,000.00	79,630	1568950.96
	46	47	246	250	2.3	1.1	1,000.00	12,014.86	620,830.97	2.3	-0.3	1,000.00	51,637	1620588.35
	47	48	251	255	3.1	0.9	1,000.00	22,181.18	643,012.15	3.2	-0.3	1,000.00	59,848	1680436.3
	48	49	256	261	1.4	0.8	1,000.00	41,844.24	684,856.39	1.6	-0.3	1,000.00	109,177	1789613.74
	49	50	262	266	2.4	0.7	1,000.00	16,022.98	700,879.37	2.5	-0.3	1,000.00	84,176	1873790.21
	50	51	267	272	1.8	1.0	1,000.00	35,663.97	736,543.34	1.8	-0.3	1,000.00	109,702	1983492.56
Gangapur	51	52	273	277	2.0	0.7	1,000.00	31,559.92	768,103.26	2.0	-0.3	1,000.00	87,846	2071338.08
Kachnar	52	53	278	282	3.2	0.9	1,000.00	11,889.82	779,993.08	3.3	-0.3	1,000.00	57,549	2128886.7
	53	54	283	287	5.4	1.0	1,000.00	12,497.23	792,490.31	5.1	-0.3	1,000.00	51,276	2180163.13
	54	55	288	293	2.9	1.1	1,000.00	20,901.37	813,391.68	3.0	-0.3	1,000.00	76,186	2256348.66
	55	56	294	298	2.6	1.2	1,000.00	11,995.74	825,387.42	2.6	-0.3	1,000.00	57,355	2313703.79
	56	57	299	303	2.7	1.0	1,000.00	26,593.61	851,981.03	2.8	-0.3	1,000.00	82,818	2396521.97
	57	58	304	308	4.8	1.9	200.00	2,186.65	854,167.68	4.9	-0.3	400.00	17,882	2414404.31
	58	59	309	313	4.7	1.1	400.00	2,849.62	857,017.30	4.8	-0.3	400.00	16,910	2431314.3
	59	60	314	318	3.0	1.2	800.00	13,972.18	870,989.48	3.0	-0.3	1,000.00	56,639	2487952.84
	60	61	319	323	4.5	3.1	-	0.00	870,989.48	4.3	-0.3	200.00	551	2488503.96
	61	62	324	328	4.8	1.7	400.00	1,066.51	872,055.99	4.6	-0.3	200.00	8,897	2497400.49
	62	63	329	333	3.6	1.7	400.00	992.19	873,048.18	3.4	-0.3	600.00	10,146	2507546
	63	64	334	338	4.0	1.5	800.00	854.47	873,902.65	4.0	-0.3	600.00	13,653	2521198.78
	64	65	339	344	2.4	0.8	1,000.00	41,342.91	915,245.56	1.5	-0.3	1,000.00	87,501	2608700.12
Raghnathpur	65	66	345	349	4.2	0.9	1,000.00	30,963.71	946,209.27	4.0	-0.3	1,000.00	64,636	2673336.34
	66	67	350	354	3.0	1.0	1,000.00	24,703.82	970,913.09	2.8	-0.3	1,000.00	60,501	2733837.69
	67	68	355	360	1.8	0.7	1,000.00	38,836.77	1,009,749.86	1.7	-0.3	1,000.00	94,948	2828785.53



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Narhan	68	69	361	365	2.0	0.8	1,000.00	41,843.09	1,051,592.95	1.9	-0.3	1,000.00	70,577	2899362.19
	69	70	366	370	2.6	0.9	1,000.00	24,114.55	1,075,707.50	2.4	-0.3	1,000.00	57,910	2957271.73
	70	71	371	375	1.2	0.7	1,000.00	44,238.79	1,119,946.29	1.1	-0.3	1,000.00	83,036	3040308.14
	71	72	376	380	2.5	0.7	1,000.00	24,647.06	1,144,593.35	2.6	-0.3	1,000.00	61,389	3101697.47
	72	73	381	385	7.4	1.3	400.00	594.05	1,145,187.40	7.7	-0.3	400.00	12,676	3114373.94
	73	74	386	390	3.7	0.7	1,000.00	21,772.96	1,166,960.36	3.8	-0.3	1,000.00	62,297	3176670.89
	74	75	391	395	2.0	0.7	1,000.00	41,131.44	1,208,091.80	2.1	-0.3	1,000.00	93,022	3269692.83
	75	76	396	400	1.8	0.7	1,000.00	29,937.18	1,238,028.98	2.0	-0.3	1,000.00	77,664	3347356.66
	76	77	401	406	3.4	0.7	1,000.00	29,736.59	1,267,765.57	3.5	-0.3	1,000.00	82,108	3429464.25
	77	78	407	412	2.6	0.7	1,000.00	40,971.62	1,308,737.19	3.1	-0.3	1,000.00	93,604	3523068.6
	78	79	413	417	2.9	0.7	1,000.00	30,476.19	1,339,213.38	3.1	-0.3	1,000.00	74,224	3597292.89
	79	80	418	422	3.3	0.7	1,000.00	30,634.40	1,369,847.78	3.4	-0.3	1,000.00	69,404	3666696.5
	80	81	423	429	2.0	0.7	1,000.00	36,004.24	1,405,852.02	2.0	-0.3	1,000.00	78,541	3745237.1
	81	82	430	434	2.5	0.8	1,000.00	29,414.37	1,435,266.39	2.4	-0.3	1,000.00	75,617	3820854.36
	82	83	435	439	2.3	0.7	1,000.00	30,786.27	1,466,052.66	3.6	-0.3	1,000.00	73,469	3894323.15
	83	84	440	444	1.7	0.7	1,000.00	41,966.49	1,508,019.15	6.8	-0.3	1,000.00	86,073	3980396.21
	84	85	445	449	2.7	0.7	1,000.00	24,688.48	1,532,707.63	2.7	-0.3	1,000.00	63,524	4043920.68
	85	86	450	454	2.4	0.9	1,000.00	20,696.85	1,553,404.48	2.3	-0.3	1,000.00	60,016	4103936.64
	86	87	455	460	1.9	0.7	1,000.00	37,945.91	1,591,350.39	4.8	-0.3	1,000.00	91,556	4195492.91
Darauli	87	88	461	465	2.3	0.7	1,000.00	22,382.31	1,613,732.70	2.3	-0.3	1,000.00	55,270	4250763.29
	88	89	466	470	2.8	0.7	1,000.00	22,641.01	1,636,373.71	3.0	-0.3	1,000.00	61,791	4312554.06
	89	90	471	475	1.9	0.7	1,000.00	31,629.33	1,668,003.04	1.8	-0.3	1,000.00	73,721	4386274.94
	90	91	476	480	3.4	1.2	1,000.00	5,055.90	1,673,058.94	3.3	-0.3	1,000.00	37,644	4423918.44
	91	92	481	485	2.6	0.8	1,000.00	13,766.97	1,686,825.91	3.3	-0.3	800.00	56,517	4480435.68
	92	93	486	490	5.3	0.7	1,000.00	30,809.72	1,717,635.63	2.8	-0.3	1,000.00	72,187	4552622.74
	93	94	491	495	1.7	0.8	1,000.00	37,864.18	1,755,499.81	2.4	-0.3	1,000.00	84,149	4636771.92
	94	95	496	500	2.6	0.7	1,000.00	23,743.04	1,779,242.85	3.3	-0.3	800.00	69,607	4706378.77
	95	96	501	506	2.7	0.7	1,000.00	36,905.41	1,816,148.26	3.5	-0.3	1,000.00	85,169	4791547.63



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	96	97	507	511	2.4	0.8	1,000.00	16,475.37	1,832,623.63	3.1	-0.3	800.00	58,382	4849929.97
	97	98	512	516	2.3	1.1	1,000.00	16,172.30	1,848,795.93	3.0	-0.3	600.00	58,700	4908629.48
	98	99	517	521	3.6	1.5	1,000.00	3,221.04	1,852,016.97	4.3	-0.3	-	31,148	4939777.09
	99	100	522	526	1.9	0.7	1,000.00	32,606.18	1,884,623.15	2.6	-0.3	800.00	75,534	5015310.75
	100	100.4	527	528	1.8	1.0	400.00	10,434.99	1,895,058.14	2.4	-0.3	400.00	28,280	5043590.7
	100.4	101	529	532	1.9	0.9	800.00	14,800.74	1,909,858.88	2.1	-0.3	600.00	58,629	5102219.61
	101	102	533	537	2.2	0.8	1,000.00	20,444.68	1,930,303.56	2.2	-0.3	1,000.00	64,914	5,167,133.77
	102	103	538	542	4.4	1.3	800.00	4,166.87	1,934,470.43	4.6	-0.3	1,000.00	34,620	5,201,753.78
	103	104	543	548	2.3	0.7	1,000.00	31,202.09	1,965,672.52	2.3	-0.3	1,000.00	101,107	5,302,860.44
	104	105	549	553	2.3	0.8	1,000.00	17,650.39	1,983,322.91	2.4	-0.3	1,000.00	62,820	5,365,680.49
	105	106	554	558	1.5	0.8	1,000.00	32,613.47	2,015,936.38	1.4	-0.3	1,000.00	77,195	5,442,875.55
	106	107	559	563	5.2	1.6	200.00	2,863.34	2,018,799.72	5.2	-0.3	1,000.00	17,853	5,460,728.27
Rampur Village	107	108	564	568	3.2	1.7	400.00	1,056.99	2,019,856.71	3.2	-0.3	1,000.00	32,256	5,492,984.34
Harnatar Dayalpur	108	109	569	572	3.0	1.2	800.00	7,967.81	2,027,824.52	3.0	-0.3	1,000.00	39,091	5,532,075.04
	109	110	573	577	2.0	0.7	1,000.00	36,357.94	2,064,182.46	2.3	-0.3	1,000.00	69,571	5,601,646.47
	110	111	578	582	2.3	0.7	1,000.00	31,764.99	2,095,947.45	2.7	-0.3	1,000.00	60,019	5,661,665.83
	111	112	583	587	3.2	0.7	800.00	14,080.01	2,110,027.46	3.6	-0.3	1,000.00	35,538	5,697,203.48
Manthala Bajar	112	113	588	592	1.9	0.7	1,000.00	21,453.31	2,131,480.77	2.4	-0.3	1,000.00	50,208	5,747,411.86
	113	114	593	897	1.9	0.7	1,000.00	33,133.29	2,164,614.06	2.2	-0.3	1,000.00	72,661	5,820,072.97
Turtipar	114	115	898	602	2.6	0.7	1,000.00	31,100.23	2,195,714.29	2.9	-0.3	1,000.00	61,532	5,881,604.95
Turtipar Rly. Brg.	115	116	603	607	2.0	0.9	1,000.00	27,557.66	2,223,271.95	2.6	-0.3	1,000.00	47,948	5,929,553.22
	116	117	608	612	4.3	2.4	200.00	173.35	2,223,445.30	4.8	-0.3	1,000.00	975	5,930,527.98
	117	118	613	618	6.4	0.8	1,000.00	31,276.79	2,254,722.09	7.0	-0.3	1,000.00	70,328	6,000,855.87
	118	119	619	623	1.7	0.8	1,000.00	26,764.70	2,281,486.79	2.2	-0.3	1,000.00	57,135	6,057,990.84
Esharou	119	120	624	628	2.5	0.7	1,000.00	18,783.94	2,300,270.73	3.0	-0.3	1,000.00	59,121	6,117,111.70
	120	121	629	633	2.8	1.2	1,000.00	10,265.21	2,310,535.94	3.3	-0.3	1,000.00	57,292	6,174,404.06
	121	122	634	638	3.4	1.2	800.00	5,200.17	2,315,736.11	3.9	-0.3	1,000.00	23,755	6,198,159.29
Chanpur Gloura	122	123	639	643	5.5	0.9	600.00	2,780.98	2,318,517.09	6.1	-0.3	1,000.00	37,246	6,235,405.34



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Village														
	123	124	644	648	2.2	1.1	1,000.00	23,015.27	2,341,532.36	2.7	-0.3	1,000.00	82,880	6,318,285.80
	124	125	649	653	1.6	0.7	1,000.00	36,772.33	2,378,304.69	2.1	-0.3	1,000.00	84,944	6,403,229.59
	125	126	654	658	1.7	0.7	1,000.00	28,518.29	2,406,822.98	6.0	-0.3	1,000.00	85,644	6,488,873.21
Chakimusa Dohi Ghat	126	127	659	663	2.8	0.7	1,000.00	30,909.62	2,437,732.60	3.9	-0.3	1,000.00	81,541	6,570,414.43
	127	128	664	668	3.1	0.7	1,000.00	32,233.27	2,469,965.87	3.6	-0.3	1,000.00	80,496	6,650,910.11
	128	129	669	674	2.8	0.7	1,000.00	37,197.12	2,507,162.99	3.3	-0.3	1,000.00	104,165	6,755,075.54
	129	130	675	679	1.6	0.7	1,000.00	39,700.65	2,546,863.64	2.2	-0.3	1,000.00	95,188	6,850,263.24
	130	131	680	685	1.5	0.7	1,000.00	52,884.79	2,599,748.43	1.7	-0.3	1,000.00	108,150	6,958,413.19
	131	132	686	690	2.0	1.1	1,000.00	20,369.97	2,620,118.40	2.4	-0.3	1,000.00	61,002	7,019,414.86
	132	133	691	695	4.7	1.0	1,000.00	8,891.05	2,629,009.45	5.1	-0.3	1,000.00	59,898	7,079,312.87
	133	134	696	700	1.7	0.7	1,000.00	40,642.15	2,669,651.60	2.2	-0.3	1,000.00	93,537	7,172,850.28
	134	135	701	705	2.4	0.8	1,000.00	30,222.79	2,699,874.39	2.9	-0.3	1,000.00	55,627	7,228,477.49
	135	136	706	710	4.3	2.1	200.00	451.30	2,700,325.69	4.9	-0.3	1,000.00	19,061	7,247,538.50
	136	137	711	715	2.2	1.5	1,000.00	5,405.71	2,705,731.40	2.7	-0.3	1,000.00	45,029	7,292,567.05
	137	138	716	720	2.7	2.0	200.00	120.59	2,705,851.99	3.3	-0.3	1,000.00	20,641	7,313,208.02
	138	139	721	725	3.5	1.5	600.00	3,794.15	2,709,646.14	3.5	-0.3	1,000.00	35,469	7,348,676.54
Barhaj Bridge (UNC)	139	140	726	730	3.9	1.4	800.00	2,450.87	2,712,097.01	4.4	-0.3	1,000.00	48,269	7,396,945.47
Nabideswar Mishra Ghat	140	141	731	736	2.4	1.1	1,000.00	21,276.57	2,733,373.58	4.2	-0.3	1,000.00	70,103	7,467,048.06
Katelwa Village	141	142	737	741	6.6	1.0	800.00	4,179.36	2,737,552.94	7.1	-0.3	1,000.00	11,963	7,479,011.44
Kudhe Ghat	142	143	742	746	4.3	1.2	400.00	2,792.21	2,740,345.15	4.7	-0.3	1,000.00	60,321	7,539,332.15
	143	144	747	752	1.4	0.7	1,000.00	42,322.18	2,782,667.33	5.2	-0.3	1,000.00	89,406	7,628,738.24
Kaparwar	144	145	753	757	2.2	0.9	1,000.00	23,912.69	2,806,580.02	2.2	-0.3	1,000.00	68,562	7,697,300.60
	145	146	758	763	3.8	0.7	1,000.00	28,691.56	2,835,271.58	5.2	-0.3	1,000.00	81,118	7,778,418.33
	146	147	764	768	1.7	0.7	1,000.00	34,355.20	2,869,626.78	1.8	-0.3	1,000.00	61,495	7,839,912.87
Netavar patti	147	148	769	773	2.9	0.8	1,000.00	24,979.43	2,894,606.21	3.0	-0.3	1,000.00	66,145	7,906,057.41
	148	149	774	779	2.0	0.7	1,000.00	31,614.92	2,926,221.13	2.1	-0.3	1,000.00	95,310	8,001,366.96
	149	150	780	784	2.3	0.7		27,815.7	2,954,036.90	2.3	-0.3		83,072	8,084,438.63



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
							1,000.00	7				1,000.00		
	150	151	785	790	2.5	1.0	1,000.00	13,562.88	2,967,599.78	2.6	-0.3	1,000.00	103,811	8,188,249.32
	151	152	791	795	1.9	0.7	1,000.00	28,408.94	2,996,008.72	2.0	-0.3	1,000.00	93,201	8,281,450.75
	152	153	796	800	2.1	0.7	1,000.00	37,489.74	3,033,498.46	1.7	-0.3	1,000.00	86,107	8,367,557.50
	153	154	801	806	2.0	0.7	1,000.00	50,429.05	3,083,927.51	1.6	-0.3	1,000.00	100,300	8,467,857.33
	154	155	807	811	2.2	0.7	1,000.00	28,182.89	3,112,110.40	1.7	-0.3	1,000.00	66,178	8,534,035.04
	155	156	812	816	2.6	0.7	1,000.00	28,727.37	3,140,837.77	2.1	-0.3	1,000.00	24,989	8,559,023.57
	156	157	817	822	3.7	1.1	600.00	6,716.65	3,147,554.42	3.3	-0.3	1,000.00	79,905	8,638,928.87
	157	158	823	827	3.1	0.7	800.00	25,152.61	3,172,707.03	2.7	-0.3	1,000.00	84,476	8,723,405.07
	158	159	828	833	2.9	0.7	1,000.00	37,293.60	3,210,000.63	2.4	-0.3	1,000.00	21,234	8,744,638.93
	159	160	834	838	5.8	1.9	400.00	2,277.01	3,212,277.64	5.4	-0.3	1,000.00	73,148	8,817,787.29
	160	161	839	843	3.8	0.8	1,000.00	26,055.19	3,238,332.83	3.4	-0.3	1,000.00	78,852	8,896,639.26
	161	162	844	848	3.5	0.8	1,000.00	20,748.33	3,259,081.16	3.1	-0.3	1,000.00	61,856	8,958,495.73
	162	163	849	853	2.2	0.7	1,000.00	30,897.77	3,289,978.93	2.3	-0.3	1,000.00	78,117	9,036,612.61
	163	164	854	858	2.3	0.8	1,000.00	24,231.39	3,314,210.32	2.5	-0.3	1,000.00	51,919	9,088,531.26
Khadesari	164	165	859	863	2.1	0.7	1,000.00	24,785.53	3,338,995.85	2.3	-0.3	1,000.00	0	9,088,531.26
DOHRI GHAT	165	166	864	868	9.2	2.4	200.00	61.31	3,339,057.16	9.5	-0.3	1,000.00	9,338	9,097,869.47
Barhalganj	166	167	869	873	7.7	2.5	-	0.00	3,339,057.16	8.2	-0.3	1,000.00	16	9,097,885.40
	167	168	874	878	7.7	1.8	400.00	589.27	3,339,646.43	7.8	-0.3	1,000.00	25,138	9,123,023.74
	168	169	879	884	8.0	1.3	200.00	2,537.37	3,342,183.80	9.4	-0.3	1,000.00	77,557	9,200,580.72
	169	170	885	889	2.4	0.7	1,000.00	19,232.05	3,361,415.85	2.5	-0.3	1,000.00	93,088	9,293,668.53
	170	171	890	894	2.3	0.7	1,000.00	30,004.25	3,391,420.10	2.5	-0.3	1,000.00	130,444	9,424,112.54
	171	172	895	899	7.2	0.7	600.00	12,386.81	3,403,806.91	3.3	-0.3	1,000.00	95,393	9,519,505.47
	172	173	900	905	2.6	0.7	1,000.00	34,335.41	3,438,142.32	2.5	-0.3	1,000.00	38,005	9,557,510.81
	173	174	906	910	3.6	0.9	1,000.00	24,725.97	3,462,868.29	2.4	-0.3	1,000.00	89,474	9,646,985.28
	174	175	911	916	5.1	0.9	800.00	23,457.60	3,486,325.89	4.8	-0.3	1,000.00	88,210	9,735,194.82
	175	176	917	923	5.9	0.7	1,000.00	44,045.24	3,530,371.13	2.3	-0.3	1,000.00	72,741	9,807,935.69
Parsiya	176	177	924	928	7.0	0.7	800.00	23,751.74	3,554,122.87	2.2	-0.3	1,000.00	105,363	9,913,298.68



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	177	178	929	934	6.2	0.7	1,000.00	42,420.83	3,596,543.70	2.1	-0.3	1,000.00	72,842	9,986,140.82
	178	179	935	939	1.8	0.7	1,000.00	37,590.34	3,634,134.04	2.2	-0.3	1,000.00	62,366	10,048,506.76
	179	180	940	944	1.6	0.7	1,000.00	32,179.34	3,666,313.38	2.1	-0.3	1,000.00	80,746	10,129,252.47
	180	181	945	949	2.4	1.0	1,000.00	13,417.78	3,679,731.16	2.9	-0.3	1,000.00	94,688	10,223,940.55
Khutahan Khas	181	182	950	954	2.0	0.7	1,000.00	29,996.66	3,709,727.82	2.5	-0.3	1,000.00	79,224	10,303,164.76
	182	183	955	960	1.7	0.9	1,000.00	40,181.04	3,749,908.86	2.3	-0.3	1,000.00	57,871	10,361,035.88
	183	184	961	965	2.0	1.2	1,000.00	16,140.80	3,766,049.66	1.0	-0.3	1,000.00	80,132	10,441,168.21
	184	185	966	970	4.4	1.5	400.00	823.99	3,766,873.65	2.3	-0.3	1,000.00	72,957	10,514,124.93
	185	186	971	975	1.9	0.9	1,000.00	23,442.24	3,790,315.89	-0.1	-0.3	1,000.00	75,559	10,589,684.34
	186	187	976	980	2.2	1.2	1,000.00	12,662.09	3,802,977.98	0.1	-0.3	1,000.00	91,857	10,681,541.68
Gola Ghat	187	188	981	986	6.4	0.7	1,000.00	24,004.20	3,826,982.18	0.0	-0.3	1,000.00	81,509	10,763,050.24
	188	189	987	991	2.1	0.7	1,000.00	29,060.33	3,856,042.51	0.4	-0.3	1,000.00	81,556	10,844,606.65
	189	190	992	996	2.7	0.8	1,000.00	12,295.84	3,868,338.35	0.9	-0.3	1,000.00	40,016	10,884,622.55
	190	191	997	1002	2.1	0.9	1,000.00	37,520.52	3,905,858.87	0.1	-0.3	1,000.00	44,203	10,928,825.57
	191	192	1003	1008	3.2	1.5	1,000.00	2,092.94	3,907,951.81	1.0	-0.3	1,000.00	48,155	10,976,980.27
Dewara Achal Singh	192	193	1009	1014	4.2	1.3	1,000.00	9,881.18	3,917,832.99	4.1	-0.3	1,000.00	26,033	11,003,013.66
Kauriya	193	194	1015	1019	2.1	1.3	1,000.00	14,381.05	3,932,214.04	2.3	-0.3	1,000.00	63,331	11,066,344.32
	194	195	1020	1024	2.4	1.3	1,000.00	2,775.26	3,934,989.30	2.8	-0.3	1,000.00	53,579	11,119,923.74
	195	196	1025	1029	2.5	0.9	1,000.00	22,451.65	3,957,440.95	2.8	-0.3	1,000.00	58,071	11,177,994.25
Bara Kalika Sthan	196	197	1030	1035	2.1	0.9	1,000.00	27,995.33	3,985,436.28	2.4	-0.3	1,000.00	73,080	11,251,073.90
	197	198	1036	1040	3.0	0.8	1,000.00	18,650.28	4,004,086.56	3.3	-0.3	1,000.00	68,173	11,319,246.96
	198	199	1041	1045	1.9	0.7	1,000.00	29,669.60	4,033,756.16	2.1	-0.3	1,000.00	0	11,319,246.96
	199	200	1046	1051	1.7	0.9	1,000.00	37,478.17	4,071,234.33	1.8	-0.3	1,000.00	69,774	11,389,021.24
Jhptia Ghat	200	201	1052	1056	2.8	0.8	1,000.00	22,464.92	4,093,699.25	3.0	-0.3	1,000.00	60,773	11,449,794.08
	201	202	1057	1061	2.4	0.7	1,000.00	27,461.03	4,121,160.28	2.5	-0.3	1,000.00	62,930	11,512,723.74
	202	203	1062	1066	1.6	0.7	1,000.00	36,679.25	4,157,839.53	1.9	-0.3	1,000.00	82,275	11,594,998.43
Basahi	203	204	1067	1071	4.4	1.0	1,000.00	19,784.69	4,177,624.22	3.0	-0.3	1,000.00	109,750	11,704,748.84
	204	205	1072	1077	6.8	0.8	1,000.00	31,510.18	4,209,134.40	2.9	-0.3	1,000.00	113,697	11,818,446.28



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Sahapur Ghat	205	206	1078	1082	2.3	1.2	1,000.00	15,207.62	4,224,342.02	3.6	-0.3	1,000.00	87,256	11,905,701.79
Belikur Village	206	207	1083	1088	2.3	1.3	1,000.00	8,751.22	4,233,093.24	3.5	-0.3	1,000.00	120,258	12,025,960.23
	207	208	1089	1094	2.8	0.7	1,000.00	28,841.84	4,261,935.08	4.1	-0.3	1,000.00	95,804	12,121,764.32
Khairati	208	209	1095	1099	2.3	1.1	800.00	14,265.53	4,276,200.61	3.4	-0.3	1,000.00	118,994	12,240,758.40
	209	210	1100	1104	3.5	1.2	800.00	5,451.09	4,281,651.70	4.8	-0.3	1,000.00	11,085	12,251,843.82
	210	211	1105	1108	3.6	1.4	800.00	7,825.38	4,289,477.08	4.8	-0.3	1,000.00	123,883	12,375,726.42
Belwa Ghat	211	212	1109	1114	5.8	2.2	-	0.00	4,289,477.08	4.0	-0.3	1,000.00	111,133	12,486,859.53
	212	213	1115	1119	2.6	0.7	1,000.00	19,452.19	4,308,929.27	3.9	-0.3	1,000.00	108,848	12,595,707.53
Indorepur urf Dinhapur	213	214	1120	1124	1.9	0.7	1,000.00	29,392.58	4,338,321.85	3.2	-0.3	1,000.00	114,290	12,709,997.69
	214	215	1125	1129	2.2	0.7	1,000.00	30,594.37	4,368,916.22	3.5	-0.3	1,000.00	115,815	12,825,812.39
	215	216	1130	1134	1.5	0.7	1,000.00	46,167.57	4,415,083.79	3.0	-0.3	1,000.00	114,226	12,940,038.66
	216	217	1135	1139	2.1	0.8	1,000.00	33,315.43	4,448,399.22	3.4	-0.3	1,000.00	123,321	13,063,359.51
Babhanpura	217	218	1140	1145	1.5	0.7	1,000.00	48,829.77	4,497,228.99	2.8	-0.3	1,000.00	126,504	13,189,863.74
Kamariya Pontoon Brg.	218	219	1146	1150	3.5	0.8	1,000.00	15,316.21	4,512,545.20	6.7	-0.3	1,000.00	55,805	13,245,668.87
Dandwa	219	220	1151	1155	2.3	0.7	1,000.00	39,611.85	4,552,157.05	3.8	-0.3	1,000.00	132,669	13,378,338.16
Chadipur Village	220	221	1156	1161	7.7	1.0	1,000.00	9,775.57	4,561,932.62	2.2	-0.3	1,000.00	107,925	13,486,263.18
Gangasagar	221	222	1162	1166	2.2	0.7	1,000.00	34,799.19	4,596,731.81	3.6	-0.3	1,000.00	140,114	13,626,377.50
	222	223	1167	1173	1.9	0.7	1,000.00	42,866.94	4,639,598.75	3.3	-0.3	1,000.00	204,097	13,830,474.14
	223	224	1174	1178	1.9	0.8	1,000.00	29,600.88	4,669,199.63	3.2	-0.3	1,000.00	124,362	13,954,836.58
	224	225	1179	1183	3.3	0.8	1,000.00	14,229.22	4,683,428.85	4.2	-0.3	1,000.00	124,362	13,830,474.14
	225	226	1184	1189	1.5	0.7	1,000.00	47,108.29	4,730,537.14	2.4	-0.3	1,000.00	124,362	13,954,836.58
Daulatpur Village	226	227	1190	1195	2.4	0.7	1,000.00	27,900.58	4,758,437.72	3.2	-0.3	1,000.00	133,010	14,087,846.34
	227	228	1196	1202	1.8	0.7	1,000.00	16,703.18	4,775,140.90	2.3	-0.3	1,000.00	121,067	14,208,913.10
	228	229	1203	1207	1.6	0.7	1,000.00	48,217.94	4,823,358.84	2.3	-0.3	1,000.00	94,733	14,303,645.68
Tetriya	229	230	1208	1212	4.5	0.7	800.00	6,957.16	4,830,316.00	5.2	-0.3	1,000.00	53,710	14,357,355.74
	230	231	1213	1217	2.9	0.7	1,000.00	23,561.56	4,853,877.56	3.7	-0.3	1,000.00	79,930	14,437,285.58
Bhagapur	231	232	1218	1223	3.4	1.5	400.00	1,009.54	4,854,887.10	4.3	-0.3	1,000.00	68,556	14,505,841.98



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Birhar Ghat Brg.	232	233	1224	1228	2.1	0.8	1,000.00	26,019.32	4,880,906.42	2.5	-0.3	1,000.00	24,862	14,530,704.27
	233	234	1229	1233	2.8	1.6	400.00	6,366.93	4,887,273.35	3.7	-0.3	1,000.00	68,832	14,599,536.35
Bidhar Village	234	235	1234	1238	4.2	1.1	600.00	1,730.52	4,889,003.87	4.5	-0.3	1,000.00	92,407	14,691,943.39
Addopur	235	236	1239	1243	2.5	0.7	1,000.00	27,895.69	4,916,899.56	2.8	-0.3	1,000.00	95,770	14,787,713.59
Gobardhanpur Village	236	237	1244	1249	3.1	0.7	1,000.00	48,173.58	4,965,073.14	3.1	-0.3	1,000.00	122,571	14,910,284.78
	237	238	1250	1254	1.7	0.7	1,000.00	41,760.74	5,006,833.88	2.0	-0.3	1,000.00	90,053	15,000,337.42
	238	239	1255	1259	2.1	0.8	1,000.00	37,382.92	5,044,216.80	2.5	-0.3	1,000.00	107,361	15,107,698.20
	239	240	1260	1266	1.3	0.7	1,000.00	61,465.40	5,105,682.20	1.6	-0.3	1,000.00	91,687	15,199,385.07
	240	241	1267	1271	2.2	0.7	1,000.00	34,905.91	5,140,588.11	2.4	-0.3	1,000.00	68,842	15,268,227.49
	241	242	1272	1278	3.0	0.9	1,000.00	25,018.37	5,165,606.48	3.1	-0.3	1,000.00	22,896	15,291,123.58
	242	243	1279	1283	3.3	1.7	-	0.00	5,165,606.48	3.6	-0.3	1,000.00	26,784	15,317,907.62
	243	244	1284	1289	6.0	2.4	-	0.00	5,165,606.48	7.0	-0.3	1,000.00	190,309	15,508,216.61
	244	245	1290	1295	3.5	1.0	1,000.00	12,243.35	5,177,849.83	4.1	-0.3	1,000.00	88,843	15,597,059.90
	245	246	1296	1300	2.3	0.9	1,000.00	21,740.49	5,199,590.32	3.1	-0.3	1,000.00	94,021	15,691,081.24
	246	247	1301	1305	2.0	0.7	1,000.00	20,381.21	5,219,971.53	3.8	-0.3	1,000.00	97,498	15,788,579.33
Mahendi Ghat	247	248	1306	1311	4.2	0.7	1,000.00	33,524.60	5,253,496.13	2.9	-0.3	1,000.00	27,739	15,816,318.28
	248	249	1312	1315	2.9	0.7	800.00	23,918.53	5,277,414.66	3.7	-0.3	1,000.00	93,955	15,910,273.28
	249	250	1316	1320	2.6	0.7	1,000.00	23,128.75	5,300,543.41	3.4	-0.3	1,000.00	0	15,910,273.28
	250	251	1321	1328	5.8	0.5	1,000.00	35,780.92	5,336,324.33	5.2	-0.3	1,000.00	120,166	16,030,439.73
	251	252	1329	1334	6.6	0.9	1,000.00	25,510.20	5,361,834.53	3.6	-0.3	1,000.00	117,421	16,147,860.81
	252	253	1335	1340	5.3	0.6	1,000.00	19,844.43	5,381,678.96	5.4	-0.3	1,000.00	120,591	16,268,452.28
	253	254	1341	1346	3.5	1.1	1,000.00	23,153.45	5,404,832.41	5.0	-0.3	1,000.00	64,260	16,332,712.43
Babu Tangedia Village	254	255	1347	1351	2.1	1.3	1,000.00	11,217.77	5,416,050.18	3.0	-0.3	1,000.00	35,104	16,367,816.19
	255	256	1352	1357	3.4	2.3	200.00	4.85	5,416,055.03	4.4	-0.3	1,000.00	17,864	16,385,679.84
Nawari Rampur Ghat	256	257	1358	1362	3.4	2.2	-	0.00	5,416,055.03	4.4	-0.3	1,000.00	57,435	16,443,114.67
NasiraBad Village	257	258	1363	1367	9.5	2.9	-	0.00	5,416,055.03	9.8	-0.3	1,000.00	98,249	16,541,364.15
	258	259	1368	1372	5.7	0.9	800.00	20,710.63	5,436,765.66	7.1	-0.3	1,000.00	83,806	16,625,170.26



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	259	260	1373	1377	3.1	0.8	800.00	18,499.02	5,455,264.68	3.9	-0.3	1,000.00	107,384	16,732,554.75
	260	261	1378	1382	2.4	0.7	1,000.00	24,742.06	5,480,006.74	3.5	-0.3	1,000.00	112,654	16,845,208.58
Darjipur Murda Ghat	261	262	1383	1388	2.1	0.7	1,000.00	43,423.19	5,523,429.93	2.9	-0.3	1,000.00	130,986	16,976,194.38
Prithvipur	262	263	1389	1393	2.4	1.3	1,000.00	9,081.51	5,532,511.44	3.5	-0.3	1,000.00	88,855	17,065,049.48
	263	264	1394	1398	2.7	1.2	800.00	11,212.57	5,543,724.01	3.9	-0.3	1,000.00	111,979	17,177,028.13
	264	265	1399	1403	2.0	1.2	1,000.00	12,051.52	5,555,775.53	3.2	-0.3	1,000.00	103,892	17,280,919.96
	265	266	1404	1408	2.4	0.9	1,000.00	17,179.52	5,572,955.05	3.5	-0.3	1,000.00	115,970	17,396,890.16
	266	267	1409	1414	2.7	0.9	1,000.00	18,355.54	5,591,310.59	3.7	-0.3	1,000.00	131,053	17,527,943.05
Mobarkpur Village	267	268	1415	1419	2.0	0.7	1,000.00	30,034.04	5,621,344.63	3.1	-0.3	1,000.00	107,562	17,635,505.46
Chintaura	268	269	1420	1424	2.5	0.8	1,000.00	27,439.87	5,648,784.50	3.3	-0.3	1,000.00	104,863	17,740,368.31
	269	270	1425	1429	3.0	0.7	1,000.00	29,247.97	5,678,032.47	4.2	-0.3	1,000.00	114,894	17,855,262.17
Tanda	270	271	1430	1435	2.5	0.7	1,000.00	28,977.88	5,707,010.35	3.7	-0.3	1,000.00	137,979	17,993,241.05
	271	272	1436	1440	2.2	1.0	1,000.00	20,868.30	5,727,878.65	3.4	-0.3	1,000.00	114,071	18,107,312.16
	272	273	1441	1445	2.0	0.8	1,000.00	28,229.58	5,756,108.23	3.3	-0.3	1,000.00	72,769	18,180,081.11
	273	274	1446	1449	2.1	0.7	1,000.00	40,199.40	5,796,307.63	3.3	-0.3	1,000.00	77,285	18,257,366.42
	274	275	1450	1455	4.0	1.0	400.00	3,445.30	5,799,752.93	5.3	-0.3	1,000.00	112,412	18,369,778.51
	275	276	1456	1460	2.6	1.2	800.00	6,725.50	5,806,478.43	3.9	-0.3	1,000.00	113,873	18,483,651.80
	276	277	1461	1465	2.8	0.7	800.00	25,570.21	5,832,048.64	3.7	-0.3	1,000.00	102,553	18,586,204.66
	277	278	1466	1470	2.0	0.7	1,000.00	37,610.99	5,869,659.63	3.1	-0.3	1,000.00	105,192	18,691,396.66
	278	279	1471	1475	2.6	1.4	800.00	9,838.12	5,879,497.75	3.8	-0.3	1,000.00	104,471	18,795,868.02
	279	280	1476	1480	2.6	0.7	1,000.00	20,031.54	5,899,529.29	4.0	-0.3	1,000.00	113,983	18,909,850.79
	280	281	1481	1485	2.3	1.0	1,000.00	23,597.76	5,923,127.05	3.5	-0.3	1,000.00	67,993	18,977,843.51
NTPC Power Plant	281	282	1486	1490	2.1	0.8	1,000.00	29,171.18	5,952,298.23	3.3	-0.3	1,000.00	96,673	19,074,516.50
	282	283	1491	1495	5.5	1.0	400.00	3,490.45	5,955,788.68	6.2	-0.3	1,000.00	107,099	19,181,615.57
Katariyan Village	283	284	1496	1501	3.6	1.0	1,000.00	9,357.72	5,965,146.40	5.2	-0.3	1,000.00	135,906	19,317,521.85
Eltefat Ganj	284	285	1502	1506	2.4	1.0	1,000.00	18,852.63	5,983,999.03	4.2	-0.3	1,000.00	96,206	19,413,727.78
Aurangabad Village	285	286	1507	1511	3.3	0.7	1,000.00	20,167.84	6,004,166.87	5.0	-0.3	1,000.00	102,461	19,516,188.38
Salona Village	286	287	1512	1517	7.0	0.7	1,000.00	31,487.18	6,035,654.05	3.2	-0.3	1,000.00	136,399	19,652,587.38



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	287	288	1518	1523	2.2	0.7	1,000.00	42,552.84	6,078,206.89	4.0	-0.3	1,000.00	133,807	19,786,394.54
	288	289	1524	1528	1.5	0.7	1,000.00	35,947.94	6,114,154.83	3.3	-0.3	1,000.00	116,057	19,902,451.39
	289	290	1529	1534	1.5	0.7	1,000.00	50,155.38	6,164,310.21	3.3	-0.3	1,000.00	134,196	20,036,647.40
	290	291	1535	1539	2.0	1.0	1,000.00	18,943.15	6,183,253.36	3.8	-0.3	1,000.00	113,939	20,150,586.45
	291	292	1540	1545	1.7	0.8	1,000.00	35,689.61	6,218,942.97	2.7	-0.3	1,000.00	124,237	20,274,823.71
	292	293	1546	1549	1.9	0.7	800.00	27,509.60	6,246,452.57	2.5	-0.3	1,000.00	84,109	20,358,933.00
	293	294	1550	1554	5.9	0.7	1,000.00	37,890.36	6,284,342.93	3.0	-0.3	1,000.00	84,067	20,442,999.83
Bhura	294	295	1555	1559	2.4	0.8	1,000.00	27,661.68	6,312,004.61	2.3	-0.3	1,000.00	112,558	20,555,557.78
	295	296	1560	1564	4.3	0.8	1,000.00	18,378.54	6,330,383.15	3.1	-0.3	1,000.00	56,506	20,612,063.30
	296	297	1565	1569	2.7	0.7	1,000.00	26,603.94	6,356,987.09	3.5	-0.3	1,000.00	49,329	20,661,392.14
	297	298	1570	1574	3.4	1.3	400.00	2,438.65	6,359,425.74	4.1	-0.3	1,000.00	54,003	20,715,395.08
	298	299	1575	1579	4.6	1.6	400.00	11.46	6,359,437.20	5.5	-0.3	1,000.00	110,105	20,825,500.25
	299	300	1580	1584	5.0	0.7	600.00	12,110.40	6,371,547.60	4.2	-0.3	1,000.00	114,099	20,939,599.19
	300	301	1585	1589	2.5	0.7	1,000.00	20,516.55	6,392,064.15	3.4	-0.3	1,000.00	71,962	21,011,561.10
	301	302	1590	1594	2.8	1.5	800.00	6,768.85	6,398,833.00	4.1	-0.3	1,000.00	115,196	21,126,757.20
Sarwa Ghat	302	303	1595	1600	4.0	0.7	800.00	16,194.17	6,415,027.17	5.4	-0.3	1,000.00	132,771	21,259,527.82
Singirisi Temple	303	304	1601	1605	2.1	1.2	1,000.00	18,842.94	6,433,870.11	3.4	-0.3	1,000.00	98,783	21,358,310.60
	304	305	1606	1610	2.3	1.0	1,000.00	8,991.87	6,442,861.98	3.6	-0.3	1,000.00	100,382	21,458,692.21
Mehboob Ganj	305	306	1611	1616	3.3	0.7	1,000.00	40,701.32	6,483,563.30	3.2	-0.3	1,000.00	105,977	21,564,669.20
	306	307	1617	1621	3.7	0.7	1,000.00	27,958.87	6,511,522.17	5.1	-0.3	1,000.00	105,756	21,670,425.51
	307	308	1622	1627	5.4	0.7	1,000.00	25,052.65	6,536,574.82	4.2	-0.3	1,000.00	84,111	21,754,536.83
Posra Village	308	309	1628	1632	4.4	0.7	1,000.00	15,533.45	6,552,108.27	4.7	-0.3	1,000.00	95,576	21,850,113.06
	309	310	1633	1638	6.0	0.7	1,000.00	24,892.09	6,577,000.36	8.1	-0.3	1,000.00	111,280	21,961,392.96
	310	311	1639	1644	5.8	0.8	1,000.00	23,306.96	6,600,307.32	7.6	-0.3	1,000.00	88,662	22,050,055.34
	311	312	1645	1651	2.6	0.9	1,000.00	34,243.06	6,634,550.38	3.0	-0.3	1,000.00	45,444	22,095,498.86
	312	313	1652	1655	7.8	1.8	400.00	3,141.66	6,637,692.04	9.0	-0.3	1,000.00	23,515	22,119,013.89
	313	314	1656	1660	8.5	1.8	800.00	259.11	6,637,951.15	9.6	-0.3	1,000.00	90,484	22,209,498.07
	314	315	1661	1665	4.3	1.5	400.00	758.45	6,638,709.60	5.0	-0.3	1,000.00	89,079	22,298,576.97



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Baburi Babu	315	316	1666	1671	2.0	0.7	1,000.00	32,680.66	6,671,390.26	2.8	-0.3	1,000.00	19,189	22,317,765.49
	316	317	1672	1676	6.8	1.1	600.00	14,159.90	6,685,550.16	7.1	-0.3	1,000.00	99,827	22,417,592.32
	317	318	1677	1681	9.5	3.3	-	0.00	6,685,550.16	9.8	-0.3	1,000.00	114,950	22,532,542.52
Balwa Ghat	318	319	1682	1686	2.4	0.7	1,000.00	25,228.31	6,710,778.47	4.1	-0.3	1,000.00	112,547	22,645,089.85
	319	320	1687	1692	2.4	0.8	1,000.00	28,050.08	6,738,828.55	4.2	-0.3	1,000.00	129,633	22,774,723.01
Arjunpur Village	320	321	1693	1696	3.3	0.9	800.00	15,469.37	6,754,297.92	5.5	-0.3	1,000.00	85,029	22,859,751.95
	321	322	1697	1700	3.2	1.4	600.00	2,448.33	6,756,746.25	5.2	-0.3	1,000.00	70,170	22,929,921.94
	322	323	1701	1705	5.4	1.1	1,000.00	11,771.37	6,768,517.62	4.2	-0.3	1,000.00	112,153	23,042,074.51
	323	324	1706	1711	4.9	1.2	1,000.00	6,145.58	6,774,663.20	6.6	-0.3	1,000.00	130,457	23,172,531.54
	324	325	1712	1716	2.7	1.0	1,000.00	12,489.04	6,787,152.24	4.5	-0.3	1,000.00	115,582	23,288,113.07
	325	326	1717	1721	5.9	0.7	1,000.00	30,876.84	6,818,029.08	4.2	-0.3	1,000.00	112,649	23,400,762.43
	326	327	1722	1726	2.9	0.7	1,000.00	27,987.75	6,846,016.83	4.7	-0.3	1,000.00	106,210	23,506,972.44
	327	328	1727	1731	3.2	0.7	1,000.00	33,468.14	6,879,484.97	4.8	-0.3	1,000.00	106,657	23,613,629.20
	328	329	1732	1737	2.0	0.7	1,000.00	37,967.10	6,917,452.07	2.8	-0.3	1,000.00	120,360	23,733,988.92
	329	330	1738	1744	2.7	0.7	1,000.00	43,080.29	6,960,532.36	3.8	-0.3	1,000.00	142,673	23,876,661.80
	330	331	1745	1749	4.8	0.8	1,000.00	29,672.18	6,990,204.54	2.7	-0.3	1,000.00	77,014	23,953,676.16
	331	332	1750	1754	2.0	0.7	1,000.00	22,449.05	7,012,653.59	2.7	-0.3	1,000.00	108,097	24,061,773.63
	332	333	1755	1759	3.3	0.7	1,000.00	14,812.16	7,027,465.75	3.9	-0.3	1,000.00	73,179	24,134,952.64
	333	334	1760	1765	3.2	1.2	1,000.00	21,187.39	7,048,653.14	3.0	-0.3	1,000.00	105,339	24,240,292.13
	334	335	1766	1771	3.8	1.2	1,000.00	7,879.93	7,056,533.07	4.5	-0.3	1,000.00	96,154	24,336,446.53
Gauria Village	335	336	1772	1776	3.0	0.7	1,000.00	17,819.76	7,074,352.83	3.7	-0.3	1,000.00	79,026	24,415,472.85
Keshawapur	336	337	1777	1782	5.5	0.9	1,000.00	16,812.66	7,091,165.49	2.6	-0.3	1,000.00	102,790	24,518,262.74
	337	338	1783	1788	2.5	1.1	1,000.00	15,634.59	7,106,800.08	3.2	-0.3	1,000.00	14,764	24,533,027.12
	338	339	1789	1793	9.7	1.1	800.00	12,161.34	7,118,961.42	10.4	-0.3	1,000.00	101,722	24,634,749.41
	339	340	1794	1798	6.7	1.9	-	0.00	7,118,961.42	7.4	-0.3	1,000.00	95,462	24,730,211.60
	340	341	1799	1803	1.8	1.1	1,000.00	16,908.16	7,135,869.58	2.7	-0.3	1,000.00	59,102	24,789,313.75
	341	342	1804	1808	2.5	1.0	1,000.00	16,574.60	7,152,444.18	3.4	-0.3	1,000.00	68,947	24,858,260.45
	342	343	1809	1813	4.9	1.9	200.00	160.70	7,152,604.88	5.7	-0.3	1,000.00	105,685	24,963,944.97



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 40 MTR BOTTOM WIDTH AND 2M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 2.0m depth, 40m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
AYODHYA	343	344	1814	1818	4.9	0.7	600.00	13,186.35	7,165,791.23	6.0	-0.3	1,000.00	76,681	25,040,626.30
Durga Ganj Village	344	345	1819	1823	3.0	0.8	1,000.00	31,363.80	7,197,155.03	3.9	-0.3	1,000.00	101,462	25,142,088.56
	345	346	1824	1829	4.4	0.8	1,000.00	12,115.97	7,209,271.00	5.4	-0.3	1,000.00	33,628	25,175,716.50
	346	347	1830	1834	2.6	1.0	1,000.00	19,874.25	7,229,145.25	3.6	-0.3	1,000.00	26,470	25,202,186.69
	347	348	1835	1839	3.9	1.5	800.00	1,870.09	7,231,015.34	4.8	-0.3	1,000.00	51,969	25,254,155.80
	348	349	1840	1875	3.2	0.7	1,000.00	7,989.45	7,239,004.79	4.2	-0.3	1,000.00	116,474	25,370,629.71
	349	350	1876	1850	1.9	1.2	1,000.00	18,935.08	7,257,939.87	2.9	-0.3	1,000.00	73,868	25,444,497.47
	350	351	1851	1855	3.5	1.7	600.00	5,017.30	7,262,957.17	4.5	-0.3	1,000.00	18,331	25,462,828.13
Fatehpur Sariya Manjh	351	352	1856	1860	4.1	1.9	200.00	14.82	7,262,971.99	5.1	-0.3	1,000.00	24,150	25,486,978.19
	352	353	1861	1865	3.8	1.1	800.00	9,609.57	7,272,581.56	4.6	-0.3	1,000.00	81,468	25,568,446.01
FAIZABAD	353	354	1866	1868	2.0	0.8	600.00	8,899.00	7,281,480.56	3.1	-0.3	1,000.00	39,317	25,607,763.10
TOTAL DREDGING QUANTITY (cu.m.)							303,800.00	7,281,480.56				336,100.00	25,607,763.10	



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Ganga Confluence (Near Doriganj)	0	1	1	5	4.2	2.6	-	0.00	0.00	3.2	2.1	-	0.00	0.00
	1	2	6	10	5.9	2.7	-	0.00	0.00	4.3	2.0	-	0.00	0.00
	2	3	11	15	3.7	1.1	400.00	9.31	9.31	1.9	1.6	200.00	156.90	156.9
	3	4	16	20	4.1	1.3	1,000.00	2,152.31	2,161.62	2.6	2.0	-	0.00	156.9
	4	5	21	27	6.1	0.8	600.00	4,869.26	7,030.88	4.8	2.0	-	0.00	156.9
Enai Village	5	6	28	33	3.3	1.2	1,000.00	4,575.41	11,606.29	1.5	2.0	-	0.00	156.9
	6	7	34	40	5.2	1.2	400.00	1,666.48	13,272.77	3.6	-0.3	1,000.00	40.14	197.04
	7	8	41	45	2.3	0.8	1,000.00	10,757.62	24,030.39	0.6	-0.3	1,000.00	0.00	197.04
CHHAPRA	8	9	46	51	2.3	0.7	1,000.00	14,910.49	38,940.88	0.5	-0.3	1,000.00	4,726.69	4923.73
	9	10	52	57	3.2	0.1	1,000.00	12,233.93	51,174.81	1.9	-0.3	1,000.00	17,970.04	22893.77
	10	11	58	62	3.2	1.0	1,000.00	6,206.13	57,380.94	2.6	-0.3	1,000.00	9,431.81	32325.58
	11	12	63	67	2.4	0.7	1,000.00	4,046.82	61,427.76	1.8	-0.3	1,000.00	14,062.13	46387.71
	12	13	68	72	3.2	0.7	1,000.00	10,992.30	72,420.06	2.4	-0.3	1,000.00	15,424.11	61811.82
Seanraja Village	13	14	73	77	2.5	0.8	1,000.00	10,878.13	83,298.19	1.8	-0.3	1,000.00	17,103.95	78915.77
Revelganj Ghat	14	15	78	83	3.2	1.2	1,000.00	4,273.41	87,571.60	2.5	-0.3	1,000.00	8,698.66	87614.43
	15	16	84	88	2.7	1.7	-	0.00	87,571.60	2.0	1.7	-	0.83	87615.26
	16	17	89	93	2.7	0.8	600.00	2,952.01	90,523.61	2.1	-0.3	1,000.00	13,372.55	100987.8
	17	18	94	98	2.5	0.9	1,000.00	18,474.67	108,998.28	3.2	-0.3	800.00	60,851.02	161838.8
MANJHI BRIDGE	18	19	99	103	6.5	1.5	800.00	217.42	109,215.70	6.8	-0.3	-	14,407.99	176246.8
	19	20	104	108	6.4	3.0	-	0.00	109,215.70	7.1	-0.3	1,000.00	18.10	176264.9
Mehadiganj Village	20	21	109	113	4.4	1.0	400.00	1,220.56	110,436.26	5.2	-0.3	1,000.00	27,951.45	204216.4
	21	22	114	119	2.7	0.9	1,000.00	8,468.80	118,905.06	3.4	-0.3	600.00	70,403.42	274619.8
	22	23	120	124	3.5	1.0	1,000.00	13,324.80	132,229.86	4.2	-0.3	200.00	62,457.21	337077
	23	24	125	130	3.5	0.7	1,000.00	8,429.24	140,659.10	4.1	-0.3	400.00	68,472.62	405549.6
	24	25	131	136	2.7	1.0	1,000.00	13,354.89	154,013.99	3.4	-0.3	600.00	60,297.02	465846.6
Dumri	25	26	137	143	3.3	0.6	1,000.00	5,259.67	159,273.66	4.0	-0.3	800.00	59,053.75	524900.4
	26	27	144	149	2.0	0.9	1,000.00	16,161.78	175,435.44	2.6	-0.3	800.00	59,476.77	584377.2



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	27	28	150	154	2.8	1.6	400.00	1,572.04	177,007.48	2.7	-0.3	600.00	13,107.46	597484.6
	28	29	155	159	5.1	1.8	-	0.00	177,007.48	5.0	-0.3	400.00	5,602.06	603086.7
	29	30	160	164	5.9	0.8	200.00	907.50	177,914.98	5.8	-0.3	200.00	12,278.34	615365
	30	31	165	169	2.7	1.1	1,000.00	8,149.82	186,064.80	2.6	-0.3	1,000.00	32,787.17	648152.2
Dumaigarh	31	32	170	174	6.1	1.4	400.00	744.87	186,809.67	6.0	-0.3	600.00	8,535.67	656687.9
	32	33	175	179	7.6	2.6	-	0.00	186,809.67	7.5	-0.3	-	19,101.67	675789.5
	33	34	180	184	4.6	1.1	800.00	2,550.23	189,359.90	4.5	-0.3	800.00	0.00	675789.5
Narwan	34	35	185	189	8.9	3.6	-	0.00	189,359.90	8.8	-0.3	-	0.00	675789.5
	35	36	190	193	4.7	2.8	-	0.00	189,359.90	4.5	-0.3	-	11.95	675801.5
	36	37	194	198	3.6	2.0	-	0.00	189,359.90	3.5	-0.3	-	1,518.83	677320.3
	37	38	199	203	6.7	2.1	-	0.00	189,359.90	6.6	-0.3	-	44,262.04	721582.4
	38	39	204	209	2.7	1.0	1,000.00	8,673.43	198,033.33	2.6	-0.3	1,000.00	38,493.67	760076
	39	40	210	214	2.1	1.0	1,000.00	7,162.79	205,196.12	4.3	-0.3	1,000.00	20,650.22	780726.2
	40	41	215	219	3.0	1.1	400.00	2,452.26	207,648.38	3.0	-0.3	400.00	27,967.11	808693.4
	41	42	220	224	3.0	1.1	800.00	8,449.34	216,097.72	3.0	-0.3	800.00	0.00	808693.4
	42	43	225	229	5.5	3.0	-	0.00	216,097.72	5.6	-0.3	-	4,211.45	812904.8
	43	44	230	234	6.7	1.1	-	0.00	216,097.72	6.6	-0.3	-	0.00	812904.8
	44	45	235	239	2.0	0.7	1,000.00	7,352.62	223,450.34	2.1	-0.3	1,000.00	40,023.15	852928
	45	46	240	245	2.2	0.8	1,000.00	12,754.33	236,204.67	2.1	-0.3	1,000.00	46,943.92	899871.9
	46	47	246	250	2.3	1.1	1,000.00	4,365.44	240,570.11	2.3	-0.3	800.00	27,120.62	926992.5
	47	48	251	255	3.1	0.9	800.00	7,056.59	247,626.70	3.2	-0.3	800.00	35,075.88	962068.4
	48	49	256	261	1.4	0.8	1,000.00	18,375.73	266,002.43	1.6	-0.3	1,000.00	70,102.34	1032171
	49	50	262	266	2.4	0.7	1,000.00	8,431.69	274,434.12	2.5	-0.3	1,000.00	53,195.26	1085366
	50	51	267	272	1.8	1.0	1,000.00	14,755.89	289,190.01	1.8	-0.3	1,000.00	73,385.20	1158751
Gangapur	51	52	273	277	2.0	0.7	1,000.00	12,285.85	301,475.86	2.0	-0.3	1,000.00	55,756.09	1214507
Kachnar	52	53	278	282	3.2	0.9	800.00	4,350.26	305,826.12	3.3	-0.3	800.00	31,974.91	1246482
	53	54	283	287	5.4	1.0	600.00	1,670.96	307,497.08	5.1	-0.3	200.00	29,971.07	1276453
	54	55	288	293	2.9	1.1	1,000.00	10,989.82	318,486.90	3.0	-0.3	1,000.00	46,197.75	1322651



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	55	56	294	298	2.6	1.2	800.00	4,097.21	322,584.11	2.6	-0.3	800.00	33,122.01	1355773
	56	57	299	303	2.7	1.0	1,000.00	8,389.36	330,973.47	2.8	-0.3	1,000.00	52,672.19	1408445
	57	58	304	308	4.8	1.9	400.00	2,847.28	333,820.75	4.9	-0.3	400.00	9,007.30	1417452
	58	59	309	313	4.7	1.1	-	0.00	333,820.75	4.8	-0.3	900.00	9,767.85	1427220
	59	60	314	318	3.0	1.2	800.00	6,553.18	340,373.93	3.0	-0.3	800.00	33,189.96	1460410
	60	61	319	323	4.5	3.1	-	0.00	340,373.93	4.3	-0.3	-	0.00	1460410
	61	62	324	328	4.8	1.7	-	0.00	340,373.93	4.6	-0.3	200.00	3,646.75	1464057
	62	63	329	333	3.6	1.7	-	0.00	340,373.93	3.4	-0.3	600.00	4,148.97	1468206
	63	64	334	338	4.0	1.5	-	0.00	340,373.93	4.0	-0.3	900.00	4,553.36	1472759
	64	65	339	344	2.4	0.8	1,000.00	16,561.67	356,935.60	1.5	-0.3	1,000.00	54,133.38	1526893
Ragunathpur	65	66	345	349	4.2	0.9	1,000.00	18,339.02	375,274.62	4.0	-0.3	1,000.00	39,094.21	1565987
	66	67	350	354	3.0	1.0	1,000.00	9,404.65	384,679.27	2.8	-0.3	1,000.00	36,038.90	1602026
	67	68	355	360	1.8	0.7	1,000.00	21,363.76	406,043.03	1.7	-0.3	1,000.00	58,346.32	1660372
Narhan	68	69	361	365	2.0	0.8	1,000.00	19,279.20	425,322.23	1.9	-0.3	1,000.00	43,961.14	1704333
	69	70	366	370	2.6	0.9	1,000.00	8,175.78	433,498.01	2.4	-0.3	1,000.00	32,775.58	1737109
	70	71	371	375	1.2	0.7	1,000.00	20,193.63	453,691.64	1.1	-0.3	1,000.00	51,967.31	1789076
	71	72	376	380	2.5	0.7	1,000.00	17,472.91	471,164.55	2.6	-0.3	1,000.00	36,080.21	1825156
	72	73	381	385	7.4	1.3	-	0.00	471,164.55	7.7	-0.3	1,000.00	3,800.09	1828957
	73	74	386	390	3.7	0.7	800.00	7,855.19	479,019.74	3.8	-0.3	800.00	35,981.46	1864938
	74	75	391	395	2.0	0.7	1,000.00	18,411.43	497,431.17	2.1	-0.3	1,000.00	59,903.03	1924841
	75	76	396	400	1.8	0.7	1,000.00	14,633.76	512,064.93	2.0	-0.3	1,000.00	48,469.57	1973311
	76	77	401	406	3.4	0.7	1,000.00	15,072.97	527,137.90	3.5	-0.3	1,000.00	52,329.81	2025640
	77	78	407	412	2.6	0.7	1,000.00	20,286.27	547,424.17	3.1	-0.3	1,000.00	58,681.51	2084322
	78	79	413	417	2.9	0.7	1,000.00	17,639.00	565,063.17	3.1	-0.3	1,000.00	46,656.75	2130979
	79	80	418	422	3.3	0.7	1,000.00	11,780.91	576,844.08	3.4	-0.3	1,000.00	42,194.07	2173173
	80	81	423	429	2.0	0.7	1,000.00	19,728.69	596,572.77	2.0	-0.3	1,000.00	48,529.00	2221702
	81	82	430	434	2.5	0.8	1,000.00	13,049.44	609,622.21	2.4	-0.3	1,000.00	47,343.42	2269045
	82	83	435	439	2.3	0.7	1,000.00	14,517.71	624,139.92	3.6	-0.3	1,000.00	45,358.15	2314403



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	83	84	440	444	1.7	0.7	1,000.00	21,540.00	645,679.92	6.8	-0.3	1,000.00	55,502.37	2369906
	84	85	445	449	2.7	0.7	1,000.00	11,558.35	657,238.27	2.7	-0.3	1,000.00	36,138.29	2406044
	85	86	450	454	2.4	0.9	1,000.00	8,979.34	666,217.61	2.3	-0.3	1,000.00	34,772.24	2440816
	86	87	455	460	1.9	0.7	1,000.00	15,726.01	681,943.62	4.8	-0.3	1,000.00	57,370.16	2498186
Darauli	87	88	461	465	2.3	0.7	1,000.00	6,104.43	688,048.05	2.3	-0.3	1,000.00	31,138.60	2529325
	88	89	466	470	2.8	0.7	1,000.00	14,970.60	703,018.65	3.0	-0.3	800.00	35,645.72	2564971
	89	90	471	475	1.9	0.7	1,000.00	15,590.62	718,609.27	1.8	-0.3	1,000.00	46,434.33	2611405
	90	91	476	480	3.4	1.2	600.00	584.55	719,193.82	3.3	-0.3	600.00	19,274.38	2630679
	91	92	481	485	2.6	0.8	400.00	2,483.05	721,676.87	3.3	-0.3	600.00	32,542.03	2663221
	92	93	486	490	5.3	0.7	1,000.00	12,390.28	734,067.15	2.8	-0.3	1,000.00	43,281.71	2706503
	93	94	491	495	1.7	0.8	1,000.00	19,096.81	753,163.96	2.4	-0.3	1,000.00	53,376.49	2759880
	94	95	496	500	2.6	0.7	800.00	9,002.68	762,166.64	3.3	-0.3	600.00	43,074.98	2802955
	95	96	501	506	2.7	0.7	1,000.00	20,442.86	782,609.50	3.5	-0.3	600.00	51,953.65	2854908
	96	97	507	511	2.4	0.8	1,000.00	8,019.32	790,628.82	3.1	-0.3	400.00	33,429.16	2888337
	97	98	512	516	2.3	1.1	1,000.00	7,018.72	797,647.54	3.0	-0.3	400.00	33,639.57	2921977
	98	99	517	521	3.6	1.5	600.00	417.38	798,064.92	4.3	-0.3	1,000.00	15,577.00	2937554
	99	100	522	526	1.9	0.7	1,000.00	16,196.52	814,261.44	2.6	-0.3	800.00	47,990.52	2985544
	100	100.4	527	528	1.8	1.0	400.00	3,890.51	818,151.95	2.4	-0.3	300.00	36,268.00	3038864
	100.4	101	529	532	1.9	0.9	400.00	4,762.86	822,914.81	2.1	-0.3	700.00	36,268.00	3038864
	101	102	533	537	2.2	0.8	1,000.00	7,044.10	829,958.91	2.2	-0.3	1,000.00	39,452.69	3078316
	102	103	538	542	4.4	1.3	400.00	4,094.41	834,053.32	4.6	-0.3	400.00	18,392.58	3096709
	103	104	543	548	2.3	0.7	1,000.00	8,987.47	843,040.79	2.3	-0.3	1,000.00	65,350.56	3162059
	104	105	549	553	2.3	0.8	1,000.00	10,069.98	853,110.77	2.4	-0.3	1,000.00	35,761.03	3197820
	105	106	554	558	1.5	0.8	1,000.00	14,673.22	867,783.99	1.4	-0.3	1,000.00	47,257.27	3245078
	106	107	559	563	5.2	1.6	400.00	2,390.83	870,174.82	5.2	-0.3	400.00	8,791.09	3253869
Rampur Village	107	108	564	568	3.2	1.7	-	0.00	870,174.82	3.2	-0.3	800.00	17,601.57	3271470
Harnatar Dayalpur	108	109	569	572	3.0	1.2	200.00	1,014.37	871,189.19	3.0	-0.3	200.00	20,919.03	3292389
	109	110	573	577	2.0	0.7	1,000.00	15,947.95	887,137.14	2.3	-0.3	1,000.00	41,163.45	3333553



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	110	111	578	582	2.3	0.7	1,000.00	14,492.25	901,629.39	2.7	-0.3	600.00	34,816.25	3368369
	111	112	583	587	3.2	0.7	800.00	9,682.10	911,311.49	3.6	-0.3	600.00	19,439.11	3387808
Manthala Bajar	112	113	588	592	1.9	0.7	1,000.00	6,514.83	917,826.32	2.4	-0.3	600.00	26,920.21	3414728
	113	114	593	897	1.9	0.7	1,000.00	11,818.58	929,644.90	2.2	-0.3	600.00	43,785.20	3458514
Turtipar	114	115	898	602	2.6	0.7	1,000.00	15,293.20	944,938.10	2.9	-0.3	1,000.00	35,103.27	3493617
Turtipar Rly. Brg.	115	116	603	607	2.0	0.9	1,000.00	15,232.63	960,170.73	2.6	-0.3	1,000.00	26,147.93	3519765
	116	117	608	612	4.3	2.4	200.00	74.75	960,245.48	4.8	1.7	-	0.00	3519765
	117	118	613	618	6.4	0.8	800.00	12,474.53	972,720.01	7.0	-0.3	600.00	41,174.18	3560939
	118	119	619	623	1.7	0.8	1,000.00	11,415.98	984,135.99	2.2	-0.3	1,000.00	32,599.39	3593538
Esharou	119	120	624	628	2.5	0.7	1,000.00	7,289.65	991,425.64	3.0	-0.3	600.00	33,875.58	3627414
	120	121	629	633	2.8	1.2	800.00	4,006.40	995,432.04	3.3	-0.3	400.00	32,316.92	3659731
	121	122	634	638	3.4	1.2	200.00	803.14	996,235.18	3.9	-0.3	800.00	11,844.24	3671575
Chanpur Gloura Village	122	123	639	643	5.5	0.9	200.00	818.83	997,054.01	6.1	-0.3	1,000.00	21,928.09	3693503
	123	124	644	648	2.2	1.1	1,000.00	6,489.28	1,003,543.29	2.7	-0.3	600.00	52,581.15	3746084
	124	125	649	653	1.6	0.7	1,000.00	17,651.95	1,021,195.24	2.1	-0.3	1,000.00	53,615.96	3799700
	125	126	654	658	1.7	0.7	1,000.00	9,629.00	1,030,824.24	6.0	-0.3	600.00	54,565.35	3854266
Chakimusa Dohi Ghat	126	127	659	663	2.8	0.7	1,000.00	15,691.82	1,046,516.06	3.9	-0.3	800.00	51,920.89	3906186
	127	128	664	668	3.1	0.7	1,000.00	12,857.06	1,059,373.12	3.6	-0.3	800.00	51,967.04	3958154
	128	129	669	674	2.8	0.7	1,000.00	19,698.33	1,079,071.45	3.3	-0.3	1,000.00	69,157.31	4027311
	129	130	675	679	1.6	0.7	1,000.00	20,809.95	1,099,881.40	2.2	-0.3	1,000.00	61,789.62	4089100
	130	131	680	685	1.5	0.7	1,000.00	29,834.33	1,129,715.73	1.7	-0.3	1,000.00	72,136.91	4161237
	131	132	686	690	2.0	1.1	1,000.00	12,122.26	1,141,837.99	2.4	-0.3	600.00	35,406.48	4196644
	132	133	691	695	4.7	1.0	800.00	2,009.58	1,143,847.57	5.1	-0.3	1,000.00	36,592.34	4233236
	133	134	696	700	1.7	0.7	1,000.00	18,910.51	1,162,758.08	2.2	-0.3	1,000.00	60,296.84	4293533
	134	135	701	705	2.4	0.8	1,000.00	16,423.24	1,179,181.32	2.9	-0.3	1,000.00	32,104.16	4325637
	135	136	706	710	4.3	2.1	400.00	1,018.19	1,180,199.51	4.9	-0.3	1,000.00	8,747.45	4334385
	136	137	711	715	2.2	1.5	600.00	36.11	1,180,235.62	2.7	-0.3	1,000.00	23,162.68	4357547



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	137	138	716	720	2.7	2.0	200.00	1.35	1,180,236.97	3.3	-0.3	1,000.00	5,923.06	4363470
	138	139	721	725	3.5	1.5	200.00	147.28	1,180,384.25	3.5	-0.3	1,000.00	18,064.42	4381535
Barhaj Bridge (UNC)	139	140	726	730	3.9	1.4	200.00	146.56	1,180,530.81	4.4	-0.3	1,000.00	26,022.47	4407557
Nabideswar Mishra Ghat	140	141	731	736	2.4	1.1	1,000.00	6,295.29	1,186,826.10	4.2	-0.3	1,000.00	44,031.68	4451589
Katelwa Village	141	142	737	741	6.6	1.0	600.00	3,711.83	1,190,537.93	7.1	-0.3	1,000.00	4,627.72	4456217
Kudhe Ghat	142	143	742	746	4.3	1.2	200.00	123.40	1,190,661.33	4.7	-0.3	1,000.00	39,679.49	4495896
	143	144	747	752	1.4	0.7	1,000.00	25,793.14	1,216,454.47	5.2	-0.3	1,000.00	57,433.29	4553329
Kaparwar	144	145	753	757	2.2	0.9	1,000.00	12,487.63	1,228,942.10	2.2	-0.3	1,000.00	41,369.00	4594698
	145	146	758	763	3.8	0.7	1,000.00	10,439.37	1,239,381.47	5.2	-0.3	1,000.00	51,930.85	4646629
	146	147	764	768	1.7	0.7	1,000.00	18,937.58	1,258,319.05	1.8	-0.3	1,000.00	36,497.52	4683127
Netavar patti	147	148	769	773	2.9	0.8	1,000.00	10,285.83	1,268,604.88	3.0	-0.3	1,000.00	38,400.12	4721527
	148	149	774	779	2.0	0.7	1,000.00	15,515.45	1,284,120.33	2.1	-0.3	1,000.00	60,693.93	4782221
	149	150	780	784	2.3	0.7	800.00	15,232.41	1,299,352.74	2.3	-0.3	1,000.00	51,159.97	4833381
	150	151	785	790	2.5	1.0	1,000.00	9,307.27	1,308,660.01	2.6	-0.3	1,000.00	67,122.30	4900503
	151	152	791	795	1.9	0.7	1,000.00	10,012.02	1,318,672.03	2.0	-0.3	1,000.00	117,552.23	5018055
	152	153	796	800	2.1	0.7	1,000.00	22,438.28	1,341,110.31	1.7	-0.3	1,000.00	64,597.33	5082653
	153	154	801	806	2.0	0.7	1,000.00	28,894.61	1,370,004.92	1.9	1.7	-	0.00	5082653
	154	155	807	811	2.2	0.7	1,000.00	18,444.35	1,388,449.27	1.7	-0.3	1,000.00	39,908.42	5122561
	155	156	812	816	2.6	0.7	1,000.00	12,913.18	1,401,362.45	2.1	-0.3	1,000.00	13,226.91	5135788
	156	157	817	822	3.7	1.1	800.00	2,569.25	1,403,931.70	3.3	-0.3	1,000.00	50,678.10	5186466
	157	158	823	827	3.1	0.7	600.00	12,437.00	1,416,368.70	2.7	-0.3	1,000.00	53,489.48	5239956
	158	159	828	833	2.9	0.7	1,000.00	25,625.06	1,441,993.76	2.4	-0.3	1,000.00	11,905.34	5251861
	159	160	834	838	5.8	1.9	400.00	-6,919.93	1,435,073.83	5.4	-0.3	1,000.00	47,395.34	5299256
	160	161	839	843	3.8	0.8	800.00	8,210.11	1,443,283.94	3.4	-0.3	1,000.00	50,140.24	5349397
	161	162	844	848	3.5	0.8	1,000.00	8,967.00	1,452,250.94	3.1	-0.3	1,000.00	35,242.15	5384639
	162	163	849	853	2.2	0.7	1,000.00	17,556.80	1,469,807.74	2.3	-0.3	1,000.00	48,074.48	5432713
	163	164	854	858	2.3	0.8	1,000.00	7,405.18	1,477,212.92	2.5	-0.3	1,000.00	31,472.60	5464186
Khadesari	164	165	859	863	2.1	0.7	1,000.00	12,506.57	1,489,719.49	2.3	-0.3	1,000.00	0.00	5464186



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
DOHRI GHAT	165	166	864	868	9.2	1.6	200.00	1,092.59	1,490,812.08	9.5	-0.3	1,000.00	4,872.84	5469059
Barhalganj	166	167	869	873	7.7	2.5	-	0.00	1,490,812.08	8.2	1.7	-	0.00	5469059
	167	168	874	878	7.7	1.8	-	0.00	1,490,812.08	7.8	-0.3	1,000.00	13,798.78	5482857
	168	169	879	884	8.0	1.3	-	0.00	1,490,812.08	9.4	-0.3	1,000.00	45,953.01	5528810
	169	170	885	889	2.4	0.7	800.00	5,220.49	1,496,032.57	2.5	-0.3	1,000.00	60,766.01	5589576
	170	171	890	894	2.3	0.7	1,000.00	15,096.13	1,511,128.70	2.5	-0.3	1,000.00	37,400.25	5626977
	171	172	895	899	7.2	0.7	600.00	6,900.09	1,518,028.79	3.3	-0.3	1,000.00	44,908.17	5671885
	172	173	900	905	2.6	0.7	1,000.00	16,043.22	1,534,072.01	2.5	-0.3	1,000.00	59,846.42	5731731
	173	174	906	910	3.6	0.9	1,000.00	11,327.28	1,545,399.29	2.4	-0.3	1,000.00	22,347.20	5754078
	174	175	911	916	5.1	0.9	1,000.00	12,196.91	1,557,596.20	4.8	-0.3	1,000.00	59,661.87	5813740
	175	176	917	923	5.9	0.7	1,000.00	20,152.19	1,577,748.39	2.3	-0.3	1,000.00	55,558.93	5869299
Parsiya	176	177	924	928	7.0	0.7	800.00	13,637.51	1,591,385.90	2.2	-0.3	1,000.00	48,098.12	5917397
	177	178	929	934	6.2	0.7	1,000.00	18,535.66	1,609,921.56	2.1	-0.3	1,000.00	68,135.27	5985533
	178	179	935	939	1.8	0.7	1,000.00	20,962.55	1,630,884.11	2.2	-0.3	1,000.00	44,154.54	6029687
	179	180	940	944	1.6	0.7	1,000.00	14,894.30	1,645,778.41	2.1	-0.3	1,000.00	36,072.24	6065759
	180	181	945	949	2.4	1.0	800.00	4,498.69	1,650,277.10	2.9	-0.3	1,000.00	50,842.64	6116602
Khutahan Khas	181	182	950	954	2.0	0.7	1,000.00	12,046.00	1,662,323.10	2.5	-0.3	1,000.00	61,135.26	6177737
	182	183	955	960	1.7	0.9	1,000.00	19,244.73	1,681,567.83	2.3	-0.3	1,000.00	48,553.05	6226290
	183	184	961	965	2.0	1.2	1,000.00	5,796.46	1,687,364.29	1.0	-0.3	1,000.00	34,665.16	6260956
	184	185	966	970	4.4	1.5	200.00	70.17	1,687,434.46	2.3	-0.3	1,000.00	49,945.19	6310901
	185	186	971	975	1.9	0.9	1,000.00	8,551.38	1,695,985.84	-	-0.3	1,000.00	45,015.42	6355916
	186	187	976	980	2.2	1.2	1,000.00	1,493.41	1,697,479.25	0.1	-0.3	1,000.00	51,768.45	6407685
Gola Ghat	187	188	981	986	6.4	0.7	1,000.00	10,248.26	1,707,727.51	0.0	-0.3	1,000.00	56,467.18	6464152
	188	189	987	991	2.1	0.7	1,000.00	13,185.72	1,720,913.23	0.4	-0.3	1,000.00	52,544.95	6516697
	189	190	992	996	2.7	0.8	1,000.00	5,717.22	1,726,630.45	0.9	-0.3	1,000.00	51,874.64	6568571
	190	191	997	1002	2.1	0.9	1,000.00	20,203.82	1,746,834.27	0.1	-0.3	1,000.00	18,869.63	6587441
	191	192	1003	1008	3.2	1.5	200.00	430.42	1,747,264.69	1.0	-0.3	1,000.00	22,005.48	6609446
Dewara Achal Singh	192	193	1009	1014	4.2	1.3	400.00	589.92	1,747,854.61	4.1	-0.3	1,000.00	23,553.88	6633000



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Kauriya	193	194	1015	1019	2.1	1.3	1,000.00	3,363.01	1,751,217.62	2.3	-0.3	1,000.00	9,810.25	6642811
	194	195	1020	1024	2.4	1.3	200.00	17.37	1,751,234.99	2.8	-0.3	1,000.00	37,324.38	6680135
	195	196	1025	1029	2.5	0.9	800.00	7,290.96	1,758,525.95	2.8	-0.3	1,000.00	30,803.48	6710938
Bara Kalika Sthan	196	197	1030	1035	2.1	0.9	1,000.00	12,428.35	1,770,954.30	2.4	-0.3	1,000.00	31,917.41	6742856
	197	198	1036	1040	3.0	0.8	1,000.00	11,096.81	1,782,051.11	3.3	-0.3	1,000.00	45,258.90	6788115
	198	199	1041	1045	1.9	0.7	800.00	9,003.84	1,791,054.95	2.1	-0.3	1,000.00	40,406.22	6828521
Jhptia Ghat	199	200	1046	1051	1.7	0.9	1,000.00	18,120.06	1,809,175.01	1.8	-0.3	1,000.00	41,382.95	6869904
	200	201	1052	1056	2.8	0.8	1,000.00	7,448.37	1,816,623.38	3.0	-0.3	1,000.00	35,801.64	6905706
	201	202	1057	1061	2.4	0.7	1,000.00	13,417.49	1,830,040.87	2.5	-0.3	1,000.00	37,705.51	6943411
Basahi	202	203	1062	1066	1.6	0.7	1,000.00	17,327.86	1,847,368.73	1.9	-0.3	1,000.00	54,781.80	6998193
	203	204	1067	1071	4.4	1.0	1,000.00	10,501.21	1,857,869.94	3.0	-0.3	1,000.00	73,670.55	7071863
	204	205	1072	1077	6.8	0.8	1,000.00	14,908.78	1,872,778.72	2.9	-0.3	1,000.00	74,348.21	7146212
Sahapur Ghat	205	206	1078	1082	2.3	1.2	800.00	4,860.86	1,877,639.58	3.6	-0.3	1,000.00	55,073.36	7201285
Belikur Village	206	207	1083	1088	2.3	1.3	1,000.00	1,056.62	1,878,696.20	3.5	-0.3	1,000.00	79,248.13	7280533
	207	208	1089	1094	2.8	0.7	1,000.00	9,233.16	1,887,929.36	4.1	-0.3	1,000.00	60,009.87	7340543
	208	209	1095	1099	2.3	1.1	800.00	9,751.14	1,897,680.50	3.4	-0.3	1,000.00	63,213.88	7403757
Khairati	209	210	1100	1104	3.5	1.2	600.00	1,290.79	1,898,971.29	4.8	-0.3	1,000.00	11,169.96	7414927
	210	211	1105	1108	3.6	1.4	800.00	1,126.33	1,900,097.62	4.8	-0.3	1,000.00	5,391.42	7420318
	211	212	1109	1114	5.8	2.2	-	0.00	1,900,097.62	4.0	-0.3	1,000.00	81,482.74	7501801
Indorepur urf Dinhapur	212	213	1115	1119	2.6	0.7	800.00	6,859.13	1,906,956.75	3.9	-0.3	1,000.00	73,976.14	7575777
	213	214	1120	1124	1.9	0.7	1,000.00	9,656.07	1,916,612.82	3.2	-0.3	1,000.00	73,234.64	7649012
	214	215	1125	1129	2.2	0.7	1,000.00	14,390.93	1,931,003.75	3.5	-0.3	1,000.00	77,543.00	7726555
Babhanpura	215	216	1130	1134	1.5	0.7	1,000.00	22,813.97	1,953,817.72	3.0	-0.3	1,000.00	78,300.61	7804855
	216	217	1135	1139	2.1	0.8	1,000.00	14,891.96	1,968,709.68	3.4	-0.3	1,000.00	77,320.17	7882176
	217	218	1140	1145	1.5	0.7	1,000.00	25,863.72	1,994,573.40	2.8	-0.3	1,000.00	84,165.39	7966341
Kamariya Pontoon Brg.	218	219	1146	1150	3.5	0.8	600.00	8,067.93	2,002,641.33	6.7	-0.3	1,000.00	85,879.11	8052220
Dandwa	219	220	1151	1155	2.3	0.7	1,000.00	22,871.80	2,025,513.13	3.8	-0.3	1,000.00	38,488.55	8090709
Chadipur Village	220	221	1156	1161	7.7	1.0	1,000.00	4,500.80	2,030,013.93	2.2	-0.3	1,000.00	90,153.87	8180862



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Gangasagar	221	222	1162	1166	2.2	0.7	1,000.00	15,786.13	2,045,800.06	3.6	-0.3	1,000.00	74,687.63	8255550
	222	223	1167	1173	1.9	0.7	1,000.00	19,678.82	2,065,478.88	3.3	-0.3	1,000.00	93,206.65	8348757
	223	224	1174	1178	1.9	0.8	1,000.00	12,708.87	2,078,187.75	3.2	-0.3	1,000.00	64,022.76	8412780
	224	225	1179	1183	3.3	0.8	1,000.00	4,113.95	2,082,301.70	4.2	-0.3	1,000.00	74,901.09	8487681
	225	226	1184	1189	1.5	0.7	1,000.00	22,489.98	2,104,791.68	2.4	-0.3	1,000.00	82,035.74	8569716
Daulatpur Village	226	227	1190	1195	2.4	0.7	1,000.00	16,527.73	2,121,319.41	3.2	-0.3	1,000.00	90,542.98	8660259
	227	228	1196	1202	1.8	0.7	1,000.00	14,546.50	2,135,865.91	2.3	-0.3	1,000.00	78,052.09	8738311
	228	229	1203	1207	1.6	0.7	1,000.00	23,495.92	2,159,361.83	2.3	-0.3	1,000.00	62,162.49	8800474
Tetriya	229	230	1208	1212	4.5	0.7	800.00	4,181.67	2,163,543.50	5.2	-0.3	1,000.00	30,441.64	8830916
	230	231	1213	1217	2.9	0.7	1,000.00	9,492.31	2,173,035.81	3.7	-0.3	1,000.00	49,676.10	8880592
Bhagapur	231	232	1218	1223	3.4	1.5	200.00	825.02	2,173,860.83	4.3	-0.3	1,000.00	40,063.04	8920655
Birhar Ghat Brg.	232	233	1224	1228	2.1	0.8	1,000.00	6,914.41	2,180,775.24	2.5	-0.3	1,000.00	8,386.66	8929041
	233	234	1229	1233	2.8	1.6	400.00	6,222.61	2,186,997.85	3.7	-0.3	1,000.00	42,537.10	8971578
Bidhar Village	234	235	1234	1238	4.2	1.1	-	0.00	2,186,997.85	4.5	-0.3	1,000.00	60,495.19	9032074
Addapur	235	236	1239	1243	2.5	0.7	1,000.00	9,733.46	2,196,731.31	2.8	-0.3	1,000.00	62,873.55	9094947
Gobardhanpur Village	236	237	1244	1249	3.1	0.7	1,000.00	24,339.89	2,221,071.20	3.1	-0.3	1,000.00	80,919.94	9175867
	237	238	1250	1254	1.7	0.7	1,000.00	20,204.86	2,241,276.06	2.0	-0.3	1,000.00	58,995.93	9234863
	238	239	1255	1259	2.1	0.8	1,000.00	22,336.90	2,263,612.96	2.5	-0.3	1,000.00	71,548.99	9306412
	239	240	1260	1266	1.3	0.7	1,000.00	30,450.83	2,294,063.79	1.6	-0.3	1,000.00	78,641.73	9385054
	240	241	1267	1271	2.2	0.7	1,000.00	17,299.00	2,311,362.79	2.4	-0.3	1,000.00	20,109.15	9405163
	241	242	1272	1278	3.0	0.9	1,000.00	15,881.83	2,327,244.62	3.1	-0.3	1,000.00	8,065.43	9413228
	242	243	1279	1283	3.3	1.7	-	0.00	2,327,244.62	3.6	-0.3	1,000.00	15,405.91	9428634
	243	244	1284	1289	6.0	2.4	-	0.00	2,327,244.62	7.0	-0.3	1,000.00	58,750.61	9487385
	244	245	1290	1295	3.5	1.0	800.00	2,666.71	2,329,911.33	4.1	-0.3	1,000.00	60,256.40	9547641
	245	246	1296	1300	2.3	0.9	1,000.00	10,356.90	2,340,268.23	3.1	-0.3	1,000.00	57,984.75	9605626
	246	247	1301	1305	2.0	0.7	1,000.00	3,619.94	2,343,888.17	3.8	-0.3	1,000.00	61,718.32	9667344
Mahendi Ghat	247	248	1306	1311	4.2	0.7	1,000.00	15,495.11	2,359,383.28	2.9	-0.3	1,000.00	60,777.40	9728122
	248	249	1312	1315	2.9	0.7	800.00	12,102.41	2,371,485.69	3.7	-0.3	1,000.00	13,751.12	9741873



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	249	250	1316	1320	2.6	0.7	1,000.00	12,958.14	2,384,443.83	3.4	-0.3	1,000.00	62,238.84	9804112
	250	251	1321	1328	5.8	0.5	1,000.00	13,944.45	2,398,388.28	5.2	-0.3	1,000.00	77,524.40	9881636
	251	252	1329	1334	6.6	0.9	1,000.00	14,461.72	2,412,850.00	3.6	-0.3	1,000.00	75,793.43	9957430
	252	253	1335	1340	5.3	0.6	1,000.00	6,999.92	2,419,849.92	5.4	-0.3	1,000.00	79,250.96	10036681
	253	254	1341	1346	3.5	1.1	1,000.00	7,779.38	2,427,629.30	5.0	-0.3	1,000.00	35,946.19	10072627
Babu Tangedia Village	254	255	1347	1351	2.1	1.3	800.00	3,420.95	2,431,050.25	3.0	-0.3	1,000.00	15,844.94	10088472
	255	256	1352	1357	3.4	2.3	-	0.00	2,431,050.25	4.4	-0.3	1,000.00	8,813.96	10097286
Nawari Rampur Ghat	256	257	1358	1362	3.4	2.2	-	0.00	2,431,050.25	4.4	-0.3	1,000.00	38,668.66	10135954
NasiraBad Village	257	258	1363	1367	9.5	2.9	-	0.00	2,431,050.25	9.8	-0.3	1,000.00	63,775.68	10199730
	258	259	1368	1372	5.7	0.9	600.00	7,959.41	2,439,009.66	7.1	-0.3	1,000.00	51,356.62	10251087
	259	260	1373	1377	3.1	0.8	1,000.00	8,495.13	2,447,504.79	3.9	-0.3	1,000.00	71,956.78	10323043
	260	261	1378	1382	2.4	0.7	800.00	10,917.69	2,458,422.48	3.5	-0.3	1,000.00	75,448.84	10398492
Darjipur Murda Ghat	261	262	1383	1388	2.1	0.7	1,000.00	19,233.62	2,477,656.10	2.9	-0.3	1,000.00	87,269.30	10485761
Prithvipur	262	263	1389	1393	2.4	1.3	600.00	4,803.70	2,482,459.80	3.5	-0.3	1,000.00	56,382.00	10542143
	263	264	1394	1398	2.7	1.2	800.00	4,385.75	2,486,845.55	3.9	-0.3	1,000.00	75,034.69	10617178
	264	265	1399	1403	2.0	1.2	600.00	1,321.64	2,488,167.19	3.2	-0.3	1,000.00	68,672.14	10685850
	265	266	1404	1408	2.4	0.9	1,000.00	6,596.13	2,494,763.32	3.5	-0.3	1,000.00	78,402.22	10764253
	266	267	1409	1414	2.7	0.9	1,000.00	4,175.45	2,498,938.77	3.7	-0.3	1,000.00	86,985.68	10851238
Mobarkpur Village	267	268	1415	1419	2.0	0.7	1,000.00	12,649.60	2,511,588.37	3.1	-0.3	1,000.00	70,445.13	10921683
Chintaura	268	269	1420	1424	2.5	0.8	1,000.00	11,734.14	2,523,322.51	3.3	-0.3	1,000.00	69,657.99	10991341
	269	270	1425	1429	3.0	0.7	1,000.00	15,750.31	2,539,072.82	4.2	-0.3	1,000.00	77,701.74	11069043
Tanda	270	271	1430	1435	2.5	0.7	1,000.00	13,972.45	2,553,045.27	3.7	-0.3	1,000.00	92,940.08	11161983
	271	272	1436	1440	2.2	1.0	1,000.00	7,668.87	2,560,714.14	3.4	-0.3	1,000.00	77,355.46	11239339
	272	273	1441	1445	2.0	0.8	1,000.00	8,573.17	2,569,287.31	3.3	-0.3	1,000.00	44,631.84	11283970
	273	274	1446	1449	2.1	0.7	800.00	14,724.48	2,584,011.79	3.3	-0.3	1,000.00	50,326.05	11334296
	274	275	1450	1455	4.0	1.0	800.00	8,457.91	2,592,469.70	5.3	-0.3	1,000.00	73,001.66	11407298
	275	276	1456	1460	2.6	1.2	600.00	1,516.60	2,593,986.30	3.9	-0.3	1,000.00	76,960.65	11484259



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	276	277	1461	1465	2.8	0.7	600.00	8,832.02	2,602,818.32	3.7	-0.3	1,000.00	67,705.91	11551965
	277	278	1466	1470	2.0	0.7	1,000.00	19,561.76	2,622,380.08	3.1	-0.3	1,000.00	69,777.83	11621743
	278	279	1471	1475	2.6	1.4	800.00	5,818.82	2,628,198.90	3.8	-0.3	1,000.00	69,206.84	11690949
	279	280	1476	1480	2.6	0.7	800.00	8,721.86	2,636,920.76	4.0	-0.3	1,000.00	76,598.21	11767548
	280	281	1481	1485	2.3	1.0	800.00	8,456.00	2,645,376.76	3.5	-0.3	1,000.00	43,157.85	11810705
NTPC Power Plant	281	282	1486	1490	2.1	0.8	1,000.00	12,432.72	2,657,809.48	3.3	-0.3	1,000.00	63,283.33	11873989
	282	283	1491	1495	5.5	1.0	400.00	2,631.96	2,660,441.44	6.2	-0.3	1,000.00	71,146.47	11945135
Katariyan Village	283	284	1496	1501	3.6	1.0	1,000.00	2,578.30	2,663,019.74	5.2	-0.3	1,000.00	91,556.74	12036692
Eltefat Ganj	284	285	1502	1506	2.4	1.0	1,000.00	5,093.55	2,668,113.29	4.2	-0.3	1,000.00	63,780.43	12100472
Aurangabad Village	285	286	1507	1511	3.3	0.7	1,000.00	7,112.72	2,675,226.01	5.0	-0.3	1,000.00	68,811.79	12169284
Salona Village	286	287	1512	1517	7.0	0.7	1,000.00	11,065.20	2,686,291.21	3.2	-0.3	1,000.00	92,254.42	12261539
	287	288	1518	1523	2.2	0.7	1,000.00	20,228.29	2,706,519.50	4.0	-0.3	1,000.00	90,496.15	12352035
	288	289	1524	1528	1.5	0.7	1,000.00	18,904.86	2,725,424.36	3.3	-0.3	1,000.00	78,525.44	12430560
	289	290	1529	1534	1.5	0.7	1,000.00	26,491.99	2,751,916.35	3.3	-0.3	1,000.00	89,871.41	12520432
	290	291	1535	1539	2.0	1.0	1,000.00	10,990.46	2,762,906.81	3.8	-0.3	1,000.00	76,775.39	12597207
	291	292	1540	1545	1.7	0.8	1,000.00	12,236.80	2,775,143.61	2.7	-0.3	1,000.00	84,304.18	12681511
	292	293	1546	1549	1.9	0.7	800.00	14,490.36	2,789,633.97	2.5	-0.3	1,000.00	56,092.55	12737604
	293	294	1550	1554	5.9	0.7	1,000.00	21,631.40	2,811,265.37	3.0	-0.3	1,000.00	55,733.06	12793337
Bhura	294	295	1555	1559	2.4	0.8	1,000.00	12,200.82	2,823,466.19	2.3	-0.3	1,000.00	75,863.40	12869200
	295	296	1560	1564	4.3	0.8	1,000.00	5,504.18	2,828,970.37	3.1	-0.3	1,000.00	32,773.24	12901973
	296	297	1565	1569	2.7	0.7	1,000.00	16,674.70	2,845,645.07	3.5	-0.3	1,000.00	25,049.77	12927023
	297	298	1570	1574	3.4	1.3	200.00	375.65	2,846,020.72	4.1	-0.3	1,000.00	32,355.11	12959378
	298	299	1575	1579	4.6	1.6	200.00	376.68	2,846,397.40	5.5	-0.3	1,000.00	73,763.00	13033141
	299	300	1580	1584	5.0	0.7	400.00	3,133.85	2,849,531.25	4.2	-0.3	1,000.00	76,827.56	13109969
	300	301	1585	1589	2.5	0.7	1,000.00	7,234.71	2,856,765.96	3.4	-0.3	1,000.00	45,191.55	13155160
	301	302	1590	1594	2.8	1.5	1,000.00	2,591.55	2,859,357.51	4.1	-0.3	1,000.00	77,997.22	13233158
Sarwa Ghat	302	303	1595	1600	4.0	0.7	600.00	2,730.18	2,862,087.69	5.4	-0.3	1,000.00	88,227.29	13321385
Singirisi Temple	303	304	1601	1605	2.1	1.2	1,000.00	9,591.63	2,871,679.32	3.4	-0.3	1,000.00	65,183.90	13386569



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	304	305	1606	1610	2.3	1.0	1,000.00	1,012.12	2,872,691.44	3.6	-0.3	1,000.00	68,519.52	13455088
Mehboob Ganj	305	306	1611	1616	3.3	0.7	1,000.00	18,597.74	2,891,289.18	3.2	-0.3	1,000.00	70,415.15	13525504
	306	307	1617	1621	3.7	0.7	1,000.00	14,890.14	2,906,179.32	5.1	-0.3	1,000.00	70,050.53	13595554
	307	308	1622	1627	5.4	0.7	1,000.00	10,287.28	2,916,466.60	4.2	-0.3	1,000.00	50,658.91	13646213
Posra Village	308	309	1628	1632	4.4	0.7	1,000.00	11,280.80	2,927,747.40	4.7	-0.3	1,000.00	61,433.51	13707646
	309	310	1633	1638	6.0	0.7	1,000.00	9,417.15	2,937,164.55	8.1	-0.3	1,000.00	74,732.69	13782379
	310	311	1639	1644	5.8	0.8	1,000.00	12,387.55	2,949,552.10	7.6	-0.3	1,000.00	57,696.16	13840075
	311	312	1645	1651	2.6	0.9	1,000.00	14,419.98	2,963,972.08	3.0	-0.3	1,000.00	27,649.81	13867725
	312	313	1652	1655	7.8	1.8	400.00	3,419.81	2,967,391.89	9.0	-0.3	1,000.00	12,581.42	13880307
	313	314	1656	1660	8.5	1.8	-	0.00	2,967,391.89	9.6	-0.3	1,000.00	59,127.93	13939434
	314	315	1661	1665	4.3	1.5	-	0.00	2,967,391.89	5.0	-0.3	1,000.00	58,466.88	13997901
Baburi Babu	315	316	1666	1671	2.0	0.7	1,000.00	10,102.90	2,977,494.79	2.8	-0.3	1,000.00	12,610.53	14010512
	316	317	1672	1676	6.8	1.1	800.00	9,656.85	2,987,151.64	7.1	-0.3	1,000.00	67,024.70	14077537
	317	318	1677	1681	9.5	3.3	-	0.00	2,987,151.64	9.8	-0.3	1,000.00	77,574.25	14155111
Balwa Ghat	318	319	1682	1686	2.4	0.7	800.00	11,859.63	2,999,011.27	4.1	-0.3	1,000.00	75,898.31	14231009
	319	320	1687	1692	2.4	0.8	1,000.00	10,379.62	3,009,390.89	4.2	-0.3	1,000.00	85,822.20	14316831
Arjunpur Village	320	321	1693	1696	3.3	0.9	800.00	8,165.39	3,017,556.28	5.5	-0.3	1,000.00	55,849.17	14372681
	321	322	1697	1700	3.2	1.4	-	0.00	3,017,556.28	5.2	-0.3	1,000.00	46,781.71	14419462
	322	323	1701	1705	5.4	1.1	1,000.00	3,625.90	3,021,182.18	4.2	-0.3	1,000.00	78,339.83	14497802
	323	324	1706	1711	4.9	1.2	400.00	931.58	3,022,113.76	6.6	-0.3	1,000.00	88,409.10	14586211
	324	325	1712	1716	2.7	1.0	1,000.00	3,681.72	3,025,795.48	4.5	-0.3	1,000.00	78,284.57	14664496
	325	326	1717	1721	5.9	0.7	1,000.00	10,190.23	3,035,985.71	4.2	-0.3	1,000.00	75,940.03	14740436
	326	327	1722	1726	2.9	0.7	1,000.00	16,218.20	3,052,203.91	4.7	-0.3	1,000.00	71,857.65	14812293
	327	328	1727	1731	3.2	0.7	1,000.00	15,955.72	3,068,159.63	4.8	-0.3	1,000.00	73,317.30	14885611
	328	329	1732	1737	2.0	0.7	1,000.00	16,157.93	3,084,317.56	2.8	-0.3	1,000.00	81,119.26	14966730
	329	330	1738	1744	2.7	0.7	1,000.00	19,151.32	3,103,468.88	3.8	-0.3	1,000.00	94,660.43	15061390
	330	331	1745	1749	4.8	0.8	1,000.00	17,617.64	3,121,086.52	2.7	-0.3	1,000.00	47,318.76	15108709
	331	332	1750	1754	2.0	0.7	800.00	6,812.35	3,127,898.87	2.7	-0.3	1,000.00	72,098.14	15180807



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.7M OBSERVED DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.7m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	332	333	1755	1759	3.3	0.7	800.00	6,619.00	3,134,517.87	3.9	-0.3	1,000.00	46,086.57	15226894
	333	334	1760	1765	3.2	1.2	1,000.00	11,780.64	3,146,298.51	3.0	-0.3	1,000.00	67,386.56	15294280
	334	335	1766	1771	3.8	1.2	800.00	1,212.27	3,147,510.78	4.5	-0.3	1,000.00	59,757.60	15354038
Gauria Village	335	336	1772	1776	3.0	0.7	1,000.00	8,785.65	3,156,296.43	3.7	-0.3	1,000.00	52,878.54	15406917
Keshawapur	336	337	1777	1782	5.5	0.9	800.00	5,170.55	3,161,466.98	2.6	-0.3	1,000.00	67,719.49	15474636
	337	338	1783	1788	2.5	1.1	800.00	3,733.71	3,165,200.69	3.2	-0.3	1,000.00	6,124.05	15480760
	338	339	1789	1793	9.7	1.1	1,000.00	6,394.79	3,171,595.48	10.4	-0.3	1,000.00	66,757.20	15547517
	339	340	1794	1798	6.7	1.9	-	0.00	3,171,595.48	7.4	-0.3	1,000.00	61,635.93	15609153
	340	341	1799	1803	1.8	1.1	800.00	3,138.96	3,174,734.44	2.7	-0.3	1,000.00	34,269.70	15643423
	341	342	1804	1808	2.5	1.0	1,000.00	6,032.11	3,180,766.55	3.4	-0.3	1,000.00	44,088.47	15687511
	342	343	1809	1813	4.9	1.9	200.00	1,074.61	3,181,841.16	5.7	-0.3	1,000.00	70,289.83	15757801
AYODHYA	343	344	1814	1818	4.9	0.7	200.00	2,044.75	3,183,885.91	6.0	-0.3	1,000.00	48,250.14	15806051
Durga Ganj Village	344	345	1819	1823	3.0	0.8	1,000.00	17,333.55	3,201,219.46	3.9	-0.3	1,000.00	67,765.20	15873817
	345	346	1824	1829	4.4	0.8	1,000.00	2,731.26	3,203,950.72	5.4	-0.3	1,000.00	495,837.89	15377979
	346	347	1830	1834	2.6	1.0	1,000.00	9,383.94	3,213,334.66	3.6	-0.3	1,000.00	54,058.75	15432037
	347	348	1835	1839	3.9	1.5	400.00	49.41	3,213,384.07	4.8	-0.3	1,000.00	54,058.75	15486096
	348	349	1840	1875	3.2	0.7	1,000.00	1,746.99	3,215,131.06	4.2	-0.3	1,000.00	54,058.75	15540155
	349	350	1876	1850	1.9	1.2	1,000.00	5,043.88	3,220,174.94	2.9	-0.3	1,000.00	54,058.75	15594214
	350	351	1851	1855	3.5	1.7	400.00	1,301.12	3,221,476.06	4.5	-0.3	1,000.00	54,058.75	15648272
Fatehpur Sariya Manjh	351	352	1856	1860	4.1	1.9	-	0.00	3,221,476.06	5.1	-0.3	1,000.00	54,058.75	15702331
	352	353	1861	1865	3.8	1.1	600.00	4,112.15	3,225,588.21	4.6	-0.3	1,000.00	54,058.75	15756390
FAIZABAD	353	354	1866	1868	2.0	0.8	400.00	3,390.18	3,228,978.39	3.1	-0.3	1,000.00	54,058.75	15810449
TOTAL DREDGING QUANTITY (cu.m.)							275,400.00	3,228,978.39				315,000.00	15,829,665.69	



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Ganga Confluence (Near Doriganj)	0	1	1	5	3.3	2.1	-	0.00	0.00	1.6	1.5	-	0.00	0.00
	1	2	6	10	5.9	2.0	-	0.00	0.00	4.2	1.5	-	0.00	0.00
	2	3	11	15	3.5	1.5	-	0.00	0.00	1.8	1.5	-	0.00	0.00
	3	4	16	20	4.1	1.3	800.00	118.16	118.16	2.6	1.5	-	0.00	0.00
	4	5	21	27	5.9	0.8	400.00	3,365.99	3,484.15	4.4	1.5	-	0.00	0.00
Enai Village	5	6	28	33	3.3	1.2	600.00	1,353.60	4,837.75	1.5	1.5	-	0.00	0.00
	6	7	34	40	5.4	1.2	400.00	517.56	5,355.31	3.6	1.5	-	0.00	0.00
	7	8	41	45	2.3	0.9	1,000.00	6,077.29	11,432.60	1.8	1.5	-	0.00	0.00
CHHAPRA	8	9	46	51	2.3	0.7	1,000.00	8,755.49	20,188.09	1.8	-0.3	1,000.00	2,286.90	2286.9
	9	10	52	57	3.2	0.9	800.00	7,454.37	27,642.46	1.8	-0.3	1,000.00	12,283.72	14570.62
	10	11	58	62	3.4	1.0	800.00	2,981.12	30,623.58	2.8	0.3	1,000.00	5,512.97	20083.59
	11	12	63	67	2.4	0.7	600.00	1,539.27	32,162.85	1.7	0.1	1,000.00	9,704.39	29787.98
	12	13	68	72	3.1	0.7	800.00	7,800.12	39,962.97	2.4	0.1	1,000.00	10,762.85	40550.83
Seanraija Village	13	14	73	77	2.4	0.8	1,000.00	6,202.84	46,165.81	1.8	0.2	1,000.00	11,343.35	51894.18
Revelganj Ghat	14	15	78	83	3.1	1.2	600.00	1,707.86	47,873.67	2.5	0.5	1,000.00	4,834.85	56729.03
	15	16	84	88	2.7	1.7	-	0.00	47,873.67	2.0	1.5	-	0.00	56729.03
	16	17	89	93	2.7	0.7	400.00	1,589.87	49,463.54	2.1	0.1	1,000.00	9,481.01	66210.04
	17	18	94	98	2.5	0.9	1,000.00	12,230.88	61,694.42	3.2	0.5	1,000.00	51,953.52	118163.56
MANJHI BRIDGE	18	19	99	103	5.2	1.5	-	0.00	61,694.42	6.7	3.0	1,000.00	10,964.50	129128.06
	19	20	104	108	6.4	3.0	-	0.00	61,694.42	7.0	3.7	1,000.00	0.00	129128.06
Mehadiganj Village	20	21	109	113	4.4	1.0	400.00	375.75	62,070.17	5.2	1.7	1,000.00	22,428.38	151556.44
	21	22	114	119	2.7	0.9	1,000.00	3,988.57	66,058.74	3.4	0.9	1,000.00	59,873.13	211429.57
	22	23	120	124	3.4	0.9	1,000.00	7,134.79	73,193.53	4.2	1.6	1,000.00	53,835.30	265264.87
	23	24	125	130	3.3	0.7	1,000.00	4,447.19	77,640.72	4.0	1.4	1,000.00	58,645.68	323910.55
	24	25	131	136	2.7	0.9	800.00	9,236.63	86,877.35	3.4	0.3	1,000.00	50,286.57	374197.12
Dumri	25	26	137	143	3.3	0.6	1,000.00	2,567.36	89,444.71	4.0	0.7	1,000.00	48,810.67	423007.79



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	26	27	144	149	1.9	1.0	1,000.00	9,855.67	99,300.38	2.6	1.1	1,000.00	49,335.11	472342.9
	27	28	150	154	2.8	1.6	200.00	67.13	99,367.51	2.7	1.5	1,000.00	7,592.50	479935.4
	28	29	155	159	5.1	1.7	-	0.00	99,367.51	5.0	1.6	1,000.00	2,336.69	482272.09
	29	30	160	164	5.5	1.0	200.00	487.32	99,854.83	5.3	0.9	1,000.00	9,529.46	491801.55
	30	31	165	169	2.7	1.1	800.00	4,455.87	104,310.70	2.6	0.5	1,000.00	26,069.14	517870.69
Dumaigarh	31	32	170	174	6.1	1.4	400.00	31.55	104,342.25	5.9	1.3	1,000.00	6,252.74	524123.43
	32	33	175	179	7.6	2.8	-	0.00	104,342.25	7.4	2.7	-	0.00	524123.43
	33	34	180	184	4.6	1.2	800.00	825.71	105,167.96	4.4	1.0	1,000.00	13,684.22	537807.65
Narwan	34	35	185	189	8.9	3.6	-	0.00	105,167.96	8.8	3.5	-	0.00	537807.65
	35	36	190	193	4.7	2.8	-	0.00	105,167.96	4.5	2.7	-	0.00	537807.65
	36	37	194	198	3.7	2.1	-	0.00	105,167.96	3.6	2.0	-	0.00	537807.65
	37	38	199	203	6.5	2.1	-	0.00	105,167.96	6.4	1.4	200.00	350.26	538157.91
	38	39	204	209	2.8	1.0	1,000.00	4,479.24	109,647.20	2.5	0.2	1,000.00	35,445.66	573603.57
	39	40	210	214	2.1	1.1	1,000.00	2,864.35	112,511.55	4.4	1.1	1,000.00	30,602.00	604205.57
	40	41	215	219	2.9	1.1	400.00	1,236.58	113,748.13	3.0	1.1	1,000.00	14,495.66	618701.23
	41	42	220	224	2.9	1.1	800.00	4,227.55	117,975.68	3.0	1.2	1,000.00	21,846.80	640548.03
	42	43	225	229	5.4	3.0	-	0.00	117,975.68	5.5	3.0	-	0.00	640548.03
	43	44	230	234	6.6	1.2	-	0.00	117,975.68	6.7	1.3	1,000.00	3,021.94	643569.97
	44	45	235	239	2.0	0.7	1,000.00	3,673.61	121,649.29	2.1	0.8	1,000.00	32,086.19	675656.16
	45	46	240	245	2.2	0.8	1,000.00	7,008.22	128,657.51	2.1	0.5	1,000.00	37,697.90	713354.06
	46	47	246	250	2.3	1.1	800.00	1,591.84	130,249.35	2.3	1.2	1,000.00	19,556.04	732910.1
	47	48	251	255	3.1	1.0	800.00	3,599.05	133,848.40	3.2	1.0	1,000.00	28,230.92	761141.02
	48	49	256	261	1.4	0.9	1,000.00	10,921.23	144,769.63	1.6	0.5	1,000.00	59,528.26	820669.28
	49	50	262	266	2.1	0.7	1,000.00	3,617.74	148,387.37	2.1	-0.3	1,000.00	44,754.69	865423.97
	50	51	267	272	1.7	1.0	1,000.00	8,118.57	156,505.94	1.8	-0.3	1,000.00	61,925.54	927349.51
Gangapur	51	52	273	277	2.0	0.7	1,000.00	7,179.60	163,685.54	2.0	0.7	1,000.00	47,095.75	974445.26
Kachnar	52	53	278	282	3.1	1.0	800.00	1,182.39	164,867.93	3.2	1.0	1,000.00	24,239.38	998684.64
	53	54	283	287	5.2	1.0	200.00	954.36	165,822.29	5.1	1.1	1,000.00	23,663.64	1022348.28



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	54	55	288	293	3.0	1.1	800.00	6,084.01	171,906.30	3.0	1.2	1,000.00	37,004.12	1059352.4
	55	56	294	298	2.6	1.2	600.00	1,468.41	173,374.71	2.6	1.2	1,000.00	25,563.17	1084915.57
	56	57	299	303	2.3	1.0	800.00	4,232.07	177,606.78	2.7	0.5	1,000.00	44,138.47	1129054.04
	57	58	304	308	4.8	2.0	400.00	1,009.16	178,615.94	4.8	2.0	1,000.00	6,781.94	1135835.98
	58	59	309	313	4.7	1.2	-	0.00	178,615.94	4.8	1.2	1,000.00	7,521.30	1143357.28
	59	60	314	318	3.0	1.1	800.00	2,878.98	181,494.92	3.1	1.2	1,000.00	26,283.60	1169640.88
	60	61	319	323	4.5	3.1	-	0.00	181,494.92	4.3	3.1	-	0.00	1169640.88
	61	62	324	328	4.7	1.7	-	0.00	181,494.92	4.5	1.6	1,000.00	2,190.56	1171831.44
	62	63	329	333	3.5	1.7	-	0.00	181,494.92	3.4	1.6	1,000.00	2,290.41	1174121.85
	63	64	334	338	3.7	1.5	-	0.00	181,494.92	3.7	1.4	1,000.00	2,074.65	1176196.5
	64	65	339	344	2.2	0.8	1,000.00	11,188.83	192,683.75	1.5	0.4	1,000.00	44,620.09	1220816.59
Raghunathpur	65	66	345	349	4.1	0.9	1,000.00	11,801.40	204,485.15	4.1	0.8	1,000.00	31,481.95	1252298.54
	66	67	350	354	2.9	0.9	1,000.00	5,279.63	209,764.78	2.7	0.3	1,000.00	28,845.71	1281144.25
	67	68	355	360	1.8	0.7	1,000.00	14,834.49	224,599.27	1.7	0.0	1,000.00	48,328.57	1329472.82
Narhan	68	69	361	365	2.1	0.8	1,000.00	12,832.36	237,431.63	1.9	0.7	1,000.00	36,011.36	1365484.18
	69	70	366	370	2.5	0.9	800.00	4,491.51	241,923.14	2.3	0.8	1,000.00	25,320.57	1390804.75
	70	71	371	375	1.3	0.8	1,000.00	13,158.18	255,081.32	1.1	0.4	1,000.00	43,323.28	1434128.03
	71	72	376	380	2.5	0.7	1,000.00	11,358.28	266,439.60	2.6	0.9	1,000.00	28,624.06	1462752.09
	72	73	381	385	7.3	1.5	-	0.00	266,439.60	7.8	1.5	1,000.00	1,620.59	1464372.68
	73	74	386	390	3.2	0.7	800.00	4,873.65	271,313.25	3.4	0.6	1,000.00	28,037.83	1492410.51
	74	75	391	395	2.0	0.7	1,000.00	12,973.52	284,286.77	2.1	-0.3	1,000.00	50,958.41	1543368.92
	75	76	396	400	1.8	0.7	1,000.00	9,213.59	293,500.36	2.0	0.5	1,000.00	40,062.19	1583431.11
	76	77	401	406	3.4	0.7	1,000.00	10,359.99	303,860.35	3.5	0.5	1,000.00	44,140.89	1627572
	77	78	407	412	2.6	0.7	1,000.00	14,188.02	318,048.37	3.0	0.2	1,000.00	49,535.03	1677107.03
	78	79	413	417	2.9	0.7	1,000.00	11,079.22	329,127.59	3.1	0.9	1,000.00	39,006.91	1716113.94
	79	80	418	422	3.2	0.7	1,000.00	7,399.40	336,526.99	3.3	0.9	1,000.00	34,514.00	1750627.94
	80	81	423	429	2.1	0.7	1,000.00	12,853.32	349,380.31	2.0	0.4	1,000.00	41,020.11	1791648.05
	81	82	430	434	2.5	0.8	800.00	9,407.24	358,787.55	2.4	-0.2	1,000.00	40,317.24	1831965.29



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	82	83	435	439	2.3	0.7	1,000.00	9,358.14	368,145.69	4.8	0.2	1,000.00	37,218.58	1869183.87
	83	84	440	444	1.7	0.7	1,000.00	15,005.94	383,151.63	7.0	0.7	1,000.00	46,910.06	1916093.93
	84	85	445	449	2.7	0.7	1,000.00	7,090.48	390,242.11	2.7	0.7	1,000.00	28,746.40	1944840.33
	85	86	450	454	2.3	0.9	1,000.00	3,924.93	394,167.04	2.2	-0.2	1,000.00	27,173.85	1972014.18
	86	87	455	460	1.9	0.7	1,000.00	9,586.88	403,753.92	4.8	0.3	1,000.00	47,771.03	2019785.21
Darauli	87	88	461	465	2.3	0.7	800.00	3,691.67	407,445.59	2.2	0.7	1,000.00	24,782.62	2044567.83
	88	89	466	470	2.7	0.7	800.00	10,263.54	417,709.13	2.7	0.0	1,000.00	28,565.60	2073133.43
	89	90	471	475	1.9	0.7	1,000.00	10,173.12	427,882.25	1.7	0.7	1,000.00	38,077.59	2111211.02
	90	91	476	480	3.4	1.3	200.00	26.01	427,908.26	3.3	1.2	1,000.00	13,026.80	2124237.82
	91	92	481	485	2.6	0.8	400.00	1,643.37	429,551.63	3.3	0.2	1,000.00	25,101.55	2149339.37
	92	93	486	490	5.0	0.7	1,000.00	7,117.06	436,668.69	2.7	1.1	1,000.00	35,384.91	2184724.28
	93	94	491	495	1.7	0.8	1,000.00	12,677.07	449,345.76	2.3	1.1	1,000.00	44,769.40	2229493.68
	94	95	496	500	2.5	0.7	800.00	5,249.53	454,595.29	3.2	0.7	1,000.00	35,096.91	2264590.59
	95	96	501	506	2.8	0.7	1,000.00	14,704.21	469,299.50	3.5	1.5	1,000.00	42,920.49	2307511.08
	96	97	507	511	2.3	0.8	1,000.00	4,901.61	474,201.11	3.0	0.7	1,000.00	25,756.67	2333267.75
	97	98	512	516	2.3	1.1	600.00	3,624.86	477,825.97	3.0	1.8	1,000.00	25,941.73	2359209.48
	98	99	517	521	3.6	1.6	-	0.00	477,825.97	4.2	2.2	1,000.00	10,132.53	2369342.01
	99	100	522	526	1.9	0.7	800.00	7,931.07	485,757.04	2.6	1.4	1,000.00	39,966.83	2409308.84
	100	100.4	527	528	1.7	1.0	600.00	4,224.44	489,981.48	2.3	1.7	1,000.00	13,764.00	2423072.84
	100.35	101	529	532	1.8	1.0	400.00	2,720.22	492,701.70	2.1	1.2	1,000.00	21,906.81	2,444,979.65
	101	102	533	537	2.3	0.8	800.00	4,201.42	496,903.12	2.3	0.2	1,000.00	34,216.75	2,479,196.40
	102	103	538	542	3.5	1.4	400.00	2,381.25	499,284.37	3.8	1.4	1,000.00	12,136.64	2,491,333.04
	103	104	543	548	2.3	0.7	1,000.00	5,267.76	504,552.13	2.3	0.2	1,000.00	51,709.40	2,543,042.44
	104	105	549	553	2.4	0.7	800.00	7,031.90	511,584.03	2.5	0.7	1,000.00	27,733.28	2,570,775.72
	105	106	554	558	1.5	0.9		8,461.53	520,045.56	1.5	0.9		44,108.01	2,614,883.73



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
							1,000.00					1,000.00		
	106	107	559	563	5.3	1.7	400.00	519.55	520,565.11	5.3	1.7	1,000.00	6,660.68	2,621,544.41
Rampur Village	107	108	564	568	3.2	1.7	-	0.00	520,565.11	3.2	0.0	1,000.00	17,159.26	2,638,703.67
Harnatar Dayalpur	108	109	569	572	3.0	1.3	200.00	344.40	520,909.51	3.0	1.3	1,000.00	12,143.51	2,650,847.18
	109	110	573	577	1.9	0.7	1,000.00	10,440.58	531,350.09	2.3	0.2	1,000.00	32,741.34	2,683,588.52
	110	111	578	582	2.3	0.7	1,000.00	9,821.80	541,171.89	2.7	0.8	1,000.00	29,165.24	2,712,753.76
	111	112	583	587	3.2	0.7	600.00	6,651.27	547,823.16	3.7	1.2	1,000.00	12,933.92	2,725,687.68
Manthala Bajar	112	113	588	592	1.8	0.7	800.00	3,911.22	551,734.38	2.3	0.7	1,000.00	20,701.71	2,746,389.39
	113	114	593	897	1.8	0.7	600.00	7,413.17	559,147.55	2.2	0.4	1,000.00	31,368.61	2,777,758.00
Turtipar	114	115	898	602	2.6	0.7	1,000.00	9,536.47	568,684.02	2.9	0.3	1,000.00	26,976.07	2,804,734.07
Turtipar Rly. Brg.	115	116	603	607	2.0	0.9	1,000.00	9,012.62	577,696.64	2.5	1.3	1,000.00	25,706.05	2,830,440.12
	116	117	608	612	4.4	2.4	-	0.00	577,696.64	4.7	1.4	200.00	418.32	2,830,858.44
	117	118	613	618	6.7	0.8	600.00	8,548.79	586,245.43	6.9	1.2	1,000.00	28,401.11	2,859,259.55
	118	119	619	623	1.7	0.8	1,000.00	5,864.97	592,110.40	2.2	1.2	1,000.00	25,160.24	2,884,419.79
Esharou	119	120	624	628	2.5	0.7	600.00	4,009.34	596,119.74	3.0	1.2	1,000.00	27,197.01	2,911,616.80
	120	121	629	633	2.8	1.2	800.00	1,022.75	597,142.49	3.2	1.3	1,000.00	23,598.64	2,935,215.44
	121	122	634	638	3.4	1.1	200.00	182.23	597,324.72	3.9	1.7	1,000.00	12,311.51	2,947,526.95
Chanpur Gloura Village	122	123	639	643	5.4	0.9	400.00	186.05	597,510.77	6.1	1.4	1,000.00	17,813.06	2,965,340.01
	123	124	644	648	2.2	1.1	1,000.00	2,847.85	600,358.62	2.7	1.6	1,000.00	43,854.15	3,009,194.16
	124	125	649	653	1.6	0.8	1,000.00	10,647.39	611,006.01	2.7	0.8	1,000.00	44,693.35	3,053,887.51
	125	126	654	658	1.7	0.7	1,000.00	3,955.63	614,961.64	5.9	1.5	1,000.00	45,723.69	3,099,611.20
Chakimusa Dohi Ghat	126	127	659	663	2.8	0.7	1,000.00	9,287.47	624,249.11	3.9	0.9	1,000.00	43,154.93	3,142,766.13
	127	128	664	668	3.0	0.7	1,000.00	8,168.00	632,417.11	3.5	1.2	1,000.00	43,472.21	3,186,238.34
	128	129	669	674	2.7	0.7	1,000.00	12,857.26	645,274.37	3.3	-0.3	1,000.00	59,356.93	3,245,595.27
	129	130	675	679	1.6	0.7	1,000.00	14,458.63	659,733.00	2.1	0.2	1,000.00	53,313.37	3,298,908.64
	130	131	680	685	1.4	0.7	1,000.00	21,412.15	681,145.15	1.8	0.7	1,000.00	61,962.22	3,360,870.86
	131	132	686	690	1.9	1.1	1,000.00	7,850.38	688,995.53	2.4	0.7	1,000.00	27,472.47	3,388,343.33



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	132	133	691	695	4.6	1.0	600.00	229.73	689,225.26	4.9	-0.1	1,000.00	30,047.82	3,418,391.15
	133	134	696	700	1.6	0.7	1,000.00	13,415.14	702,640.40	2.2	0.1	1,000.00	51,098.91	3,469,490.06
	134	135	701	705	2.5	0.8	1,000.00	10,208.94	712,849.34	2.9	0.8	1,000.00	25,838.79	3,495,328.85
	135	136	706	710	4.2	2.2	200.00	354.15	713,203.49	4.5	1.3	1,000.00	5,904.40	3,501,233.25
	136	137	711	715	2.2	1.5	-	0.00	713,203.49	2.7	1.3	1,000.00	16,212.17	3,517,445.42
	137	138	716	720	2.7	2.0	-	0.00	713,203.49	3.2	1.3	1,000.00	1,690.71	3,519,136.13
	138	139	721	725	3.3	1.5	-	0.00	713,203.49	3.4	1.3	1,000.00	12,348.42	3,531,484.55
Barhaj Bridge (UNC)	139	140	726	730	3.8	1.4	-	0.00	713,203.49	4.3	1.9	1,000.00	18,836.96	3,550,321.51
Nabideswar Mishra Ghat	140	141	731	736	2.4	1.1	800.00	2,929.07	716,132.56	4.3	1.6	1,000.00	35,394.00	3,585,715.51
Katelwa Village	141	142	737	741	6.7	1.1	600.00	1,553.31	717,685.87	7.0	1.0	1,000.00	2,833.92	3,588,549.43
Kudhe Ghat	142	143	742	746	4.4	1.3	200.00	10.69	717,696.56	4.8	1.6	1,000.00	32,382.72	3,620,932.15
	143	144	747	752	1.3	0.7	1,000.00	18,788.56	736,485.12	5.1	0.0	1,000.00	47,779.57	3,668,711.72
Kaparwar	144	145	753	757	2.2	0.9	1,000.00	8,136.13	744,621.25	2.2	0.9	1,000.00	33,263.79	3,701,975.51
	145	146	758	763	3.7	0.7	1,000.00	5,949.58	750,570.83	5.1	-0.3	1,000.00	43,613.60	3,745,589.11
	146	147	764	768	1.8	0.7	1,000.00	12,682.19	763,253.02	1.8	0.6	1,000.00	29,483.75	3,775,072.86
Netavar patti	147	148	769	773	2.8	0.8	1,000.00	6,094.16	769,347.18	2.9	0.6	1,000.00	30,193.51	3,805,266.37
	148	149	774	779	1.9	0.7	1,000.00	10,225.41	779,572.59	2.1	0.1	1,000.00	50,643.83	3,855,910.20
	149	150	780	784	2.3	0.7	600.00	11,062.44	790,635.03	2.3	0.3	1,000.00	40,715.27	3,896,625.47
	150	151	785	790	2.5	1.0	1,000.00	5,037.62	795,672.65	2.6	1.1	1,000.00	56,534.67	3,953,160.14
	151	152	791	795	2.0	0.7	1,000.00	5,533.65	801,206.30	2.0	0.2	1,000.00	53,235.44	4,006,395.58
	152	153	796	800	2.1	0.7	1,000.00	16,797.13	818,003.43	1.7	-0.3	1,000.00	47,094.40	4,053,489.98
	153	154	801	806	1.9	0.7	1,000.00	20,947.38	838,950.81	1.5	0.0	1,000.00	56,216.15	4,109,706.13
	154	155	807	811	2.2	0.7	1,000.00	12,903.75	851,854.56	1.8	0.3	1,000.00	31,842.64	4,141,548.77
	155	156	812	816	2.4	0.7	1,000.00	8,798.60	860,653.16	2.1	0.3	1,000.00	9,497.36	4,151,046.13
	156	157	817	822	3.7	1.2	600.00	576.91	861,230.07	3.3	0.7	1,000.00	42,851.44	4,193,897.57
	157	158	823	827	3.2	0.7	600.00	8,880.22	870,110.29	2.7	-0.2	1,000.00	44,732.89	4,238,630.46
	158	159	828	833	2.9	0.7	1,000.00	9,593.47	879,703.76	2.4	0.3	1,000.00	9,039.03	4,247,669.49



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	159	160	834	838	5.9	1.9	400.00	1,187.36	880,891.12	5.5	1.4	1,000.00	39,606.79	4,287,276.28
	160	161	839	843	3.4	0.8	600.00	4,763.93	885,655.05	3.1	0.3	1,000.00	41,898.83	4,329,175.11
	161	162	844	848	3.5	0.8	800.00	5,011.60	890,666.65	3.0	0.4	1,000.00	27,151.13	4,356,326.24
	162	163	849	853	2.2	0.8	1,000.00	11,092.76	901,759.41	2.2	0.9	1,000.00	39,495.96	4,395,822.20
	163	164	854	858	2.3	0.8	600.00	3,825.34	905,584.75	2.5	0.6	1,000.00	25,710.38	4,421,532.58
Khadesari	164	165	859	863	2.1	0.7	1,000.00	7,224.62	912,809.37	2.3	1.5	-	0.00	4,421,532.58
DOHRI GHAT	165	166	864	868	9.2	1.4	200.00	483.19	913,292.56	9.5	2.6	1,000.00	3,434.57	4,424,967.15
Barhalganj	166	167	869	873	6.7	2.5	-	0.00	913,292.56	8.0	2.7	-	0.00	4,424,967.15
	167	168	874	878	7.7	1.8	-	0.00	913,292.56	7.8	1.9	1,000.00	10,084.53	4,435,051.68
	168	169	879	884	7.9	1.2	-	0.00	913,292.56	8.2	1.1	1,000.00	36,256.41	4,471,308.09
	169	170	885	889	2.4	0.7	800.00	2,583.11	915,875.67	2.4	0.3	1,000.00	51,683.69	4,522,991.78
	170	171	890	894	2.4	0.8	1,000.00	9,704.09	925,579.76	2.5	0.2	1,000.00	31,861.44	4,554,853.22
	171	172	895	899	7.3	0.7	600.00	4,294.15	929,873.91	3.4	0.1	1,000.00	36,585.20	4,591,438.42
	172	173	900	905	2.6	0.7	1,000.00	11,196.08	941,069.99	2.5	0.1	1,000.00	49,477.27	4,640,915.69
	173	174	906	910	3.5	1.0	1,000.00	6,449.19	947,519.18	2.5	0.8	1,000.00	17,535.02	4,658,450.71
	174	175	911	916	5.0	0.9	1,000.00	6,471.92	953,991.10	4.7	1.3	1,000.00	50,769.24	4,709,219.95
	175	176	917	923	5.9	0.7	1,000.00	14,001.48	967,992.58	1.6	0.4	1,000.00	46,164.56	4,755,384.51
Parsiya	176	177	924	928	6.9	0.7	800.00	8,819.37	976,811.95	2.2	0.9	1,000.00	41,004.65	4,796,389.16
	177	178	929	934	6.3	0.7	1,000.00	11,633.23	988,445.18	2.1	0.7	1,000.00	57,487.71	4,853,876.87
	178	179	935	939	1.7	0.7	1,000.00	14,281.92	1,002,727.10	2.2	1.0	1,000.00	35,589.49	4,889,466.36
	179	180	940	944	1.6	0.7	1,000.00	8,474.30	1,011,201.40	2.2	0.5	1,000.00	27,916.31	4,917,382.67
	180	181	945	949	2.4	1.1	800.00	1,694.67	1,012,896.07	2.9	1.6	1,000.00	42,123.27	4,959,505.94
Khutahan Khas	181	182	950	954	2.0	0.7	1,000.00	6,874.41	1,019,770.48	2.5	0.1	1,000.00	51,996.10	5,011,502.04
	182	183	955	960	1.8	0.9	1,000.00	11,279.07	1,031,049.55	2.3	1.4	1,000.00	39,245.41	5,050,747.45
	183	184	961	965	2.0	1.2	800.00	2,290.65	1,033,340.20	1.0	-0.3	1,000.00	27,899.00	5,078,646.45
	184	185	966	970	4.2	1.5	-	0.00	1,033,340.20	2.0	-0.3	1,000.00	41,332.84	5,119,979.29
	185	186	971	975	1.8	1.0	800.00	4,880.76	1,038,220.96	-0.1	-0.3	1,000.00	36,598.06	5,156,577.35
	186	187	976	980	2.2	1.2	200.00	160.25	1,038,381.21	0.1	-0.3	1,000.00	44,984.62	5,201,561.97



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Gola Ghat	187	188	981	986	6.4	0.7	1,000.00	6,464.55	1,044,845.76	0.1	-0.3	1,000.00	46,230.02	5,247,791.99
	188	189	987	991	2.1	0.7	800.00	9,510.10	1,054,355.86	0.5	-0.3	1,000.00	44,026.86	5,291,818.85
	189	190	992	996	3.2	0.8	600.00	3,233.38	1,057,589.24	0.9	-0.3	1,000.00	43,361.84	5,335,180.69
	190	191	997	1002	2.1	0.9	1,000.00	12,742.75	1,070,331.99	0.0	-0.3	1,000.00	12,936.66	5,348,117.35
	191	192	1003	1008	3.3	1.5	200.00	44.16	1,070,376.15	1.1	-0.3	1,000.00	14,936.01	5,363,053.36
Dewara Achal Singh	192	193	1009	1014	4.1	1.4	200.00	13.10	1,070,389.25	4.1	0.9	1,000.00	14,891.40	5,377,944.76
Kauriya	193	194	1015	1019	2.1	1.3	1,000.00	215.63	1,070,604.88	2.3	1.5	1,000.00	4,955.91	5,382,900.67
	194	195	1020	1024	2.5	1.3	-	0.00	1,070,604.88	2.9	1.6	1,000.00	29,229.72	5,412,130.39
	195	196	1025	1029	2.5	0.9	800.00	4,876.35	1,075,481.23	2.8	0.7	1,000.00	23,259.14	5,435,389.53
Bara Kalika Sthan	196	197	1030	1035	2.1	0.9	1,000.00	7,186.19	1,082,667.42	2.4	1.2	1,000.00	23,907.57	5,459,297.10
	197	198	1036	1040	2.9	0.8	1,000.00	6,446.83	1,089,114.25	3.3	1.0	1,000.00	36,984.67	5,496,281.77
	198	199	1041	1045	1.9	0.7	800.00	5,076.15	1,094,190.40	2.1	1.0	1,000.00	32,188.24	5,528,470.01
	199	200	1046	1051	1.7	0.9	1,000.00	11,043.07	1,105,233.47	1.8	0.7	1,000.00	32,436.69	5,560,906.70
Jhptia Ghat	200	201	1052	1056	2.8	0.9	1,000.00	3,301.19	1,108,534.66	3.0	1.1	1,000.00	28,370.46	5,589,277.16
	201	202	1057	1061	2.3	0.8	1,000.00	7,968.87	1,116,503.53	2.5	1.0	1,000.00	29,762.53	5,619,039.69
	202	203	1062	1066	1.6	0.7	1,000.00	10,465.72	1,126,969.25	1.9	0.9	1,000.00	47,257.87	5,666,297.56
Basahi	203	204	1067	1071	4.3	1.1	1,000.00	5,590.63	1,132,559.88	3.0	-0.2	1,000.00	63,999.80	5,730,297.36
	204	205	1072	1077	6.7	0.8	800.00	10,297.86	1,142,857.74	2.9	0.7	1,000.00	63,351.22	5,793,648.58
Sahapur Ghat	205	206	1078	1082	2.3	1.1	600.00	1,388.88	1,144,246.62	3.6	1.1	1,000.00	45,909.89	5,839,558.47
Belikur Village	206	207	1083	1088	2.3	1.5	-	0.00	1,144,246.62	3.5	1.2	1,000.00	68,010.92	5,907,569.39
	207	208	1089	1094	2.8	0.7	600.00	5,687.89	1,149,934.51	4.1	1.8	1,000.00	49,518.17	5,957,087.56
Khairati	208	209	1095	1099	2.3	1.2	600.00	6,150.13	1,156,084.64	3.4	1.1	1,000.00	53,918.67	6,011,006.23
	209	210	1100	1104	3.4	1.3	400.00	2.53	1,156,087.17	4.7	1.1	1,000.00	8,172.12	6,019,178.35
	210	211	1105	1108	3.6	1.4	400.00	59.80	1,156,146.97	4.9	1.1	1,000.00	4,261.93	6,023,440.28
Belwa Ghat	211	212	1109	1114	5.7	2.2	-	0.00	1,156,146.97	6.9	1.1	1,000.00	70,120.91	6,093,561.19
	212	213	1115	1119	2.5	0.7	800.00	3,450.15	1,159,597.12	3.9	1.9	1,000.00	64,081.67	6,157,642.86
Indorepur urf Dinhapur	213	214	1120	1124	1.9	0.7	1,000.00	5,872.85	1,165,469.97	3.2	1.9	1,000.00	63,642.23	6,221,285.09



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	214	215	1125	1129	2.1	0.7	1,000.00	8,362.77	1,173,832.74	3.4	1.2	1,000.00	67,803.09	6,289,088.18
	215	216	1130	1134	1.4	0.7	1,000.00	15,681.77	1,189,514.51	2.9	1.2	1,000.00	68,424.92	6,357,513.10
	216	217	1135	1139	2.0	0.8	1,000.00	8,955.72	1,198,470.23	3.4	1.3	1,000.00	67,563.25	6,425,076.35
Babhanpura	217	218	1140	1145	1.4	0.7	1,000.00	14,613.90	1,213,084.13	2.8	1.9	1,000.00	72,763.94	6,497,840.29
Kamariya Pontoon Brg.	218	219	1146	1150	2.9	0.7	400.00	8,562.14	1,221,646.27	6.4	1.2	1,000.00	74,967.36	6,572,807.65
Dandwa	219	220	1151	1155	2.3	0.7	1,000.00	16,369.28	1,238,015.55	3.7	1.2	1,000.00	33,701.80	6,606,509.45
Chadipur Village	220	221	1156	1161	7.6	1.0	1,000.00	2,569.30	1,240,584.85	2.2	0.0	1,000.00	78,418.35	6,684,927.80
Gangasagar	221	222	1162	1166	2.2	0.8	1,000.00	10,130.06	1,250,714.91	3.6	1.4	1,000.00	65,732.98	6,750,660.78
	222	223	1167	1173	1.9	0.7	1,000.00	11,845.09	1,262,560.00	3.3	1.0	1,000.00	80,209.49	6,830,870.27
	223	224	1174	1178	1.8	0.8	1,000.00	7,072.05	1,269,632.05	3.2	1.0	1,000.00	54,736.09	6,885,606.36
	224	225	1179	1183	3.3	0.9	1,000.00	1,030.38	1,270,662.43	4.2	1.6	1,000.00	65,749.37	6,951,355.73
	225	226	1184	1189	1.5	0.7	1,000.00	15,507.97	1,286,170.40	2.4	1.3	1,000.00	70,629.95	7,021,985.68
Daulatpur Village	226	227	1190	1195	2.4	0.7	1,000.00	11,269.81	1,297,440.21	3.2	0.1	1,000.00	79,203.01	7,101,188.69
	227	228	1196	1202	1.8	0.7	1,000.00	9,184.60	1,306,624.81	2.3	-0.3	1,000.00	66,674.22	7,167,862.91
	228	229	1203	1207	1.5	0.7	1,000.00	17,136.85	1,323,761.66	2.4	-0.3	1,000.00	53,213.33	7,221,076.24
Tetriya	229	230	1208	1212	4.4	0.8	400.00	1,999.67	1,325,761.33	5.1	1.7	1,000.00	23,821.29	7,244,897.53
	230	231	1213	1217	2.9	0.7	1,000.00	5,450.73	1,331,212.06	3.7	1.6	1,000.00	40,674.72	7,285,572.25
Bhagapur	231	232	1218	1223	3.4	1.5	200.00	304.96	1,331,517.02	4.3	0.3	1,000.00	32,004.95	7,317,577.20
Birhar Ghat Brg.	232	233	1224	1228	1.9	0.8	800.00	2,732.16	1,334,249.18	2.5	0.8	1,000.00	3,226.49	7,320,803.69
	233	234	1229	1233	2.9	1.4	400.00	4,136.40	1,338,385.58	3.7	1.0	1,000.00	34,448.61	7,355,252.30
Bidhar Village	234	235	1234	1238	4.2	1.4	-	0.00	1,338,385.58	4.5	1.7	1,000.00	51,576.05	7,406,828.35
Addopur	235	236	1239	1243	2.4	0.7	600.00	6,268.55	1,344,654.13	2.9	1.0	1,000.00	53,597.41	7,460,425.76
Gobardhanpur Village	236	237	1244	1249	3.1	0.7	1,000.00	16,681.72	1,361,335.85	3.2	0.7	1,000.00	69,740.64	7,530,166.40
	237	238	1250	1254	1.7	0.7	1,000.00	13,355.78	1,374,691.63	2.0	-0.1	1,000.00	50,368.99	7,580,535.39
	238	239	1255	1259	2.2	0.8	1,000.00	15,371.61	1,390,063.24	2.2	1.1	1,000.00	61,870.63	7,642,406.02
	239	240	1260	1266	1.3	0.7	1,000.00	21,349.06	1,411,412.30	1.5	0.7	1,000.00	66,164.41	7,708,570.43
	240	241	1267	1271	2.2	0.7	1,000.00	11,384.36	1,422,796.66	2.4	1.0	1,000.00	15,524.61	7,724,095.04



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	241	242	1272	1278	3.0	0.9	1,000.00	9,895.23	1,432,691.89	3.2	-0.3	1,000.00	4,536.41	7,728,631.45
	242	243	1279	1283	3.2	1.9	-	0.00	1,432,691.89	3.5	1.0	1,000.00	12,197.87	7,740,829.32
	243	244	1284	1289	6.0	2.6	-	0.00	1,432,691.89	6.8	1.0	1,000.00	48,672.21	7,789,501.53
	244	245	1290	1295	3.4	1.0	600.00	972.02	1,433,663.91	4.0	0.7	1,000.00	49,752.01	7,839,253.54
	245	246	1296	1300	2.3	0.9	1,000.00	5,257.37	1,438,921.28	3.1	1.3	1,000.00	49,497.78	7,888,751.32
	246	247	1301	1305	1.9	0.7	800.00	775.56	1,439,696.84	2.8	1.2	1,000.00	52,720.09	7,941,471.41
Mahendi Ghat	247	248	1306	1311	4.0	0.7	1,000.00	9,352.50	1,449,049.34	2.9	-0.3	1,000.00	50,515.37	7,991,986.78
	248	249	1312	1315	3.0	0.7	800.00	8,544.20	1,457,593.54	3.8	0.9	1,000.00	9,441.64	8,001,428.42
	249	250	1316	1320	2.6	0.7	1,000.00	8,216.30	1,465,809.84	3.4	-0.2	1,000.00	53,664.76	8,055,093.18
	250	251	1321	1328	5.4	0.7	800.00	9,654.90	1,475,464.74	5.3	1.0	1,000.00	65,229.84	8,120,323.02
	251	252	1329	1334	6.6	0.8	1,000.00	8,951.32	1,484,416.06	3.6	1.4	1,000.00	64,704.51	8,185,027.53
	252	253	1335	1340	5.1	0.7	1,000.00	3,206.84	1,487,622.90	3.8	-0.2	1,000.00	67,980.69	8,253,008.22
	253	254	1341	1346	3.4	1.1	1,000.00	3,388.75	1,491,011.65	4.7	0.7	1,000.00	27,023.91	8,280,032.13
Babu Tangedia Village	254	255	1347	1351	2.1	1.3	600.00	772.52	1,491,784.17	3.1	1.0	1,000.00	9,459.86	8,289,491.99
	255	256	1352	1357	3.4	2.3	-	0.00	1,491,784.17	4.4	1.0	1,000.00	6,397.34	8,295,889.33
Nawari Rampur Ghat	256	257	1358	1362	3.4	2.2	-	0.00	1,491,784.17	4.3	1.5	1,000.00	33,704.80	8,329,594.13
NasiraBad Village	257	258	1363	1367	9.4	3.6	-	0.00	1,491,784.17	9.8	1.0	1,000.00	54,388.37	8,383,982.50
	258	259	1368	1372	5.7	0.9	600.00	4,562.53	1,496,346.70	7.1	1.3	1,000.00	42,279.43	8,426,261.93
	259	260	1373	1377	3.3	0.8	800.00	5,003.51	1,501,350.21	3.9	1.7	1,000.00	62,370.27	8,488,632.20
	260	261	1378	1382	2.5	0.7	800.00	7,314.19	1,508,664.40	3.5	1.6	1,000.00	65,598.91	8,554,231.11
Darjipur Murda Ghat	261	262	1383	1388	2.0	0.7	1,000.00	12,018.83	1,520,683.23	2.8	1.4	1,000.00	75,501.83	8,629,732.94
Prithvipur	262	263	1389	1393	2.3	1.3	600.00	2,576.07	1,523,259.30	3.5	1.0	1,000.00	48,330.10	8,678,063.04
	263	264	1394	1398	2.7	1.2	800.00	1,395.60	1,524,654.90	3.9	1.0	1,000.00	65,293.02	8,743,356.06
	264	265	1399	1403	2.0	1.2	200.00	122.80	1,524,777.70	3.2	1.9	1,000.00	59,136.29	8,802,492.35
	265	266	1404	1408	2.4	1.1	800.00	2,497.99	1,527,275.69	3.5	1.1	1,000.00	68,453.90	8,870,946.25
	266	267	1409	1414	2.7	1.0	1,000.00	1,354.55	1,528,630.24	3.8	1.6	1,000.00	75,373.49	8,946,319.74



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
Mobarkpur Village	267	268	1415	1419	2.0	0.7	1,000.00	7,037.37	1,535,667.61	3.1	1.9	1,000.00	60,688.55	9,007,008.29
Chintaura	268	269	1420	1424	2.6	0.8	1,000.00	7,259.00	1,542,926.61	3.4	0.2	1,000.00	60,121.72	9,067,130.01
	269	270	1425	1429	3.1	0.7	1,000.00	10,145.43	1,553,072.04	4.2	1.0	1,000.00	67,893.53	9,135,023.54
Tanda	270	271	1430	1435	2.5	0.7	1,000.00	9,405.23	1,562,477.27	3.7	-0.3	1,000.00	81,064.89	9,216,088.43
	271	272	1436	1440	2.2	1.0	1,000.00	3,150.90	1,565,628.17	3.4	-0.3	1,000.00	67,514.35	9,283,602.78
	272	273	1441	1445	2.0	0.8	1,000.00	3,506.04	1,569,134.21	3.2	0.6	1,000.00	37,244.40	9,320,847.18
	273	274	1446	1449	1.9	0.7	800.00	9,487.52	1,578,621.73	3.1	1.9	1,000.00	42,885.64	9,363,732.82
	274	275	1450	1455	4.0	1.0	800.00	4,519.71	1,583,141.44	5.2	1.0	1,000.00	62,149.06	9,425,881.88
	275	276	1456	1460	2.7	1.2	400.00	151.39	1,583,292.83	3.8	1.0	1,000.00	67,244.70	9,493,126.58
	276	277	1461	1465	2.5	0.7	400.00	6,279.07	1,589,571.90	3.9	1.1	1,000.00	58,293.62	9,551,420.20
	277	278	1466	1470	1.9	0.7	1,000.00	13,457.39	1,603,029.29	3.1	-0.1	1,000.00	60,147.76	9,611,567.96
	278	279	1471	1475	2.6	1.4	400.00	3,168.49	1,606,197.78	3.8	1.0	1,000.00	59,727.93	9,671,295.89
	279	280	1476	1480	2.7	0.7	800.00	4,640.44	1,610,838.22	3.9	1.0	1,000.00	66,712.43	9,738,008.32
	280	281	1481	1485	2.2	1.0	800.00	5,079.56	1,615,917.78	3.5	0.8	1,000.00	36,384.21	9,774,392.53
NTPC Power Plant	281	282	1486	1490	2.1	0.7	1,000.00	6,985.71	1,622,903.49	3.4	0.8	1,000.00	53,891.19	9,828,283.72
	282	283	1491	1495	5.4	1.0	200.00	1,910.89	1,624,814.38	6.2	0.8	1,000.00	61,330.69	9,889,614.41
Katariyan Village	283	284	1496	1501	3.7	1.0	800.00	941.68	1,625,756.06	5.4	0.8	1,000.00	79,661.24	9,969,275.65
Eltifat Ganj	284	285	1502	1506	2.3	1.0	800.00	1,781.02	1,627,537.08	4.1	0.8	1,000.00	55,332.26	10,024,607.91
Aurangabad Village	285	286	1507	1511	3.2	0.8	1,000.00	3,026.56	1,630,563.64	5.0	0.8	1,000.00	59,913.57	10,084,521.48
Salona Village	286	287	1512	1517	6.8	0.7	1,000.00	5,932.25	1,636,495.89	3.6	1.0	1,000.00	80,626.57	10,165,148.05
	287	288	1518	1523	2.2	0.7	1,000.00	14,050.61	1,650,546.50	4.0	-0.2	1,000.00	79,092.03	10,244,240.08
	288	289	1524	1528	1.5	0.7	1,000.00	11,934.02	1,662,480.52	3.3	1.2	1,000.00	68,632.99	10,312,873.07
	289	290	1529	1534	1.5	0.7	1,000.00	18,187.58	1,680,668.10	3.2	0.4	1,000.00	78,079.29	10,390,952.36
	290	291	1535	1539	2.0	1.1	1,000.00	6,303.93	1,686,972.03	3.8	1.0	1,000.00	66,980.12	10,457,932.48
	291	292	1540	1545	1.7	0.8	1,000.00	5,810.98	1,692,783.01	2.8	0.3	1,000.00	73,233.57	10,531,166.05
	292	293	1546	1549	1.9	0.7	1,000.00	9,369.49	1,702,152.50	2.5	1.3	1,000.00	48,446.35	10,579,612.40
	293	294	1550	1554	5.6	0.5	1,000.00	15,407.43	1,717,559.93	3.0	1.1	1,000.00	46,691.34	10,626,303.74
Bhura	294	295	1555	155	2.4	0.8		7,645.56	1,725,205.4	3.3	1.1		66,034.84	10,692,338.58



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
				9			1,000.00		9			1,000.00		
	295	296	1560	1564	4.2	0.8	1,000.00	3,034.23	1,728,239.72	3.1	0.9	1,000.00	25,141.76	10,717,480.34
	296	297	1565	1569	2.6	0.7	1,000.00	10,262.27	1,738,501.99	3.5	0.9	1,000.00	17,309.53	10,734,789.87
	297	298	1570	1574	3.3	1.2	200.00	141.90	1,738,643.89	4.1	1.0	1,000.00	26,822.04	10,761,611.91
	298	299	1575	1579	4.6	1.7	200.00	142.32	1,738,786.21	5.4	1.0	1,000.00	64,034.43	10,825,646.34
	299	300	1580	1584	4.5	0.8	400.00	1,830.74	1,740,616.95	4.4	1.7	1,000.00	66,933.62	10,892,579.96
	300	301	1585	1589	2.5	0.7	800.00	3,478.95	1,744,095.90	3.5	1.3	1,000.00	37,324.43	10,929,904.39
	301	302	1590	1594	2.8	1.5	400.00	996.22	1,745,092.12	4.1	1.3	1,000.00	68,093.50	10,997,997.89
Sarwa Ghat	302	303	1595	1600	4.0	0.7	400.00	1,222.79	1,746,314.91	5.3	1.3	1,000.00	76,383.77	11,074,381.66
Singirisi Temple	303	304	1601	1605	2.1	1.2	800.00	4,895.66	1,751,210.57	3.4	1.3	1,000.00	55,938.39	11,130,320.05
	304	305	1606	1610	2.3	1.1	600.00	109.04	1,751,319.61	3.6	1.3	1,000.00	58,979.14	11,189,299.19
Mehboob Ganj	305	306	1611	1616	3.2	0.7	1,000.00	12,375.66	1,763,695.27	3.2	0.1	1,000.00	60,070.41	11,249,369.60
	306	307	1617	1621	3.7	0.7	1,000.00	9,716.50	1,773,411.77	5.0	1.1	1,000.00	60,619.09	11,309,988.69
	307	308	1622	1627	5.5	0.7	1,000.00	6,394.79	1,779,806.56	4.0	1.1	1,000.00	41,674.85	11,351,663.54
Posra Village	308	309	1628	1632	4.4	0.7	1,000.00	13,634.81	1,793,441.37	4.7	0.7	1,000.00	53,890.55	11,405,554.09
	309	310	1633	1638	6.3	0.7	1,000.00	5,783.82	1,799,225.19	8.1	1.1	1,000.00	65,043.50	11,470,597.59
	310	311	1639	1644	7.0	0.8	1,000.00	7,862.64	1,807,087.83	7.6	0.7	1,000.00	48,576.60	11,519,174.19
	311	312	1645	1651	4.3	0.9	1,000.00	8,436.45	1,815,524.28	3.0	-0.3	1,000.00	21,341.51	11,540,515.70
	312	313	1652	1655	7.7	1.8	400.00	1,808.16	1,817,332.44	9.0	-0.3	1,000.00	8,862.95	11,549,378.65
	313	314	1656	1660	8.3	1.8	-	0.00	1,817,332.44	9.6	1.2	1,000.00	50,690.83	11,600,069.48
	314	315	1661	1665	4.3	1.5	-	0.00	1,817,332.44	5.1	1.2	1,000.00	49,978.06	11,650,047.54
Baburi Babu	315	316	1666	1671	1.9	0.7	1,000.00	5,757.15	1,823,089.59	2.8	1.1	1,000.00	10,823.82	11,660,871.36
	316	317	1672	1676	6.7	1.7	800.00	4,917.93	1,828,007.52	7.4	1.1	1,000.00	58,343.83	11,719,215.19
	317	318	1677	1681	9.7	3.5	-	0.00	1,828,007.52	9.8	0.1	1,000.00	67,723.28	11,786,938.47
Balwa Ghat	318	319	1682	1686	2.3	0.7	800.00	7,761.87	1,835,769.39	4.1	-0.2	1,000.00	66,098.61	11,853,037.08
	319	320	1687	1692	2.4	0.9	1,000.00	6,010.03	1,841,779.42	4.2	1.8	1,000.00	74,130.33	11,927,167.41
Arjunpur Village	320	321	1693	1696	3.0	0.9	800.00	4,555.55	1,846,334.97	5.4	1.1	1,000.00	48,119.21	11,975,286.62
	321	322	1697	1700	3.2	1.3	-	0.00	1,846,334.97	5.1	1.1	1,000.00	39,778.55	12,015,065.17



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	322	323	1701	1705	5.7	1.1	1,000.00	1,162.69	1,847,497.66	4.8	1.1	1,000.00	68,359.80	12,083,424.97
	323	324	1706	1711	4.7	1.2	400.00	179.29	1,847,676.95	6.5	1.9	1,000.00	77,621.11	12,161,046.08
	324	325	1712	1716	2.6	1.1	800.00	957.94	1,848,634.89	4.4	1.2	1,000.00	68,438.94	12,229,485.02
	325	326	1717	1721	6.2	0.7	1,000.00	6,083.20	1,854,718.09	4.2	1.2	1,000.00	66,089.60	12,295,574.62
	326	327	1722	1726	2.9	0.7	1,000.00	10,369.68	1,865,087.77	4.7	1.2	1,000.00	62,493.20	12,358,067.82
	327	328	1727	1731	3.2	0.7	1,000.00	9,590.39	1,874,678.16	4.6	0.0	1,000.00	63,950.39	12,422,018.21
	328	329	1732	1737	2.1	0.7	1,000.00	9,095.46	1,883,773.62	2.6	1.1	1,000.00	70,318.24	12,492,336.45
	329	330	1738	1744	2.6	0.7	1,000.00	11,640.42	1,895,414.04	3.7	0.9	1,000.00	81,525.51	12,573,861.96
	330	331	1745	1749	4.8	0.6	1,000.00	12,144.31	1,907,558.35	2.7	0.8	1,000.00	38,792.91	12,612,654.87
	331	332	1750	1754	2.0	0.7	800.00	4,132.46	1,911,690.81	2.7	1.4	1,000.00	62,446.44	12,675,101.31
	332	333	1755	1759	3.2	0.7	800.00	3,755.36	1,915,446.17	3.9	0.6	1,000.00	37,882.51	12,712,983.82
	333	334	1760	1765	2.2	1.1	1,000.00	6,556.42	1,922,002.59	3.0	0.6	1,000.00	56,848.35	12,769,832.17
	334	335	1766	1771	3.7	1.3	600.00	211.25	1,922,213.84	4.4	0.6	1,000.00	49,630.41	12,819,462.58
Gauria Village	335	336	1772	1776	3.0	0.7	600.00	5,699.51	1,927,913.35	3.7	0.6	1,000.00	43,391.69	12,862,854.27
Keshawapur	336	337	1777	1782	5.2	0.9	600.00	2,553.45	1,930,466.80	5.9	0.6	1,000.00	58,838.04	12,921,692.31
	337	338	1783	1788	2.5	1.1	800.00	1,735.01	1,932,201.81	3.2	0.6	1,000.00	3,567.90	12,925,260.21
	338	339	1789	1793	9.7	1.1	800.00	2,365.10	1,934,566.91	10.5	0.6	1,000.00	57,124.68	12,982,384.89
	339	340	1794	1798	6.7	1.9	-	0.00	1,934,566.91	7.4	0.8	1,000.00	52,408.21	13,034,793.10
	340	341	1799	1803	1.8	1.0	600.00	917.12	1,935,484.03	2.7	0.8	1,000.00	26,708.52	13,061,501.62
	341	342	1804	1808	2.4	1.1	800.00	3,345.94	1,938,829.97	3.4	0.8	1,000.00	36,812.17	13,098,313.79
	342	343	1809	1813	4.9	2.0	-	465.19	1,939,295.16	5.6	0.8	1,000.00	60,721.08	13,159,034.87
AYODHYA	343	344	1814	1818	5.1	0.7	200.00	1,356.04	1,940,651.20	6.2	1.0	1,000.00	40,310.00	13,199,344.87
Durga Ganj Village	344	345	1819	1823	2.8	0.8	1,000.00	10,778.57	1,951,429.77	3.8	1.0	1,000.00	58,541.89	13,257,886.76
	345	346	1824	1829	4.6	0.8	600.00	897.24	1,952,327.01	5.5	1.0	1,000.00	26,315.94	13,284,202.70
	346	347	1830	1834	2.6	1.1	1,000.00	4,329.62	1,956,656.63	3.5	1.0	1,000.00	29,645.70	13,313,848.40
	347	348	1835	1839	3.9	1.6	-	0.00	1,956,656.63	4.8	1.0	1,000.00	59,073.77	13,372,922.17
	348	349	1840	1875	3.2	0.7	400.00	960.03	1,957,616.66	4.2	0.2	1,000.00	46,442.84	13,419,365.01
	349	350	1876	1850	1.9	1.2	1,000.00	1,304.04	1,958,920.70	2.9	1.2	1,000.00	2,286.85	13,421,651.86



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



GHAGHRA DREDGING QUANTITY FOR 30 MTR BOTTOM WIDTH AND 1.5M DEPTH

Location	Chainage (km)		LINE NO.		Observed depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope		Reduced depth (m)		Length of Shoal (m)	Dredging quantity (cu.m.) for 1.5m depth, 30m Bottom Width with 1:5 slope	
	From	To	From	To	Max.	Min.		Per km drg	Accumulative drg.	Max.	Min.		Per km drg	Accumulative drg.
	350	351	1851	1855	3.5	1.6	400.00	18.69	1,958,939.39	4.5	1.2	1,000.00	40,666.53	13,462,318.39
Fatehpur Sariya Manjh	351	352	1856	1860	4.1	2.0	-	0.00	1,958,939.39	5.1	1.2	1,000.00	9,015.59	13,471,333.98
	352	353	1861	1865	3.8	1.1	600.00	1,769.57	1,960,708.96	4.6	1.2	1,000.00	10,824.82	13,482,158.80
FAIZABAD	353	354	1866	1868	2.0	0.8	400.00	2,106.95	1,962,815.91	3.1	1.4	1,000.00	11,362.85	13,493,521.65
TOTAL DREDGING QUANTITY (cu.m.)							252,400.00	1,962,815.91				336,400.00	13,493,521.65	



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



Annexure -3: Details of collected water level of different gauge stations w.r.t MSL

BM	LOCATION	Chainage (km)	Stretch for corrected soundings and topo levels (km)	Sounding Datum (m) w.r.t. MSL	MSL VALUE OF ZERO OF GAUGE (m)	Correction in WL data for Bathymetric survey (m)
1	Gupttar ghat, near lal Hanuman temple	352.760	348.4-353.6	89.170	87.488	All the observed Water Levels were referenced with MSL. Details of corrections applied in soundings is at Annexure-2.
2	Ayodhya, Laxman ghat, side wall of old building	344.044	339.4-348.4	88.058	86.369	
CWC AYODHYA		343.000		87.925	85.000	
3	Kaiyanpur Sitarampur inside school campus	334.788	327.8-339.4	86.878	85.205	
4	Arjunpur village	320.860	317.9-327.8	85.101	82.235	
5	Puremotiram village	314.840	310.3-317.9	84.333	82.831	
6	Uniar ghat (For basti terminal)	305.708	300.3-310.3	83.169	80.892	
7	Chandpur ,inside primary school campus	294.916	291.2-300.3	81.792	80.000	
8	Karmi, gosain	287.494	282.0-291.2	80.846	78.350	
9	Raipur bridge nh	276.584	271.6-282.0	79.454	77.201	
10	Duhiya (Rashulpur, mubarak pur)	266.669	261.8-271.6	78.190	75.846	
11	Nauranirampur	256.872	252.6-261.8	76.940	75.087	
12	Vanginizampur	248.320	243.2-252.6	75.850	74.322	
13	Chodasampur	238.095	233.8-243.2	74.545	73.186	
14	Rambag, Near rambaba temple	229.447	224.1-233.8	73.442	71.531	
15	Jainpur	218.782	214.3-224.1	72.082	69.602	
16	Arazipaharpur	209.828	203.2-214.3	70.940	69.013	
17	Ratanpur	196.517	192.3-203.2	69.243	68.297	
18	Dak bangla Golabazar	188.000	182.9-192.3	68.156	69.097	
19	Belapur shiv temple	177.874	172.4-182.9	66.865	65.400	
20	Doharighat	166.955	161.6-172.4	65.472	62.242	
21	Rashulpur, near handpump	156.253	152.4-161.6	64.107	61.271	
22	kharatidava, near shiv temple	148.594	143.0-152.4	63.130	61.952	
23	Near shiv temple, Ajaypur river edge	137.315	131.4-143.0	61.692	60.256	
24	Nagpur village	125.421	120.0-131.4	60.175	56.836	
25		114.594	109.7-120.0	58.794	56.027	
CWC TURTIPAR	RAILWAY BRIDGE TURTIPAR , MUJOUNA GAAV TEMPLE	114.193		58.743	58.070	
26	DUHA BIHARA	104.756	100.7-109.7	57.795	56.650	



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM	LOCATION	Chainage (km)	Stretch for corrected soundings and topo levels (km)	Sounding Datum (m) w.r.t. MSL	MSL VALUE OF ZERO OF GAUGE (m)	Correction in WL data for Bathymetric survey (m)
	VILLAGE					
27	KATHADA VILLAGE	96.550	90.6-100.7	56.971	54.117	
28	DARALIGHAT	84.729	79.6-90.6	55.783	50.046	
CWC DARAULI		83.373		55.647	56.000	
29	TURTIPUR BRIDGE	74.500	71.2-79.6	54.614	50.955	
30	NARHAN VILLAGE	67.926	60.7-71.2	53.848	48.486	
31	GAMHARITULA, SISWAN	53.557	48.3-60.7	52.174	48.430	
CWC GANGPUR SISWAN		50.780		51.851	51.000	
32	SHEOPUR VILLAGE, PRIMARY SCHOOL COMPOUND	43.037	37.6-48.3	50.352	47.031	
33	CHOOTFLKIRAI VILLAGE, NEAR RAMJANKI TEMPLE	32.184	26.4-37.6	48.252	46.511	
34	MEHADIGANJ VILLAGE, NEAR SHIV TEMPLE	20.678	17.3-26.4	46.025	44.382	
35	SEANRAIJA VILLAGE, NEAR BABA NATH TEMPLE	13.881	9.6-17.3	44.709	44.614	
CWC CHHAPRA (MAKHDU MGANJ)		8.095		43.589	43.330	
36	ENAI VILLAGE. NEAR SHIV TEMPLE	5.372	0-9.6	43.062	44.031	



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



Annexure -4: Details of bathymetric surveys carried out in following format:-

Date of Survey	Chainage	
	From (km)	To (km)
26-05-2016	0	10.23
25-05-2016	10.37	23.9
24-05-2016	23.52	38
23-05-2016	38.11	55.24
22-05-2016	55.43	72.7
17-05-2016	72.83	85.54
16-05-2016	85.16	98.49
13-5-2016	100.25	110.39
12/5/2016	106.73	118.64
11/5/2016	118.56	137.9
10/5/2016	138	154.5
9/5/2016	154.86	167
13-06-2016	167	196
12/6/2016	196	216
11/6/2016	216	233.25
10/6/2016	228.3	245.84
8/6/2016	245.97	260.79
7/6/2016	260.97	280.82
6/6/2016	280.24	295.94
5/6/2016	291.18	294.9



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



Date of Survey	Chainage	
	From (km)	To (km)
5/6/2016	291.18	304.88
4/6/2016	305	315.62
3/6/2016	306.92	321.24
2/6/2016	318.69	329.44
1/6/2016	329.31	341.43
31-05-2016	341.57	353.6

Annexure- 5: Bank Protection along the Bank:-

During the monsoon season the floods in the region are very common, so for this reason some short and as well as long temporary embankments are needed in the both banks of the river.

Annexure -6: Details of Features across the Bank:-

The bank of the river includes villages, Ferry ghat, Irrigation canals and outlets, Rail Bridges, RCC Bridges and Forest etc. The both side river bank are highly protected by embankment and bolder pitching due to flood, erosion etc. The villagers are also situated near the bank side of the river. Recently different kinds of industries are also located near the bank side of the river.

Annexure -7: Detailed methodology adopted for carrying out survey. Horizontal Control and Vertical Details Control:-

Establishment of Horizontal Control:-

The Horizontal control for TOPO surveys: - High precision RTK DGPS in fix mode using UHF Radio Modem with IHO accuracy standards, with minimum 24 hours observations at some permanent platform/base.

The Horizontal control for Bathy surveys: -DGPS is receiving corrections from Beacons.

Establishment of Vertical Control:-

Vertical control from CWC Chappra is used for the entire survey work. Its value is 53.618 meter w.r.t. MSL has been considered for calculating the vertical levels. Total 36 no. BM was established along the 353.6 km of River. The Vertical datum is transferred from the One gauge to other by the Help of DGPS Baseline process. The 24 hour observation is done at Origin of survey. All other BM are extened keeping he Origin of Survey as Reference. After every 100 Km , 24 Hour observation are done keep the Vertical and Horizontal control error under limits.

Annexure- 8: Photographs of Equipment.

Positioning System

1 X Hemisphere R110 DGPS system



Navigation & Data Logging System

To provide on-line route guidance, log navigation data, provide QC of navigation data, etc. The system comprises the following equipment:

- 1 X DELL Laptop
- 1 X Hypack Ver 2012 Navigation & Data Logging Software
- 1 X Positioning & sensor interfaces
- Sufficient Paper Rolls

The survey was conducted in WGS-84 spheroid with no datum transformation.

Spheroid	WGS-84
Datum Transformation	None
Semi-major axis (a)	6378137.0000 m
Semi-minor axis (b)	6356752.3142 m
Eccentricity	0.0818 191909 28906
Inverse flattening (1/f)	298.257223563
Projection Parameters	
Grid Projection	Universal Transverse Mercator
Central Meridian (CM)	87° East (Zone 45) 81° East (Zone 44)
Origin Latitude (False Lat)	0.0°
Hemisphere	North
False Easting (FE)	500000.0 m
False Northing (FN)	0.0 m
Scale Factor on CM	0.999600
Units	International Metres

Single Beam Echo Sounder System

1 X Bathy 500 dual frequency Echo sounder

1 X Dual frequency transducer 33kHz & 200 kHz, the lower the Frequency the more the penetration in the bed, Hence we require the bed for which we used 20khz + mounting bracket & base plate.



Current Meter

1 X FSI 2DACM200DBAR



Calibration certificate attached as Annexure.

Water & Bottom Sampler

1 X Niskin Water Sampler

1 X Van Veen Grab



Topographic Survey

- 01 x Nikon Auto level with Levelling stave
- 03 x Auto Level with levelling stave and tripod
- 02 x Trimble SPS 855 RTK System with one Base and two Rovers



Above were used for conducting topographic survey at the GHAGHRA River.

Survey Vessel

A small inflatable boat size of 9'10" x 4'11" (3.00 x 1.50m) was used for collecting bathymetry data.



(Image: Survey Boat)

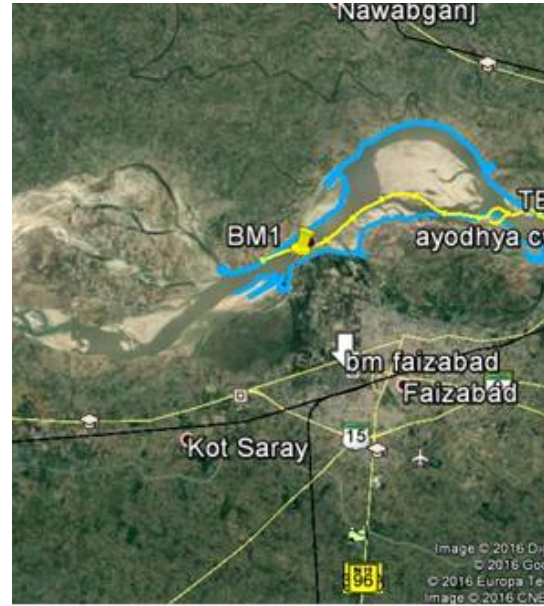


**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



Annexure -9: Bench Mark Forms:-

BM Name	Lat	Long	Easting	Northing	MSL
1	26°48'04.54112"	82°07'06.19485"	611159.64	2964912.64	95.500
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located near Gupttar ghat Near Hanuman temple The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



BM Name	Lat	Long	Easting	Northing	MSL
2	26°48'21.10303"	82°11'46.07961"	618882.86	2965492.64	96.110

Pillar Established by: - Global Marine Infratech Pvt. Ltd

Station Description :-

Benchmark is located near Ayodhya, Laxman ghat, side wall of old building

The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm.

The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar.

The measurements of the bench mark pillar from notable locations / edges as follows:

Life of Station : 15Yrs	Datum: - WGS 84	ZONE :44 N
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DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
3	26°48'34.07782"	82°16'59.11974"	627522.11	2965976.22	93.530

Pillar Established by: - Global Marine Infratech Pvt. Ltd

Station Description :-
Benchmark is located near Kaiyanpur Sitarampur inside school campus
The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm.
The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar.
The measurements of the bench mark pillar from notable locations / edges as follows:

Life of Station : 15Yrs	Datum: - WGS 84	ZONE :44 N
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DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
4	26°44'59.45587"	82°20'37.85841"	633631.38	2959434.64	90.850

Pillar Established by: - Global Marine Infratech Pvt. Ltd

Station Description :-
Benchmark is located near Arjunpur village
The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm.
The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar.
The measurements of the bench mark pillar from notable locations / edges as follows:

Life of Station : 15Yrs	Datum: - WGS 84	ZONE :44 N
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DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
5	26°42'31.15054"	82°23'32.08166"	638494.22	2954922.91	89.270

Pillar Established by: - Global Marine Infratech Pvt. Ltd

Station Description :-
Benchmark is located near Puremotiram village
The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm.
The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar.
The measurements of the bench mark pillar from notable locations / edges as follows:

Life of Station : 15Yrs	Datum: - WGS 84	ZONE :44 N
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DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)

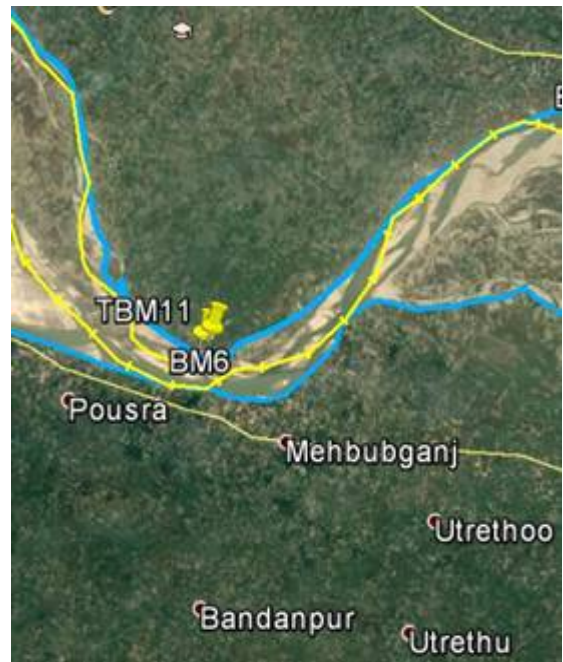


BM Name	Lat	Long	Easting	Northing	MSL
6	26°38'46.84042"	82°25'57.99383"	642604.08	2948065.39	87.200

Pillar Established by: - Global Marine Infratech Pvt. Ltd

Station Description :-
Benchmark is located near Uniar ghat (For basti terminal)
The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm.
The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar.
The measurements of the bench mark pillar from notable locations / edges as follows:

Life of Station : 15Yrs	Datum: - WGS 84	ZONE :44 N
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DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
7	26°41'37.13389"	82°31'15.74747"	651327.83	2953407.18	87.210

Pillar Established by: - Global Marine Infratech Pvt. Ltd

Station Description :-
Benchmark is located near Chandpur ,inside primary school campus
The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm.
The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar.
The measurements of the bench mark pillar from notable locations / edges as follows:

Life of Station : 15Yrs	Datum: - WGS 84	ZONE :44 N
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**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



BM Name	Lat	Long	Easting	Northing	MSL
8	26°38'15.55738"	82°34'30.27113"	656781.03	2947269.55	88.670
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located near Karmi, gosain The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



BM Name	Lat	Long	Easting	Northing	MSL
9	26°36'24.22875"	82°38'20.06335"	663179.66	2943923.63	84.820

Pillar Established by: - Global Marine Infratech Pvt. Ltd

Station Description :-

Benchmark is located near Raipur bridge nh

The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm.

The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar.

The measurements of the bench mark pillar from notable locations / edges as follows:

Life of Station : 15Yrs	Datum: - WGS 84	ZONE :44 N
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DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
10	26°32'37.15289"	82°41'34.94465"	668662.88	2937006.11	86.090
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located near Duhiya (Rashulpur, mubarak pur) The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
11	26°33'59.50712"	82°47'17.49443"	678108.55	2939669.2	84.070
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located near Nauranirampur The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
12	26°33'14.60475"	82°49'58.83246"	682593.03	2938350.49	82.840
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located near vanginizampur The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
13	26°29'52.83810"	82°55'19.97970"	691574.38	2932271.41	82.180
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located near Chodasampur The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
14	26°28'07.29499"	83°00'13.43506"	699751.11	2929147.52	77.980
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located Rambag, Near rambaba temple The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
15	26°24'07.32478"	83°04'11.60805"	706467.04	2921866.72	77.340
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located Jainpur The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
16	26°21'06.22722"	83°09'02.67702"	714627.15	2916425.27	78.950
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located Arazipaharpur The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
17	26°22'40.02122"	83°16'29.10391"	726955.05	2919524.42	76.790
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near Ratanpur The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
18	26°20'57.91845"	83°20'50.08108"	734247.47	2916511.48	75.520
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located NearDak bangla Golabazar The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
19	26°16'58.84429"	83°25'30.89155"	742172.88	2909296.73	73.250
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near Belapur Shiv Temple The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
20	26°16'30.42991"	83°30'33.07578"	750574.9	2908582.08	73.660
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near Doharighat The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA1", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs	Datum: - WGS 84		ZONE :44 N		





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
21	26°13'48.70878"	83°35'14.31690"	758479.15	2903757.68	73.657
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located Near Rashulpur ,near hand pump The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
22	26°16'20.12789"	83°37'50.61283"	762723.61	2908506.21	70.240
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near kharatidava,near Shiv Temple The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs	Datum: - WGS 84		ZONE :44 N		





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
23	26°16'13.57301"	83°43'49.91245"	772699.72	2908511.09	67.677
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located Near Shiv Temple, Ajaypur river edge The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
24	26°12'55.63177"	83°50'00.56170'	783120.59	2902638.49	68.376
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near Nagpur village The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
25	26°08'28.15576"	83°52'09.25461"	786876.42	2894482.43	68.088
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near RAILWAY BRIDGE TURTIPAR ,MUJOUNA GAWN TEMPLE The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs	Datum: - WGS 84		ZONE :44 N		





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
26	26°07'02.04940"	83°57'31.40466"	795888.73	2892032.16	66.292
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :- Benchmark is located Near DUHA BIHARA VILLAGE The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
27	26°05'51.69438"	84°01'51.83769"	203040.17	2889889.34	67.619
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near KATHADA VILLAGE The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
28	26°04'14.91739"	84°08'06.69344'	213395.06	2886676.37	66.230
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near DARALIGHAT The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAJ", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
29	26°01'21.47672"	84°14'07.76229"	223320.79	2881120.18	64.728
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near TURTIPUR BRIDGE The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs	Datum: - WGS 84			ZONE :44 N	





**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



BM Name	Lat	Long	Easting	Northing	MSL
30	25°58'33.83079"	84°15'05.34647"	224813.82	2875925.50	65.108
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
<p>Benchmark is located Near NARHAN VILLAGE</p> <p>The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm.</p> <p>The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar.</p> <p>The measurements of the bench mark pillar from notable locations / edges as follows:</p>					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
31	25°56'37.85677"	84°21'23.16224"	235254.05	2872138.75	61.277
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near GAMHARITULA,SISWAN The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
32	25°52'34.94688"	84°24'35.98928"	240472.75	2864554.36	60.582
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near SHEOPUR VILLAGE, PRIMARY SCHOOL COMPOUND The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs	Datum: - WGS 84		ZONE :44 N		





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
33	25°53'26.32354"	84°29'38.83784"	248935.95	2865971.96	59.932
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near CHOOTFLKIRAI VILLAGE, NEAR RAMJANKI TEMPLE The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs	Datum: - WGS 84		ZONE :44 N		





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
34	25°50'30.02681"	84°34'02.30463"	256170.57	2860407.62	57.412
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near MEHADIGANJ VILLAGE, NEAR SHIV TEMPLE The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs	Datum: - WGS 84		ZONE :44 N		





**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



BM Name	Lat	Long	Easting	Northing	MSL
35	25°47'51.34702"	84°37'12.30463"	261374.03	2855426.85	55.531

Pillar Established by: - Global Marine Infratech Pvt. Ltd

Station Description :-

Benchmark is located Near SEANRAIJA VILLAGE, NEAR BABA NATH TEMPLE

The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm.

The pillar extends 60.cms above ground level. Inscription "IWAI", "PSC" and BM No. can be seen on the face of the pillar.

The measurements of the bench mark pillar from notable locations / edges as follows:

Life of Station : 15Yrs	Datum: - WGS 84	ZONE :44 N
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DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



BM Name	Lat	Long	Easting	Northing	MSL
36	25°46'45.98815"	84°40'44.99815"	267264.57	2853309.44	56.9
Pillar Established by: - Global Marine Infratech Pvt. Ltd					
Station Description :-					
Benchmark is located Near ENAI VILLAGE. NEAR SHIV TEMPLE The BM is denoted by a "." mark engraved on a plate. The plate is fixed on a 5cm diameter GI pipe. The GI pipe is cemented with construction pillar of 30cmX30cmX150cm. The pillar extends 60.cms above ground level. Inscription "IWA1", "PSC" and BM No. can be seen on the face of the pillar. The measurements of the bench mark pillar from notable locations / edges as follows:					
Life of Station : 15Yrs		Datum: - WGS 84		ZONE :44 N	





DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



Annexure -10: Levelling calculations and Levelling Diagram

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
31.05.16	TP 01	6:00	0.7	1.718	1.018
31.05.16	TP 01	7:00	0.7	1.718	1.018
31.05.16	TP 01	8:00	0.7	1.718	1.018
31.05.16	TP 01	9:00	0.7	1.718	1.018
31.05.16	TP 01	10:00	0.7	1.718	1.018
31.05.16	TP 01	11:00	0.7	1.718	1.018
31.05.16	TP 01	12:00	0.7	1.718	1.018
31.05.16	TP 01	13:00	0.7	1.718	1.018
31.05.16	TP 01	14:00	0.7	1.718	1.018
31.05.16	TP 01	15:00	0.7	1.718	1.018
31.05.16	TP 01	16:00	0.7	1.718	1.018
31.05.16	TP 01	17:00	0.7	1.718	1.018
31.05.16	TP 01	18:00	0.7	1.718	1.018

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
31.05.16	TP 02	6:00	0.80	1.713	0.913
31.05.16	TP 02	7:00	0.80	1.713	0.913
31.05.16	TP 02	8:00	0.80	1.713	0.913
31.05.16	TP 02	9:00	0.80	1.713	0.913
31.05.16	TP 02	10:00	0.80	1.713	0.913
31.05.16	TP 02	11:00	0.80	1.713	0.913
31.05.16	TP 02	12:00	0.80	1.713	0.913
31.05.16	TP 02	13:00	0.80	1.713	0.913
31.05.16	TP 02	14:00	0.80	1.713	0.913
31.05.16	TP 02	15:00	0.80	1.713	0.913
31.05.16	TP 02	16:00	0.80	1.713	0.913
31.05.16	TP 02	17:00	0.80	1.713	0.913
31.05.16	TP 02	18:00	0.80	1.713	0.913



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
01.06.16	TP 02	6:00	0.8	1.713	0.913
01.06.16	TP 02	7:00	0.8	1.713	0.913
01.06.16	TP 02	8:00	0.8	1.713	0.913
01.06.16	TP 02	9:00	0.8	1.713	0.913
01.06.16	TP 02	10:00	0.8	1.713	0.913
01.06.16	TP 02	11:00	0.8	1.713	0.913
01.06.16	TP 02	12:00	0.8	1.713	0.913
01.06.16	TP 02	13:00	0.8	1.713	0.913
01.06.16	TP 02	14:00	0.8	1.713	0.913
01.06.16	TP 02	15:00	0.8	1.713	0.913
01.06.16	TP 02	16:00	0.8	1.713	0.913
01.06.16	TP 02	17:00	0.8	1.713	0.913
01.06.16	TP 02	18:00	0.8	1.713	0.913

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
01.06.16	TP 03	6:00	1	1.700	0.7
01.06.16	TP 03	7:00	1	1.700	0.7
01.06.16	TP 03	8:00	1	1.700	0.7
01.06.16	TP 03	9:00	1	1.700	0.7
01.06.16	TP 03	10:00	1	1.700	0.7
01.06.16	TP 03	11:00	1	1.700	0.7
01.06.16	TP 03	12:00	1	1.700	0.7
01.06.16	TP 03	13:00	1	1.700	0.7
01.06.16	TP 03	14:00	1	1.700	0.7
01.06.16	TP 03	15:00	1	1.700	0.7
01.06.16	TP 03	16:00	1	1.700	0.7
01.06.16	TP 03	17:00	1	1.700	0.7
01.06.16	TP 03	18:00	1	1.700	0.7



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
01.06.16	TP 04	6:00	1.1	2.879	1.779
01.06.16	TP 04	7:00	1.1	2.879	1.779
01.06.16	TP 04	8:00	1.1	2.879	1.779
01.06.16	TP 04	9:00	1.1	2.879	1.779
01.06.16	TP 04	10:00	1.1	2.879	1.779
01.06.16	TP 04	11:00	1.1	2.879	1.779
01.06.16	TP 04	12:00	1.1	2.879	1.779
01.06.16	TP 04	13:00	1.1	2.879	1.779
01.06.16	TP 04	14:00	1.1	2.879	1.779
01.06.16	TP 04	15:00	1.1	2.879	1.779
01.06.16	TP 04	16:00	1.1	2.879	1.779
01.06.16	TP 04	17:00	1.1	2.879	1.779
01.06.16	TP 04	18:00	1.1	2.879	1.779

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
02.06.16	TP 04	6:00	1.05	2.879	1.829
02.06.16	TP 04	7:00	1.05	2.879	1.829
02.06.16	TP 04	8:00	1.05	2.879	1.829
02.06.16	TP 04	9:00	1.05	2.879	1.829
02.06.16	TP 04	10:00	1.05	2.879	1.829
02.06.16	TP 04	11:00	1.05	2.879	1.829
02.06.16	TP 04	12:00	1.05	2.879	1.829
02.06.16	TP 04	13:00	1.05	2.879	1.829
02.06.16	TP 04	14:00	1.05	2.879	1.829
02.06.16	TP 04	15:00	1.05	2.879	1.829
02.06.16	TP 04	16:00	1.05	2.879	1.829
02.06.16	TP 04	17:00	1.05	2.879	1.829
02.06.16	TP 04	18:00	1.05	2.879	1.829

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
02.06.16	TP 05	6:00	0.65	1.525	0.875
02.06.16	TP 05	7:00	0.65	1.525	0.875
02.06.16	TP 05	8:00	0.65	1.525	0.875
02.06.16	TP 05	9:00	0.65	1.525	0.875
02.06.16	TP 05	10:00	0.65	1.525	0.875
02.06.16	TP 05	11:00	0.65	1.525	0.875
02.06.16	TP 05	12:00	0.65	1.525	0.875
02.06.16	TP 05	13:00	0.65	1.525	0.875
02.06.16	TP 05	14:00	0.65	1.525	0.875



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



02.06.16	TP 05	15:00	0.65	1.525	0.875
02.06.16	TP 05	16:00	0.65	1.525	0.875
02.06.16	TP 05	17:00	0.65	1.525	0.875
02.06.16	TP 05	18:00	0.65	1.525	0.875

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
03.06.16	TP 05	6:00	0.69	1.525	0.835
03.06.16	TP 05	7:00	0.69	1.525	0.835
03.06.16	TP 05	8:00	0.69	1.525	0.835
03.06.16	TP 05	9:00	0.69	1.525	0.835
03.06.16	TP 05	10:00	0.69	1.525	0.835
03.06.16	TP 05	11:00	0.69	1.525	0.835
03.06.16	TP 05	12:00	0.69	1.525	0.835
03.06.16	TP 05	13:00	0.69	1.525	0.835
03.06.16	TP 05	14:00	0.69	1.525	0.835
03.06.16	TP 05	15:00	0.69	1.525	0.835
03.06.16	TP 05	16:00	0.69	1.525	0.835
03.06.16	TP 05	17:00	0.69	1.525	0.835
03.06.16	TP 05	18:00	0.69	1.525	0.835

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
04.06.16	TP 05	6:00	0.57	1.525	0.955
04.06.16	TP 05	7:00	0.57	1.525	0.955
04.06.16	TP 05	8:00	0.57	1.525	0.955
04.06.16	TP 05	9:00	0.57	1.525	0.955
04.06.16	TP 05	10:00	0.57	1.525	0.955
04.06.16	TP 05	11:00	0.57	1.525	0.955
04.06.16	TP 05	12:00	0.57	1.525	0.955
04.06.16	TP 05	13:00	0.57	1.525	0.955
04.06.16	TP 05	14:00	0.57	1.525	0.955
04.06.16	TP 05	15:00	0.57	1.525	0.955
04.06.16	TP 05	16:00	0.57	1.525	0.955
04.06.16	TP 05	17:00	0.57	1.525	0.955
04.06.16	TP 05	18:00	0.57	1.525	0.955



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
03.06.16	TP 06	6:00	0.92	2.222	1.302
03.06.16	TP 06	7:00	0.92	2.222	1.302
03.06.16	TP 06	8:00	0.92	2.222	1.302
03.06.16	TP 06	9:00	0.92	2.222	1.302
03.06.16	TP 06	10:00	0.92	2.222	1.302
03.06.16	TP 06	11:00	0.92	2.222	1.302
03.06.16	TP 06	12:00	0.92	2.222	1.302
03.06.16	TP 06	13:00	0.92	2.222	1.302
03.06.16	TP 06	14:00	0.92	2.222	1.302
03.06.16	TP 06	15:00	0.92	2.222	1.302
03.06.16	TP 06	16:00	0.92	2.222	1.302
03.06.16	TP 06	17:00	0.92	2.222	1.302
03.06.16	TP 06	18:00	0.92	2.222	1.302

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
04.06.16	TP 06	6:00	0.9	2.222	1.322
04.06.16	TP 06	7:00	0.9	2.222	1.322
04.06.16	TP 06	8:00	0.9	2.222	1.322
04.06.16	TP 06	9:00	0.9	2.222	1.322
04.06.16	TP 06	10:00	0.9	2.222	1.322
04.06.16	TP 06	11:00	0.9	2.222	1.322
04.06.16	TP 06	12:00	0.9	2.222	1.322
04.06.16	TP 06	13:00	0.9	2.222	1.322
04.06.16	TP 06	14:00	0.9	2.222	1.322
04.06.16	TP 06	15:00	0.9	2.222	1.322
04.06.16	TP 06	16:00	0.9	2.222	1.322
04.06.16	TP 06	17:00	0.9	2.222	1.322
04.06.16	TP 06	18:00	0.9	2.222	1.322

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
05.06.16	TP 06	6:00	0.95	2.222	1.272
05.06.16	TP 06	7:00	0.95	2.222	1.272
05.06.16	TP 06	8:00	0.95	2.222	1.272
05.06.16	TP 06	9:00	0.95	2.222	1.272
05.06.16	TP 06	10:00	0.95	2.222	1.272
05.06.16	TP 06	11:00	0.95	2.222	1.272
05.06.16	TP 06	12:00	0.95	2.222	1.272



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
05.06.16	TP 06	13:00	0.95	2.222	1.272
05.06.16	TP 06	14:00	0.95	2.222	1.272
05.06.16	TP 06	15:00	0.95	2.222	1.272
05.06.16	TP 06	16:00	0.95	2.222	1.272
05.06.16	TP 06	17:00	0.95	2.222	1.272
05.06.16	TP 06	18:00	0.95	2.222	1.272

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
05.06.16	TP 07	6:00	0.85	1.702	0.852
05.06.16	TP 07	7:00	0.85	1.702	0.852
05.06.16	TP 07	8:00	0.85	1.702	0.852
05.06.16	TP 07	9:00	0.85	1.702	0.852
05.06.16	TP 07	10:00	0.85	1.702	0.852
05.06.16	TP 07	11:00	0.85	1.702	0.852
05.06.16	TP 07	12:00	0.85	1.702	0.852
05.06.16	TP 07	13:00	0.85	1.702	0.852
05.06.16	TP 07	14:00	0.85	1.702	0.852
05.06.16	TP 07	15:00	0.85	1.702	0.852
05.06.16	TP 07	16:00	0.85	1.702	0.852
05.06.16	TP 07	17:00	0.85	1.702	0.852
05.06.16	TP 07	18:00	0.85	1.702	0.852

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
06.06.16	TP 08	6:00	0.7	2.436	1.736
06.06.16	TP 08	7:00	0.7	2.436	1.736
06.06.16	TP 08	8:00	0.7	2.436	1.736
06.06.16	TP 08	9:00	0.7	2.436	1.736
06.06.16	TP 08	10:00	0.7	2.436	1.736
06.06.16	TP 08	11:00	0.7	2.436	1.736
06.06.16	TP 08	12:00	0.7	2.436	1.736
06.06.16	TP 08	13:00	0.7	2.436	1.736
06.06.16	TP 08	14:00	0.7	2.436	1.736
06.06.16	TP 08	15:00	0.7	2.436	1.736
06.06.16	TP 08	16:00	0.7	2.436	1.736
06.06.16	TP 08	17:00	0.7	2.436	1.736
06.06.16	TP 08	18:00	0.7	2.436	1.736



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
07.06.16	TP 09	6:00	0.91	2.121	1.211
07.06.16	TP 09	7:00	0.91	2.121	1.211
07.06.16	TP 09	8:00	0.91	2.121	1.211
07.06.16	TP 09	9:00	0.91	2.121	1.211
07.06.16	TP 09	10:00	0.91	2.121	1.211
07.06.16	TP 09	11:00	0.91	2.121	1.211
07.06.16	TP 09	12:00	0.91	2.121	1.211
07.06.16	TP 09	13:00	0.91	2.121	1.211
07.06.16	TP 09	14:00	0.91	2.121	1.211
07.06.16	TP 09	15:00	0.91	2.121	1.211
07.06.16	TP 09	16:00	0.91	2.121	1.211
07.06.16	TP 09	17:00	0.91	2.121	1.211
07.06.16	TP 09	18:00	0.91	2.121	1.211

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
07.06.16	TP 10	6:00	1	2.169	1.169
07.06.16	TP 10	7:00	1	2.169	1.169
07.06.16	TP 10	8:00	1	2.169	1.169
07.06.16	TP 10	9:00	1	2.169	1.169
07.06.16	TP 10	10:00	1	2.169	1.169
07.06.16	TP 10	11:00	1	2.169	1.169
07.06.16	TP 10	12:00	1	2.169	1.169
07.06.16	TP 10	13:00	1	2.169	1.169
07.06.16	TP 10	14:00	1	2.169	1.169
07.06.16	TP 10	15:00	1	2.169	1.169
07.06.16	TP 10	16:00	1	2.169	1.169
07.06.16	TP 10	17:00	1	2.169	1.169
07.06.16	TP 10	18:00	1	2.169	1.169



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
07.06.16	TP 11	6:00	0.8	1.646	0.846
07.06.16	TP 11	7:00	0.8	1.646	0.846
07.06.16	TP 11	8:00	0.8	1.646	0.846
07.06.16	TP 11	9:00	0.8	1.646	0.846
07.06.16	TP 11	10:00	0.8	1.646	0.846
07.06.16	TP 11	11:00	0.8	1.646	0.846
07.06.16	TP 11	12:00	0.8	1.646	0.846
07.06.16	TP 11	13:00	0.8	1.646	0.846
07.06.16	TP 11	14:00	0.8	1.646	0.846
07.06.16	TP 11	15:00	0.8	1.646	0.846
07.06.16	TP 11	16:00	0.8	1.646	0.846
07.06.16	TP 11	17:00	0.8	1.646	0.846
07.06.16	TP 11	18:00	0.8	1.646	0.846

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
08.06.16	TP 11	6:00	0.74	1.646	0.906
08.06.16	TP 11	7:00	0.74	1.646	0.906
08.06.16	TP 11	8:00	0.74	1.646	0.906
08.06.16	TP 11	9:00	0.74	1.646	0.906
08.06.16	TP 11	10:00	0.74	1.646	0.906
08.06.16	TP 11	11:00	0.74	1.646	0.906
08.06.16	TP 11	12:00	0.74	1.646	0.906
08.06.16	TP 11	13:00	0.74	1.646	0.906
08.06.16	TP 11	14:00	0.74	1.646	0.906
08.06.16	TP 11	15:00	0.74	1.646	0.906
08.06.16	TP 11	16:00	0.74	1.646	0.906
08.06.16	TP 11	17:00	0.74	1.646	0.906
08.06.16	TP 11	18:00	0.74	1.646	0.906



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORECTION	CORECTED TIDE
08.06.16	TP 12	6:00	0.455	1.326	0.871
08.06.16	TP 12	7:00	0.455	1.326	0.871
08.06.16	TP 12	8:00	0.455	1.326	0.871
08.06.16	TP 12	9:00	0.455	1.326	0.871
08.06.16	TP 12	10:00	0.455	1.326	0.871
08.06.16	TP 12	11:00	0.455	1.326	0.871
08.06.16	TP 12	12:00	0.455	1.326	0.871
08.06.16	TP 12	13:00	0.455	1.326	0.871
08.06.16	TP 12	14:00	0.455	1.326	0.871
08.06.16	TP 12	15:00	0.455	1.326	0.871
08.06.16	TP 12	16:00	0.455	1.326	0.871
08.06.16	TP 12	17:00	0.455	1.326	0.871
08.06.16	TP 12	18:00	0.455	1.326	0.871

DATE	TIDE NAME	TIME	T.READING	CORECTION	CORECTED TIDE
10.06.16	TP 13	6:00	0.8	1.089	0.289
10.06.16	TP 13	7:00	0.8	1.089	0.289
10.06.16	TP 13	8:00	0.8	1.089	0.289
10.06.16	TP 13	9:00	0.8	1.089	0.289
10.06.16	TP 13	10:00	0.8	1.089	0.289
10.06.16	TP 13	11:00	0.8	1.089	0.289
10.06.16	TP 13	12:00	0.8	1.089	0.289
10.06.16	TP 13	13:00	0.8	1.089	0.289
10.06.16	TP 13	14:00	0.8	1.089	0.289
10.06.16	TP 13	15:00	0.8	1.089	0.289
10.06.16	TP 13	16:00	0.8	1.089	0.289
10.06.16	TP 13	17:00	0.8	1.089	0.289
10.06.16	TP 13	18:00	0.8	1.089	0.289



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
10.06.16	TP 14	6:00	0.81	1.62	0.81
10.06.16	TP 14	7:00	0.81	1.62	0.81
10.06.16	TP 14	8:00	0.81	1.62	0.81
10.06.16	TP 14	9:00	0.81	1.62	0.81
10.06.16	TP 14	10:00	0.81	1.62	0.81
10.06.16	TP 14	11:00	0.81	1.62	0.81
10.06.16	TP 14	12:00	0.81	1.62	0.81
10.06.16	TP 14	13:00	0.81	1.62	0.81
10.06.16	TP 14	14:00	0.81	1.62	0.81
10.06.16	TP 14	15:00	0.81	1.62	0.81
10.06.16	TP 14	16:00	0.81	1.62	0.81
10.06.16	TP 14	17:00	0.81	1.62	0.81
10.06.16	TP 14	18:00	0.81	1.62	0.81

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
11.06.16	TP 14	6:00	0.79	1.62	0.83
11.06.16	TP 14	7:00	0.79	1.62	0.83
11.06.16	TP 14	8:00	0.79	1.62	0.83
11.06.16	TP 14	9:00	0.79	1.62	0.83
11.06.16	TP 14	10:00	0.79	1.62	0.83
11.06.16	TP 14	11:00	0.79	1.62	0.83
11.06.16	TP 14	12:00	0.79	1.62	0.83
11.06.16	TP 14	13:00	0.79	1.62	0.83
11.06.16	TP 14	14:00	0.79	1.62	0.83
11.06.16	TP 14	15:00	0.79	1.62	0.83
11.06.16	TP 14	16:00	0.79	1.62	0.83
11.06.16	TP 14	17:00	0.79	1.62	0.83
11.06.16	TP 14	18:00	0.79	1.62	0.83

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
11.06.16	TP 15	6:00	0.81	2.189	1.379
11.06.16	TP 15	7:00	0.81	2.189	1.379
11.06.16	TP 15	8:00	0.81	2.189	1.379
11.06.16	TP 15	9:00	0.81	2.189	1.379
11.06.16	TP 15	10:00	0.81	2.189	1.379
11.06.16	TP 15	11:00	0.81	2.189	1.379
11.06.16	TP 15	12:00	0.81	2.189	1.379
11.06.16	TP 15	13:00	0.81	2.189	1.379



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
11.06.16	TP 15	14:00	0.81	2.189	1.379
11.06.16	TP 15	15:00	0.81	2.189	1.379
11.06.16	TP 15	16:00	0.81	2.189	1.379
11.06.16	TP 15	17:00	0.81	2.189	1.379
11.06.16	TP 15	18:00	0.81	2.189	1.379

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
12.06.16	TP 16	6:00	0.5	1.732	1.232
12.06.16	TP 16	7:00	0.5	1.732	1.232
12.06.16	TP 16	8:00	0.5	1.732	1.232
12.06.16	TP 16	9:00	0.5	1.732	1.232
12.06.16	TP 16	10:00	0.5	1.732	1.232
12.06.16	TP 16	11:00	0.5	1.732	1.232
12.06.16	TP 16	12:00	0.5	1.732	1.232
12.06.16	TP 16	13:00	0.5	1.732	1.232
12.06.16	TP 16	14:00	0.5	1.732	1.232
12.06.16	TP 16	15:00	0.5	1.732	1.232
12.06.16	TP 16	16:00	0.5	1.732	1.232
12.06.16	TP 16	17:00	0.5	1.732	1.232
12.06.16	TP 16	18:00	0.5	1.732	1.232

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
12.06.16	TP 17	6:00	0.45	0.67	0.22
12.06.16	TP 17	7:00	0.45	0.67	0.22
12.06.16	TP 17	8:00	0.45	0.67	0.22
12.06.16	TP 17	9:00	0.45	0.67	0.22
12.06.16	TP 17	10:00	0.45	0.67	0.22
12.06.16	TP 17	11:00	0.45	0.67	0.22
12.06.16	TP 17	12:00	0.45	0.67	0.22
12.06.16	TP 17	13:00	0.45	0.67	0.22
12.06.16	TP 17	14:00	0.45	0.67	0.22
12.06.16	TP 17	15:00	0.45	0.67	0.22
12.06.16	TP 17	16:00	0.45	0.67	0.22
12.06.16	TP 17	17:00	0.45	0.67	0.22
12.06.16	TP 17	18:00	0.45	0.67	0.22



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
13.06.16	TP 18	6:00	1	-1.28	-2.28
13.06.16	TP 18	7:00	1	-1.28	-2.28
13.06.16	TP 18	8:00	1	-1.28	-2.28
13.06.16	TP 18	9:00	1	-1.28	-2.28
13.06.16	TP 18	10:00	1	-1.28	-2.28
13.06.16	TP 18	11:00	1	-1.28	-2.28
13.06.16	TP 18	12:00	1	-1.28	-2.28
13.06.16	TP 18	13:00	1	-1.28	-2.28
13.06.16	TP 18	14:00	1	-1.28	-2.28
13.06.16	TP 18	15:00	1	-1.28	-2.28
13.06.16	TP 18	16:00	1	-1.28	-2.28
13.06.16	TP 18	17:00	1	-1.28	-2.28
13.06.16	TP 18	18:00	1	-1.28	-2.28

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
13.06.16	TP 19	6:00	0.62	1.122	0.502
13.06.16	TP 19	7:00	0.62	1.122	0.502
13.06.16	TP 19	8:00	0.62	1.122	0.502
13.06.16	TP 19	9:00	0.62	1.122	0.502
13.06.16	TP 19	10:00	0.62	1.122	0.502
13.06.16	TP 19	11:00	0.62	1.122	0.502
13.06.16	TP 19	12:00	0.62	1.122	0.502
13.06.16	TP 19	13:00	0.62	1.122	0.502
13.06.16	TP 19	14:00	0.62	1.122	0.502
13.06.16	TP 19	15:00	0.62	1.122	0.502
13.06.16	TP 19	16:00	0.62	1.122	0.502
13.06.16	TP 19	17:00	0.62	1.122	0.502
13.06.16	TP 19	18:00	0.62	1.122	0.502

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
13.06.16	TP 20	6:00	0.8	0.965	0.165
13.06.16	TP 20	7:00	0.8	0.965	0.165
13.06.16	TP 20	8:00	0.8	0.965	0.165
13.06.16	TP 20	9:00	0.8	0.965	0.165
13.06.16	TP 20	10:00	0.8	0.965	0.165
13.06.16	TP 20	11:00	0.8	0.965	0.165
13.06.16	TP 20	12:00	0.8	0.965	0.165



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
13.06.16	TP 20	13:00	0.8	0.965	0.165
13.06.16	TP 20	14:00	0.8	0.965	0.165
13.06.16	TP 20	15:00	0.8	0.965	0.165
13.06.16	TP 20	16:00	0.8	0.965	0.165
13.06.16	TP 20	17:00	0.8	0.965	0.165
13.06.16	TP 20	18:00	0.8	0.965	0.165

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
09.05.16	TP 20	6:00	0.8	0.965	0.165
09.05.16	TP 20	7:00	0.8	0.965	0.165
09.05.16	TP 20	8:00	0.8	0.965	0.165
09.05.16	TP 20	9:00	0.8	0.965	0.165
09.05.16	TP 20	10:00	0.8	0.965	0.165
09.05.16	TP 20	11:00	0.8	0.965	0.165
09.05.16	TP 20	12:00	0.8	0.965	0.165
09.05.16	TP 20	13:00	0.8	0.965	0.165
09.05.16	TP 20	14:00	0.8	0.965	0.165
09.05.16	TP 20	15:00	0.8	0.965	0.165
09.05.16	TP 20	16:00	0.8	0.965	0.165
09.05.16	TP 20	17:00	0.8	0.965	0.165
09.05.16	TP 20	18:00	0.8	0.965	0.165

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
09.05.16	TP 21	6:00	1.15	0.706	-0.444
09.05.16	TP 21	7:00	1.15	0.706	-0.444
09.05.16	TP 21	8:00	1.15	0.706	-0.444
09.05.16	TP 21	9:00	1.15	0.706	-0.444
09.05.16	TP 21	10:00	1.15	0.706	-0.444
09.05.16	TP 21	11:00	1.15	0.706	-0.444
09.05.16	TP 21	12:00	1.15	0.706	-0.444
09.05.16	TP 21	13:00	1.15	0.706	-0.444
09.05.16	TP 21	14:00	1.15	0.706	-0.444
09.05.16	TP 21	15:00	1.15	0.706	-0.444
09.05.16	TP 21	16:00	1.15	0.706	-0.444
09.05.16	TP 21	17:00	1.15	0.706	-0.444
09.05.16	TP 21	18:00	1.15	0.706	-0.444



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
10.05.16	TP 21	6:00	1.15	0.706	-0.444
10.05.16	TP 21	7:00	1.15	0.706	-0.444
10.05.16	TP 21	8:00	1.15	0.706	-0.444
10.05.16	TP 21	9:00	1.15	0.706	-0.444
10.05.16	TP 21	10:00	1.15	0.706	-0.444
10.05.16	TP 21	11:00	1.15	0.706	-0.444
10.05.16	TP 21	12:00	1.15	0.706	-0.444
10.05.16	TP 21	13:00	1.15	0.706	-0.444
10.05.16	TP 21	14:00	1.15	0.706	-0.444
10.05.16	TP 21	15:00	1.15	0.706	-0.444
10.05.16	TP 21	16:00	1.15	0.706	-0.444
10.05.16	TP 21	17:00	1.15	0.706	-0.444
10.05.16	TP 21	18:00	1.15	0.706	-0.444

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
10.05.16	TP 22	6:00	0.82	0.87	0.05
10.05.16	TP 22	7:00	0.82	0.87	0.05
10.05.16	TP 22	8:00	0.82	0.87	0.05
10.05.16	TP 22	9:00	0.82	0.87	0.05
10.05.16	TP 22	10:00	0.82	0.87	0.05
10.05.16	TP 22	11:00	0.82	0.87	0.05
10.05.16	TP 22	12:00	0.82	0.87	0.05
10.05.16	TP 22	13:00	0.82	0.87	0.05
10.05.16	TP 22	14:00	0.82	0.87	0.05
10.05.16	TP 22	15:00	0.82	0.87	0.05
10.05.16	TP 22	16:00	0.82	0.87	0.05
10.05.16	TP 22	17:00	0.82	0.87	0.05
10.05.16	TP 22	18:00	0.82	0.87	0.05

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
10.05.16	TP 23	6:00	0.71	1.193	0.483
10.05.16	TP 23	7:00	0.71	1.193	0.483
10.05.16	TP 23	8:00	0.71	1.193	0.483
10.05.16	TP 23	9:00	0.71	1.193	0.483
10.05.16	TP 23	10:00	0.71	1.193	0.483
10.05.16	TP 23	11:00	0.71	1.193	0.483
10.05.16	TP 23	12:00	0.71	1.193	0.483



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
10.05.16	TP 23	13:00	0.71	1.193	0.483
10.05.16	TP 23	14:00	0.71	1.193	0.483
10.05.16	TP 23	15:00	0.71	1.193	0.483
10.05.16	TP 23	16:00	0.71	1.193	0.483
10.05.16	TP 23	17:00	0.71	1.193	0.483
10.05.16	TP 23	18:00	0.71	1.193	0.483

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
11.05.16	TP 24	6:00	0.82	1.326	0.506
11.05.16	TP 24	7:00	0.82	1.326	0.506
11.05.16	TP 24	8:00	0.82	1.326	0.506
11.05.16	TP 24	9:00	0.82	1.326	0.506
11.05.16	TP 24	10:00	0.82	1.326	0.506
11.05.16	TP 24	11:00	0.82	1.326	0.506
11.05.16	TP 24	12:00	0.82	1.326	0.506
11.05.16	TP 24	13:00	0.82	1.326	0.506
11.05.16	TP 24	14:00	0.82	1.326	0.506
11.05.16	TP 24	15:00	0.82	1.326	0.506
11.05.16	TP 24	16:00	0.82	1.326	0.506
11.05.16	TP 24	17:00	0.82	1.326	0.506
11.05.16	TP 24	18:00	0.82	1.326	0.506

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
11.05.16	TP 25	6:00	0.55	0.931	0.381
11.05.16	TP 25	7:00	0.55	0.931	0.381
11.05.16	TP 25	8:00	0.55	0.931	0.381
11.05.16	TP 25	9:00	0.55	0.931	0.381
11.05.16	TP 25	10:00	0.55	0.931	0.381
11.05.16	TP 25	11:00	0.55	0.931	0.381
11.05.16	TP 25	12:00	0.55	0.931	0.381
11.05.16	TP 25	13:00	0.55	0.931	0.381
11.05.16	TP 25	14:00	0.55	0.931	0.381
11.05.16	TP 25	15:00	0.55	0.931	0.381
11.05.16	TP 25	16:00	0.55	0.931	0.381
11.05.16	TP 25	17:00	0.55	0.931	0.381
11.05.16	TP 25	18:00	0.55	0.931	0.381



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
12.05.16	TP 25	6:00	0.52	0.931	0.411
12.05.16	TP 25	7:00	0.52	0.931	0.411
12.05.16	TP 25	8:00	0.52	0.931	0.411
12.05.16	TP 25	9:00	0.52	0.931	0.411
12.05.16	TP 25	10:00	0.52	0.931	0.411
12.05.16	TP 25	11:00	0.52	0.931	0.411
12.05.16	TP 25	12:00	0.52	0.931	0.411
12.05.16	TP 25	13:00	0.52	0.931	0.411
12.05.16	TP 25	14:00	0.52	0.931	0.411
12.05.16	TP 25	15:00	0.52	0.931	0.411
12.05.16	TP 25	16:00	0.52	0.931	0.411
12.05.16	TP 25	17:00	0.52	0.931	0.411
12.05.16	TP 25	18:00	0.52	0.931	0.411

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
12.05.16	TP 26	6:00	1	0.983	-0.017
12.05.16	TP 26	7:00	1	0.983	-0.017
12.05.16	TP 26	8:00	1	0.983	-0.017
12.05.16	TP 26	9:00	1	0.983	-0.017
12.05.16	TP 26	10:00	1	0.983	-0.017
12.05.16	TP 26	11:00	1	0.983	-0.017
12.05.16	TP 26	12:00	1	0.983	-0.017
12.05.16	TP 26	13:00	1	0.983	-0.017
12.05.16	TP 26	14:00	1	0.983	-0.017
12.05.16	TP 26	15:00	1	0.983	-0.017
12.05.16	TP 26	16:00	1	0.983	-0.017
12.05.16	TP 26	17:00	1	0.983	-0.017
12.05.16	TP 26	18:00	1	0.983	-0.017

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
13.05.16	TP 26	6:00	0.98	0.983	0.003
13.05.16	TP 26	7:00	0.98	0.983	0.003
13.05.16	TP 26	8:00	0.98	0.983	0.003
13.05.16	TP 26	9:00	0.98	0.983	0.003
13.05.16	TP 26	10:00	0.98	0.983	0.003
13.05.16	TP 26	11:00	0.98	0.983	0.003



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
13.05.16	TP 26	12:00	0.98	0.983	0.003
13.05.16	TP 26	13:00	0.98	0.983	0.003
13.05.16	TP 26	14:00	0.98	0.983	0.003
13.05.16	TP 26	15:00	0.98	0.983	0.003
13.05.16	TP 26	16:00	0.98	0.983	0.003
13.05.16	TP 26	17:00	0.98	0.983	0.003
13.05.16	TP 26	18:00	0.98	0.983	0.003

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
12.05.16	TP 27	6:00	0.81	1.476	0.666
12.05.16	TP 27	7:00	0.81	1.476	0.666
12.05.16	TP 27	8:00	0.81	1.476	0.666
12.05.16	TP 27	9:00	0.81	1.476	0.666
12.05.16	TP 27	10:00	0.81	1.476	0.666
12.05.16	TP 27	11:00	0.81	1.476	0.666
12.05.16	TP 27	12:00	0.81	1.476	0.666
12.05.16	TP 27	13:00	0.81	1.476	0.666
12.05.16	TP 27	14:00	0.81	1.476	0.666
12.05.16	TP 27	15:00	0.81	1.476	0.666
12.05.16	TP 27	16:00	0.81	1.476	0.666
12.05.16	TP 27	17:00	0.81	1.476	0.666
12.05.16	TP 27	18:00	0.81	1.476	0.666

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
16.05.16	TP 27	6:00	0.79	1.476	0.686
16.05.16	TP 27	7:00	0.79	1.476	0.686
16.05.16	TP 27	8:00	0.79	1.476	0.686
16.05.16	TP 27	9:00	0.79	1.476	0.686
16.05.16	TP 27	10:00	0.79	1.476	0.686
16.05.16	TP 27	11:00	0.79	1.476	0.686
16.05.16	TP 27	12:00	0.79	1.476	0.686
16.05.16	TP 27	13:00	0.79	1.476	0.686
16.05.16	TP 27	14:00	0.79	1.476	0.686
16.05.16	TP 27	15:00	0.79	1.476	0.686
16.05.16	TP 27	16:00	0.79	1.476	0.686
16.05.16	TP 27	17:00	0.79	1.476	0.686
16.05.16	TP 27	18:00	0.79	1.476	0.686



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
16.05.16	TP 27	6:00	0.79	1.476	0.686
16.05.16	TP 27	7:00	0.79	1.476	0.686
16.05.16	TP 27	8:00	0.79	1.476	0.686
16.05.16	TP 27	9:00	0.79	1.476	0.686
16.05.16	TP 27	10:00	0.79	1.476	0.686
16.05.16	TP 27	11:00	0.79	1.476	0.686
16.05.16	TP 27	12:00	0.79	1.476	0.686
16.05.16	TP 27	13:00	0.79	1.476	0.686
16.05.16	TP 27	14:00	0.79	1.476	0.686
16.05.16	TP 27	15:00	0.79	1.476	0.686
16.05.16	TP 27	16:00	0.79	1.476	0.686
16.05.16	TP 27	17:00	0.79	1.476	0.686
16.05.16	TP 27	18:00	0.79	1.476	0.686

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
16.05.16	TP 28	6:00	0.9	0.827	-0.073
16.05.16	TP 28	7:00	0.9	0.827	-0.073
16.05.16	TP 28	8:00	0.9	0.827	-0.073
16.05.16	TP 28	9:00	0.9	0.827	-0.073
16.05.16	TP 28	10:00	0.9	0.827	-0.073
16.05.16	TP 28	11:00	0.9	0.827	-0.073
16.05.16	TP 28	12:00	0.9	0.827	-0.073
16.05.16	TP 28	13:00	0.9	0.827	-0.073
16.05.16	TP 28	14:00	0.9	0.827	-0.073
16.05.16	TP 28	15:00	0.9	0.827	-0.073
16.05.16	TP 28	16:00	0.9	0.827	-0.073
16.05.16	TP 28	17:00	0.9	0.827	-0.073
16.05.16	TP 28	18:00	0.9	0.827	-0.073

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
17.05.16	TP 28	6:00	0.9	0.827	-0.073
17.05.16	TP 28	7:00	0.9	0.827	-0.073
17.05.16	TP 28	8:00	0.9	0.827	-0.073
17.05.16	TP 28	9:00	0.9	0.827	-0.073
17.05.16	TP 28	10:00	0.9	0.827	-0.073
17.05.16	TP 28	11:00	0.9	0.827	-0.073



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
17.05.16	TP 28	12:00	0.9	0.827	-0.073
17.05.16	TP 28	13:00	0.9	0.827	-0.073
17.05.16	TP 28	14:00	0.9	0.827	-0.073
17.05.16	TP 28	15:00	0.9	0.827	-0.073
17.05.16	TP 28	16:00	0.9	0.827	-0.073
17.05.16	TP 28	17:00	0.9	0.827	-0.073
17.05.16	TP 28	18:00	0.9	0.827	-0.073

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
17.05.16	TP 29	6:00	0.8	0.926	0.126
17.05.16	TP 29	7:00	0.8	0.926	0.126
17.05.16	TP 29	8:00	0.8	0.926	0.126
17.05.16	TP 29	9:00	0.8	0.926	0.126
17.05.16	TP 29	10:00	0.8	0.926	0.126
17.05.16	TP 29	11:00	0.8	0.926	0.126
17.05.16	TP 29	12:00	0.8	0.926	0.126
17.05.16	TP 29	13:00	0.8	0.926	0.126
17.05.16	TP 29	14:00	0.8	0.926	0.126
17.05.16	TP 29	15:00	0.8	0.926	0.126
17.05.16	TP 29	16:00	0.8	0.926	0.126
17.05.16	TP 29	17:00	0.8	0.926	0.126
17.05.16	TP 29	18:00	0.8	0.926	0.126

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
22.05.16	TP 29	6:00	0.78	0.926	0.146
22.05.16	TP 29	7:00	0.78	0.926	0.146
22.05.16	TP 29	8:00	0.78	0.926	0.146
22.05.16	TP 29	9:00	0.78	0.926	0.146
22.05.16	TP 29	10:00	0.78	0.926	0.146
22.05.16	TP 29	11:00	0.78	0.926	0.146
22.05.16	TP 29	12:00	0.78	0.926	0.146
22.05.16	TP 29	13:00	0.78	0.926	0.146
22.05.16	TP 29	14:00	0.78	0.926	0.146
22.05.16	TP 29	15:00	0.78	0.926	0.146
22.05.16	TP 29	16:00	0.78	0.926	0.146
22.05.16	TP 29	17:00	0.78	0.926	0.146
22.05.16	TP 29	18:00	0.78	0.926	0.146



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORECTION	CORECTED TIDE
18.05.16	TP 30	6:00	0.82	0.719	-0.101
18.05.16	TP 30	7:00	0.82	0.719	-0.101
18.05.16	TP 30	8:00	0.82	0.719	-0.101
18.05.16	TP 30	9:00	0.82	0.719	-0.101
18.05.16	TP 30	10:00	0.82	0.719	-0.101
18.05.16	TP 30	11:00	0.82	0.719	-0.101
18.05.16	TP 30	12:00	0.82	0.719	-0.101
18.05.16	TP 30	13:00	0.82	0.719	-0.101
18.05.16	TP 30	14:00	0.82	0.719	-0.101
18.05.16	TP 30	15:00	0.82	0.719	-0.101
18.05.16	TP 30	16:00	0.82	0.719	-0.101
18.05.16	TP 30	17:00	0.82	0.719	-0.101
18.05.16	TP 30	18:00	0.82	0.719	-0.101

DATE	TIDE NAME	TIME	T.READING	CORECTION	CORECTED TIDE
18.05.16	TP 30	6:00	0.84	0.719	-0.121
18.05.16	TP 30	7:00	0.84	0.719	-0.121
18.05.16	TP 30	8:00	0.84	0.719	-0.121
18.05.16	TP 30	9:00	0.84	0.719	-0.121
18.05.16	TP 30	10:00	0.84	0.719	-0.121
18.05.16	TP 30	11:00	0.84	0.719	-0.121
18.05.16	TP 30	12:00	0.84	0.719	-0.121
18.05.16	TP 30	13:00	0.84	0.719	-0.121
18.05.16	TP 30	14:00	0.84	0.719	-0.121
18.05.16	TP 30	15:00	0.84	0.719	-0.121
18.05.16	TP 30	16:00	0.84	0.719	-0.121
18.05.16	TP 30	17:00	0.84	0.719	-0.121
18.05.16	TP 30	18:00	0.84	0.719	-0.121

DATE	TIDE NAME	TIME	T.READING	CORECTION	CORECTED TIDE
22.05.16	GTS TP 31	6:00	1.05	1.078	0.028
22.05.16	GTS TP 31	7:00	1.05	1.078	0.028
22.05.16	GTS TP 31	8:00	1.05	1.078	0.028
22.05.16	GTS TP 31	9:00	1.05	1.078	0.028
22.05.16	GTS TP 31	10:00	1.05	1.078	0.028
22.05.16	GTS TP 31	11:00	1.05	1.078	0.028



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
22.05.16	GTS TP 31	12:00	1.05	1.078	0.028
22.05.16	GTS TP 31	13:00	1.05	1.078	0.028
22.05.16	GTS TP 31	14:00	1.05	1.078	0.028
22.05.16	GTS TP 31	15:00	1.05	1.078	0.028
22.05.16	GTS TP 31	16:00	1.05	1.078	0.028
22.05.16	GTS TP 31	17:00	1.05	1.078	0.028
22.05.16	GTS TP 31	18:00	1.05	1.078	0.028

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
23.05.16	GTS TP 31	6:00	1.02	1.078	0.058
23.05.16	GTS TP 31	7:00	1.02	1.078	0.058
23.05.16	GTS TP 31	8:00	1.02	1.078	0.058
23.05.16	GTS TP 31	9:00	1.02	1.078	0.058
23.05.16	GTS TP 31	10:00	1.02	1.078	0.058
23.05.16	GTS TP 31	11:00	1.02	1.078	0.058
23.05.16	GTS TP 31	12:00	1.02	1.078	0.058
23.05.16	GTS TP 31	13:00	1.02	1.078	0.058
23.05.16	GTS TP 31	14:00	1.02	1.078	0.058
23.05.16	GTS TP 31	15:00	1.02	1.078	0.058
23.05.16	GTS TP 31	16:00	1.02	1.078	0.058
23.05.16	GTS TP 31	17:00	1.02	1.078	0.058
23.05.16	GTS TP 31	18:00	1.02	1.078	0.058

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
23.05.16	TP 32	6:00	0.81	0.872	0.062
23.05.16	TP 32	7:00	0.81	0.872	0.062
23.05.16	TP 32	8:00	0.81	0.872	0.062
23.05.16	TP 32	9:00	0.81	0.872	0.062
23.05.16	TP 32	10:00	0.81	0.872	0.062



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
23.05.16	TP 32	11:00	0.81	0.872	0.062
23.05.16	TP 32	12:00	0.81	0.872	0.062
23.05.16	TP 32	13:00	0.81	0.872	0.062
23.05.16	TP 32	14:00	0.81	0.872	0.062
23.05.16	TP 32	15:00	0.81	0.872	0.062
23.05.16	TP 32	16:00	0.81	0.872	0.062
23.05.16	TP 32	17:00	0.81	0.872	0.062
23.05.16	TP 32	18:00	0.81	0.872	0.062

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
23.05.16	TP 33	6:00	0.93	0.811	-0.119
23.05.16	TP 33	7:00	0.93	0.811	-0.119
23.05.16	TP 33	8:00	0.93	0.811	-0.119
23.05.16	TP 33	9:00	0.93	0.811	-0.119
23.05.16	TP 33	10:00	0.93	0.811	-0.119
23.05.16	TP 33	11:00	0.93	0.811	-0.119
23.05.16	TP 33	12:00	0.93	0.811	-0.119
23.05.16	TP 33	13:00	0.93	0.811	-0.119
23.05.16	TP 33	14:00	0.93	0.811	-0.119
23.05.16	TP 33	15:00	0.93	0.811	-0.119
23.05.16	TP 33	16:00	0.93	0.811	-0.119
23.05.16	TP 33	17:00	0.93	0.811	-0.119
23.05.16	TP 33	18:00	0.93	0.811	-0.119

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
24.05.16	TP 33	6:00	0.91	0.811	-0.099
24.05.16	TP 33	7:00	0.91	0.811	-0.099
24.05.16	TP 33	8:00	0.91	0.811	-0.099
24.05.16	TP 33	9:00	0.91	0.811	-0.099
24.05.16	TP 33	10:00	0.91	0.811	-0.099
24.05.16	TP 33	11:00	0.91	0.811	-0.099
24.05.16	TP 33	12:00	0.91	0.811	-0.099
24.05.16	TP 33	13:00	0.91	0.811	-0.099
24.05.16	TP 33	14:00	0.91	0.811	-0.099
24.05.16	TP 33	15:00	0.91	0.811	-0.099
24.05.16	TP 33	16:00	0.91	0.811	-0.099



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
24.05.16	TP 33	17:00	0.91	0.811	-0.099
24.05.16	TP 33	18:00	0.91	0.811	-0.099

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
24.05.2016	TP 34	6:00	1.1	1.771	0.671
24.05.2016	TP 34	7:00	1.1	1.771	0.671
24.05.2016	TP 34	8:00	1.1	1.771	0.671
24.05.2016	TP 34	9:00	1.1	1.771	0.671
24.05.2016	TP 34	10:00	1.1	1.771	0.671
24.05.2016	TP 34	11:00	1.1	1.771	0.671
24.05.2016	TP 34	12:00	1.1	1.771	0.671
24.05.2016	TP 34	13:00	1.1	1.771	0.671
24.05.2016	TP 34	14:00	1.1	1.771	0.671
24.05.2016	TP 34	15:00	1.1	1.771	0.671
24.05.2016	TP 34	16:00	1.1	1.771	0.671
24.05.2016	TP 34	17:00	1.1	1.771	0.671
24.05.2016	TP 34	18:00	1.1	1.771	0.671

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
25.05.2016	TP 34	6:00	1.05	1.771	0.721
25.05.2016	TP 34	7:00	1.05	1.771	0.721
25.05.2016	TP 34	8:00	1.05	1.771	0.721
25.05.2016	TP 34	9:00	1.05	1.771	0.721
25.05.2016	TP 34	10:00	1.05	1.771	0.721
25.05.2016	TP 34	11:00	1.05	1.771	0.721
25.05.2016	TP 34	12:00	1.05	1.771	0.721
25.05.2016	TP 34	13:00	1.05	1.771	0.721
25.05.2016	TP 34	14:00	1.05	1.771	0.721
25.05.2016	TP 34	15:00	1.05	1.771	0.721
25.05.2016	TP 34	16:00	1.05	1.771	0.721
25.05.2016	TP 34	17:00	1.05	1.771	0.721
25.05.2016	TP 34	18:00	1.05	1.771	0.721



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
25.05.2016	TP 35	6:00	0.9	0.237	-0.663
25.05.2016	TP 35	7:00	0.9	0.237	-0.663
25.05.2016	TP 35	8:00	0.9	0.237	-0.663
25.05.2016	TP 35	9:00	0.9	0.237	-0.663
25.05.2016	TP 35	10:00	0.9	0.237	-0.663
25.05.2016	TP 35	11:00	0.9	0.237	-0.663
25.05.2016	TP 35	12:00	0.9	0.237	-0.663
25.05.2016	TP 35	13:00	0.9	0.237	-0.663
25.05.2016	TP 35	14:00	0.9	0.237	-0.663
25.05.2016	TP 35	15:00	0.9	0.237	-0.663
25.05.2016	TP 35	16:00	0.9	0.237	-0.663
25.05.2016	TP 35	17:00	0.9	0.237	-0.663
25.05.2016	TP 35	18:00	0.9	0.237	-0.663

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
26.05.2016	TP 35	6:00	0.93	0.237	-0.693
26.05.2016	TP 35	7:00	0.93	0.237	-0.693
26.05.2016	TP 35	8:00	0.93	0.237	-0.693
26.05.2016	TP 35	9:00	0.93	0.237	-0.693
26.05.2016	TP 35	10:00	0.93	0.237	-0.693
26.05.2016	TP 35	11:00	0.93	0.237	-0.693
26.05.2016	TP 35	12:00	0.93	0.237	-0.693
26.05.2016	TP 35	13:00	0.93	0.237	-0.693
26.05.2016	TP 35	14:00	0.93	0.237	-0.693
26.05.2016	TP 35	15:00	0.93	0.237	-0.693
26.05.2016	TP 35	16:00	0.93	0.237	-0.693
26.05.2016	TP 35	17:00	0.93	0.237	-0.693
26.05.2016	TP 35	18:00	0.93	0.237	-0.693

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
25.05.2016	TP 36	6:00	0.8	-0.93	-1.73
25.05.2016	TP 36	7:00	0.8	-0.93	-1.73
25.05.2016	TP 36	8:00	0.8	-0.93	-1.73
25.05.2016	TP 36	9:00	0.8	-0.93	-1.73
25.05.2016	TP 36	10:00	0.8	-0.93	-1.73
25.05.2016	TP 36	11:00	0.8	-0.93	-1.73
25.05.2016	TP 36	12:00	0.8	-0.93	-1.73



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
25.05.2016	TP 36	13:00	0.8	-0.93	-1.73
25.05.2016	TP 36	14:00	0.8	-0.93	-1.73
25.05.2016	TP 36	15:00	0.8	-0.93	-1.73
25.05.2016	TP 36	16:00	0.8	-0.93	-1.73
25.05.2016	TP 36	17:00	0.8	-0.93	-1.73
25.05.2016	TP 36	18:00	0.8	-0.93	-1.73

DATE	TIDE NAME	TIME	T.READING	CORRECTION	CORRECTED TIDE
26.05.2016	TP 36	6:00	0.82	-0.93	-1.75
26.05.2016	TP 36	7:00	0.82	-0.93	-1.75
26.05.2016	TP 36	8:00	0.82	-0.93	-1.75
26.05.2016	TP 36	9:00	0.82	-0.93	-1.75
26.05.2016	TP 36	10:00	0.82	-0.93	-1.75
26.05.2016	TP 36	11:00	0.82	-0.93	-1.75
26.05.2016	TP 36	12:00	0.82	-0.93	-1.75
26.05.2016	TP 36	13:00	0.82	-0.93	-1.75
26.05.2016	TP 36	14:00	0.82	-0.93	-1.75
26.05.2016	TP 36	15:00	0.82	-0.93	-1.75
26.05.2016	TP 36	16:00	0.82	-0.93	-1.75
26.05.2016	TP 36	17:00	0.82	-0.93	-1.75
26.05.2016	TP 36	18:00	0.82	-0.93	-1.75

Annexure -11:- Soil Samples

Bottom samples were collected at every 10 km interval. The reports are as follows.

Sample No.	Chainage (km)	Latitude	Longitude	Easting (m)	Northing (m)	Depth (m)
BS1	353.16	26° 48' 14".2149 N	082° 06' 44".1443 E	610548.19	2965204.95	2.8
BS2	343.39	26° 48' 39".8326 N	082° 12' 12".6898 E	619612.12	2966075.88	9.4
BS3	335.86	26° 49' 12".671 N	082° 16' 36".8467 E	626895.21	2967157.54	2.7
BS4	326.35	26° 44' 20".3766 N	082° 17' 43".0513 E	628814.59	2958182.1	3.3
BS5	316.60	26° 43' 9".5973 N	082° 22' 34".5403 E	636891.27	2956088.67	2.4



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



Sample No.	Chainage (km)	Latitude	Longitude	Easting (m)	Northing (m)	Depth (m)
BS6	306.24	26° 38' 26".0711 N	082° 25' 35".7003 E	641994.79	2947419.41	4.5
BS7	297.20	26° 41' 12".0184 N	082° 29' 49".131 E	648942.84	2952606.01	2.8
BS8	289.25	26° 38' 54".9662 N	082° 32' 41".3701 E	653754.85	2948445.45	1.2
BS9	278.65	26° 36' 32".7873 N	082° 37' 4".8408 E	661095.54	2944160.5	2.7
BS10	268.23	26° 32' 47".4351 N	082° 40' 38".8883 E	667107.24	2937302.12	4.5
BS11	258.04	26° 33' 42".2159 N	082° 46' 37".7808 E	677016.95	2939121.79	9.1
BS12	248.28	26° 33' 28".6096 N	082° 50' 50".2292 E	684009.29	2938801.91	2.8
BS13	238.37	26° 30' 41".916 N	082° 55' 42".645 E	692179.3	2933791.19	2.2
BS14	229.23	26° 28' 8".5905 N	083° 00' 21".7019 E	699979.47	2929190.96	4.3
BS15	219.01	26° 24' 16".7761 N	083° 04' 10".3657 E	706427.93	2922157.04	8.4
BS16	208.51	26° 22' 44".7223 N	083° 09' 12".9257 E	714860.7	2919461.39	2.3
BS17	198.30	26° 22' 32".7841 N	083° 15' 12".4835 E	724834.79	2919264.36	2.3
BS18	188.57	26° 20' 11".4738 N	083° 20' 24".1585 E	733554.54	2915068.89	2.6
BS19	178.90	26° 17' 0".5732 N	083° 24' 43".5518 E	740858.32	2909325.38	2.2
BS20	167.26	26° 16' 30".4601 N	083° 30' 17".4577 E	750141.47	2908574.61	9.1
BS21	158.24	26° 14' 56".2408 N	083° 34' 40".1958 E	757490.49	2905817.58	1.6
BS22	146.73	26° 16' 50".068 N	083° 38' 57".4571 E	764559.85	2909465.74	2.1
BS23	136.200	26° 15' 19".1652 N	083° 43' 48".5104 E	772696.13	2906835.34	2.8
BS24	125.95	26° 12' 10".4589 N	083° 48' 34".0826 E	780749.29	2901195.52	6.6
BS25	114.93	26° 08' 48".9503 N	083° 52' 16".9386 E	787075.79	2895127.34	1.3
BS26	105.01	26° 07' 4".6422 N	083° 57' 22".5057 E	795639.57	2892106.36	4.4
BS 27	94.44	26° 06' 25".8581 N	078° 03' 13".7895 E	205342.18	2890889.39	5.0
BS 28	84.57	26° 03' 44".5277 N	078° 07' 46".1582 E	212803.48	2885753.36	9.1
BS 29	74.95	26° 00' 16".5854 N	078° 11' 50".419 E	219457.78	2879203.99	2.0
BS 30	64.85	25° 57' 0".0346 N	078° 16' 5".3275 E	226422.46	2873003.14	2.3



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



Sample No.	Chainage (km)	Latitude	Longitude	Easting (m)	Northing (m)	Depth (m)
BS 31	54.75	25° 55' 35".159 N	078° 21' 36".7445 E	235593.14	2870201.15	3.2
BS 32	42.44	25° 52' 33".6127 N	078° 24' 59".0206 E	241113.27	2864500.65	4.1
BS 33	32.28	25° 53' 26".5164 N	078° 29' 25".8693 E	248574.99	2865984.8	8.8
BS 34	22.27	25° 50' 11".2908 N	078° 32' 53".4255 E	254241.38	2859866.61	2.1
BS 35	12.20	25° 46' 18".1662 N	078° 36' 4".397 E	259429.73	2852593.28	2.7
BS 36	02.24	25° 44' 7".0814 N	078° 41' 14".0672 E	267988.7	2848404.55	2.4

SI No.	Fine Gravel In % (20 mm to 4.75 mm)	Coarse Sand In % (4.75 mm to 2.00 mm)	Medium Sand In % (2.00 mm to 0.425 mm)	Fine Sand In % (0.425 mm to 0.075 mm)	Silt & Clay In % (0.075 mm to 0.001 mm)	Silt Size In % (0.075 mm to 0.002 mm)	Clay Size In % (<0.002 mm)	Specific Gravity	Ph value
GH1	0.00	0.12	0.34	33.22	66.32	1.51	64.81	2.64	7.867@27.2°C
GH2	0.00	0.10	0.32	34.32	57.27	1.72	63.21	2.66	7.832@27.3°C
GH3	0.00	0.00	0.3	36.41	48.32	1.63	42.16	2.65	7.762@27.1°C
GH4	0.00	0.00	0.28	38.23	41.16	1.92	39.18	2.66	7.786@27.4°C
GH5	0.00	0.02	0.31	32.18	39.23	1.67	32.67	2.63	7.782@27.4°C
GH6	0.00	0.03	0.27	37.96	38.42	2.13	37.42	2.64	7.781@27.3°C
GH7	0.00	0.00	0.29	38.12	32.16	1.92	22.18	2.62	7.773@27.2°C
GH8	0.00	0.00	0.25	39.49	36.12	-	-	2.63	7.774@27.2°C
GH9	0.00	0.00	0.26	42.19	33.69	-	-	2.65	7.779@27.1°C
GH10	0.00	0.00	0.23	47.14	31.46	1.97	22.14	2.61	7.784@27.0°C
GH11	0.00	0.00	0.25	56.18	30.67	2.13	26.62	2.69	7.762@26.1°C
GH12	0.00	0.00	0.27	69.24	30.49	2.16	28.33	2.67	7.754@25.3°C
GH13	0.00	0.00	0.26	70.56	27.18	1.18	27.32	2.61	7.758@25.4°C
GH14	0.00	0.00	0.27	71.74	26.23	1.2	20.16	2.62	7.762@25.3°C
GH15	0.00	0.00	0.28	76.15	18.19	-	-	2.71	7.763@25.2°C
GH16	0.00	0.00	0.23	82.13	16.13	1.42	20.62	2.7	7.784@25.2°C
GH17	0.00	0.00	0.24	86.69	9.42	-	-	2.68	7.782@25.1°C
GH18	0.00	0.00	0.25	93.51	6.25	-	-	2.67	7.786@25.0°C
GH19	0.00	0.00	0.26	82.45	21.14	1.16	19.84	2.68	7.779@26.1°C
GH20	0.00	0.00	0.29	82.19	23.16	1.12	18.25	2.72	7.762@26.4°C
GH21	0.00	0.00	0.23	79.64	32.19	-	-	2.71	7.768@26.5°C



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



SI No.	Fine Gravel In % (20 mm to 4.75 mm)	Coarse Sand In % (4.75 mm to 2.00 mm)	Medium Sand In % (2.00 mm to 0.425 mm)	Fine Sand In % (0.425 mm to 0.075 mm)	Silt & Clay In % (0.075 mm to 0.001 mm)	Silt Size In % (0.075 mm to 0.002 mm)	Clay Size In % (<0.002 mm)	Specific Gravity	Ph value
GH22	0.00	0.00	0.26	77.56	34.62	-	-	2.66	7.773@26.3°C
GH23	0.00	0.00	0.25	71.82	38.12	-	-	2.61	7.781@27.0°C
GH24	0.00	0.00	0.27	69.52	39.64	-	-	2.63	7.823@27.1°C
GH25	0.00	0.01	0.22	63.48	40.12	-	-	2.64	7.794@27.3°C
GH26	0.00	0.02	0.23	48.96	41.16	-	-	2.66	7.892@27.1°C
GH27	0.00	0.00	0.24	52.41	41.94	-	-	2.65	7.920@27.1°C
GH28	0.00	0.03	0.25	56.98	42.74	2.34	40.4	2.66	7.946@27.1°C
GH29	0.00	0.01	0.27	69.14	26.24	2.12	29.18	2.79	7.862@27.6°C
GH30	0.00	0.00	0.26	77.85	1.89	-	-	2.7	7.863@27.7°C
GH31	0.00	0.00	0.28	73.12	1.92	-	-	2.71	7.882@27.7°C
GH32	0.00	0.00	0.25	60.16	1.98	-	-	2.66	7.820@27.7°C
GH33	0.00	0.00	0.32	69.84	2.1	-	-	2.65	7.791@26.5°C
GH34	0.00	0.00	0.34	84.22	2.15	-	-	2.64	7.764@26.4°C
GH35	0.00	0.06	0.38	91.16	2.2	-	-	2.68	7.742@26.1°C
GH36	0.00	0.08	0.49	97.15	2.28	-	-	2.7	7.728@26.0°C

Annexure -12:- Water Samples

Water Sample Sediment Content Report

S. NO	PARAMETERS	UNITS	TOTAL DEPTH (m)	SEDIMENT CONCENTRATION (mg/l)
				AT MID DEPTH
GH1	Soil Content	mg/l	2.80	21
GH2	Soil Content	mg/l	9.00	23
GH3	Soil Content	mg/l	4.00	20
GH4	Soil Content	mg/l	3.30	18
GH5	Soil Content	mg/l	2.50	13
GH6	Soil Content	mg/l	4.50	16
GH7	Soil Content	mg/l	2.80	19
GH8	Soil Content	mg/l	1.50	24
GH9	Soil Content	mg/l	2.70	22



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



S. NO	PARAMETERS	UNITS	TOTAL DEPTH (m)	SEDIMENT CONCENTRATIO N(mg/l) AT MID DEPTH
GH10	Soil Content	mg/l	4.30	28
GH11	Soil Content	mg/l	8.60	32
GH12	Soil Content	mg/l	2.70	17
GH13	Soil Content	mg/l	2.10	16
GH14	Soil Content	mg/l	4.30	29
GH15	Soil Content	mg/l	8.40	21
GH16	Soil Content	mg/l	2.30	18
GH17	Soil Content	mg/l	2.30	17
GH18	Soil Content	mg/l	2.60	24
GH19	Soil Content	mg/l	2.10	32
GH20	Soil Content	mg/l	8.50	36
GH21	Soil Content	mg/l	1.6	42
GH22	Soil Content	mg/l	2.1	48
GH23	Soil Content	mg/l	2.8	62
GH24	Soil Content	mg/l	8.8	104
GH25	Soil Content	mg/l	1.3	116
GH26	Soil Content	mg/l	4.4	118
GH27	Soil Content	mg/l	4.9	120
GH28	Soil Content	mg/l	9.5	123
GH29	Soil Content	mg/l	2.0	134
GH30	Soil Content	mg/l	2.3	149
GH31	Soil Content	mg/l	3.2	196
GH32	Soil Content	mg/l	4.1	218
GH33	Soil Content	mg/l	8.8	362
GH34	Soil Content	mg/l	2.0	483
GH35	Soil Content	mg/l	2.7	562
GH36	Soil Content	mg/l	2.3	691



Annexure -13 :- Calibration certificate



Annexure -14

Field Photographs

The photographs are mentioned below:



Image: Asoupur Masjid)



(Image: Aurangabad Village Temple)



(Image: Ayoudhya Railway Bridge)



(Image: Ayoudhya Samsan Ghat)



(Image: Bara Kalika Sthan)



(Image: Bhabanpura Mirnapur Ghat)



(Image: Bidhar Ghat Road Bridge)



(Image: Chadipur Village Bank)



(Image: Colaps Bank & Temple)



(Image: Colaps Bank)



(Image: Dohari Samsan Ghat)



(Image: Dohari Village Bank Protected)



(Image: Gola Ghat)



(Image: Guptar Ghat)



(Image: HTL near Saryu Bridge)



(Image: Jhunjhunja Ghat)



(Image: Kamariya Pipe Bridge)



(Image: Kamaria Road Bridge Under Construction)



(Image: Kamria Samsan Ghat)



(Image: Katariyan Ghat)



(Image: Laxman Kila Ghat)



(Image: Mobarkpur Samsan Ghat)



(Image: Nata Ghat Samsan Ghat)



(Image: Nawari Rampur Village HTL)



(Image: Naya Ghat)



(Image: NH 28 Road Bridge)



(Image: NTPC Power Plant At Tanda)



(Image: POSRA Village HTL)



(Image: Prithivipur Collapse Bank)



(Image: Protected Bank)



(Image: Rambag Temple)



(Image: Salona Ghat Masjid)



(Image: Sarus Crane Bird)



(Image: Sarwa Ghat)



(Image: Saryu Road Bridge)



(Image: Singhrish Temple)



(Image: Spar Protection Collapse)



(Image: Stones In River)



(Image: Tanda Bridge)



(Image: Temple)



(Image: Temple Near BM 18)



(Image: Water Sampling Collection)



DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)



Annexure -15: Survey Charts Scheming Index and Chart details

Survey charts are prepared on a scale of 1:10000 for the entire canal stretch.

List of Drawings

Sl.No.	Drawing Title	Drawing Reference No.	Scale
1	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/01/25	1:10000
2	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/02/25	1:10000
3	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/03/36	1:10000
4	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/04/25	1:10000
5	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/05/25	1:10000
6	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/06/25	1:10000
7	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/07/25	1:10000
8	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/08/25	1:10000
9	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/09/25	1:10000
10	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/10/25	1:10000
11	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/11/25	1:10000
12	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/12/25	1:10000
13	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/13/25	1:10000
14	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/14/25	1:10000



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



15	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/15/25	1:10000
16	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/16/25	1:10000
17	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/17/25	1:10000
18	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/18/25	1:10000
19	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/19/25	1:10000
20	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/20/25	1:10000
21	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/21/25	1:10000
22	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/22/25	1:10000
23	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/23/25	1:10000
24	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/24/25	1:10000
25	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/25/25	1:10000
26	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/01/11	1:10000
27	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/02/11	1:10000
28	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/03/11	1:10000
29	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/04/11	1:10000
30	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/05/11	1:10000



**DETAILED HYDROGRAPHIC SURVEYS IN
RIVER GHAGHRA (NW-40)**



31	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/06/11	1:10000
32	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/07/11	1:10000
33	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/08/11	1:10000
34	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/09/11	1:10000
35	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/10/11	1:10000
36	Detailed Hydrographic Surveys In River Ghaghra (From Faizabad To Chhapra)	2016/GH/MAY/DHS/11/11	1:10000

DELIVERABLES

1. BATHYMETRIC SURVEY: Hypack software – RAW, EDIT, SORT, TIDE FILE, Contours, Line files (Centre line, Chainage, Dredging c/s etc.), dredging volume reports
2. TOPOGRAPHIC SURVEY: csv and xyz
3. SURVEY CHARTS: AutoCAD formats – Geo-coded dxf and dwg in scale as per width. Soundings w.r.t. SD and topo levels w.r.t. MSL
4. Reports with Annexure and charts as per agreement.