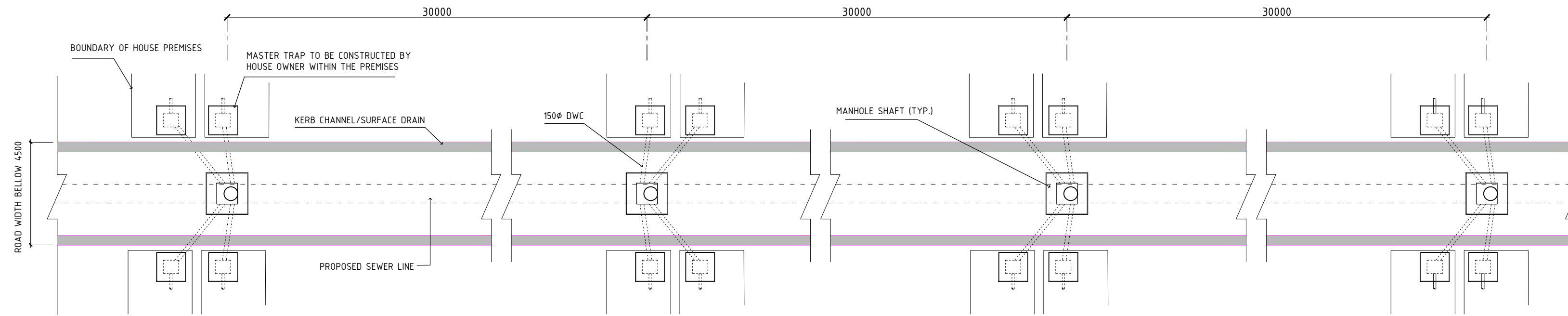
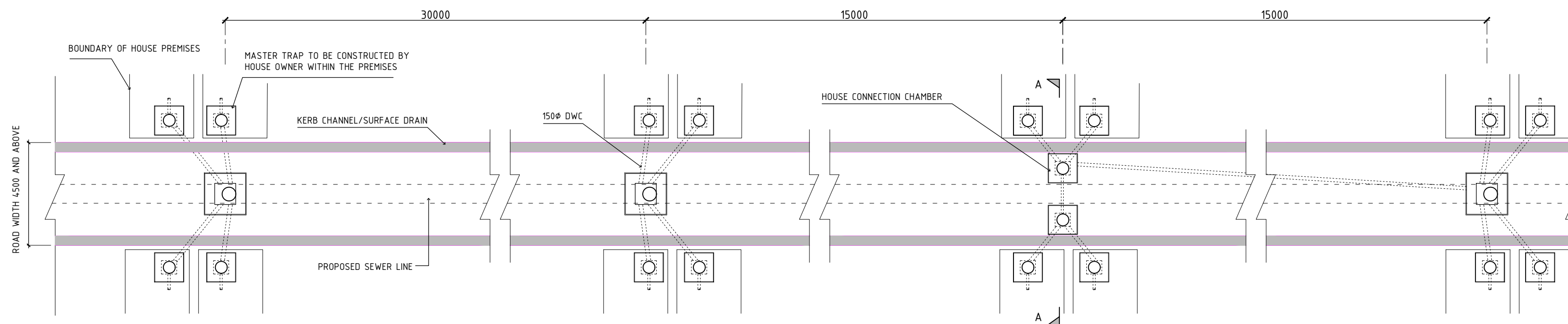


- NOTES :
1. ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN M. UNLESS OTHERWISE STATED
  2. MINIMUM WATER LEVEL HAS BEEN CONSIDERED AS 800 mm. FROM SUMP FLOOR LEVEL. MINIMUM WATER LEVEL WILL BE FINALISED AFTER PUMP ORDER PLACEMENT

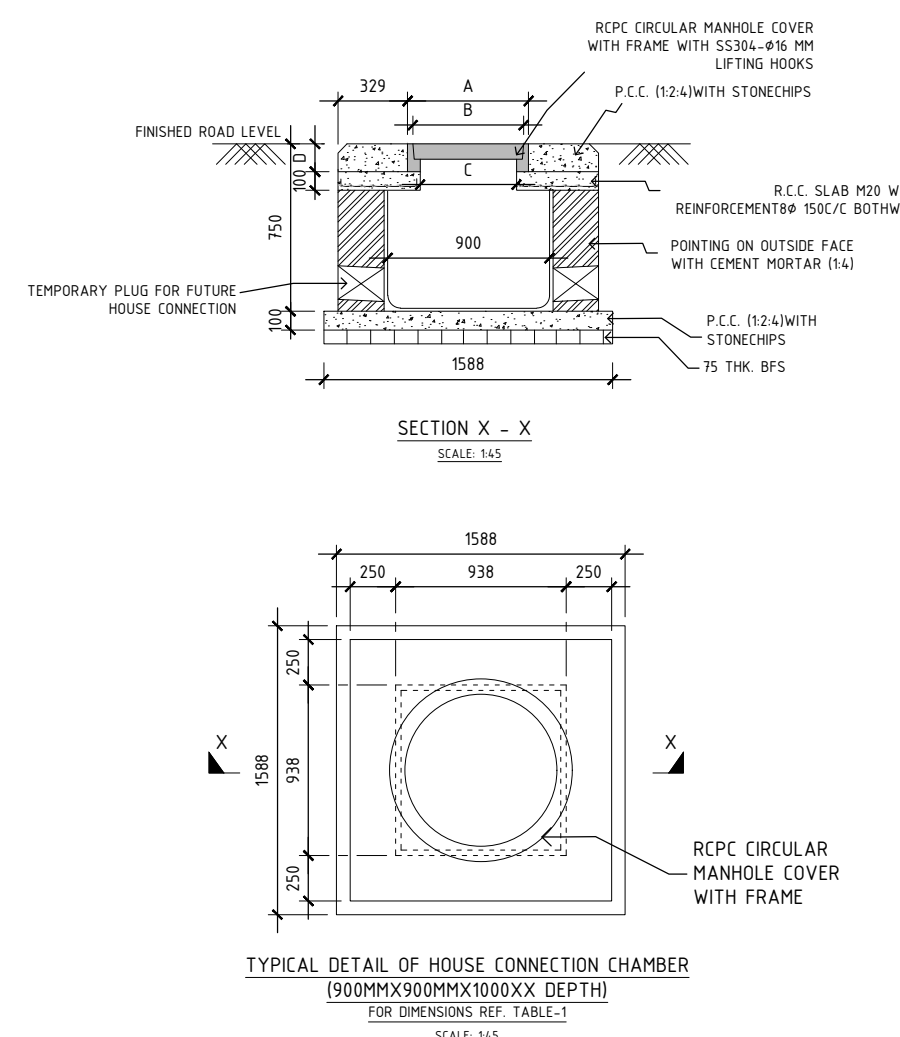
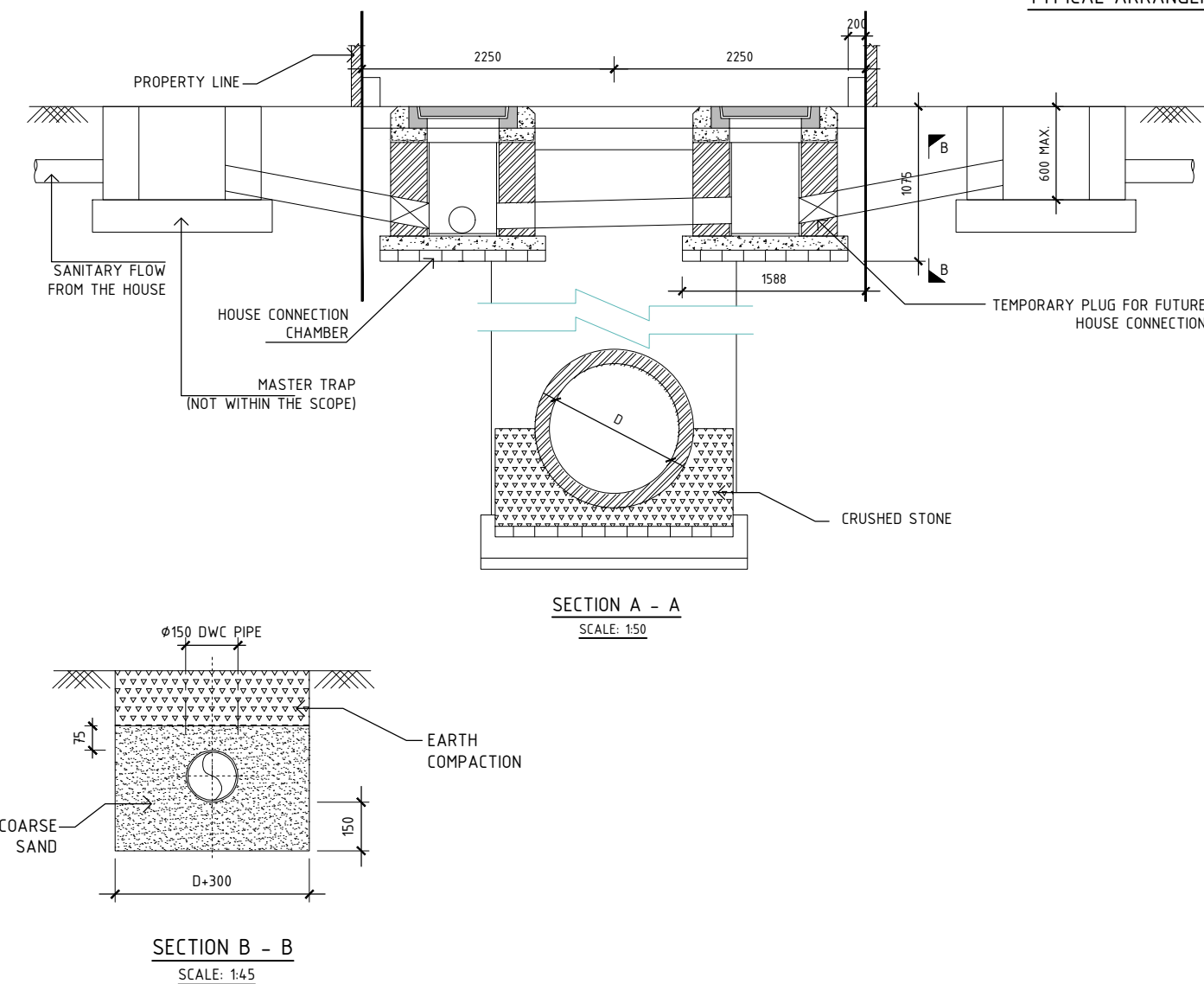
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Drawn: K. Mukherjee		Checked: S. Nandi	FILE NAME: M:\Patna_BUDCO\Patna Sewerage_DPR_M4(Digha Zone)\D_G.A. Drawing of IPS		
CLIENT:					
<b>Bihar Urban Infrastructure Development Corporation Limited (BUIDCo)</b>					
BENEFICIARY:					
CONSULTANT:					
<b>GKW CONSULT</b>		GKW Consult GmbH India Branch Office: PS Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake Kolkata - 700 091, West Bengal, India Tel: 91 33 40176800/6826, Fax: 91 33 40176827 E-mail: info.gkw_india@gkw-consult.com www.gkw-consult.com			
PROJECT:					
Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha					
DETAILED PROJECT REPORT					
SUBJECT:					
GENERAL ARRANGEMENT OF INTERMEDIATE PUMPING STATIONS (IPS)					
DRAWING NO.:		SHEET:		REVISION:	
35-00027-D-25 00-J-010-0		1 OF 1		0	



TYPICAL ARRANGEMENT FOR HOUSE CONNECTION ON ROAD WIDTH BELOW 4500  
SCALE: 1:140



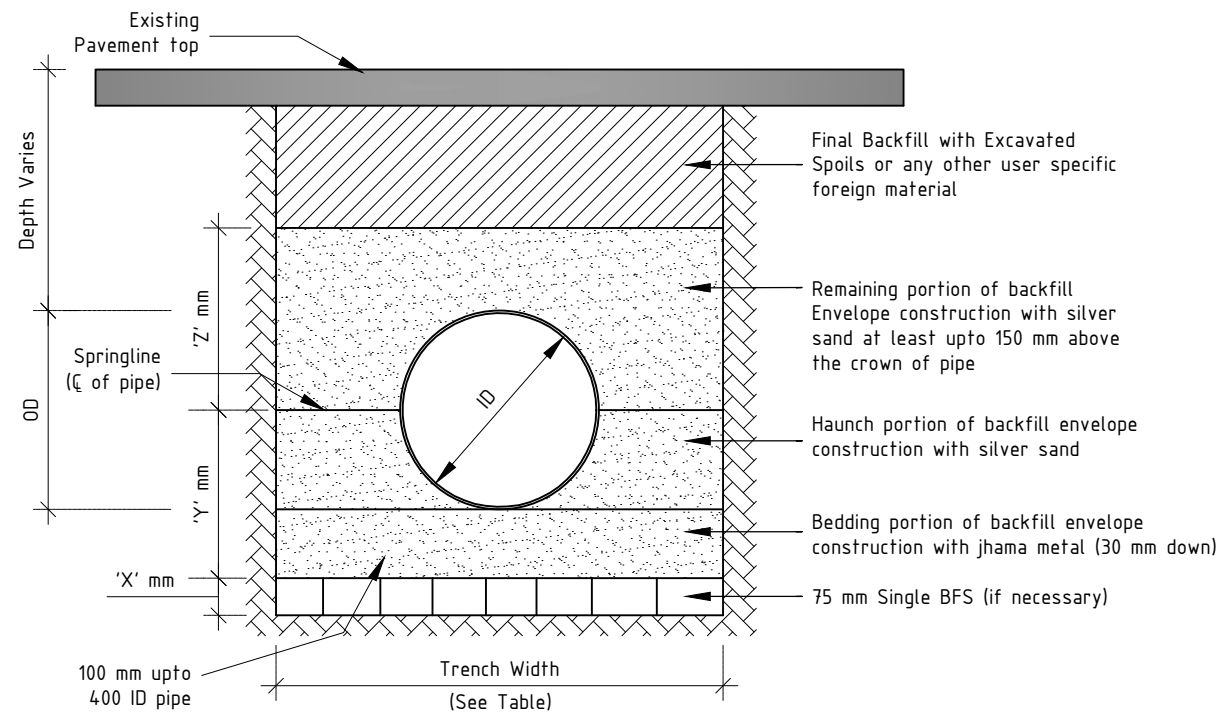
TYPICAL ARRANGEMENT FOR HOUSE CONNECTION ON ROAD WIDTH 4500 AND ABOVE  
SCALE: 1:140



LOADING CAPACITY (MT)	A (mm)	B (mm)	C (mm)	D (mm)
35	900	770	600	200
20	900	770	600	165
15	800	670	500	150
12	800	670	500	150
10	800	670	500	150

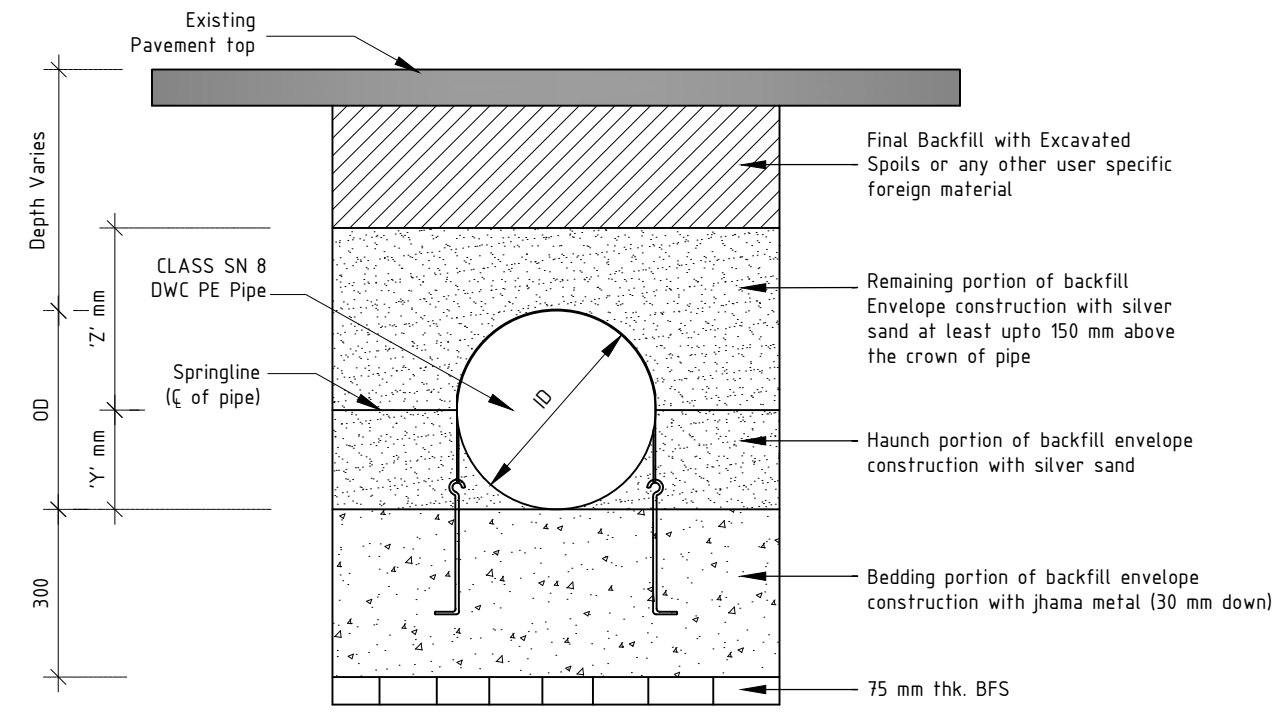
Note:  
All dimensions are in mm unless otherwise specified.

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REVISIONS					
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Drawn: K. Mukherjee	Checked: S. Nandi	FILE NAME: M:\Patna_BUIDCO\Patna Sewerage DPR_R4\Digha Zone\11_House Service Connection Pit			
CLIENT: <b>Bihar Urban Infrastructure Development Corporation Limited (BUIDCO)</b>					
BENEFICIARY:					
CONSULTANT: <b>GKW Consult GmbH</b> India Branch Office: <b>PS Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake</b> Kolkata - 700 091, West Bengal, India Tel : 91 33 40176800/6826, Fax : 91 33 40176827 E-mail : info.gkw.india@gkw-consult.com www.gkw-consult.com A COMPANY OF THE LAHMEYER GROUP Augustaanlage 67 68165 Mannheim, Germany					
PROJECT: Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha DETAILED PROJECT REPORT					
SUBJECT: TYPICAL DRAWING OF HOUSE SERVICE CONNECTION PIT					
DRAWING NO.: 35-00027-D-26 00-J-011-0			SHEET: 1 OF 1	REVISION: 0	



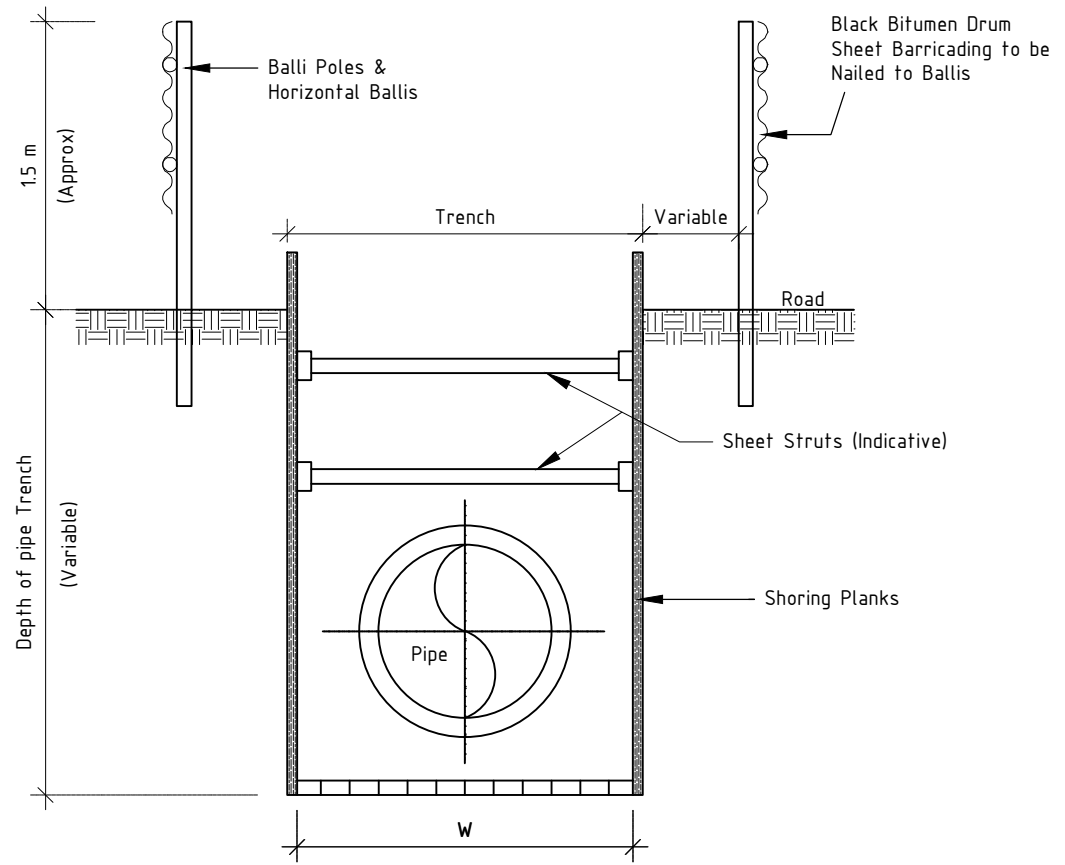
Sectional view of CLASS SN 8 DWC PE Piping system  
Designed as per BS EN 1295-1:1998 & Installed as per ASTM D2321

**TYPE-1**

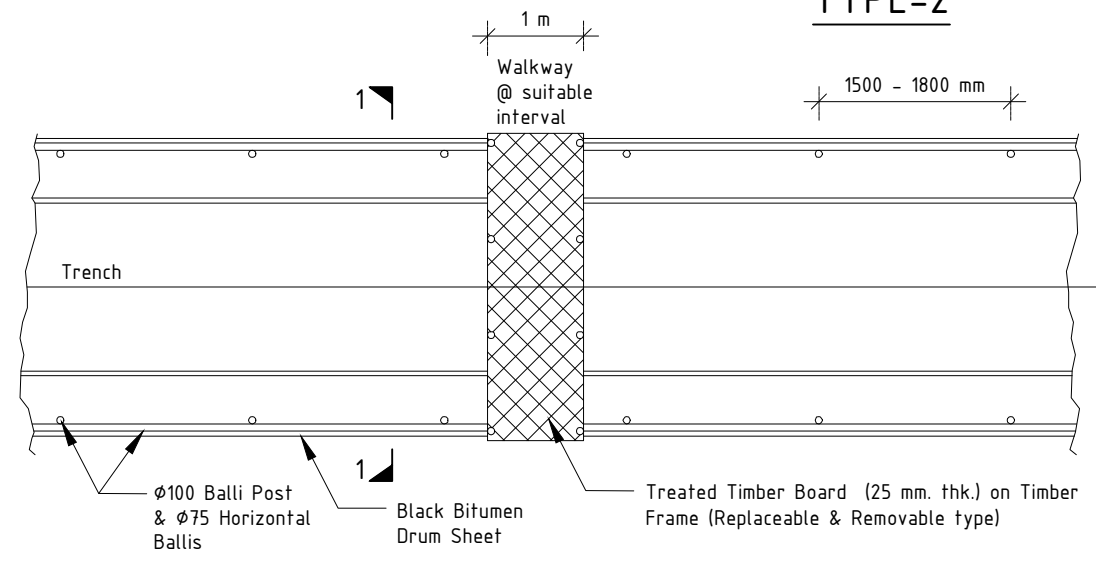


Typical Cross Sectional Drawing of CLASS SN 8 DWC PE Piping Installation (Showing Anchorage)

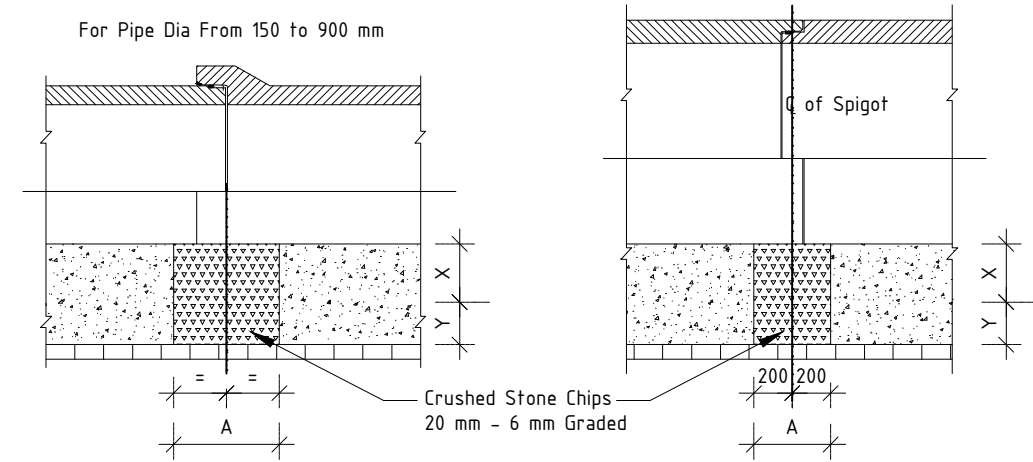
**TYPE-2**



Section 1 - 1  
Typical Detail of Trench Barricading with Crossover Walkway  
(From Dimension of D Ref. Table- 1)



**PLAN**

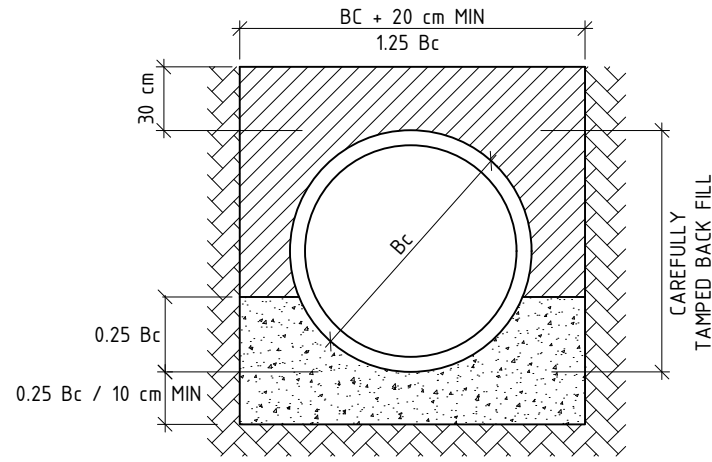


Longitudinal Section for RCC Pipes at Joint

TABLE-1

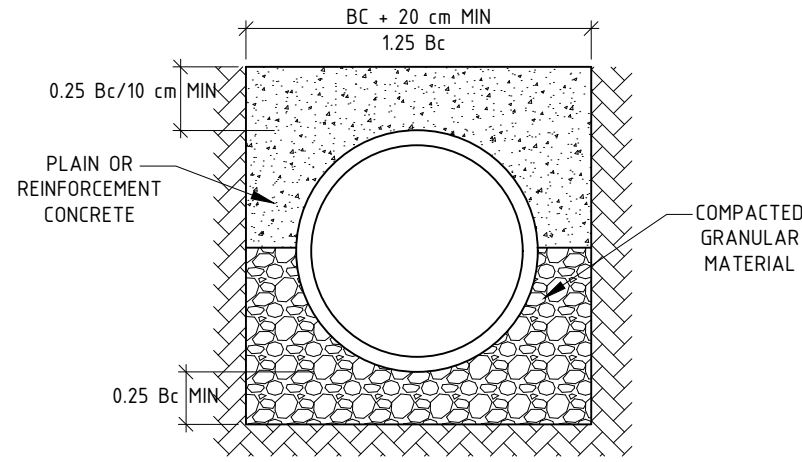
ID (in mm)	OD (in mm)	W (in m)	X (mm)	Y (mm)	Z (mm)
150	180	0.6	75	90	240
200	238	0.65	75	119	269
250	295	0.7	75	147.5	297.5
300	358	0.75	75	179	329
400	480	0.85	75	240	390

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Designed:		Date: 05.09.2017	Scale: NTS	Sheet Size: A3	
Drawn: K. Mukherjee		Checked: S. Nandi	FILE NAME: M:\Patna_BUIDCO\Patna Sewerage DPR_R4\Digha Zone\12_Sewer Bedding Details		
CLIENT: <b>Bihar Urban Infrastructure Development Corporation Limited (BUIDCo)</b>					
BENEFICIARY:					
CONSULTANT: <b>GKW Consult GmbH</b> India Branch Office: PS Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake Kolkata - 700 091, West Bengal, India Tel: 91 33 40176800/6826, Fax: 91 33 40176827 E-mail: info.gkw_india@gkw-consult.com www.gkw-consult.com A COMPANY OF THE LAHMEYER GROUP Augustaanlage 67 68165 Mannheim, Germany					
PROJECT: Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha Detailed Project Report					
SUBJECT: <b>TYPICAL SEWER BEDDING DETAILS OF DWC PIPE</b>					
DRAWING NO.: 35-00027-D-26 00-J-012-0				SHEET: 2 OF 2	
				REVISION: 0	

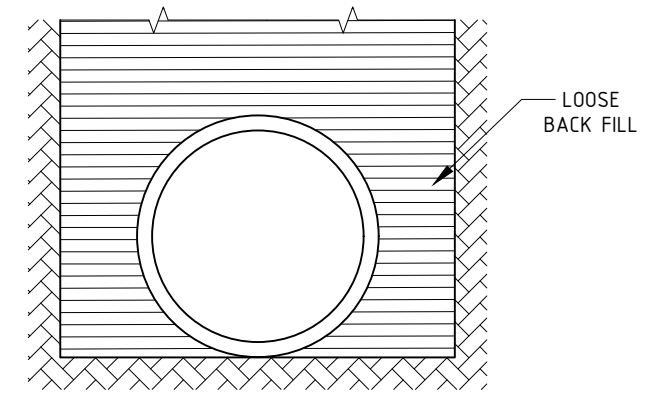


CONCRETE CRADLE

**CLASS-A**

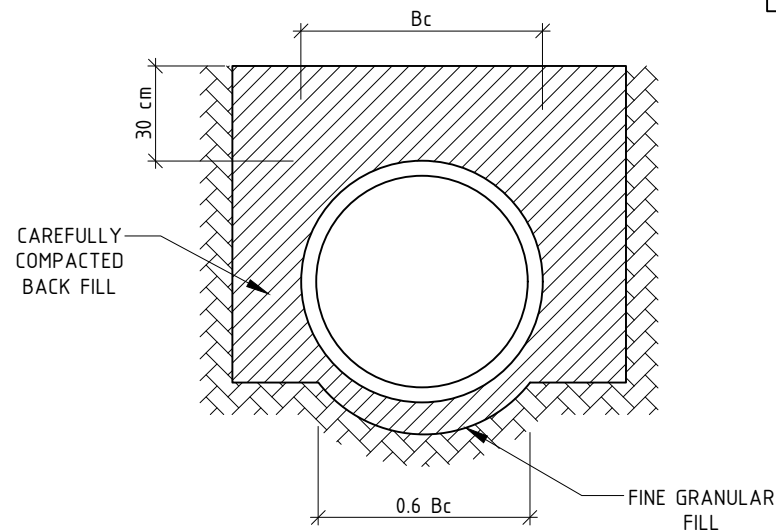


CONCRETE ARCH

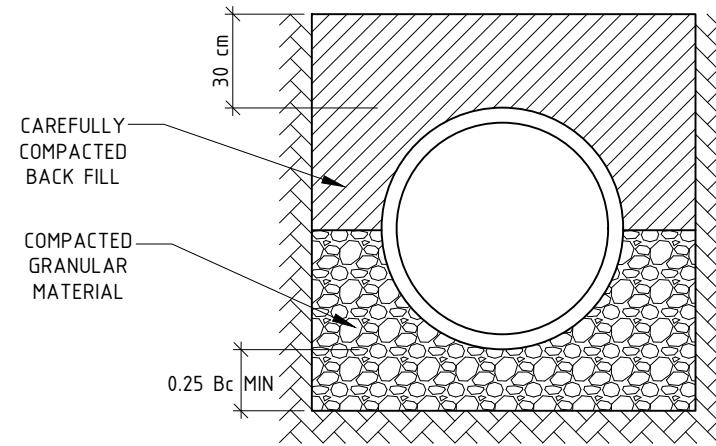


FLAT BOTTOM IMPERMISSIBLE BEDDING  
(NOT RECOMMENDED)

**CLASS-D**

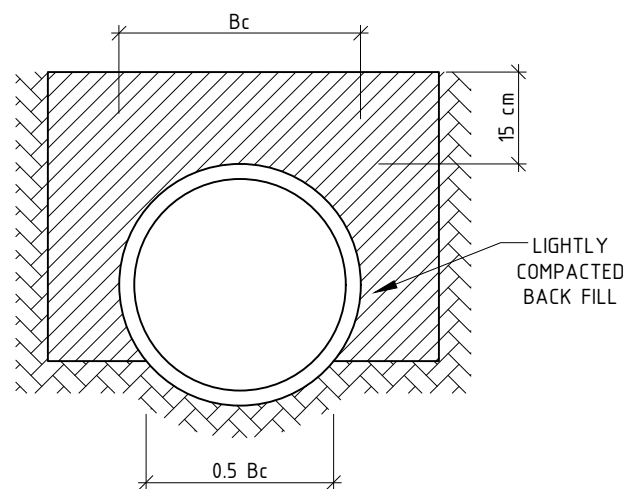


SHAPED BOTTOM WITH TAMPED BACK FILL  
(NOT RECOMMENDED)



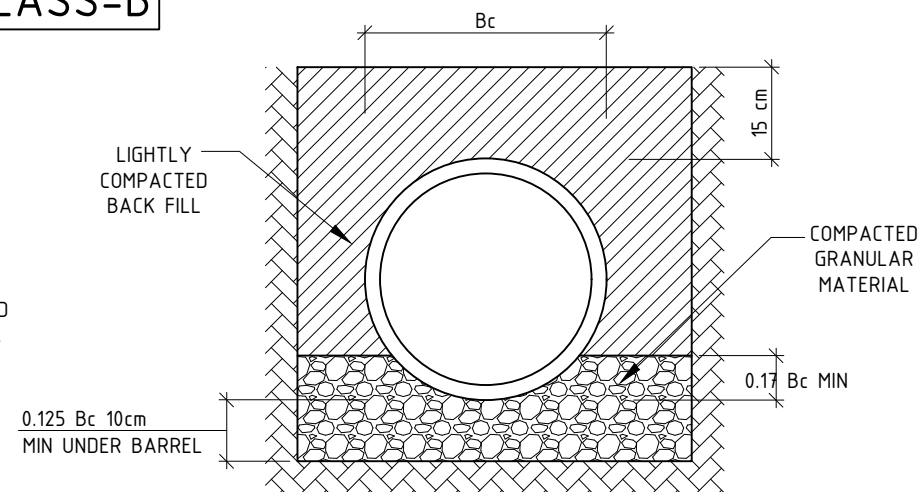
COMPACTED GRANULAR BEDDING

**CLASS-B**



SHAPED BOTTOM  
(NOT RECOMMENDED)

**CLASS-C**

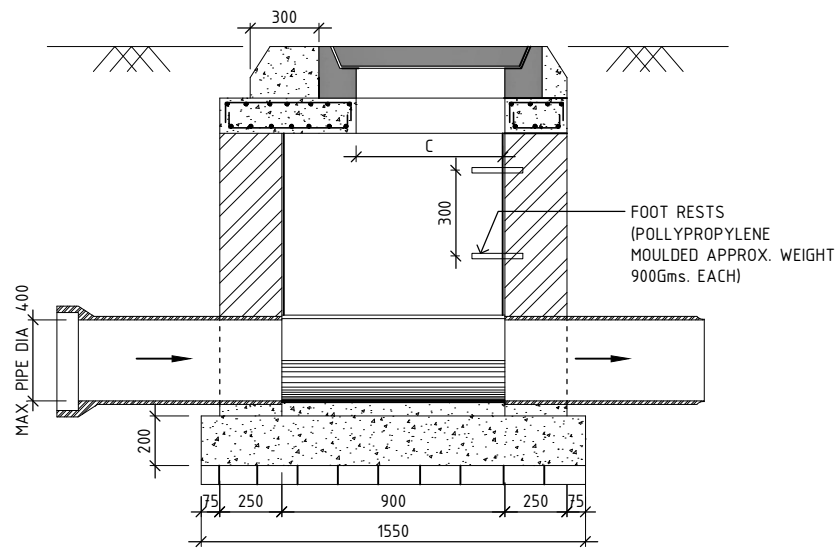


GRANULAR BEDDING

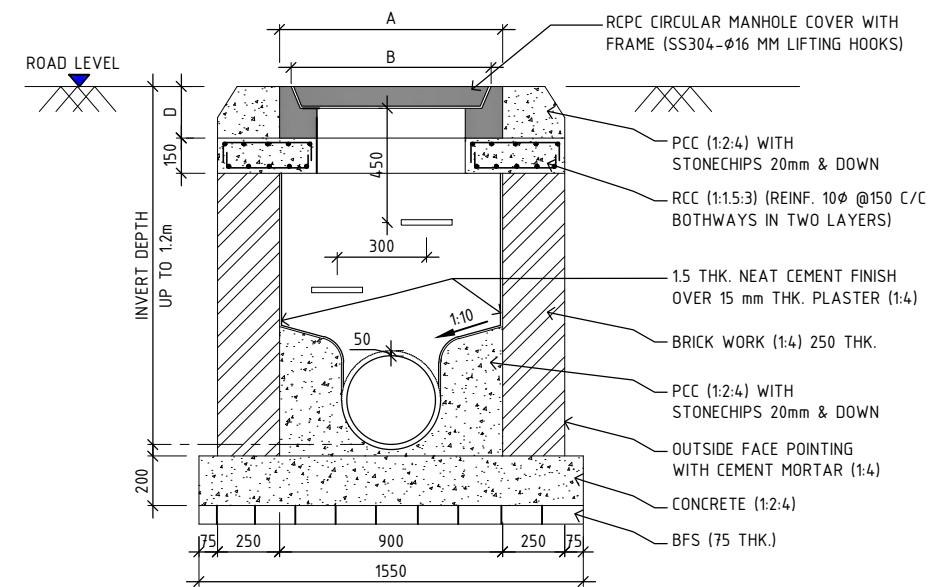
**GENERAL NOTE:**  
IN ROCK, TRENCH IS EXCAVATED AT LEAST 15 cm BELOW THE BELL OF THE PIPE EXCEPT WHERE CONCRETE CRADLE IS USED.

REV.	DATE	DESCRIPTION	DRAWN	CHECK	APPR.
REVISIONS					
Designed:	Date: 05.09.2017	Scale: NTS	Sheet Size: A3		
Drawn: K. Mukherjee	Checked: S. Nandi	FILE NAME: M:\Patna_BUIDCO\Patna Sewerage DPR_B4\Digha Zone\12_Sewer Bedding Details			
CLIENT:					
Bihar Urban Infrastructure Development Corporation Limited (BUIDCO)					
BENEFICIARY:					
CONSULTANT:					
		<b>GKW Consult GmbH</b> India Branch Office: PS Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake Kolkata - 700 091, West Bengal, India Tel : 91 33 40176800/6826, Fax : 91 33 40176827 E-mail : info.gkw_india@gkw-consult.com www.gkw-consult.com			
PROJECT:					
Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha					
Detailed Project Report					
SUBJECT:					
TYPICAL SEWER BEDDING DETAILS OF RCC NP3 PIPE					
DRAWING NO.:			SHEET:		REVISION:
35-00027-D-26 00-J-012-0			1 OF 2		0

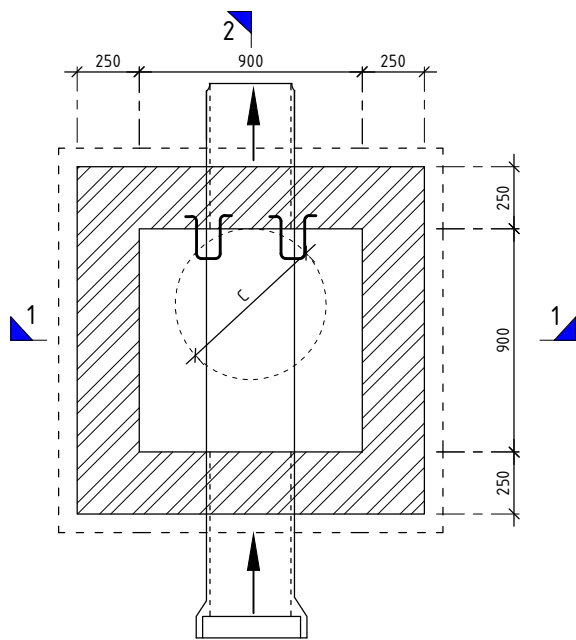




SECTION 2-2

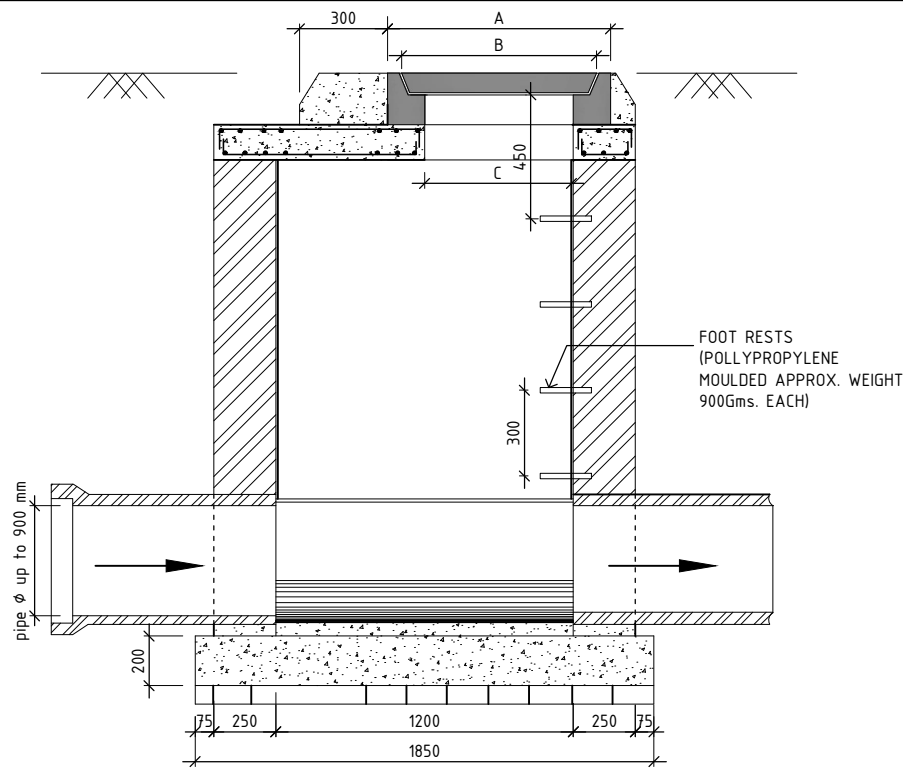


SECTION 1-1

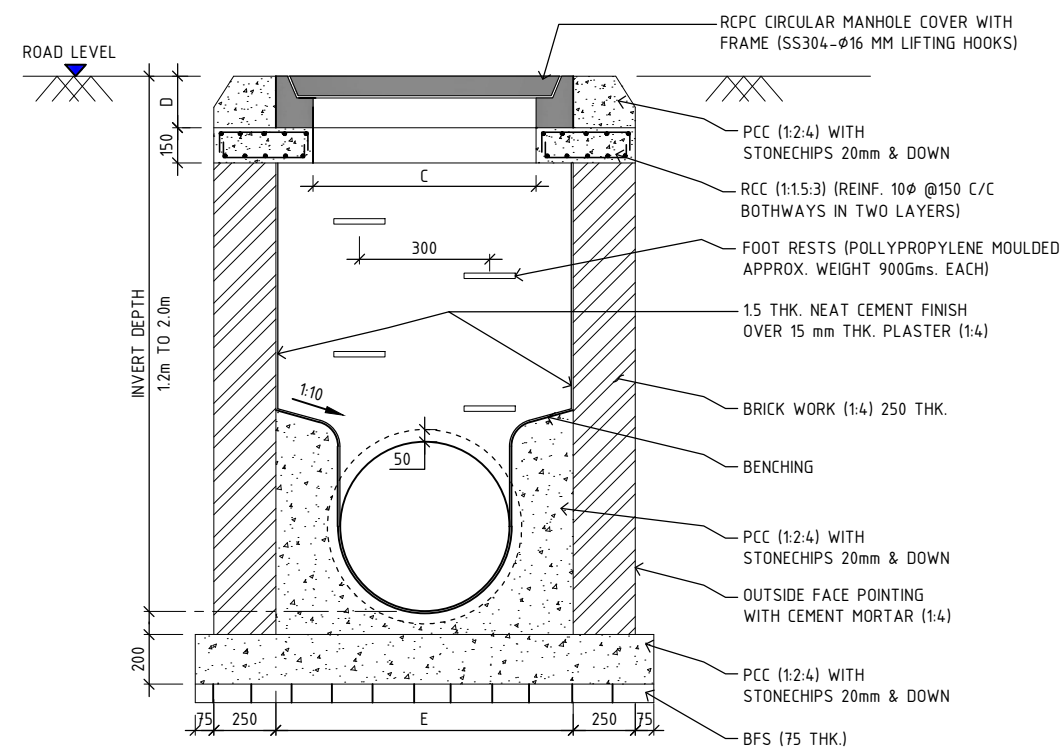


TYPICAL DETAIL OF MANHOLE TYPE-A  
(FOR DIMENSION REF. TABLE-1)

INVERT DEPTH UPTO 1.2 M				
SL. NO.	MH TYPE	SIZE (mm)	MAX. PIPE φ (mm)	
1	A	900 X 900	600	

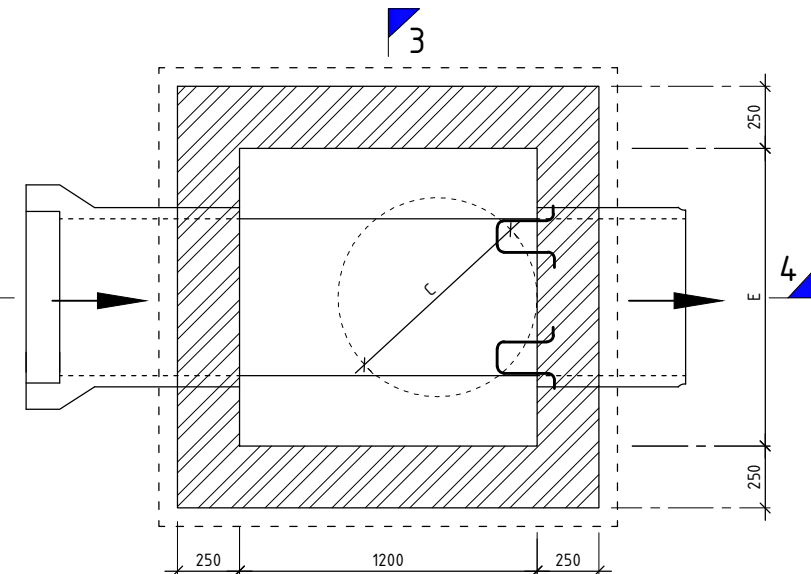


SECTION 4-4



SECTION 3-3

TABLE-1				
LOADING CAPACITY (M)	A (mm)	B (mm)	C (mm)	D (mm)
35	900	770	600	200
20	900	770	600	165
15	800	670	500	150
12	800	670	500	150
10	800	670	500	150



TYPICAL DETAIL OF MANHOLE  
TYPE-B1, B2 & B3  
(FOR DIMENSION REF. TABLE-1)

INVERT DEPTH UPTO 2 M				
SL. NO.	MH TYPE	SIZE (mm)	MAX. PIPE φ (mm)	E (mm)
1	B1	900 X 1200	500	900
2	B2	1200 X 1200	900	1200
3	B3	1500 X 1200	1200	1500

- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
  - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS.

REV.	DATE	DESCRIPTION	DRAWN	CHECK	APPR.
REVISIONS					

Designed: \_\_\_\_\_ Date: 05.09.2017 Scale: NTS Sheet Size: A3  
 Drawn: K. Mukherjee Checked: S. Nandi FILE NAME: M:\Patna\_BUIDCO\Patna Sewerage DPR\_B4\Dgha Zone\13\_Typ-detail of manholes

CLIENT:  
**Bihar Urban Infrastructure Development Corporation Limited (BUIDCo)**

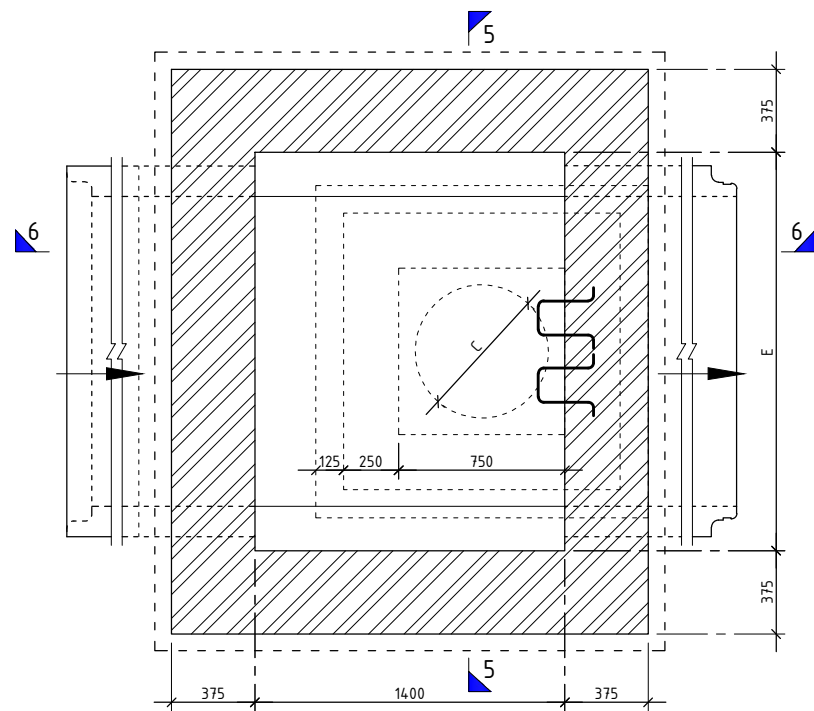
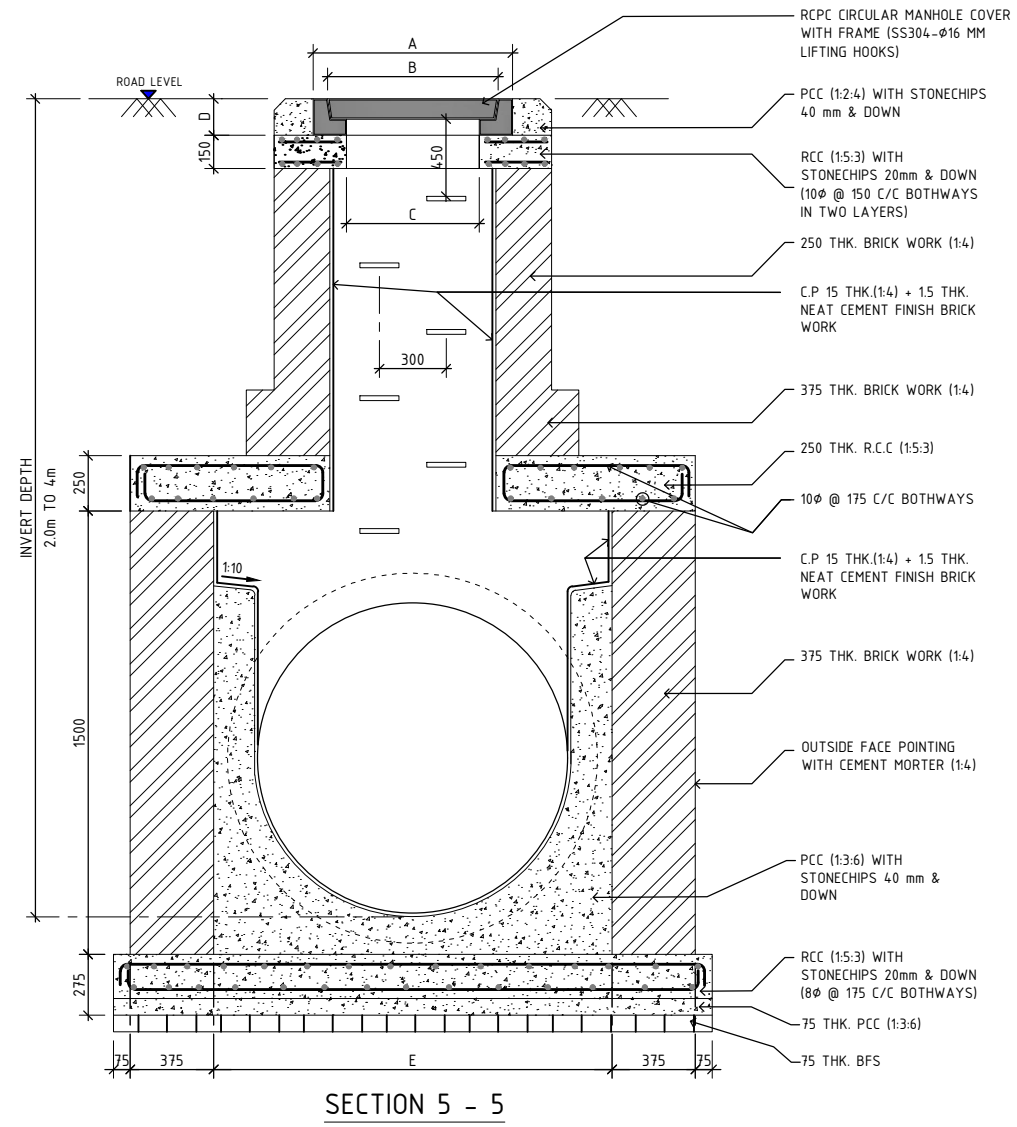
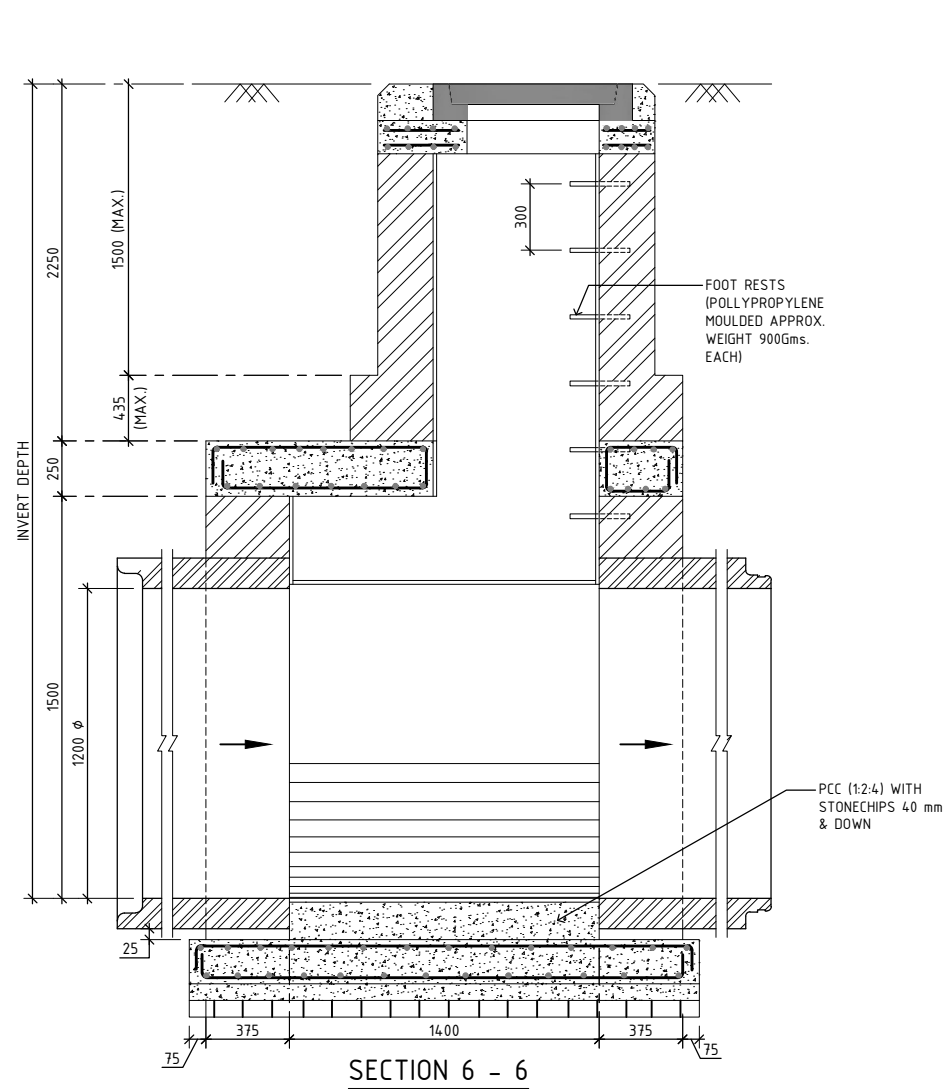
BENEFICIARY: \_\_\_\_\_

CONSULTANT:  
**GKW Consult GmbH**  
 India Branch Office:  
 PS Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake  
 Kolkata - 700 091, West Bengal, India  
 Tel : 91 33 40176800/6826, Fax : 91 33 40176827  
 E-mail : info.gkw\_india@gkw-consult.com  
 A COMPANY OF THE LAHMEYER GROUP  
 Augustaanlage 67  
 68165 Mannheim, Germany  
 www.gkw-consult.com

PROJECT:  
 Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha  
 DETAILED PROJECT REPORT

SUBJECT:  
**TYPICAL DETAIL OF MANHOLES  
 (INVERT DEPTH UP TO 1.2M & 2.0M)**

DRAWING NO.:	SHEET:	REVISION:
35-00027-D-26 00-J-013-0	1 OF 4	0



TYPICAL DETAIL OF MANHOLE  
TYPE-C1, C2, C3 & C4  
(FOR DIMENSION REF. TABLE-1)

INVERT DEPTH 2 M - 4 M				
SL. NO.	MH TYPE	SIZE (mm)	MAX. PIPE Ø (mm)	E (mm)
1	C1	900 X 1400	600	900
2	C2	1200 X 1400	900	1200
3	C3	1500 X 1400	1200	1500
4	C4	1800 X 1400	1400	1800

TABLE-1				
LOADING CAPACITY (M)	A (mm)	B (mm)	C (mm)	D (mm)
35	900	770	600	200
20	900	770	600	165
15	800	670	500	150
12	800	670	500	150
10	800	670	500	150

- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
  - THIS DRAWING IS TO BE READ IN CONJU

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Designed:		Date: 05.09.2017	Scale: NTS	Sheet Size: A3
Drawn: K. Mukherjee	Checked: S. Nandi	FILE NAME: M:\Patna_BUIDCO\Patna Sewerage_DPR_B4\Digha Zone\13_TypeDetail of manholes		

CLIENT:  
**Bihar Urban Infrastructure Development Corporation Limited (BUIDCo)**

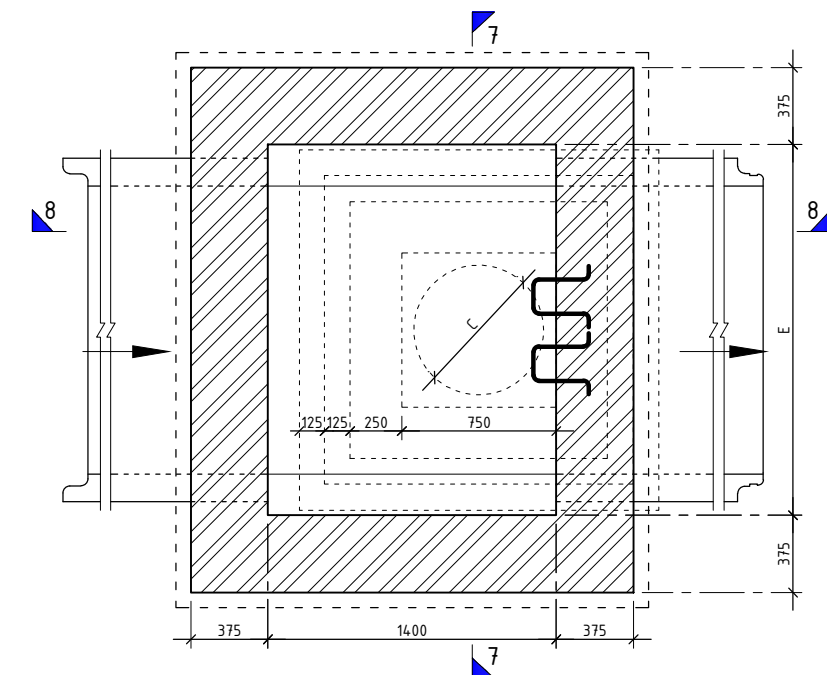
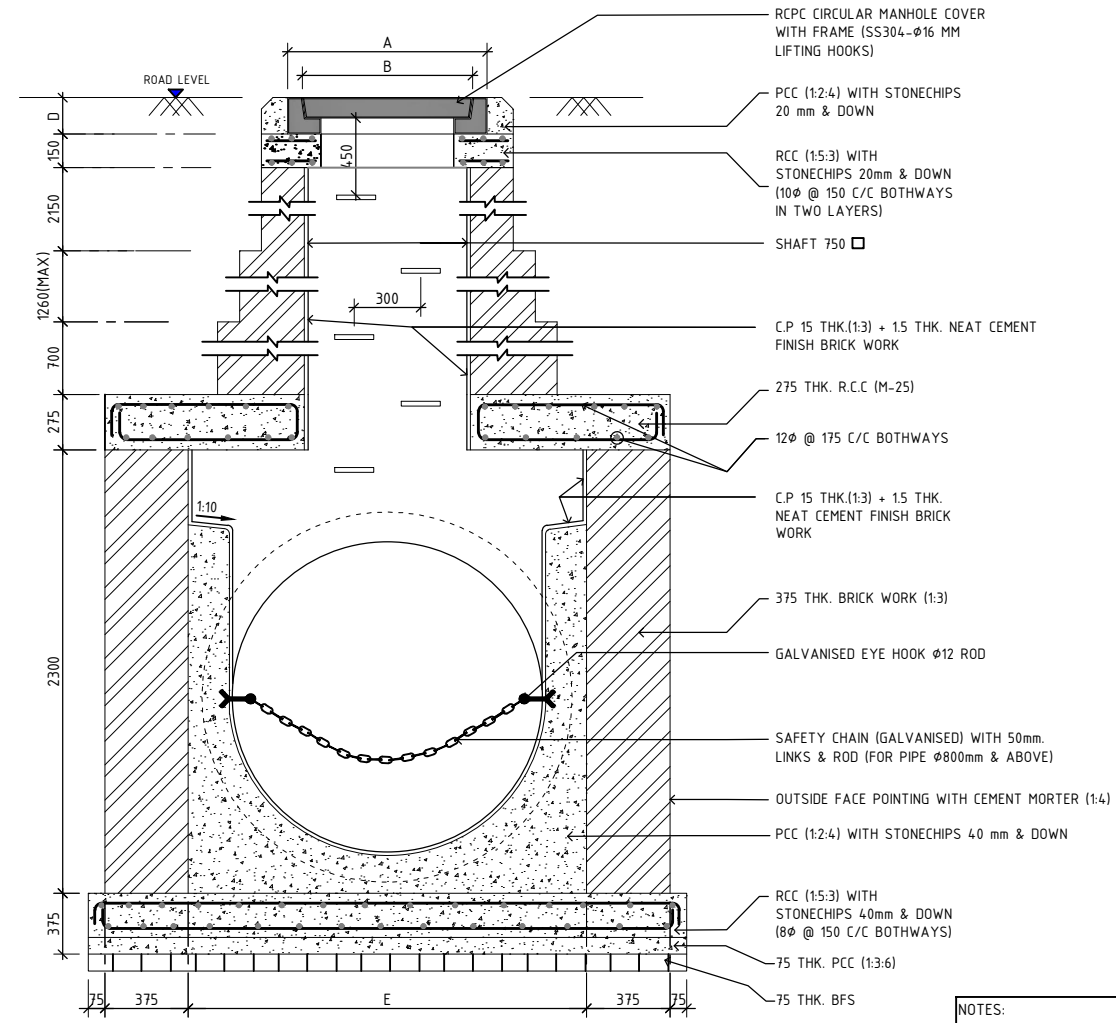
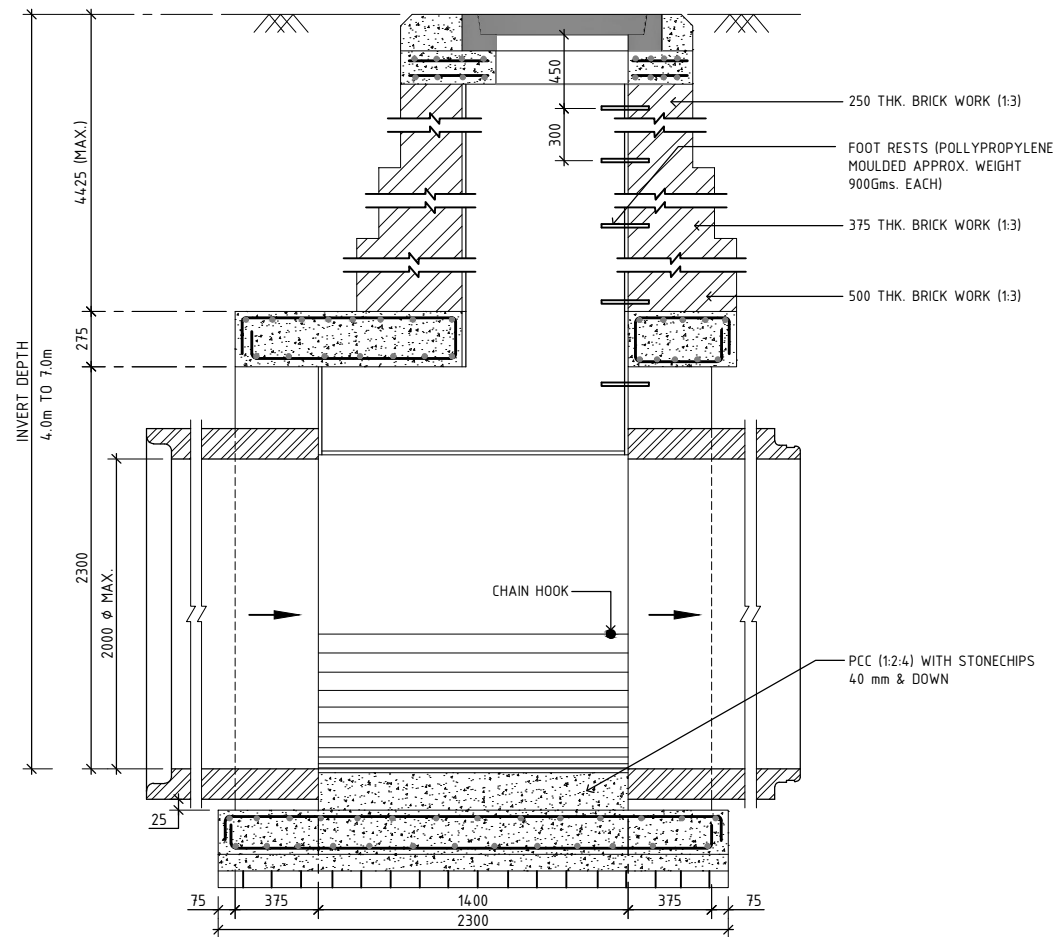
BENEFICIARY:

CONSULTANT:  
**GKW Consult GmbH**  
India Branch Office:  
PS Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake  
Kolkata - 700 091, West Bengal, India  
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www.gkw-consult.com  
A COMPANY OF THE LAHMEYER GROUP  
Augustaanlage 67  
68165 Mannheim, Germany

PROJECT:  
Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha  
DETAILED PROJECT REPORT

SUBJECT:  
**TYPICAL DETAIL OF MANHOLE (INVERT DEPTH 2M - 4M)**

DRAWING NO.:	SHEET:	REVISION:
35-00027-D-26 00-J-013-0	2 OF 4	0



TYPICAL DETAIL OF MANHOLE TYPE-D1, D2, D3 & D4 (FOR DIMENSION REF. TABLE-1)

**TABLE-1**

LOADING CAPACITY (M)	A (mm)	B (mm)	C (mm)	D (mm)
35	900	770	600	200
20	900	770	600	165
15	800	670	500	150
12	800	670	500	150
10	800	670	500	150

**INVERT DEPTH 4 M - 7 M**

SL. NO.	MH TYPE	SIZE (mm)	MAX. PIPE Ø (mm)	E (mm)
1	D1	900 X 1400	600	900
2	D2	1200 X 1400	900	1200
3	D3	1500 X 1400	1200	1500
4	D4	1800 X 1400	1400	1800

NOTES:  
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION	DRAWN	CHECK	APPR.

**REVISIONS**

Designed:	Date: 05.09.2017	Scale: NTS	Sheet Size: A3
Drawn: K. Mukherjee	Checked: S. Nandi	FILE NAME: M:\Patna_BUIDCO\Patna Sewerage DPR_B4\Digha Zone\13_Typ-detail of manholes	

CLIENT:  
**Bihar Urban Infrastructure Development Corporation Limited (BUIDCo)**

BENEFICIARY:

CONSULTANT:  
**GKW Consult GmbH**  
India Branch Office:  
PS Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake  
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A COMPANY OF THE LAHMEYER GROUP  
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68165 Mannheim, Germany

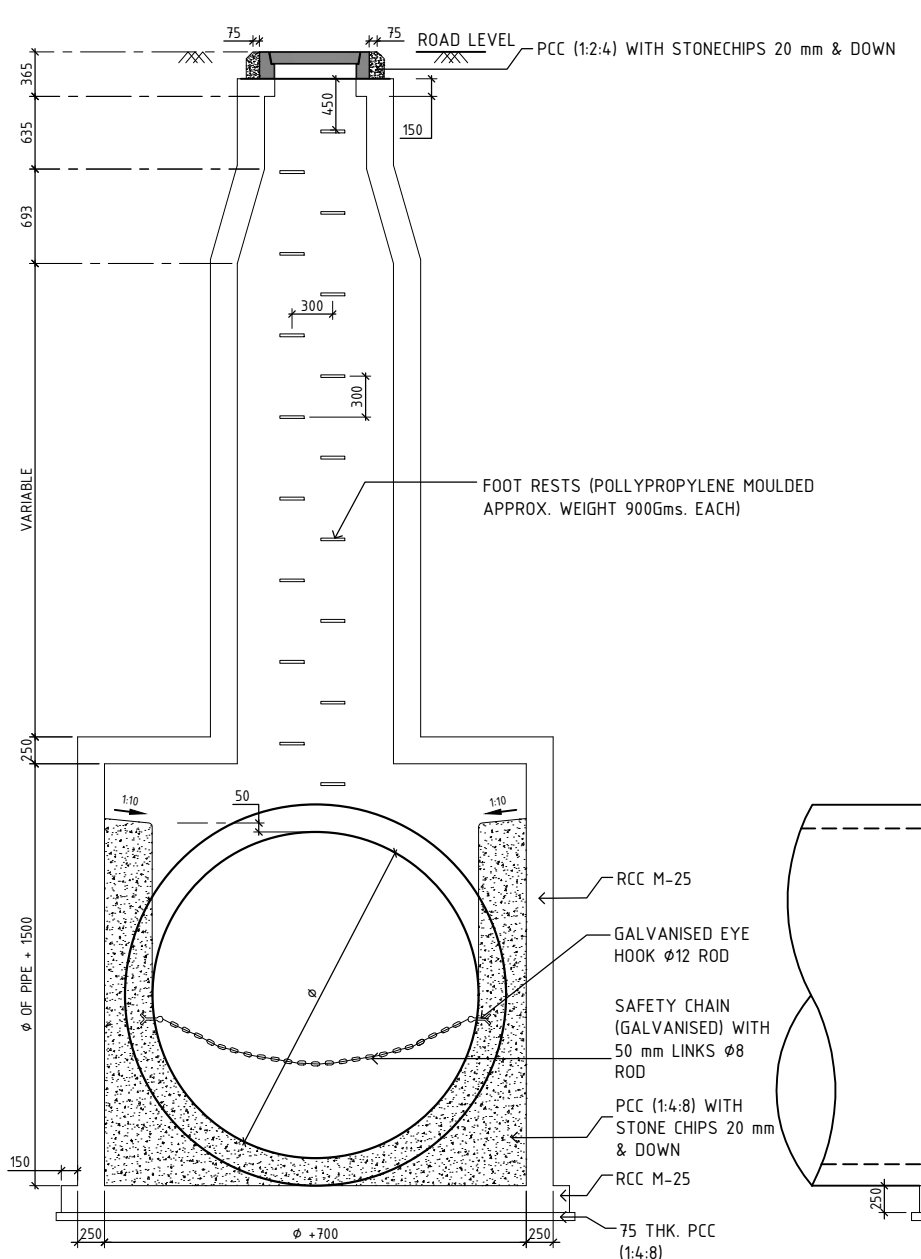
PROJECT:  
Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha  
DETAILED PROJECT REPORT

SUBJECT:  
**TYPICAL DETAIL OF MANHOLE (INVERT DEPTH 4M - 7M)**

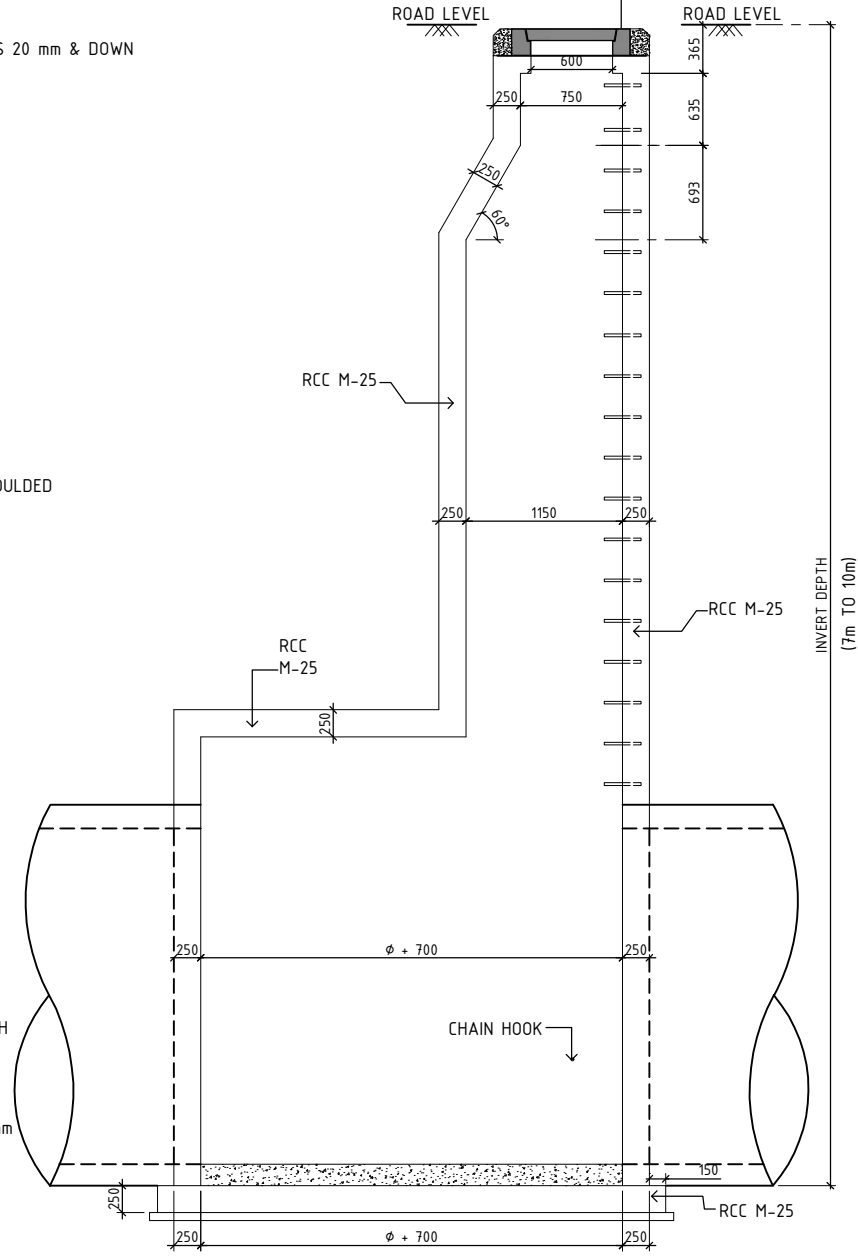
DRAWING NO.:	SHEET:	REVISION:
35-00027-D-26 00-J-013-0	3 OF 4	0

35 MT RCC CIRCULAR MANHOLE COVER WITH FRAME (SS304-φ16 MM LIFTING HOOKS)

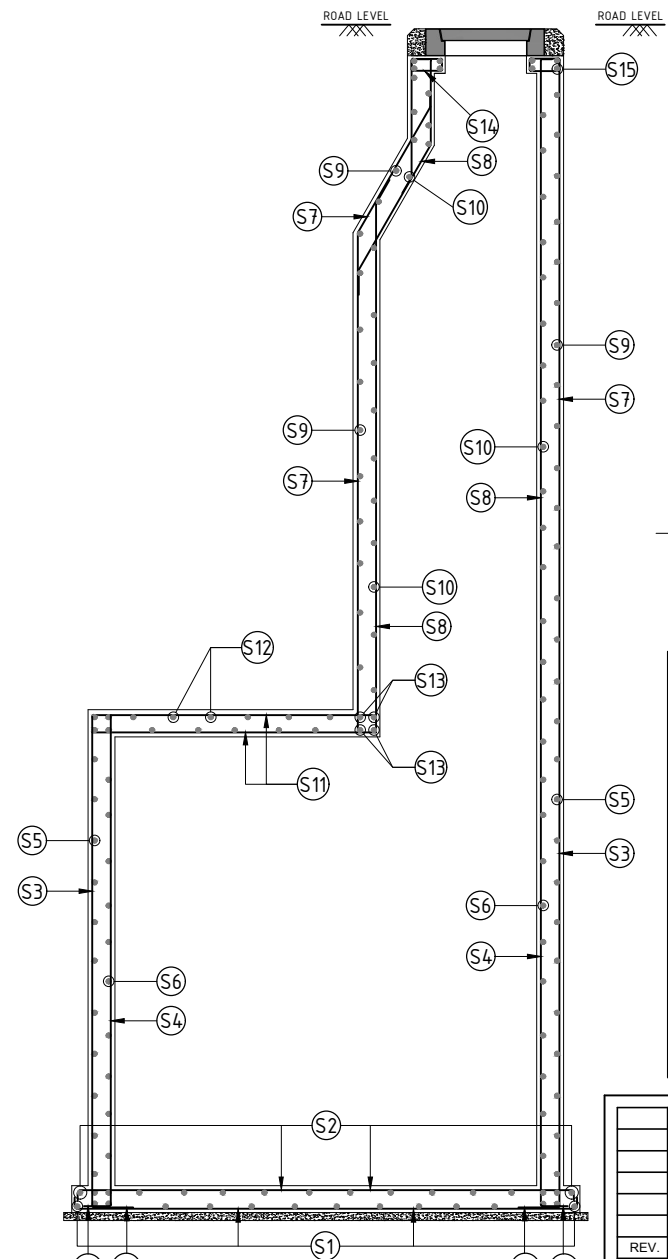
BAR MARK	DESCRIPTION
	FOR φ + 700 mm
S1	10φ @ 125 C/C
S2	10φ @ 125 C/C
S3	10φ @ 100 C/C
S4	10φ @ 100 C/C
S5	10φ @ 100 C/C
S6	10φ @ 100 C/C
S7	10φ @ 150 C/C
S8	10φ @ 150 C/C
S9	10φ @ 150 C/C
S10	10φ @ 150 C/C
S11	12φ @ 125 C/C
S12	12φ @ 125 C/C
S13	16φ - 2 NOS.
S14	10φ @ 150 C/C
S15	12φ - 4 NOS.



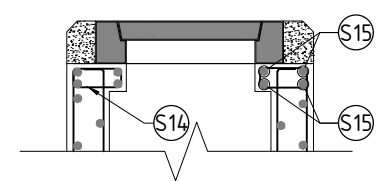
SECTION 10 - 10



SECTION 9 - 9

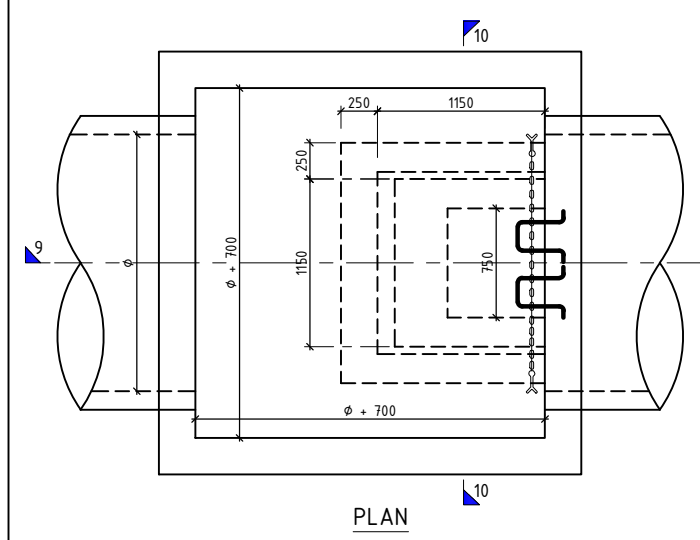


SECTION A - A

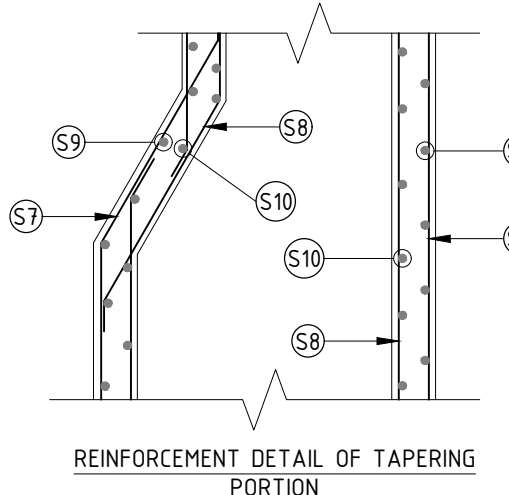


REINFORCEMENT DETAIL OF TOP SLAB

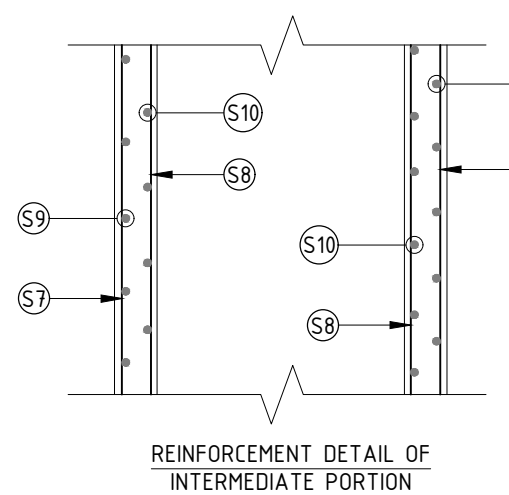
- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
  2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS. ALL DETAILS IN SPECIFICATIONS AND THOSE IN DRAWINGS SHALL BE ADHERED TO.
  3. CONCRETE GRADE: M-25, STEEL GRADE: Fe 415
  4. ALL JOINTS SHALL BE GROUTED WITH CEMENT SLURRY.
  5. MANHOLES SHALL BE PROVIDED WITH COATINGS ON THE INTERIOR SUCH AS COAL TAR EPOXY.
  6. MINIMUM CLEAR COVER AS FOLLOWS: SIDE WALL=25mm, BASE SLAB=25mm,
  7. FOUNDATION SHALL BE PLACED OVER FIRM STRATA.
  8. BOND & ANCHORAGE LENGTH SHALL BE MINIMUM 50 DIA OF BAR.
  9. SHEAR REINFORCEMENT FOR OPENING IN TOP SLAB WILL HAVE TO BE PROVIDED BY THE CONTRACTOR AS PER SP-34.



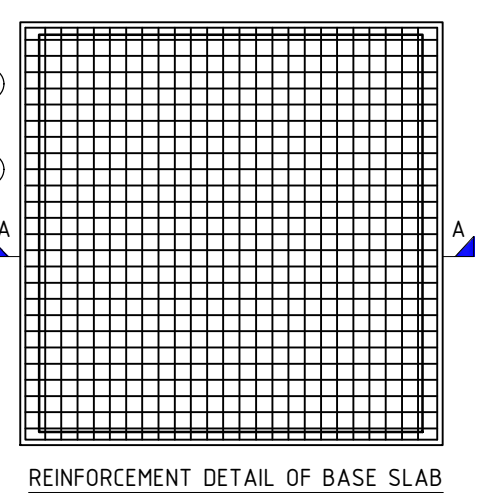
PLAN




REINFORCEMENT DETAIL OF TAPERING PORTION



REINFORCEMENT DETAIL OF INTERMEDIATE PORTION

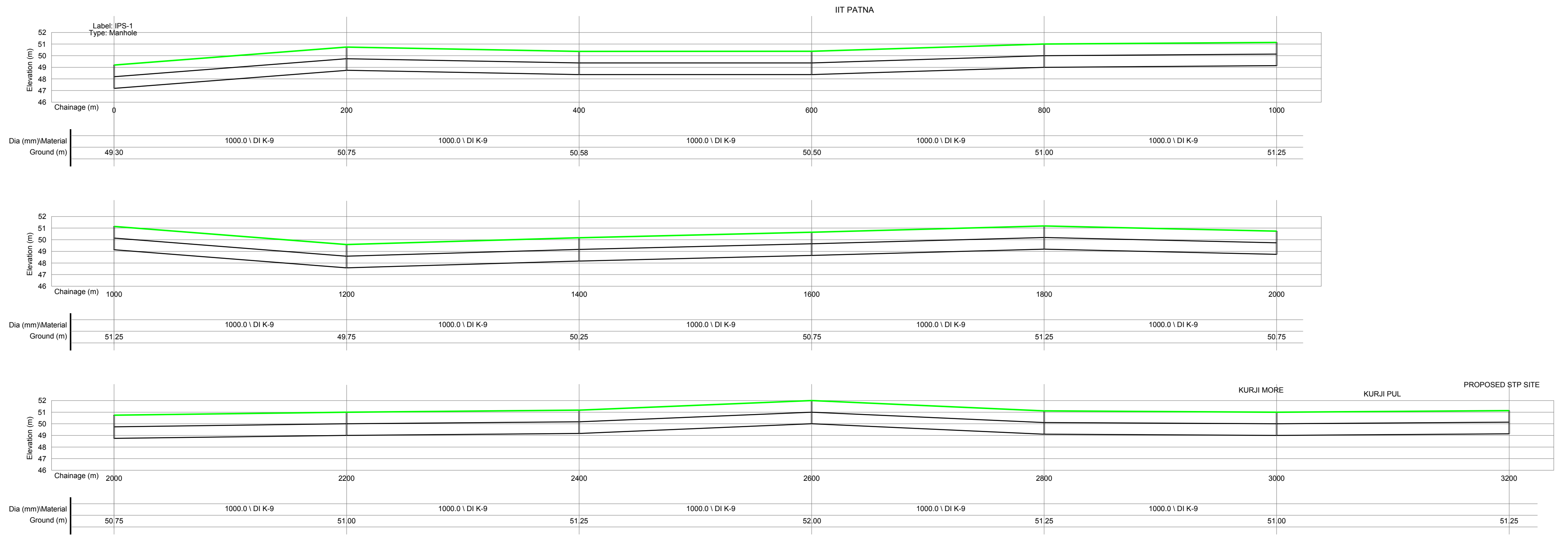


REINFORCEMENT DETAIL OF BASE SLAB

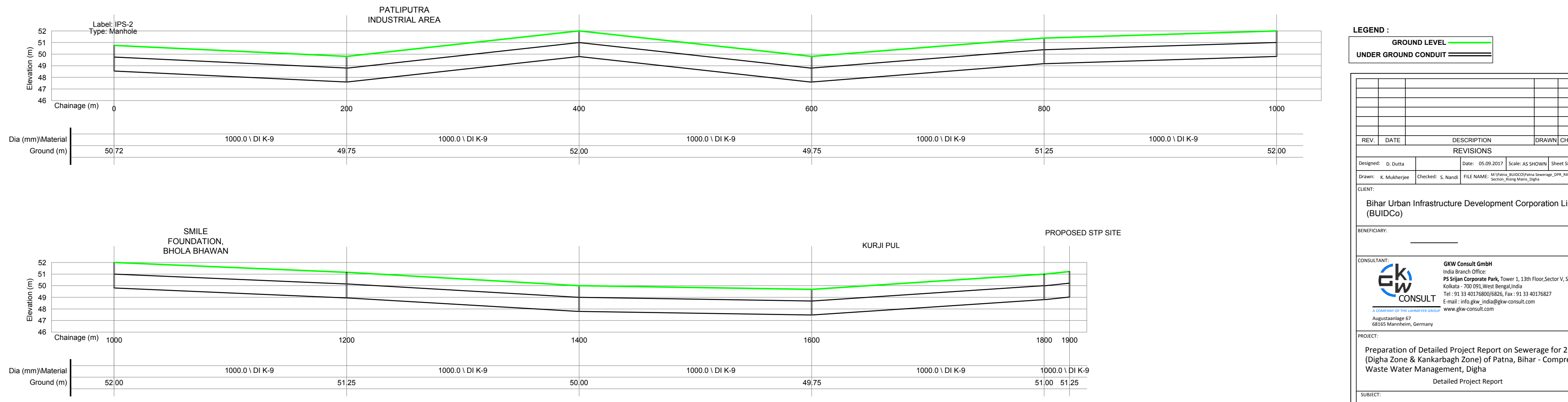
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REVISIONS					
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CLIENT:					
<b>Bihar Urban Infrastructure Development Corporation Limited (BUIDCo)</b>					
BENEFICIARY:					
CONSULTANT:					
 <b>GKW Consult GmbH</b> India Branch Office: PS Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake Kolkata - 700 091, West Bengal, India Tel : 91 33 40176800/6826, Fax : 91 33 40176827 E-mail : info.gkw_india@gkw-consult.com www.gkw-consult.com <small>A COMPANY OF THE LAHMEYER GROUP                  Augustanlage 67                  68165 Mannheim, Germany</small>					
PROJECT:					
Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha					
DETAILED PROJECT REPORT					
SUBJECT:					
<b>TYPICAL DETAIL OF MANHOLE (INVERT DEPTH 7M - 10M)</b>					
DRAWING NO.:				SHEET:	REVISION:
35-00027-D-26 00-J-013-0				4 OF 4	0



From IPS-1 To STP



From IPS-2 To STP



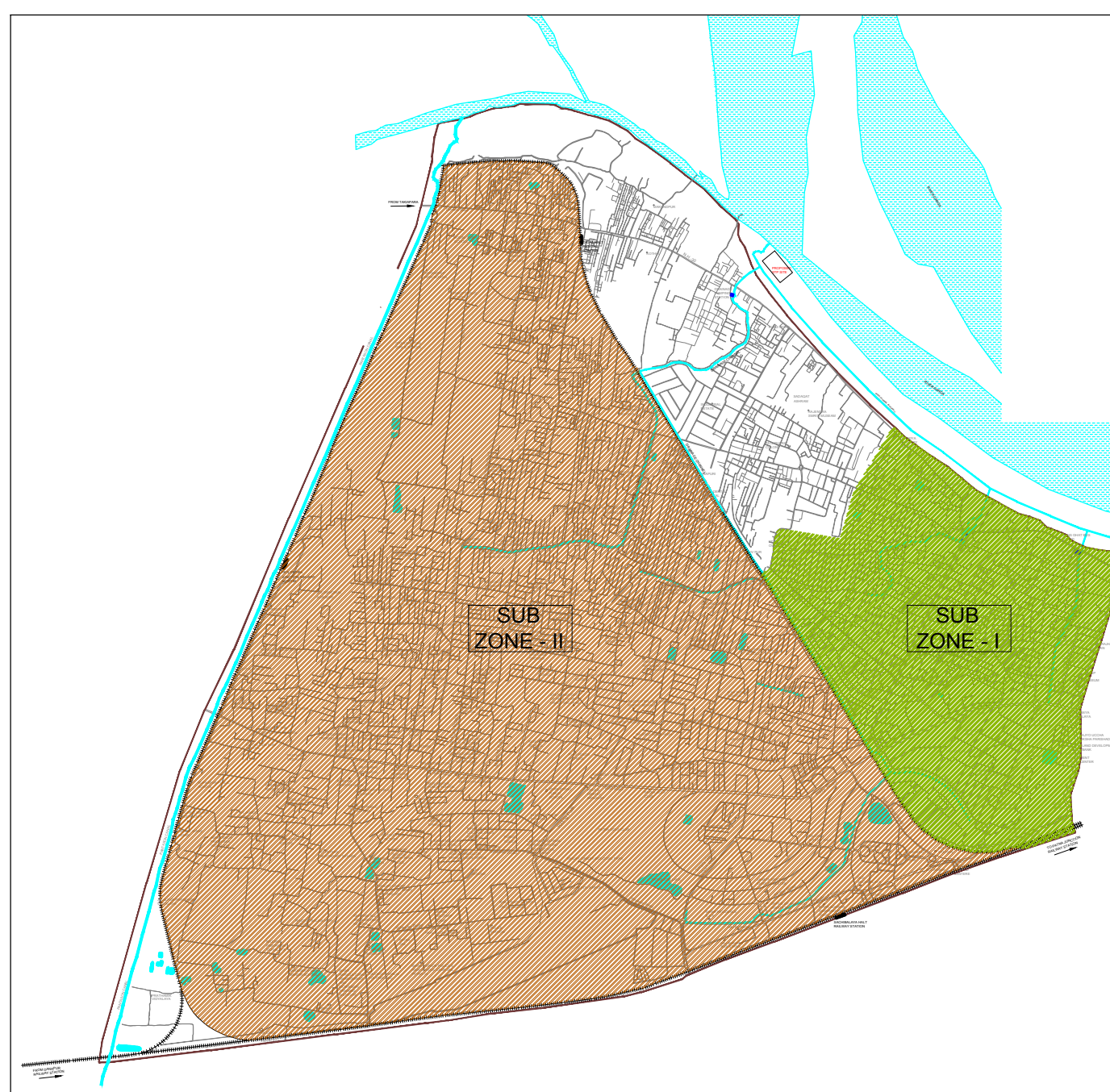
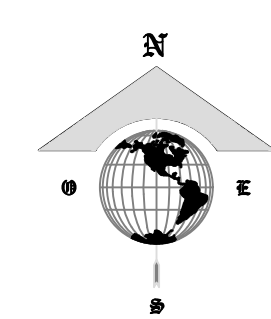
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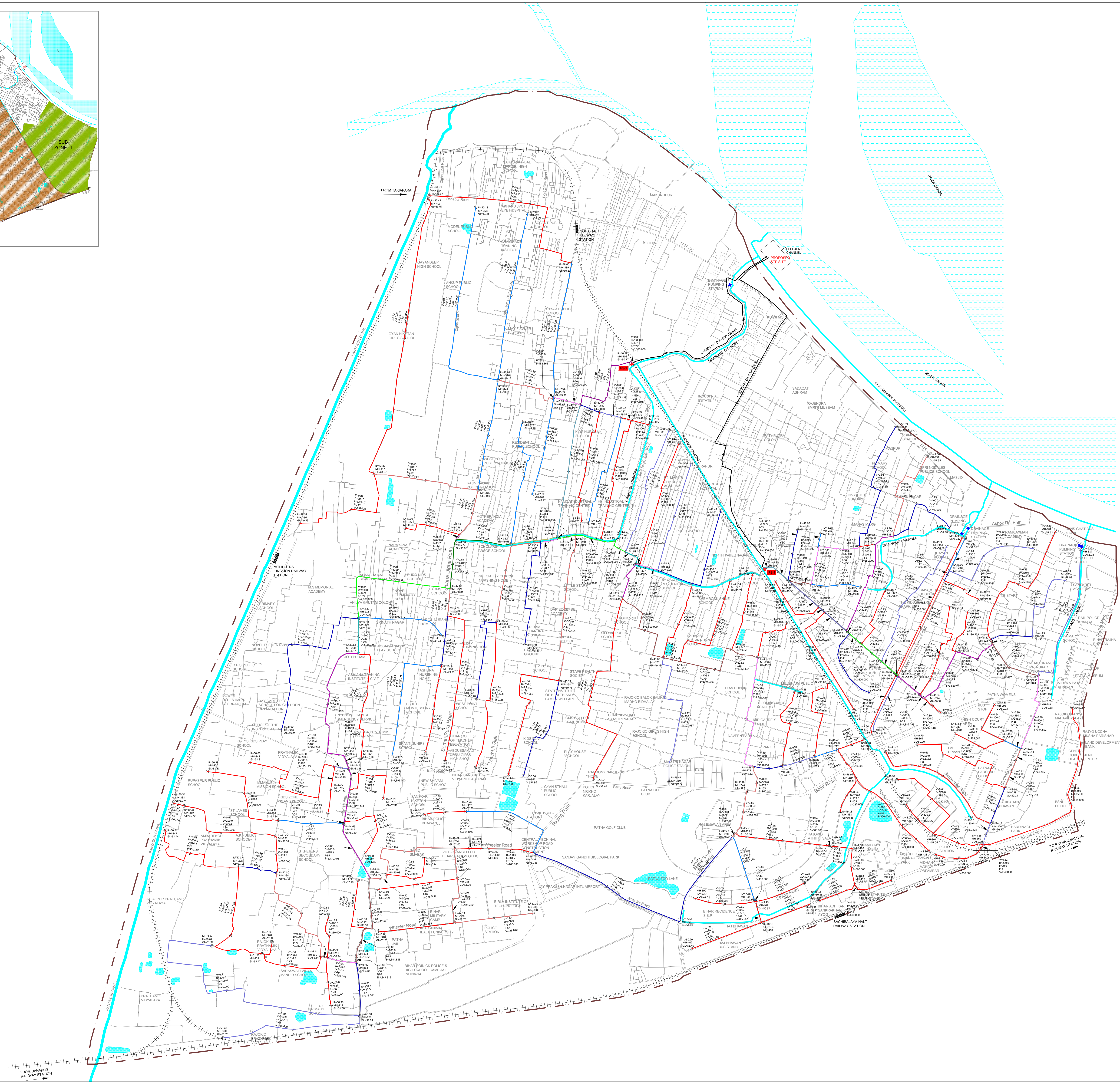
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REV.	DATE	DESCRIPTION	DRAWN	CHECK	APPR.
REVISIONS					
Designed:	D. Dutta	Date:	05.09.2017	Scale:	AS SHOWN
Drawn:	K. Mukherjee	Checked:	S. Nandi	Sheet Size:	A2
CLIENT: Bihar Urban Infrastructure Development Corporation Limited (BUIDCo) BENEFICIARY: _____ CONSULTANT: <b>GKW CONSULT</b> India Branch Office: PS Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake, Kolkata - 700 091, West Bengal, India Tel: 91 33 40176800/6826, Fax: 91 33 40176827 E-mail: info.gkw_india@gkw-consult.com Augustaanlage 67, 68165 Mannheim, Germany www.gkw-consult.com PROJECT: Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha Detailed Project Report SUBJECT: <b>LONG SECTION OF PROPOSED RISING MAINS (DIGHA ZONE)</b>					
DRAWING NO.:			SHEET:		REVISION:
35-00027-D-21 00-K-017-0			1 OF 1		0





KEY MAP



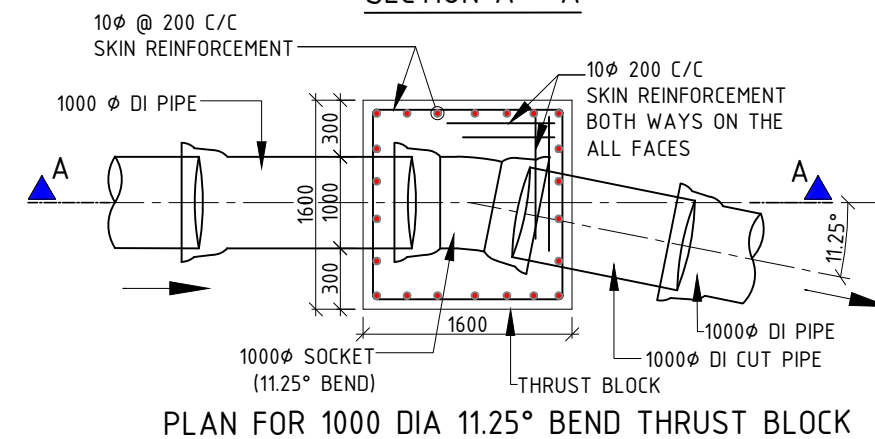
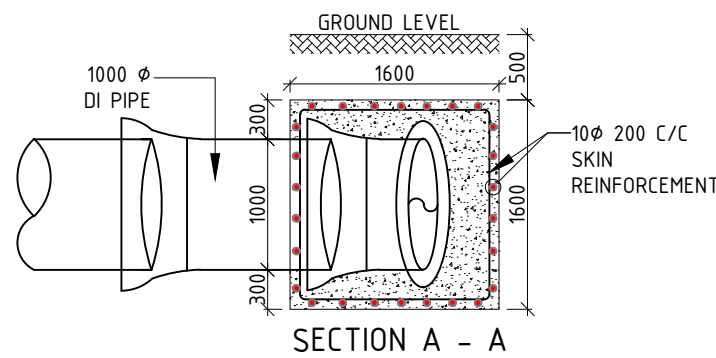
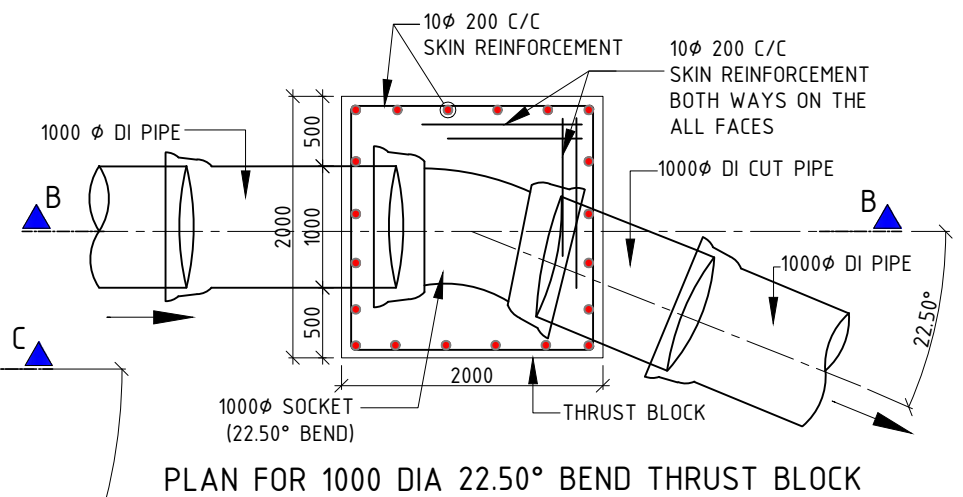
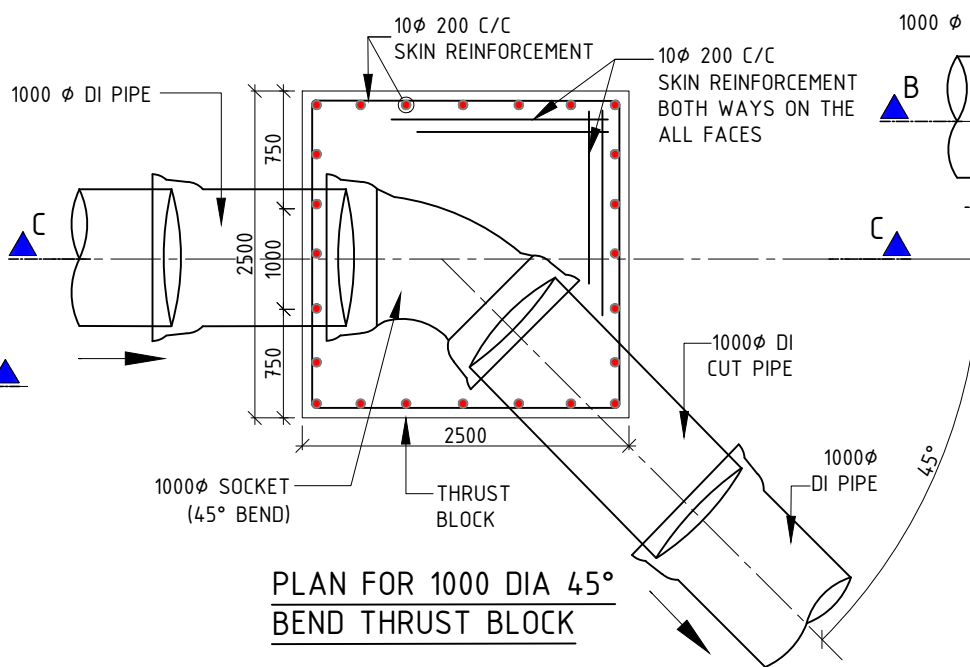
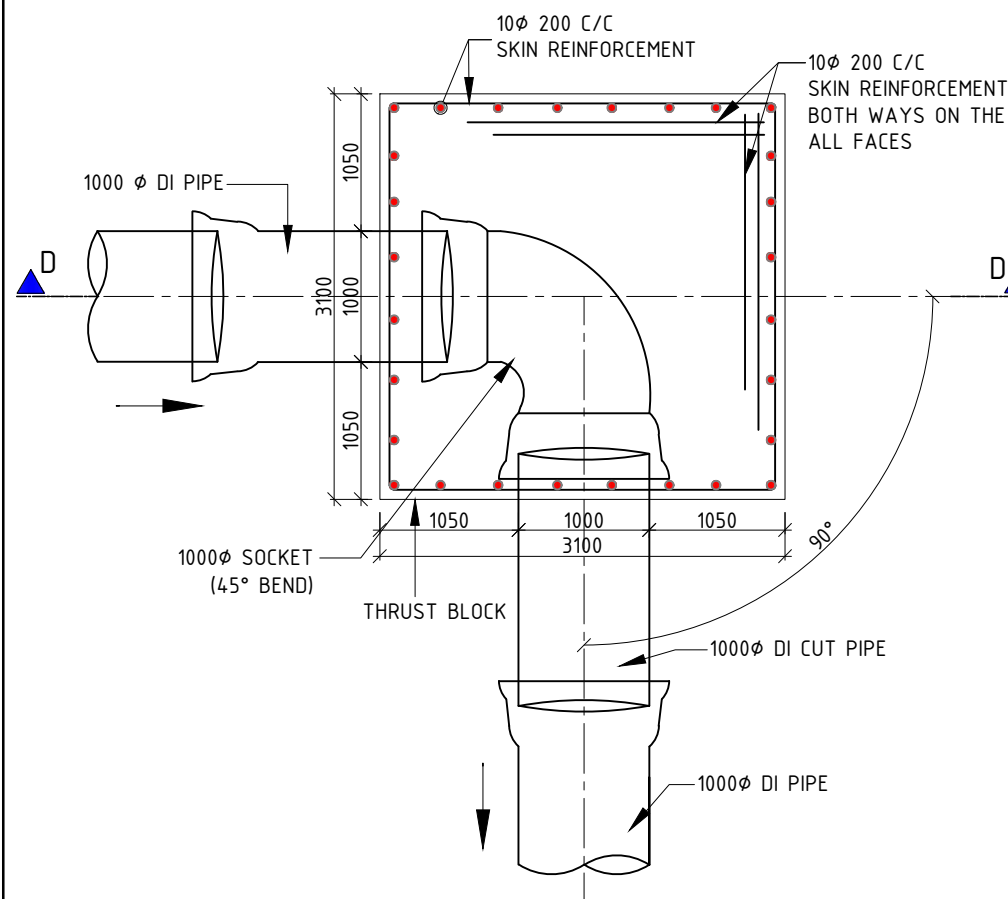
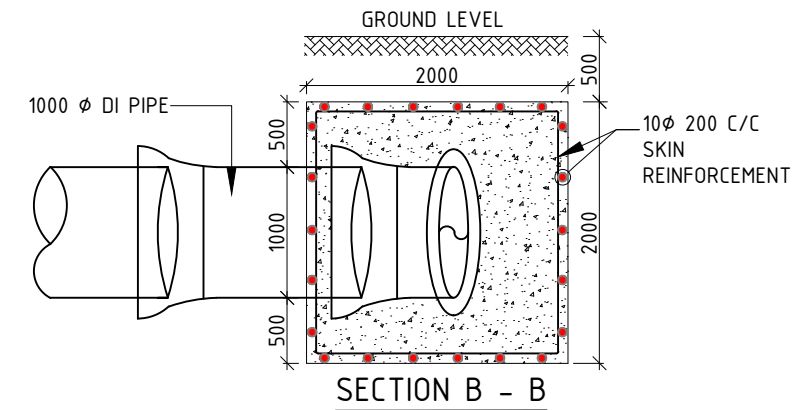
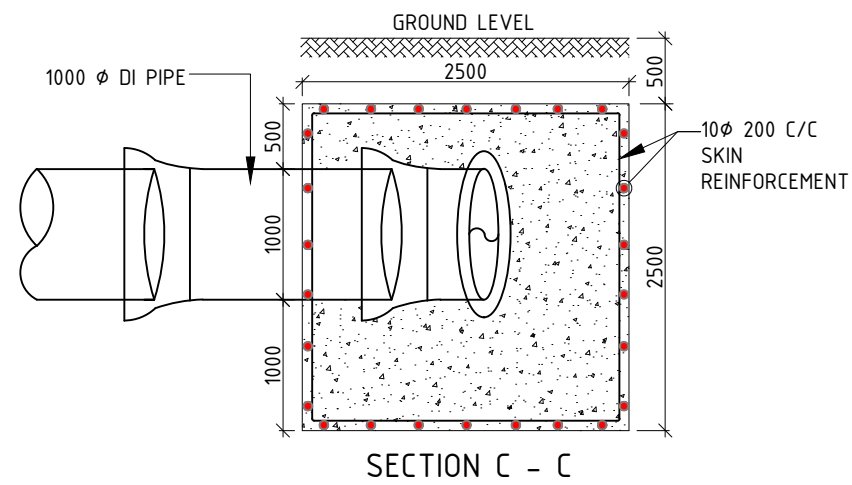
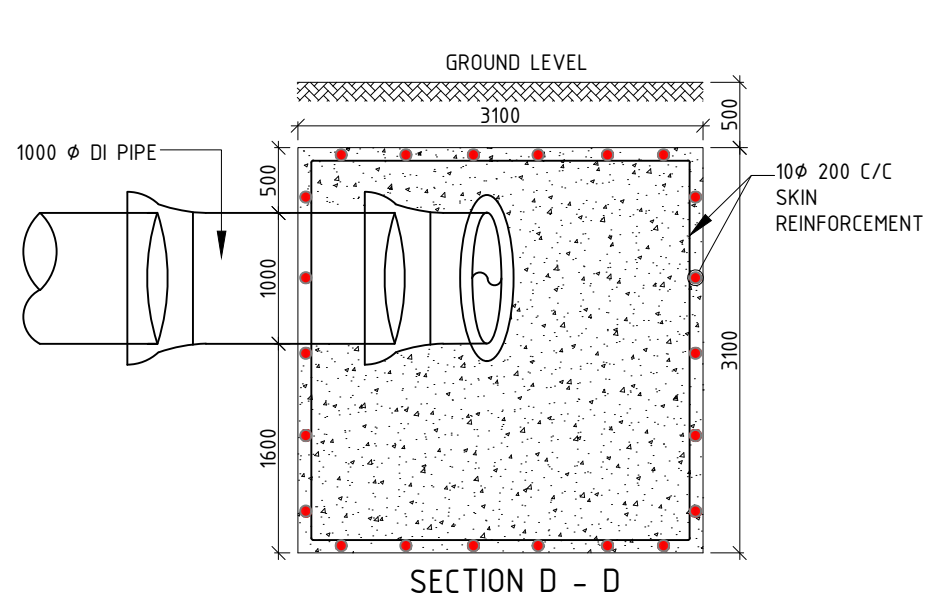
**LEGEND:**

- MUNICIPAL BOUNDARY: Dashed line
- RAILWAY LINE: Dotted line
- INTERMEDIATE PUMPING STATION (IPS): Red square
- WATER BODY: Blue area
- FORCE MAIN: Thick blue line
- GRAVITY MAINS: Lines of varying colors and thicknesses corresponding to pipe diameters:
  - 200: Red
  - 250: Orange
  - 300: Yellow
  - 400: Light Green
  - 500: Green
  - 600: Dark Green
  - 700: Teal
  - 800: Blue-Teal
  - 900: Blue
  - 1000: Light Blue
  - 1100: Medium Blue
  - 1200: Dark Blue
  - 1400: Very Dark Blue
  - 1600: Black
  - 1800: Grey
  - 2000: Dark Grey

REV.	DATE	DESCRIPTION	DRAWN	CHECK	APPR.
<b>REVISIONS</b>					
01	01/01/2024	Issue for Tender	S. N. Singh	S. N. Singh	AS
02	01/01/2024	Final Design	S. N. Singh	S. N. Singh	AS

Drawn: S. N. Singh, Checked: S. N. Singh, P.L.E. No: 100/2023, Scale: 1:7500, Sheet No: 01  
 Client: Bihar Urban Infrastructure Development Corporation Limited (BUIDCo)  
 Consultant: **EW CONSULT**  
 GWS Consult GmbH, 13th Floor Sector 1, Sakinaka, Gurgaon, Haryana, India  
 Tel: +91 88600 88600, Fax: +91 88600 88600, Email: info@ew-consult.com  
 Project: Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha  
 Subject: **PROPOSED SEWERAGE NETWORK (DIA WISE) OF THE DIGHA ZONE**  
 Drawing No: 35-00027-0-21-00-K-018-0, Sheet: 1 OF 1, Revision: 0





- GENERAL NOTE:**
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
  2. USE CONCRETE GRADE: M20.
  3. USE GRADE OF STEEL: Fe415.
  4. REINFORCEMENT SHOULD BE AS PER MENTIONED SPACE.
  5. CLEAR COVER OF REINFORCEMENT SHOULD BE NOT LESS THAN 50 mm.
  6. THE ALLOWABLE PRESSURE IS 4.7 mts OF WATER HEAD OR 4.70 kg/sqm.

REV.	DATE	DESCRIPTION	DRAWN	CHECK	APPR.
REVISIONS					

Designed: \_\_\_\_\_ Date: 05.09.2017 Scale: NTS Sheet Size: A3  
 Drawn: K. Mukherjee Checked: S. Nandi FILE NAME: M:\Patna\_BUIDCO\Patna Sewerage DPR\_R4\Digha Zone\15\_Cross section of Thrust Block

CLIENT:  
**Bihar Urban Infrastructure Development Corporation Limited (BUIDCO)**

BENEFICIARY: \_\_\_\_\_

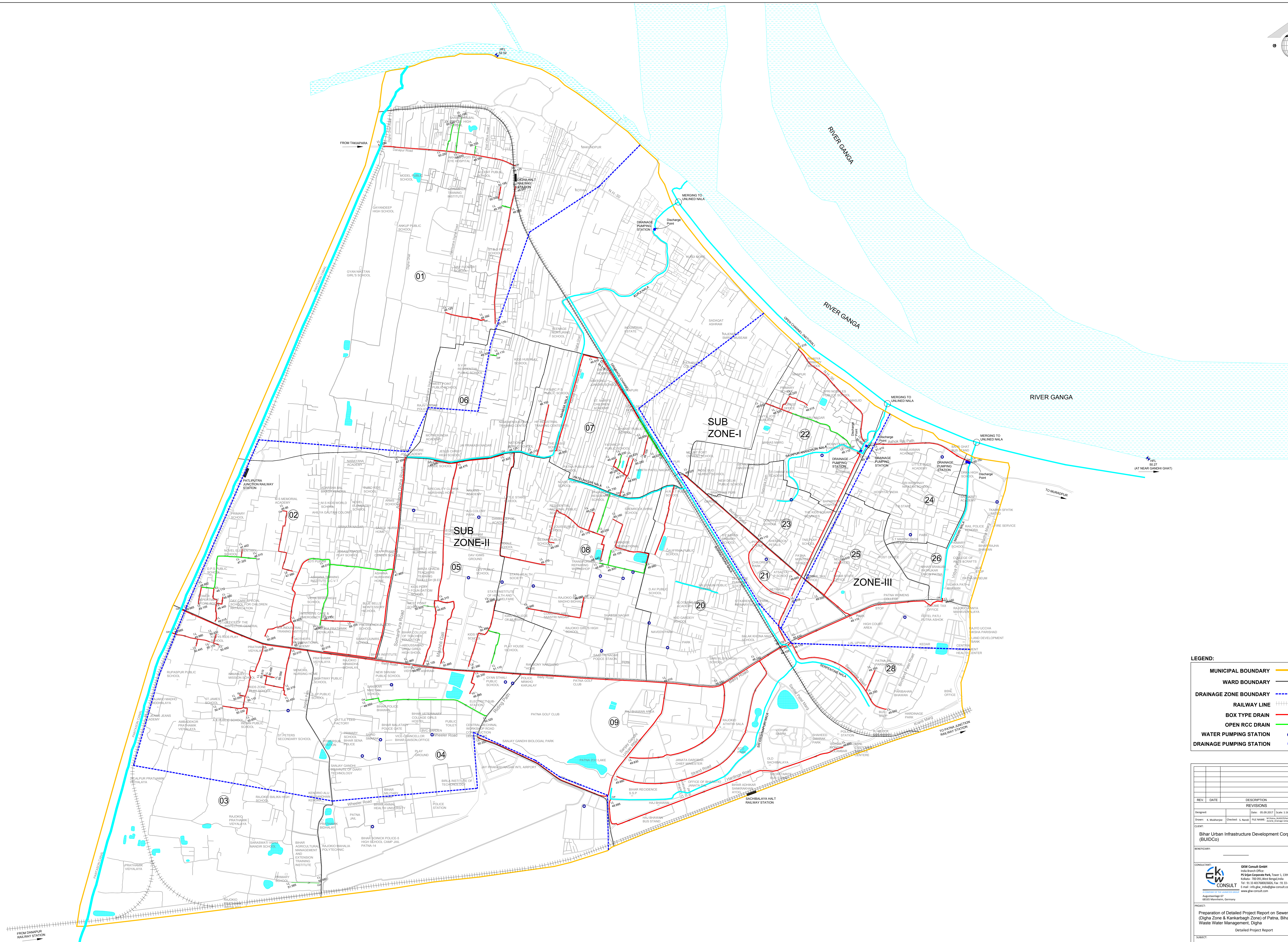
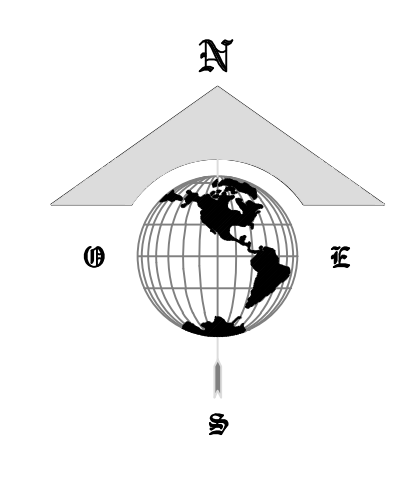
CONSULTANT:  
**GKW Consult GmbH**  
 India Branch Office:  
**PS Srijan Corporate Park**, Tower 1, 13th Floor, Sector V, Salt Lake  
 Kolkata - 700 091, West Bengal, India  
 Tel: 91 33 40176800/6826; Fax: 91 33 40176827  
 E-mail: info.gkw\_india@gkw-consult.com  
 A COMPANY OF THE LAHMEYER GROUP  
 Augustaanlage 67  
 68165 Mannheim, Germany  
 www.gkw-consult.com

PROJECT:  
 Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha  
 Detailed Project Report

SUBJECT:  
**DETAILS OF THRUST BLOCK**

DRAWING NO.: 35-00027-D-29 00-J-019-0	SHEET: 1 OF 1	REVISION: 0
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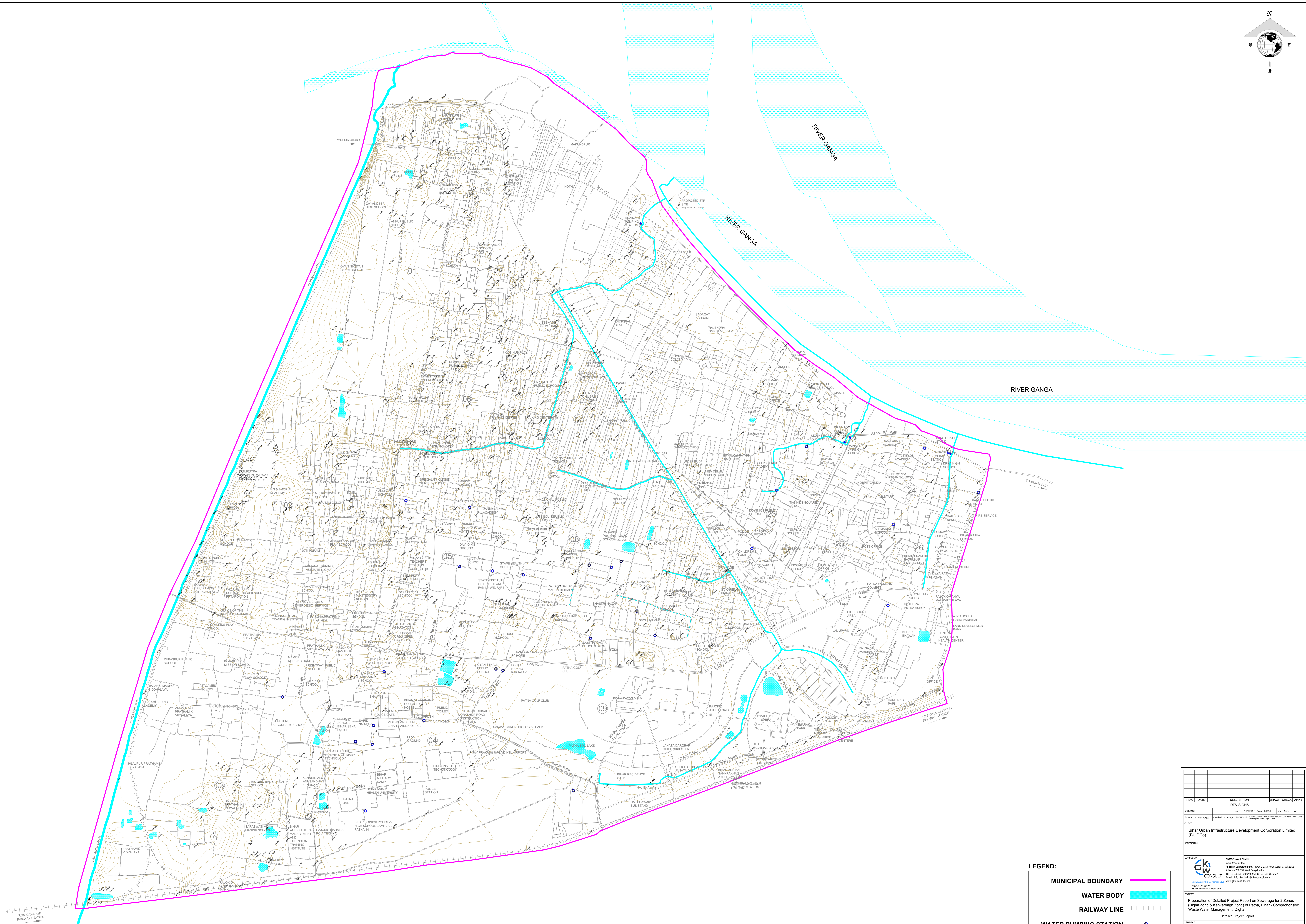
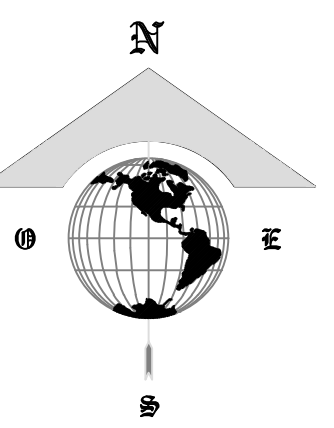


**LEGEND:**

- MUNICIPAL BOUNDARY —
- WARD BOUNDARY —
- DRAINAGE ZONE BOUNDARY - - -
- RAILWAY LINE =
- BOX TYPE DRAIN —
- OPEN RCC DRAIN —
- WATER PUMPING STATION ●
- DRAINAGE PUMPING STATION ■

REV.	DATE	DESCRIPTION	DRAWN	CHECK	APPR.
REVISIONS					
CLIENT: Bihar Urban Infrastructure Development Corporation Limited (BUIDCO)					
CONSULTANT: <b>GW CONSULT</b> HUDA Branch Office: P3 Ekan Corporate Park, Tower 1, 13th Floor, Sector 1, Salt Lake Kolkata - 700091, West Bengal, India. Tel: 91 93 842386600, Fax: 91 93 84238227 E-mail: info.gw_india@gw-consult.com www.gw-consult.com					
PROJECT: Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digma					
SUBJECT: Detailed Project Report					
<b>MAP SHOWING DRAINAGE NETWORK OF THE DIGHA ZONE</b>					
DRAWING NO.:	35-00027-D-03-01-K-006-0	SHEET:	1 OF 1	REVISION:	0



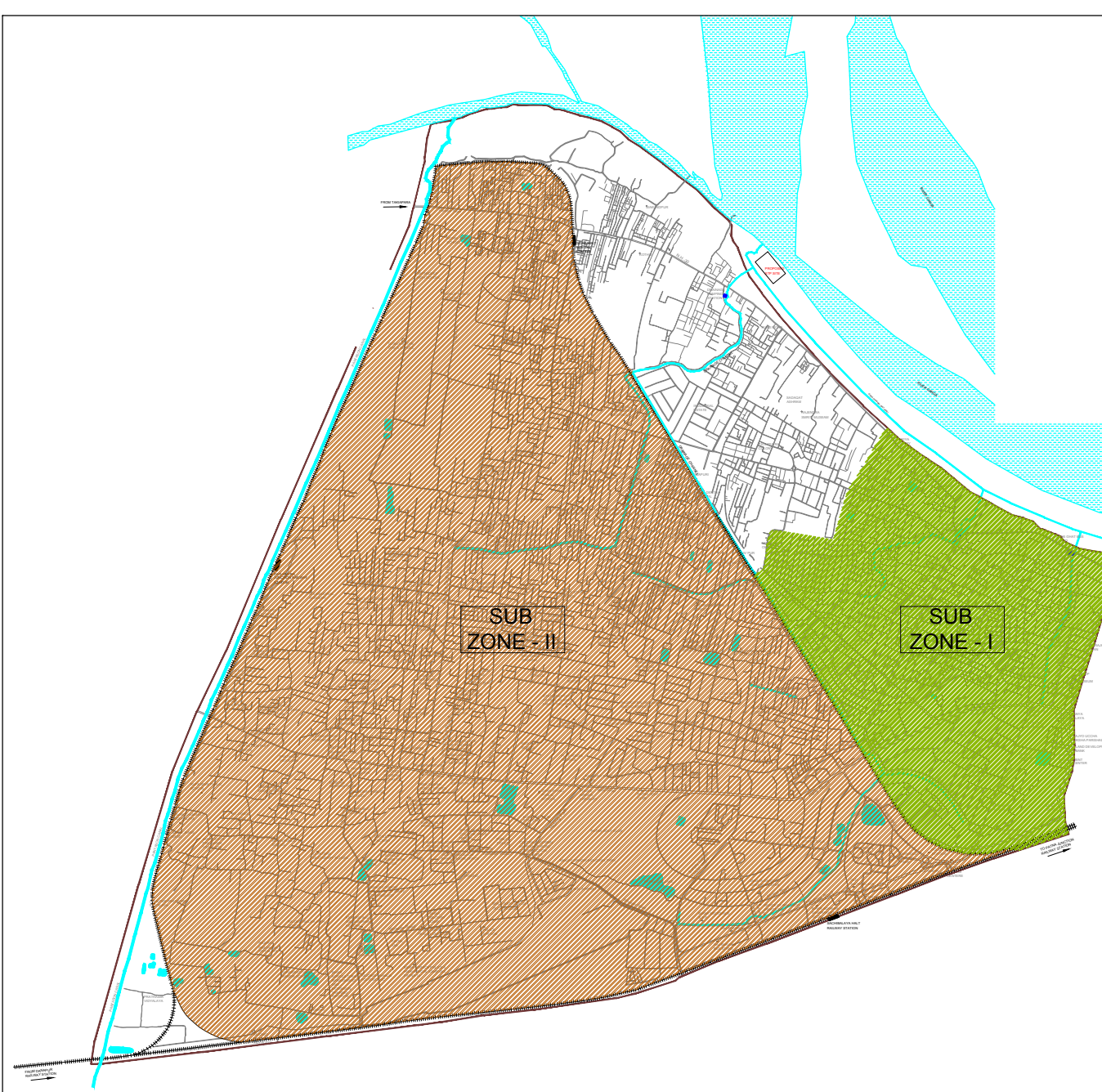
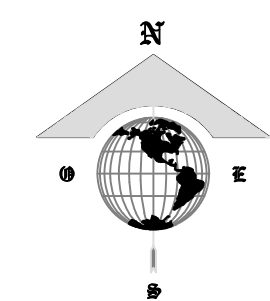


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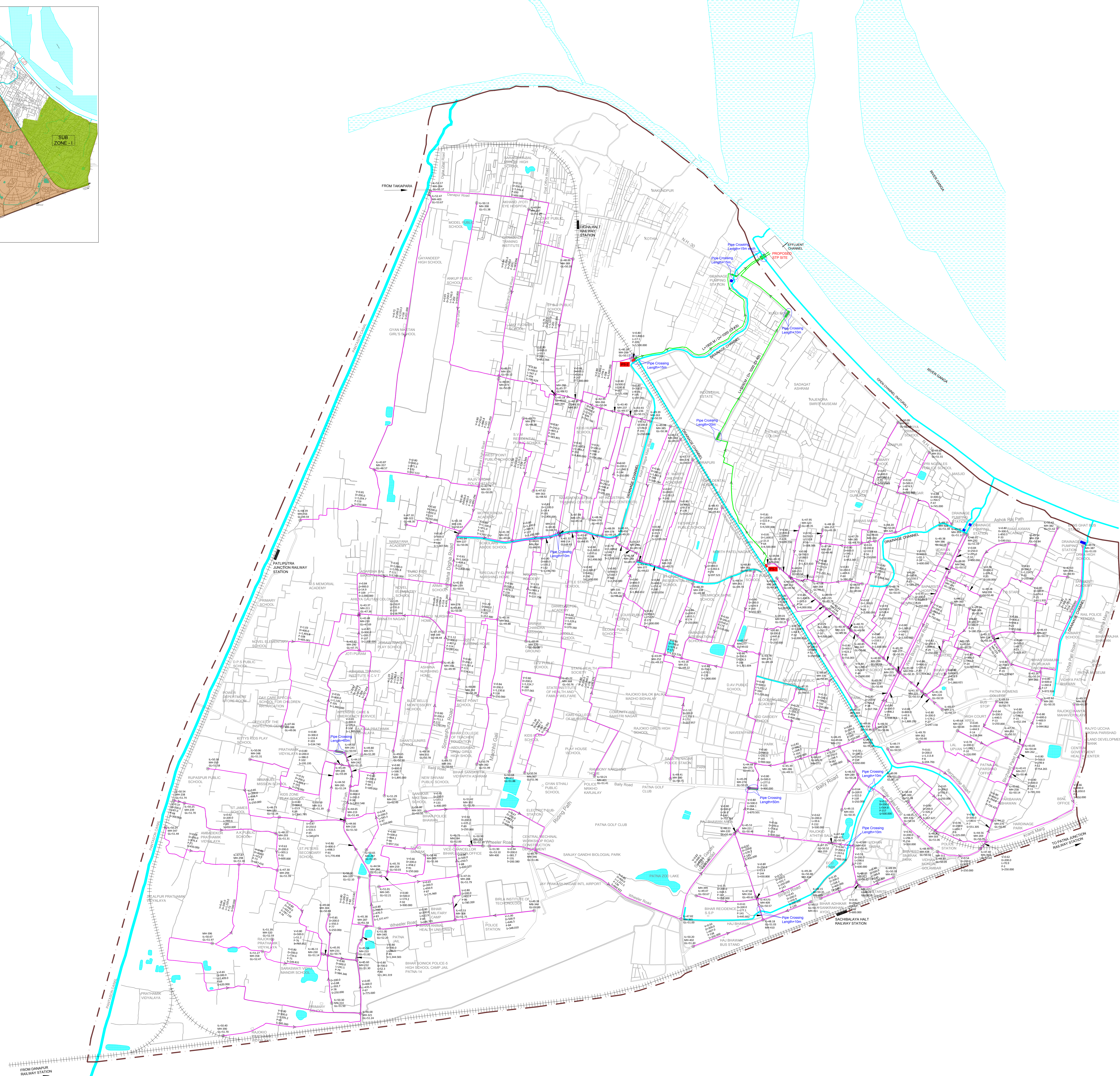
- MUNICIPAL BOUNDARY
- WATER BODY
- RAILWAY LINE
- WATER PUMPING STATION
- DRAINAGE PUMPING STATION

REV.	DATE	DESCRIPTION	DRAWN	CHECK	APPR.
<b>REVISIONS</b>					
Prepared by: <b>Bihar Urban Infrastructure Development Corporation Limited (BUIDCO)</b> PROJECT: <b>Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone &amp; Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha</b> DRAWING NO.: <b>MAP SHOWING CONTOUR OF THE DIGHA ZONE</b> SHEET: <b>1 OF 1</b>					





KEY MAP



**LEGEND:**

- MUNICIPAL BOUNDARY - - - - -
- FORCE MAIN - - - - -
- GRAVITY MAIN - - - - -
- WATER BODY - - - - -
- RAILWAY LINE - - - - -
- INTERMEDIATE PUMPING STATION (IPS) ■■■■■
- PIPE CROSSING LOCATION ■■■■■

REV.	DATE	DESCRIPTION	DRAWN	CHECK	APPR.
REVISIONS					

Client: Bihar Urban Infrastructure Development Corporation Limited (BUIDCO)

Project: Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha

Subject: PROPOSED SEWERAGE NETWORK OF THE DIGHA ZONE

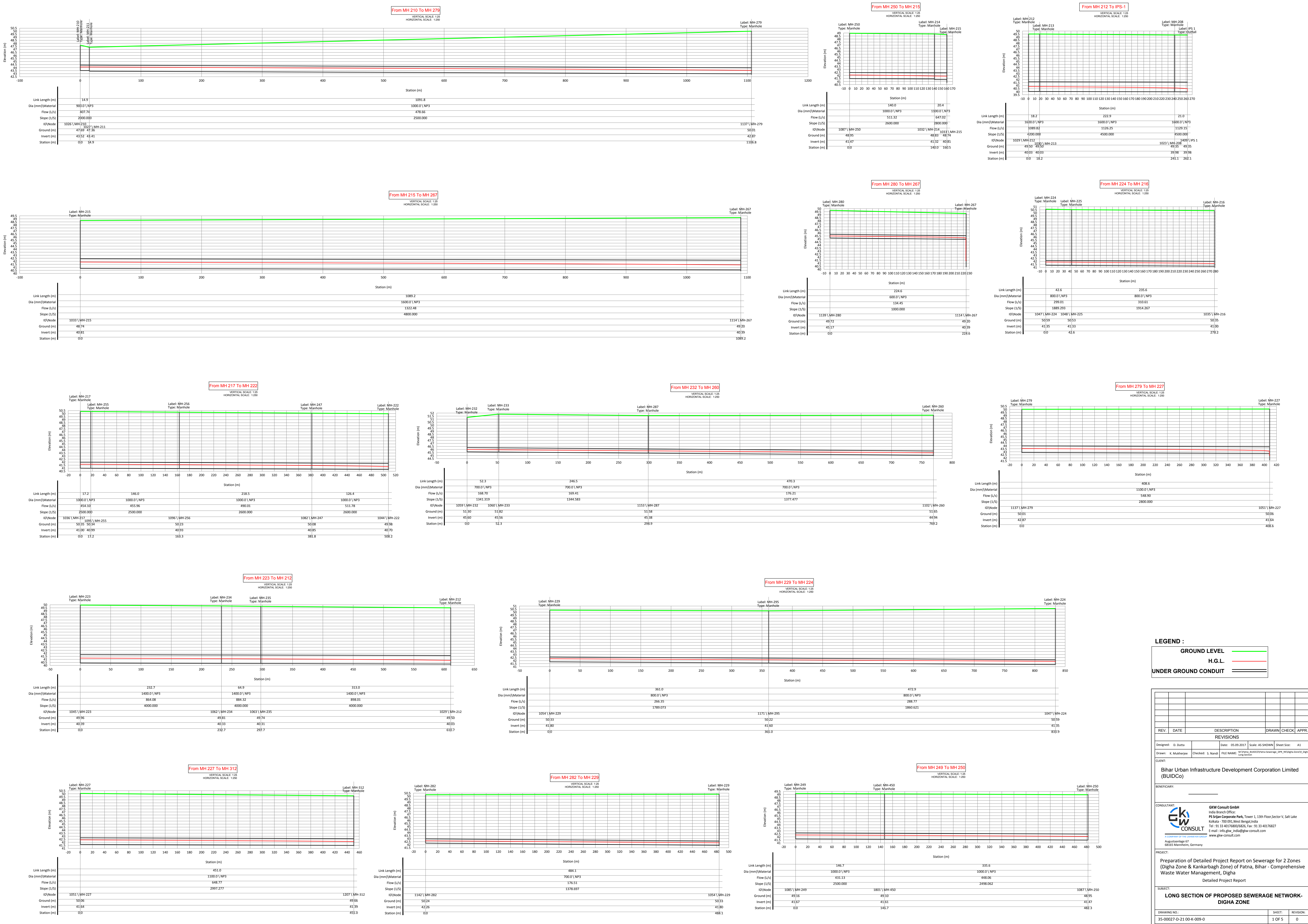
Drawn: K. Mahapatra | Checked: S. Nandi | Date: 05.09.2017 | Scale: 1:7500 | Sheet No.: A0

CONSULTANT: **GW CONSULT**  
 17, 18 & 19, Sector - 10, Patna - 800 009, Bihar, India  
 Phone: +91 94310 20000 | Email: info@gwconsult.com

Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha

DRAWING NO.	SHEET	REVISION
35-0027-01-00-K-008-0	1 OF 1	0





**LEGEND :**

- GROUND LEVEL —
- H.G.L. —
- UNDER GROUND CONDUIT —

REV	DATE	DESCRIPTION	DRAWN	CHECK	APPR
REVISIONS					

Designed: D. Dutta      Date: 05.09.2017      Scale: AS SHOWN      Sheet Size: A1  
 Drawn: K. Mukherjee      Checked: S. Nandi      FILE NAME: S:\Project\BIDCO\BIDCO\_Patna\BIDCO\_Patna\BIDCO\_Patna.dwg

**Bihar Urban Infrastructure Development Corporation Limited (BUIDCO)**

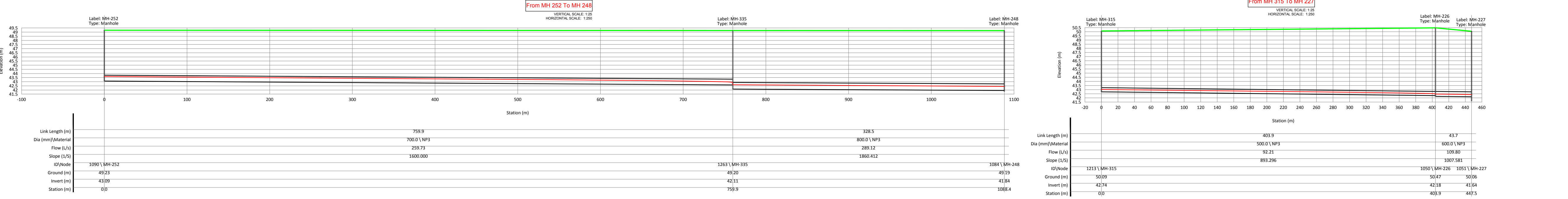
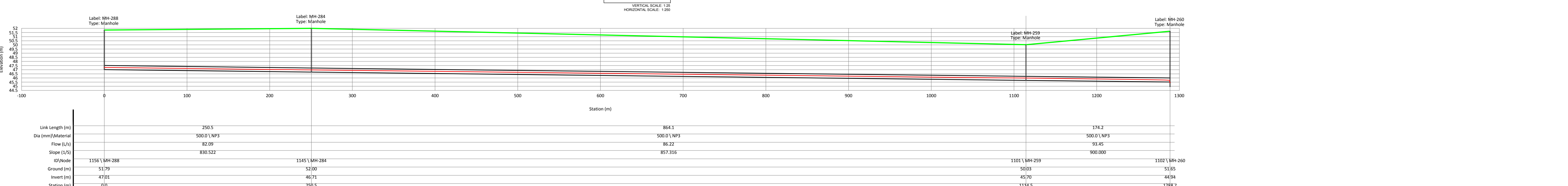
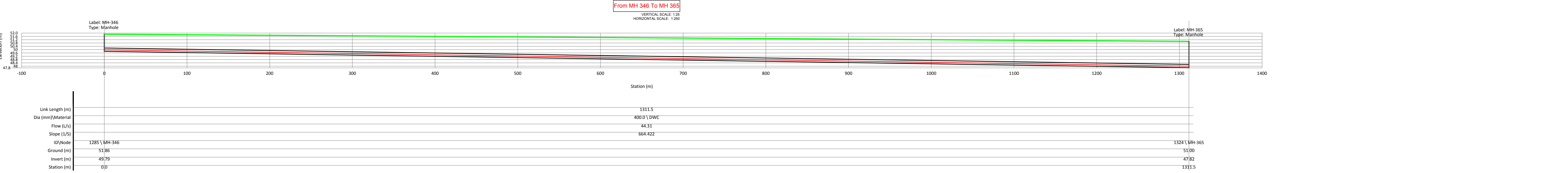
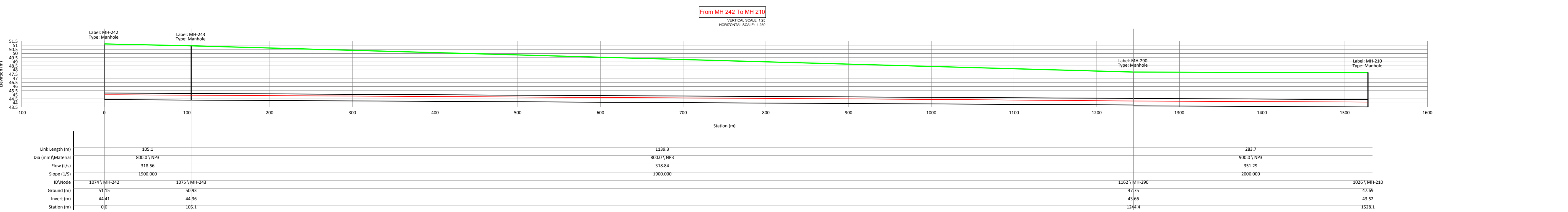
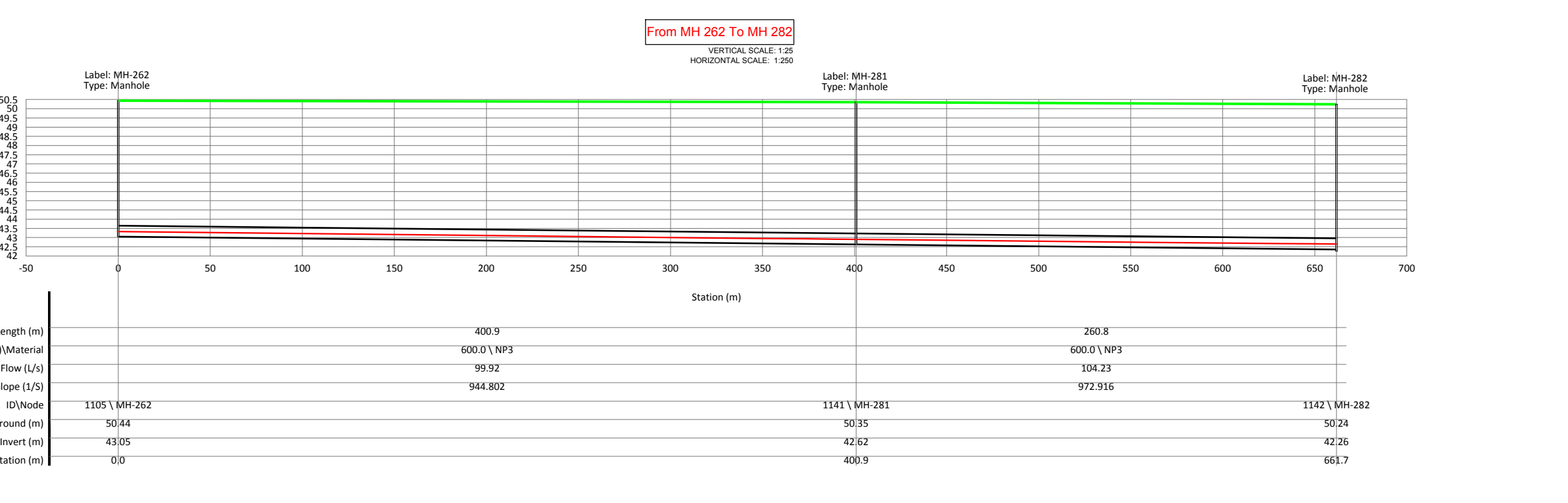
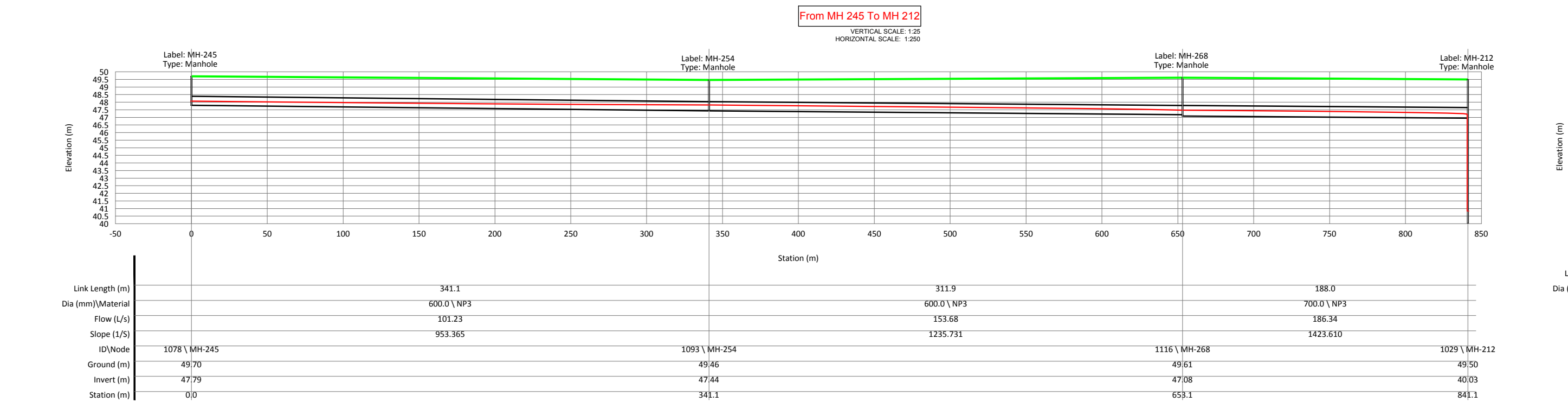
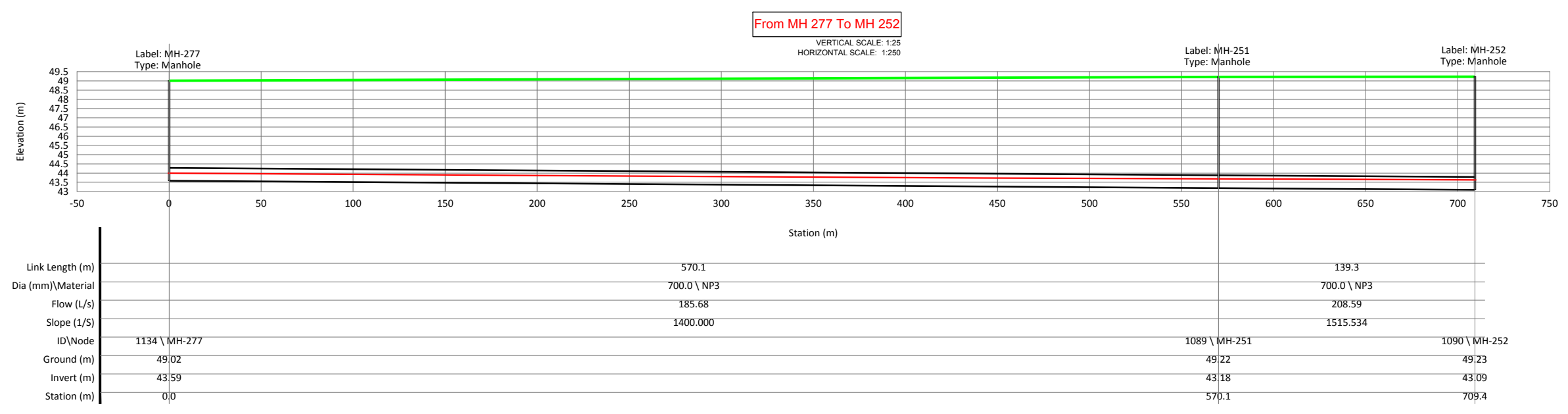
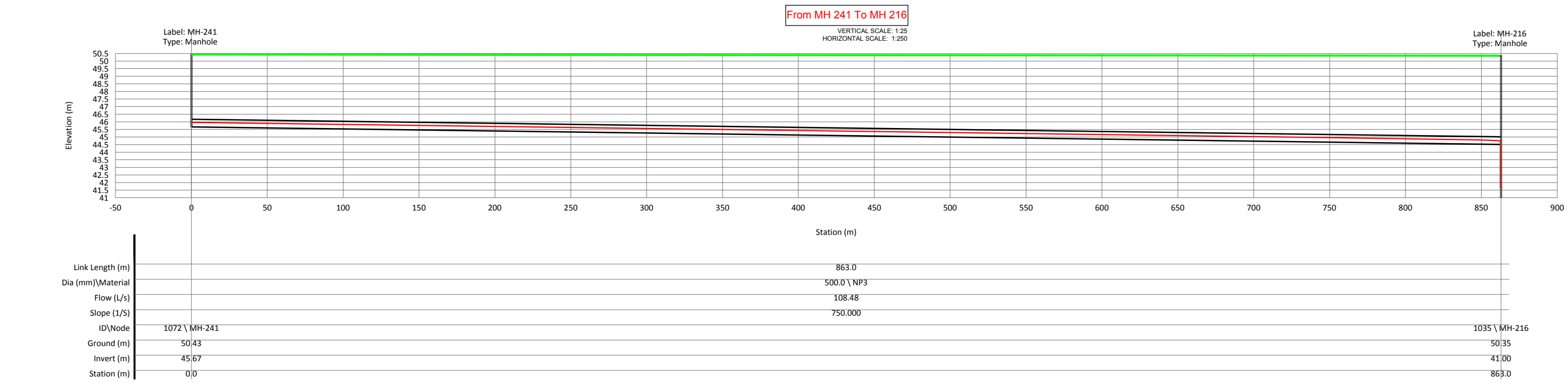
CLIENT: \_\_\_\_\_  
 BENEFICIARY: \_\_\_\_\_

**CONSULTANT:** **GW Consult GmbH**  
 India Branch Office:  
 P5 Sdhan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake  
 Kolkata - 700091, West Bengal, India  
 Tel: 91 33 40178800/8826, Fax: 91 33 40178827  
 E-mail: info.gw\_india@gw-consult.com www.gw-consult.com  
Auguststraße 67 69126 Mannheim, Germany

Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha  
 Detailed Project Report

**LONG SECTION OF PROPOSED SEWERAGE NETWORK- DIGHA ZONE**

DRAWING NO. 35-00027-D-21 00-K-009-0	SHEET 1 OF 5	REVISION: 0
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H.G.L. —

UNDER GROUND CONDUIT —

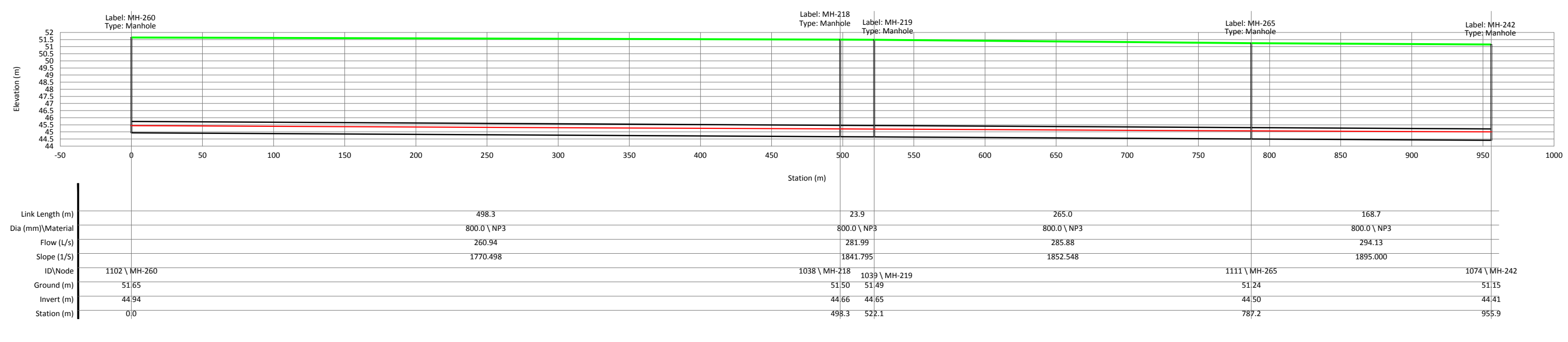
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 CLIENT: Bihar Urban Infrastructure Development Corporation Limited (BUIDCo)  
 BENEFICIARY: \_\_\_\_\_  
 CONSULTANT: **GW Consult GmbH**  
 India Branch Office: P5 Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake Kolkata - 700091, West Bengal, India  
 Tel: 91 33 40178800/8826, Fax: 91 33 40178827  
 E-mail: info.gw\_india@gw-consult.com www.gw-consult.com  
 A member of the Kvaerner Group  
 Augustenstrasse 67 50829 Mannheim, Germany

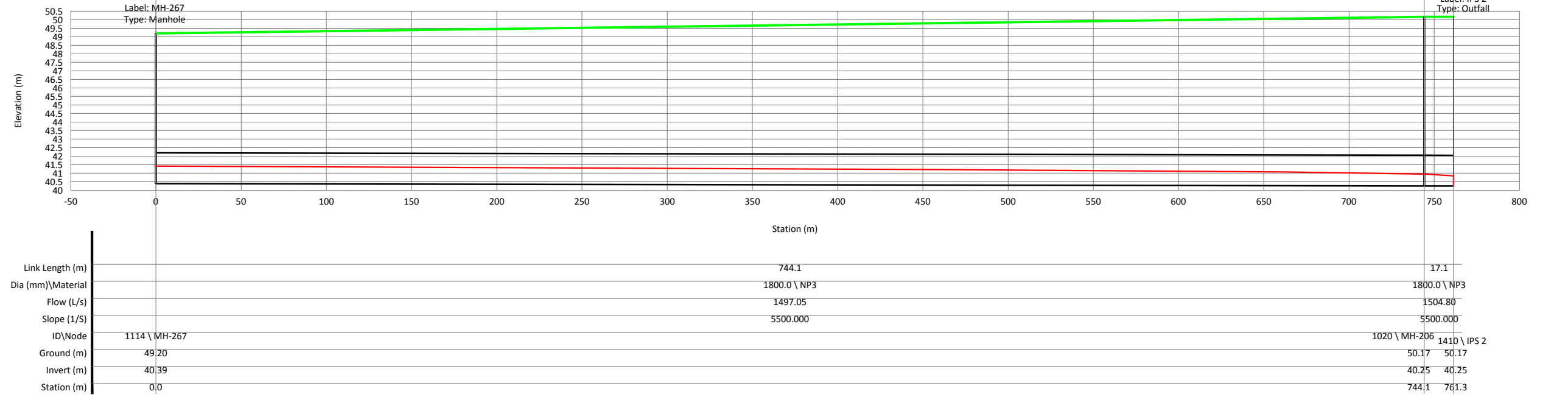
Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha  
 Detailed Project Report  
**LONG SECTION OF PROPOSED SEWERAGE NETWORK- DIGHA ZONE**  
 DRAWING NO: 35-00027-D-21 00-K-009-0      SHEET: 2 OF 5      REVISION: 0



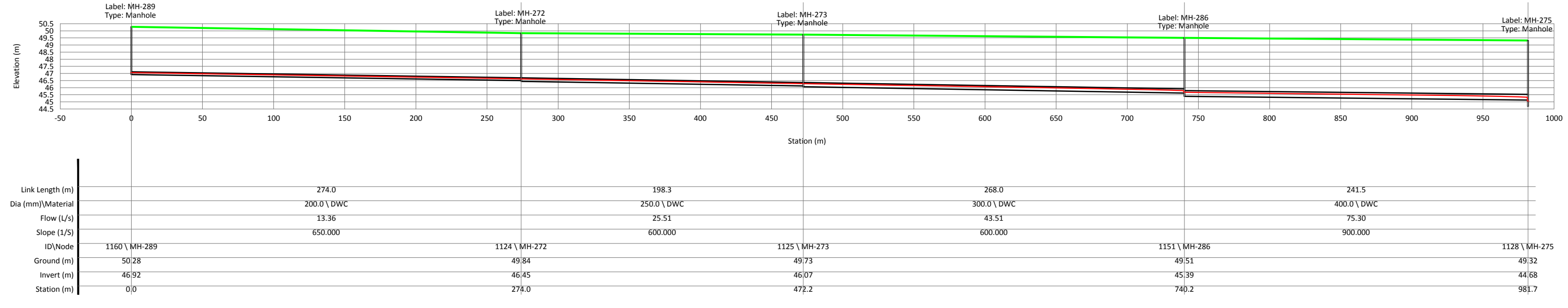
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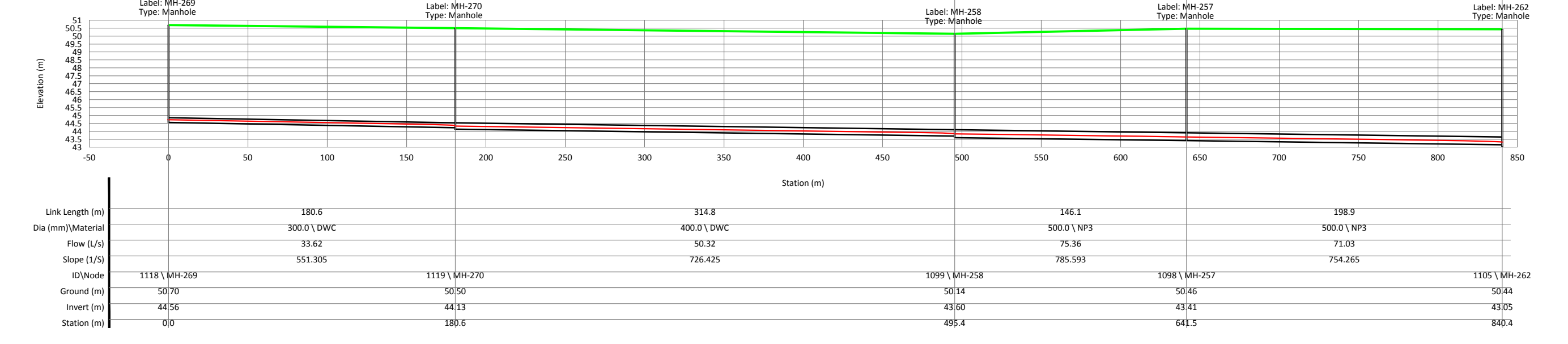
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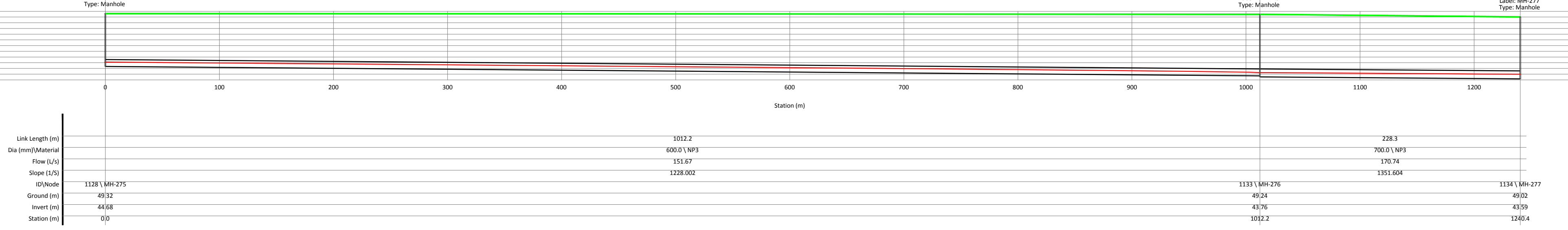
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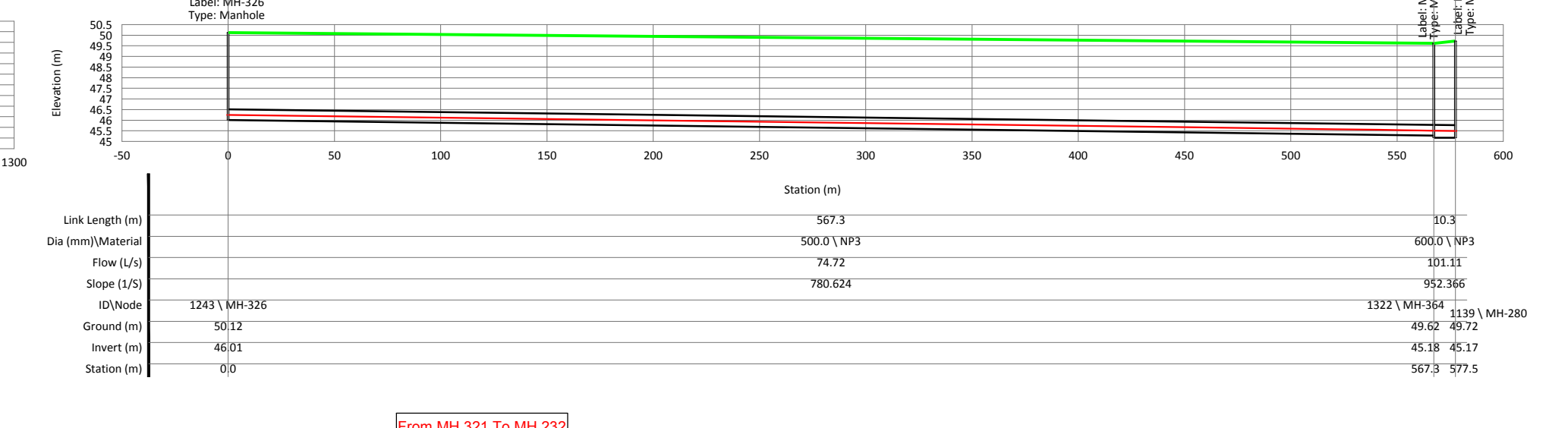
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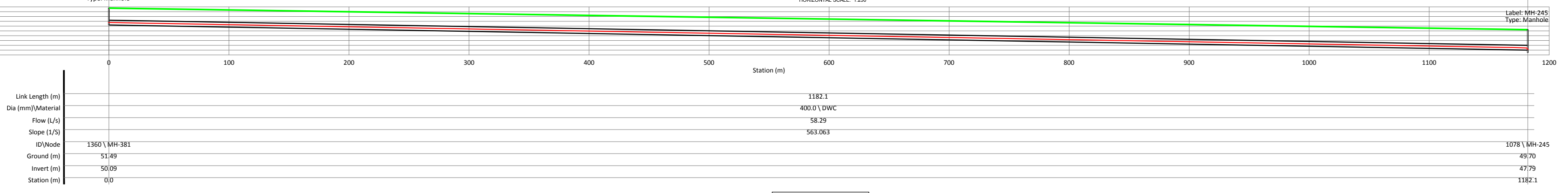
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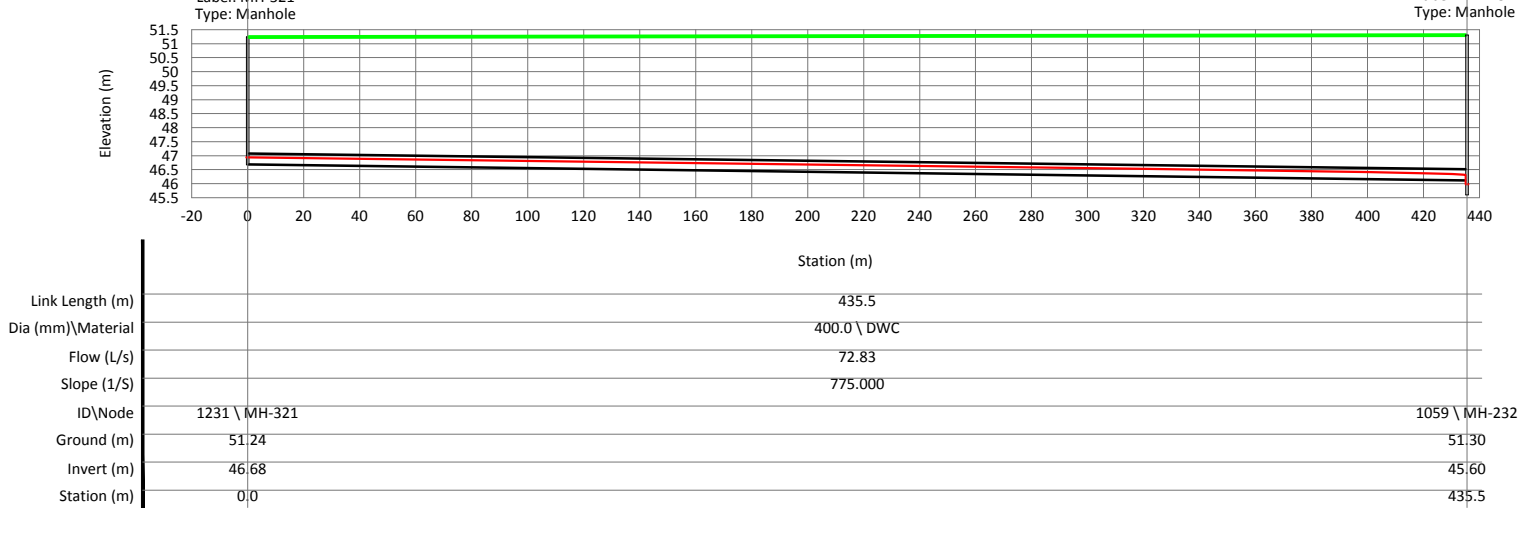
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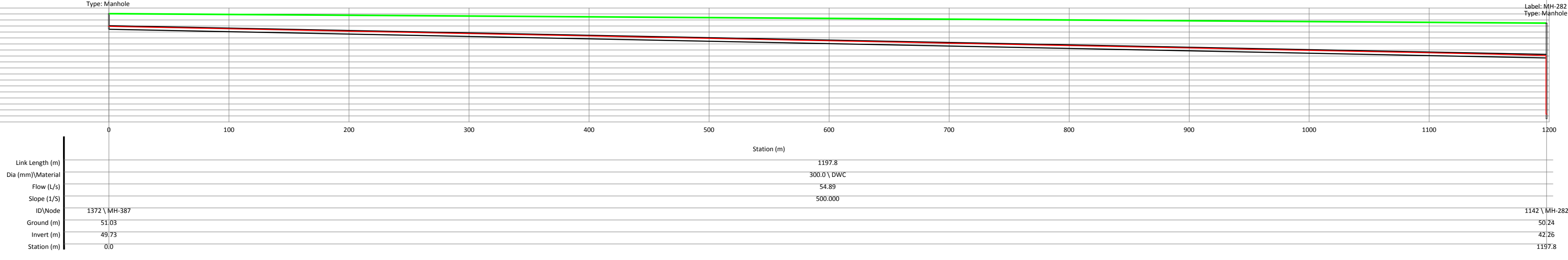
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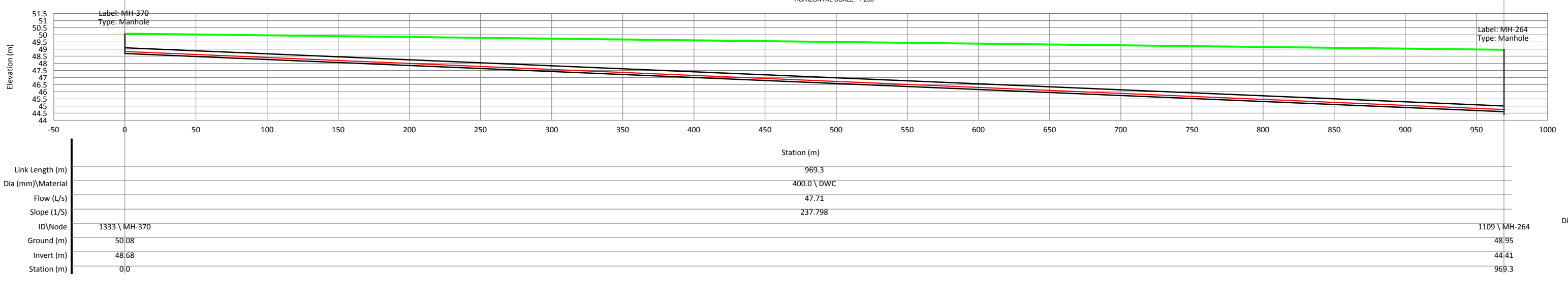
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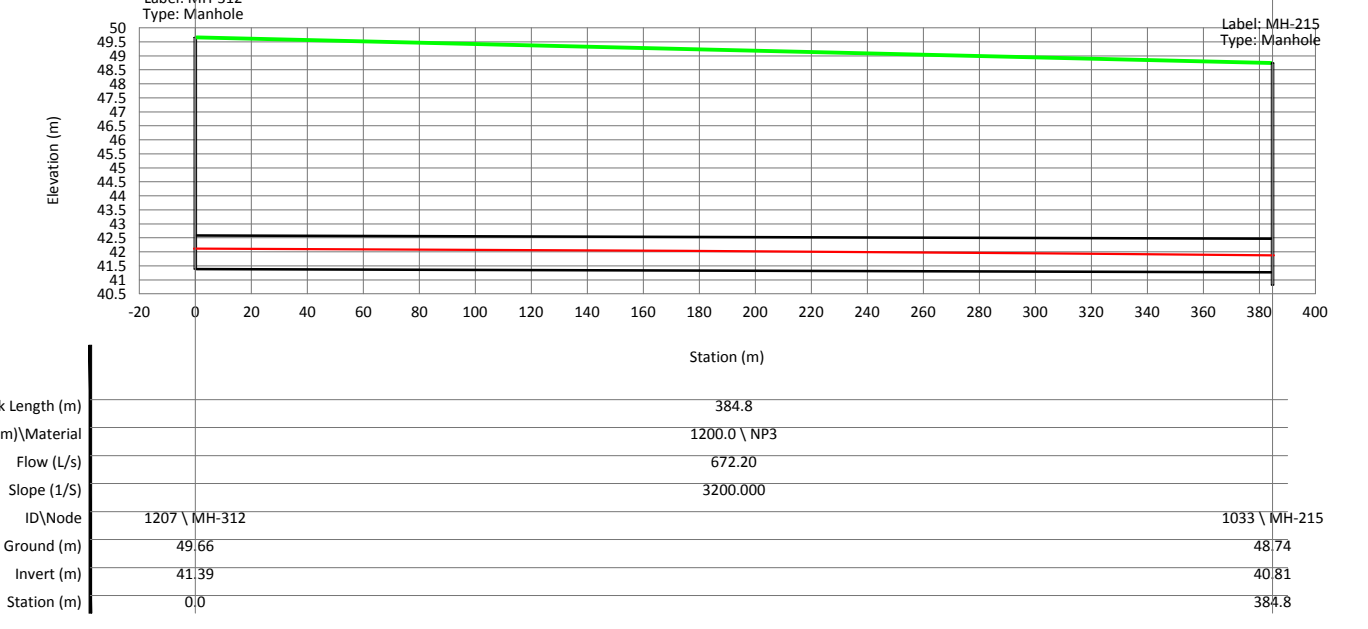
From MH 387 To MH 282



From MH 370 To MH 264



From MH 312 To MH 215



**LEGEND :**

- GROUND LEVEL —
- H.G.L. —
- UNDER GROUND CONDUIT —

REV	DATE	DESCRIPTION	DRAWN	CHECK	APPR.
REVISIONS					

Designed: D. Dutta      Date: 05.09.2017      Scale: AS SHOWN      Sheet Size: A1  
 Drawn: K. Mukherjee      Checked: S. Nandi      FILE NAME: M:\Projects\BIDCO\Patna Sewerage\PM\_MH\Digha Zone\03\_Sewer  
 E-mail: info.gkw\_india@gkw-consult.com      www.gkw-consult.com

**CLIENT:**  
 Bihar Urban Infrastructure Development Corporation Limited (BUIDCO)

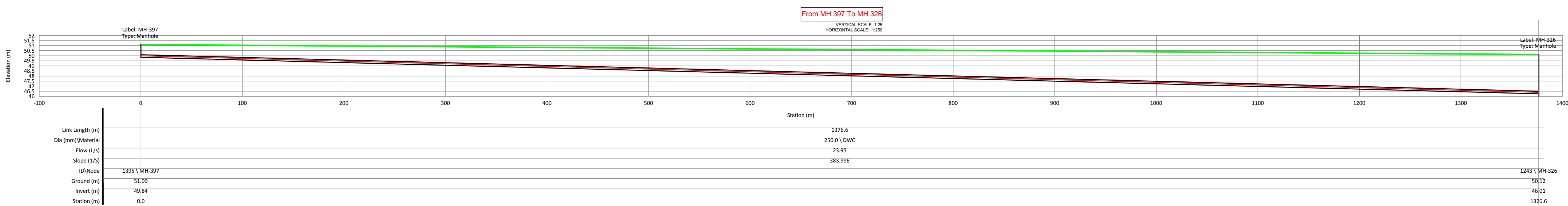
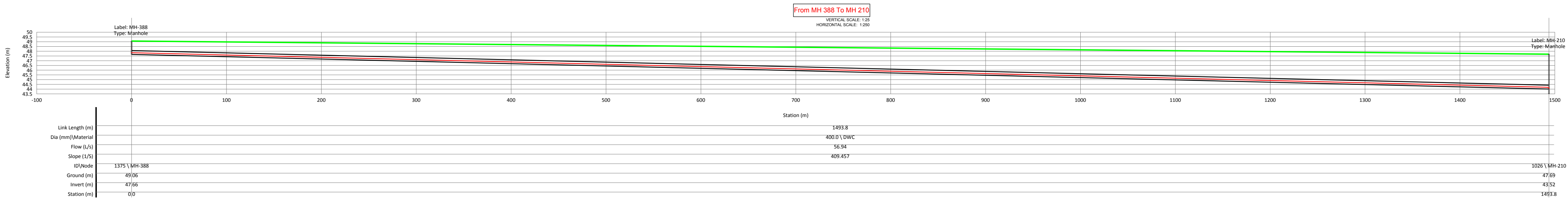
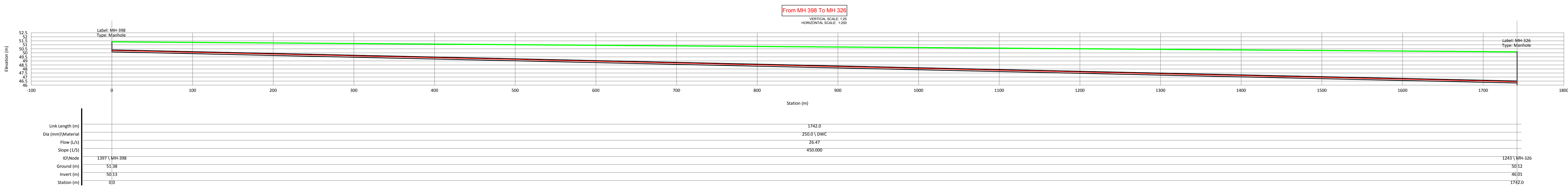
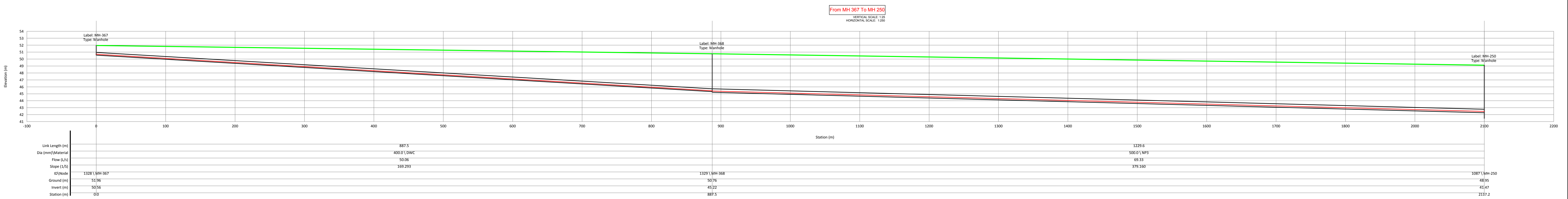
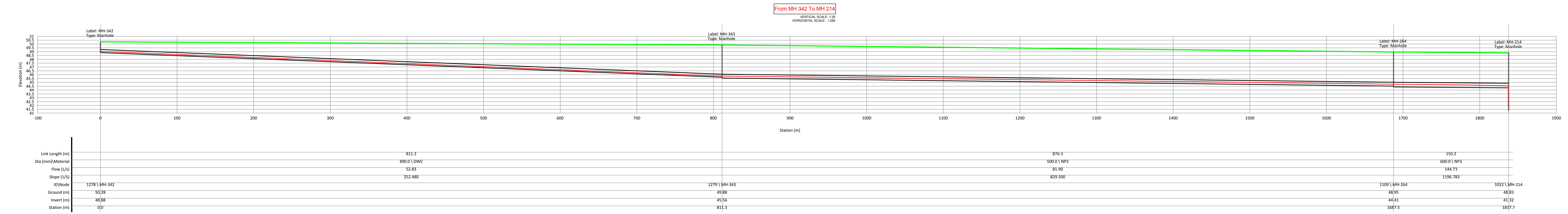
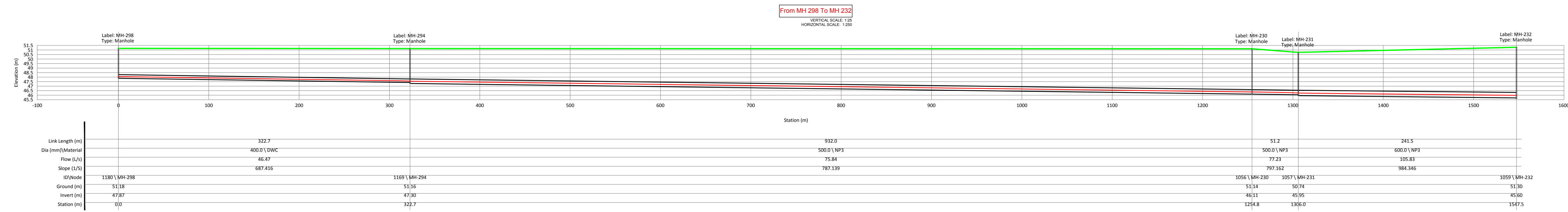
**REVISIONS:**

**CONSULTANT:**  
**GKW Consult GmbH**  
 India Branch Office:  
 P5 Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake  
 Kolkata - 700091, West Bengal, India  
 Tel: 91 33 40178800/8826, Fax: 91 33 40178827  
 E-mail: info.gkw\_india@gkw-consult.com      www.gkw-consult.com  
A member of the Kvaerner Group

**PROJECT:**  
 Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha  
 Detailed Project Report

**SUBJECT:**  
**LONG SECTION OF PROPOSED SEWERAGE NETWORK- DIGHA ZONE**

DRAWING NO.	SHEET	REVISION
35-00027-D-21-00-K-009-0	3 OF 5	0



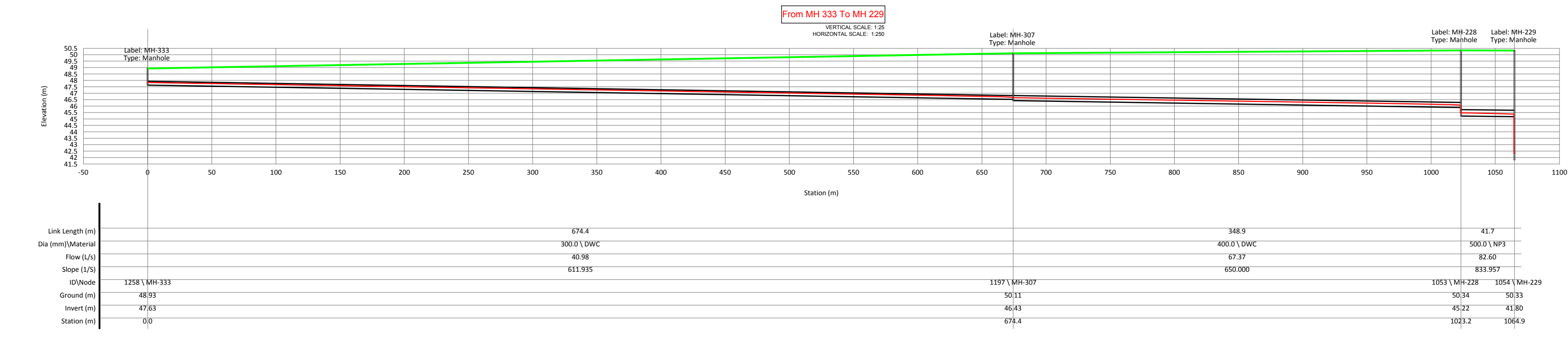
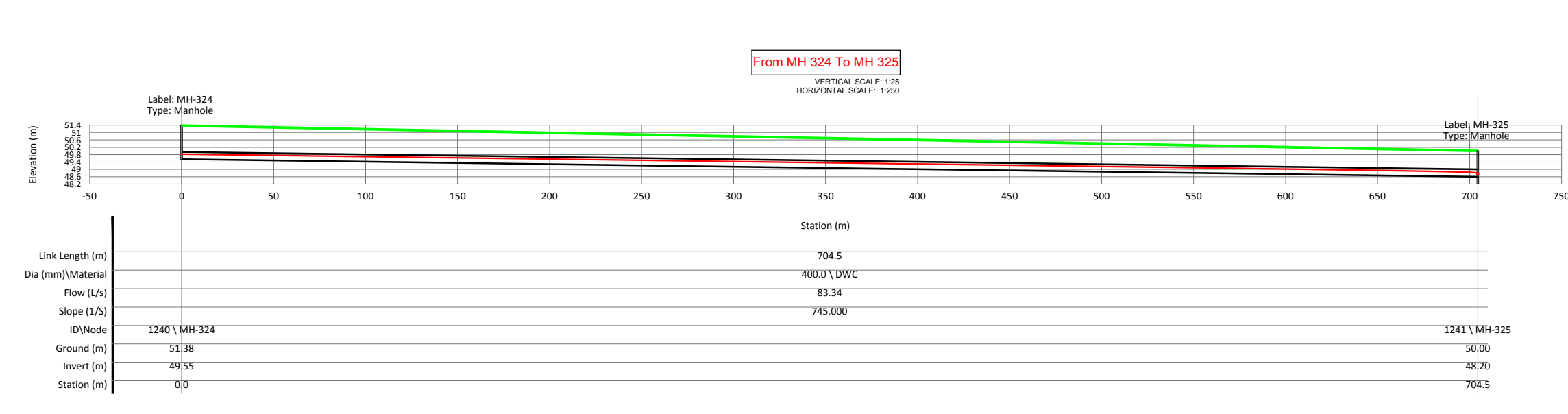
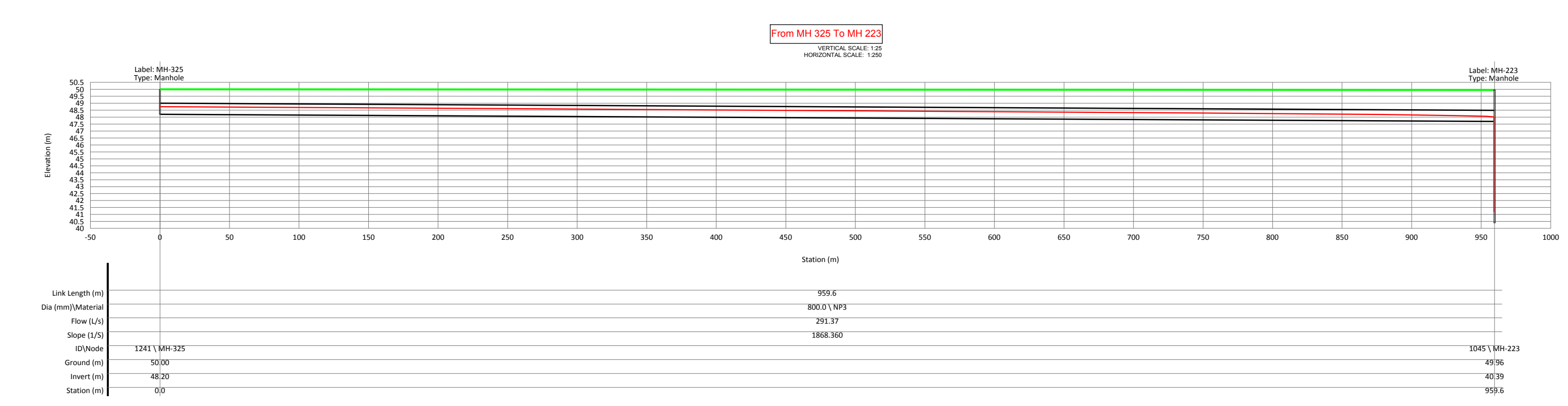
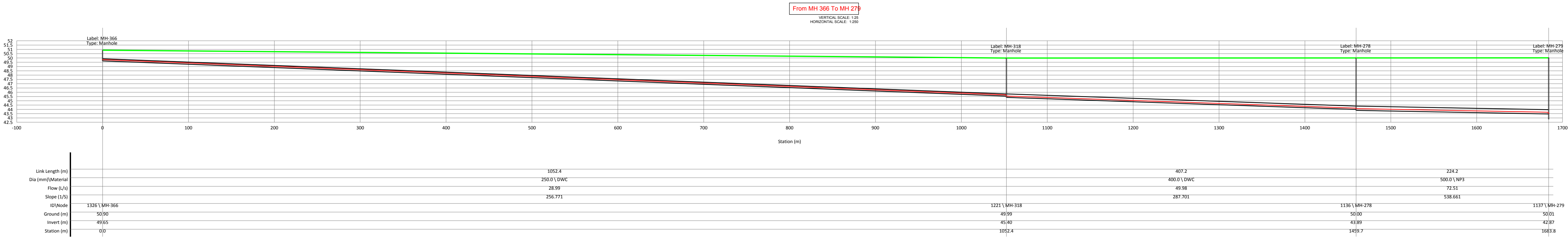
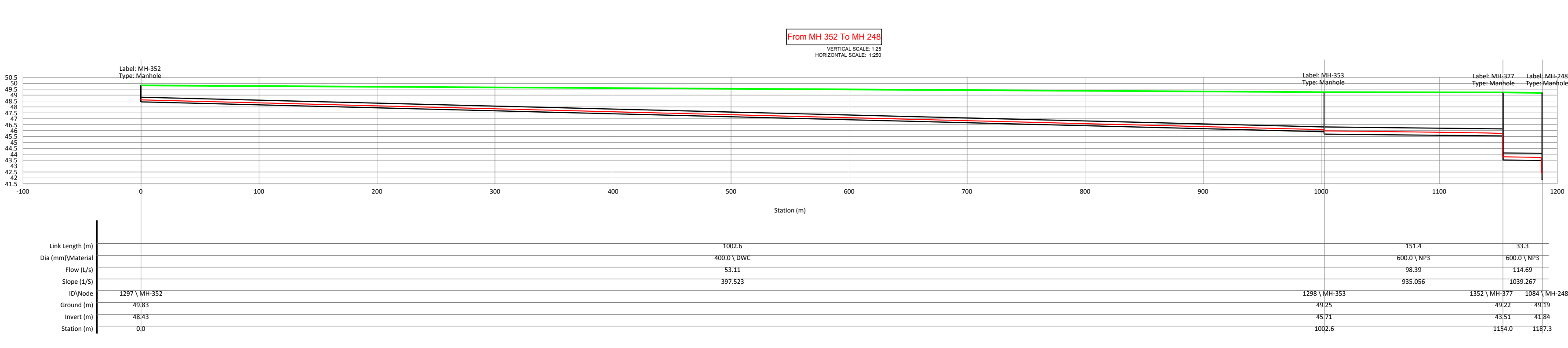
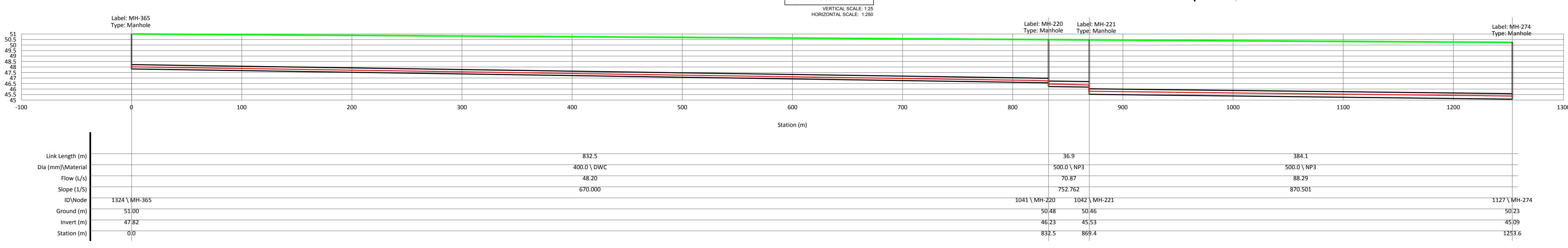
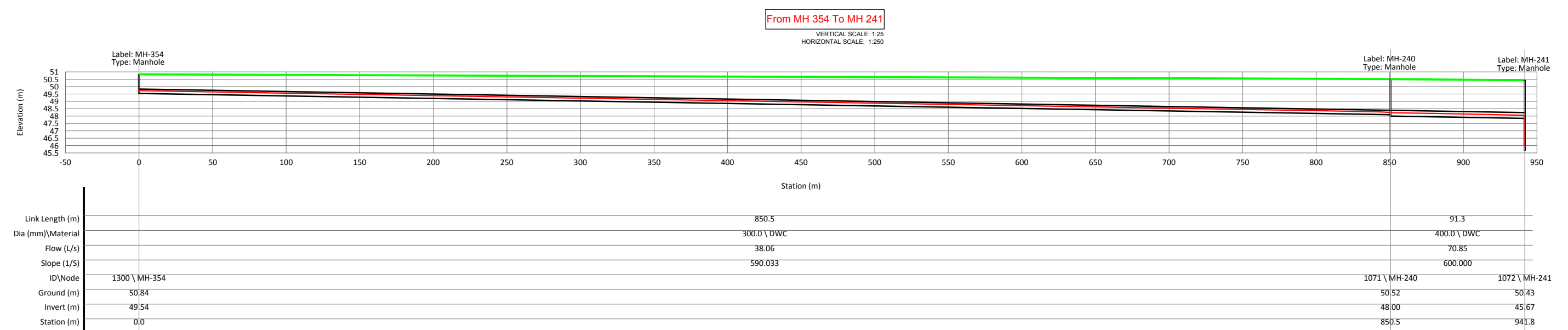
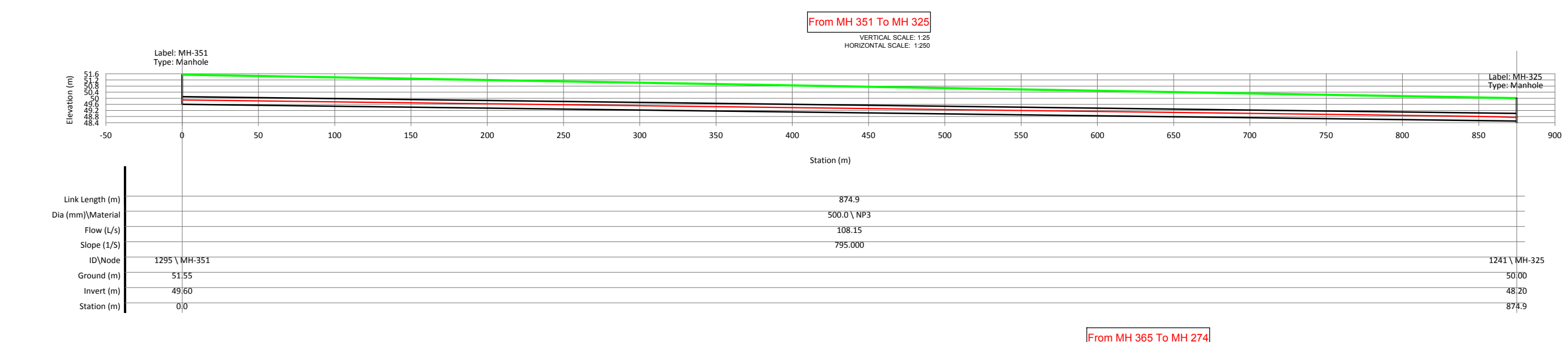
**LEGEND :**

GROUND LEVEL —

H.G.L. —

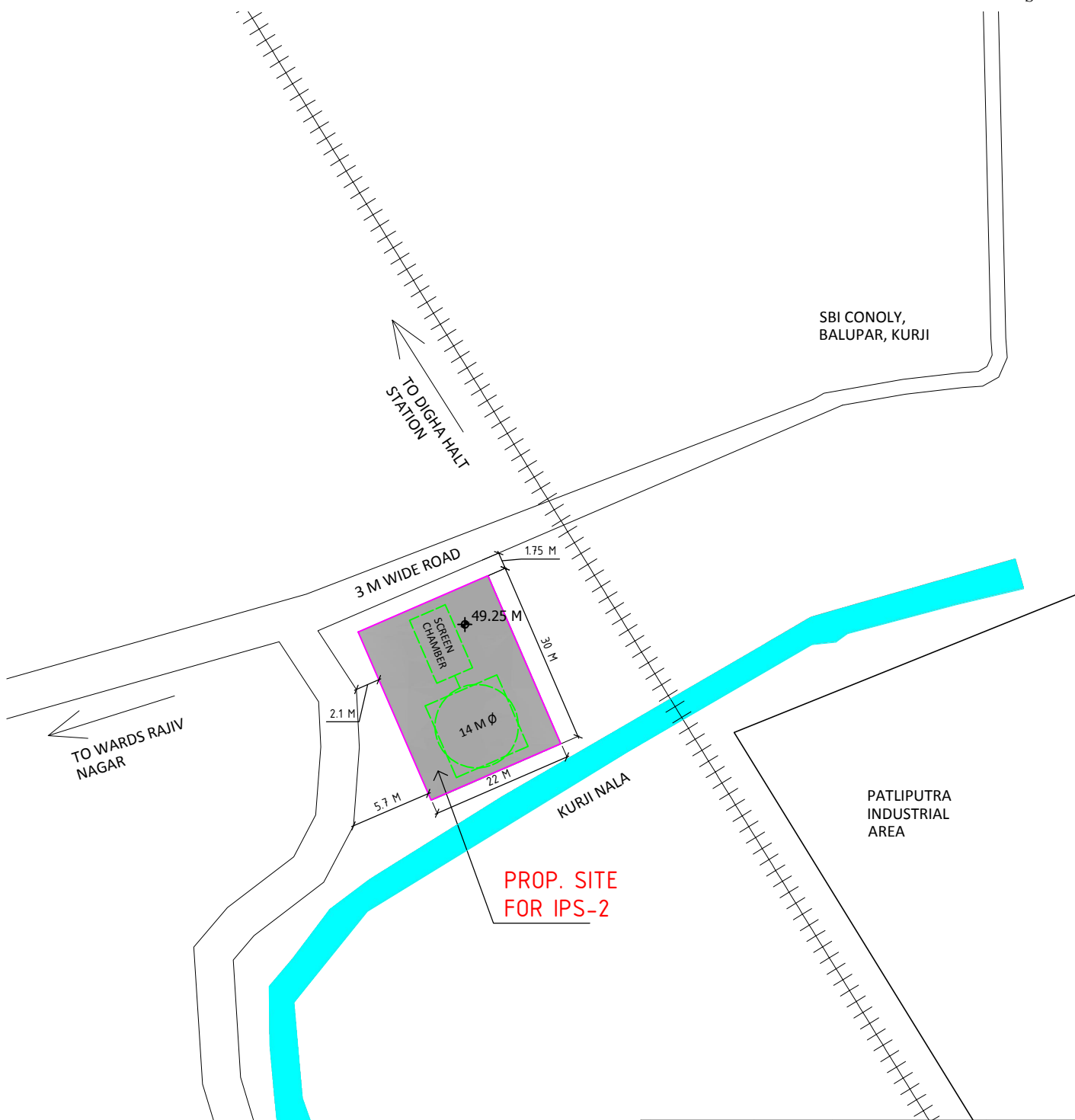
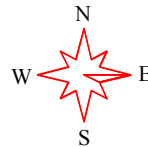
UNDER GROUND CONDUIT —

REV	DATE	DESCRIPTION	DRAWN	CHECK	APPR.
REVISIONS					
01	05.09.2017	Scale: AS SHOWN			A1
Drawn: K. Mukherjee      Date: 05.09.2017      Scale: AS SHOWN      Sheet Size: A1 Checked: S. Nandi      FILE NAME: S:\Projects\BIDCO\Patna Sewerage\PM\LongSection\35-00027-D-21-00-K-009-0.dwg					
CLIENT: Bihar Urban Infrastructure Development Corporation Limited (BUIDCO)					
BENEFICIARY: _____					
CONSULTANT: <b>GW Consult GmbH</b> India Branch Office: P5 Sajan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake Kolkata - 700091, West Bengal, India Tel: 91 33 40178800/8826, Fax: 91 33 40178827 E-mail: info.gw_india@gw-consult.com www.gw-consult.com					
PROJECT: Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha Detailed Project Report					
SUBJECT: <b>LONG SECTION OF PROPOSED SEWERAGE NETWORK- DIGHA ZONE</b>					
DRAWING NO: 35-00027-D-21-00-K-009-0			SHEET: 4 OF 5		REVISION: 0



**LEGEND :**  
 GROUND LEVEL ——— Green line  
 H.G.L. ——— Red line  
 UNDER GROUND CONDUIT ——— Black line


REV	DATE	DESCRIPTION	DRAWN	CHECK	APPR.
REVISIONS					
Design: D. Dutta	Date: 05.09.2017	Scale: AS SHOWN	Sheet Size: A1		
Drawn: K. Mukherjee	Checked: S. Nandi	FILE NAME: M:\Project\BIDCO\Patna Sewerage\PM_MK\Gha Zone\03_Shp\			
CLIENT: Bihar Urban Infrastructure Development Corporation Limited (BUIDCO)					
BENEFICIARY: _____					
CONSULTANT: <b>GW Consult GmbH</b> India Branch Office: P5 Srijan Corporate Park, Tower 1, 13th Floor, Sector V, Salt Lake Kolkata - 700091, West Bengal, India Tel: 91 33 40178800/8826, Fax: 91 33 40178827 E-mail: info.gw_india@gw-consult.com www.gw-consult.com					
PROJECT: Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha Detailed Project Report					
SUBJECT: <b>LONG SECTION OF PROPOSED SEWERAGE NETWORK- DIGHA ZONE</b>					
DRAWING NO: 35-00027-D-21 00-K-009-0		SHEET: 5 OF 5		REVISION: 0	



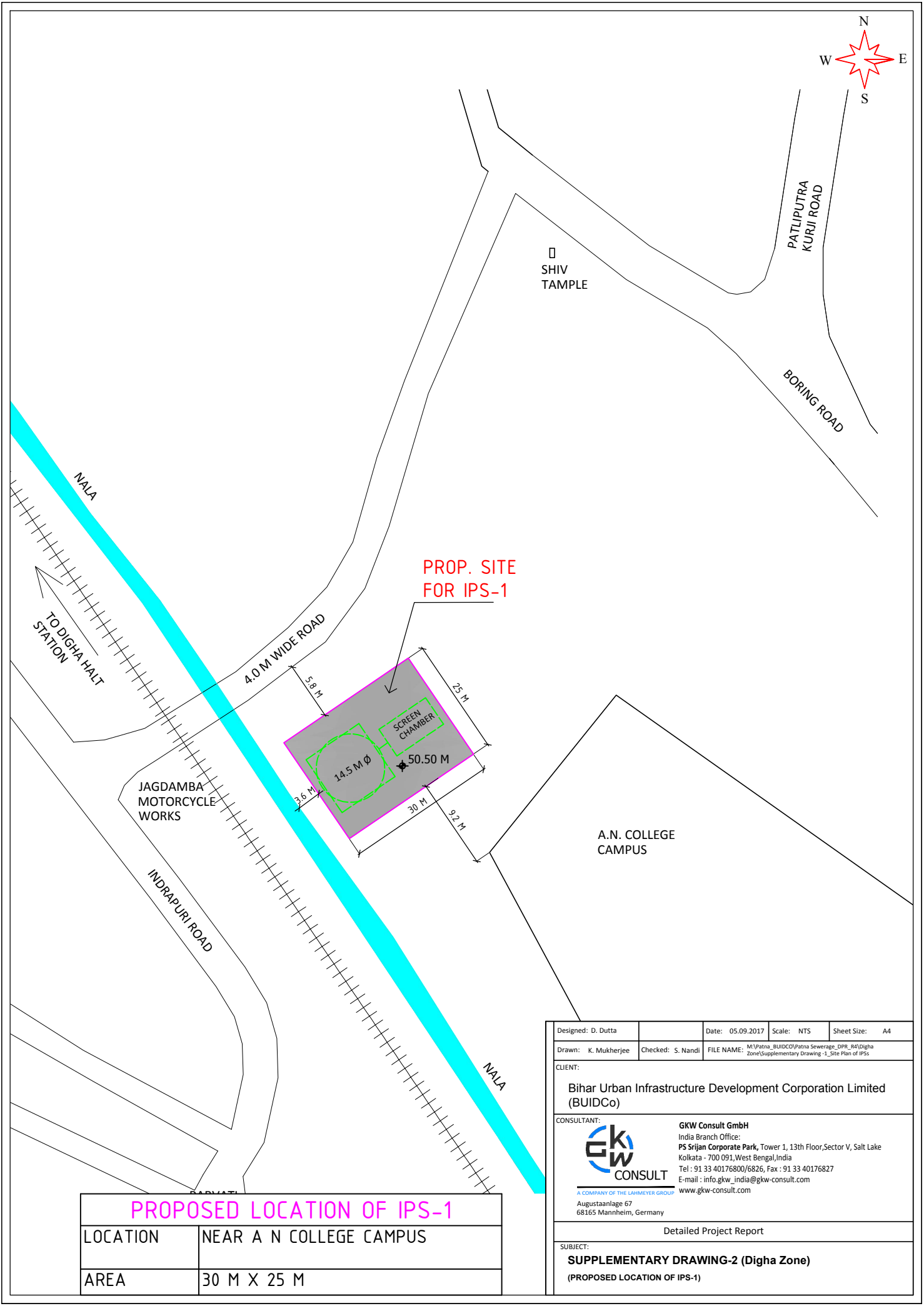
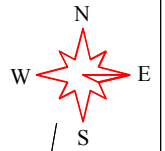
**PROP. SITE FOR IPS-2**

**PROPOSED LOCATION OF IPS-2**

LOCATION	NEAR PATLIPUTRA INDUSTRIAL AREA AND BESIDE OF KURJI NALA
AREA	30 M X 22 M


Designed: D. Dutta	Date: 05.09.2017	Scale: NTS	Sheet Size: A4
Drawn: K. Mukherjee	Checked: S. Nandi	FILE NAME: M:\Patna_BUIDCO\Patna Sewerage_OPR_R4\Digha Zone\Supplementary Drawing-1_Site Plan of IPS	
CLIENT:			
Bihar Urban Infrastructure Development Corporation Limited (BUIDCo)			
CONSULTANT:			
		<b>GKW Consult GmbH</b> India Branch Office: <b>PS Srijan Corporate Park</b> , Tower 1, 13th Floor, Sector V, Salt Lake Kolkata - 700 091, West Bengal, India Tel : 91 33 40176800/6826, Fax : 91 33 40176827 E-mail : info.gkw_india@gkw-consult.com <a href="http://www.gkw-consult.com">www.gkw-consult.com</a>	
A COMPANY OF THE LAHMEYER GROUP Augustaanlage 67 68165 Mannheim, Germany			
Detailed Project Report			
SUBJECT:			
<b>SUPPLEMENTARY DRAWING-2 (Digha Zone)</b>			
(PROPOSED LOCATION OF IPS-2)			



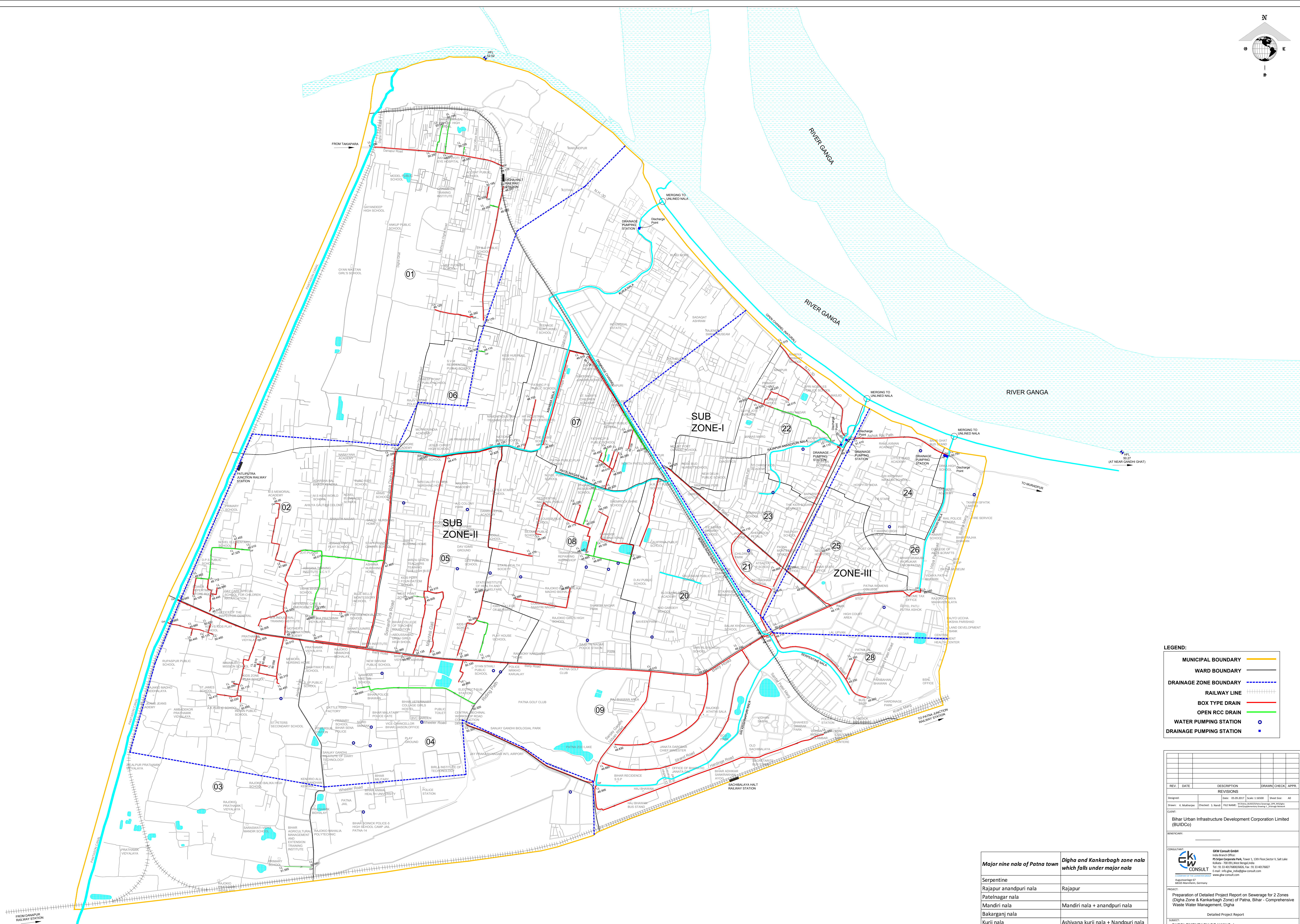
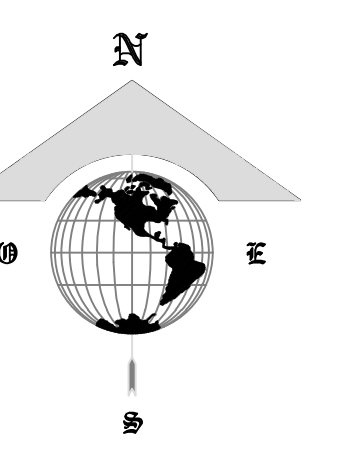


PROP. SITE FOR IPS-1

PROPOSED LOCATION OF IPS-1	
LOCATION	NEAR A N COLLEGE CAMPUS
AREA	30 M X 25 M

Designed: D. Dutta	Date: 05.09.2017	Scale: NTS	Sheet Size: A4
Drawn: K. Mukherjee	Checked: S. Nandi	FILE NAME: M:\Patna_BUIDCO\Patna Sewerage DPR_R4\Digha Zone\Supplementary Drawing-1_Site Plan of IPS	
CLIENT:			
Bihar Urban Infrastructure Development Corporation Limited (BUIDCo)			
CONSULTANT:			
		<b>GKW Consult GmbH</b> India Branch Office: <b>PS Srijan Corporate Park</b> , Tower 1, 13th Floor, Sector V, Salt Lake Kolkata - 700 091, West Bengal, India Tel : 91 33 40176800/6826, Fax : 91 33 40176827 E-mail : info.gkw_india@gkw-consult.com <a href="http://www.gkw-consult.com">www.gkw-consult.com</a>	
<small>A COMPANY OF THE LAHMEYER GROUP</small> Augustaanlage 67 68165 Mannheim, Germany			
Detailed Project Report			
SUBJECT:			
<b>SUPPLEMENTARY DRAWING-2 (Digha Zone)</b> (PROPOSED LOCATION OF IPS-1)			





**LEGEND:**

MUNICIPAL BOUNDARY	(Yellow solid line)
WARD BOUNDARY	(Black solid line)
DRAINAGE ZONE BOUNDARY	(Blue dashed line)
RAILWAY LINE	(Black line with cross-ticks)
BOX TYPE DRAIN	(Red solid line)
OPEN RCC DRAIN	(Green solid line)
WATER PUMPING STATION	(Blue circle with center dot)
DRAINAGE PUMPING STATION	(Blue square with center dot)

Nala Name	Zone
Major nine nala of Patna town	which falls under major nala
Serpentine	Rajapur
Rajapur anandpuri nala	Rajapur
Patelnagar nala	Mandiri nala + anandpuri nala
Mandiri nala	Mandiri nala + anandpuri nala
Bakarganj nala	Ashiyana kurji nala + Nandpuri nala
Kurji nala	Ashiyana kurji nala + Nandpuri nala
Saidpur nala	SK puri nala
Sri krishnapuri nala	SK puri nala

REVISIONS			
REV.	DATE	DESCRIPTION	DRAWN/CHECK/ APPR.

**CLIENT:** Bihar Urban Infrastructure Development Corporation Limited (BIUDCo)  
**CONSULTANT:** GKW Consult GmbH  
 PS Naga Corporate Park, Tower 3, 13th Floor Sector V, Saket  
 Kolkata - 700 016, West Bengal, India  
 Tel: 91 33 40128830/31/32; Fax: 91 33 40127827  
 E-mail: info@gkw-consult.com  
 www.gkw-consult.com

**PROJECT:** Preparation of Detailed Project Report on Sewerage for 2 Zones (Digha Zone & Kankarbagh Zone) of Patna, Bihar - Comprehensive Waste Water Management, Digha  
**DETAILS:** Detailed Project Report  
**DOCUMENT:** SUPPLEMENTARY DRAWING-1  
**MAP SHOWING DRAINAGE NETWORK OF THE DIGHA ZONE**  
**DRAWING NO.:** SHEET: REVISION: 0