



## MUNICIPAL CORPORATION OF GREATER MUMBAI

### Mithi River Water Quality Improvement Project

**Package3:** Dry Weather Flow Interception at Tidal Outfalls (including Gate Pumps), Transfer Sewer, Training of River (Retaining wall and Service Road), Beautification including Promenades and Allied Works from Prem Nagar outfall, Kurla to Mahim Causeway.

### Design Build Operate Contract

### Volume 2D – Contract Drawings

**Employer:**  
**Municipal Corporation of Greater Mumbai**  
Municipal Head Office Building,  
Mahapalika Marg, Fort, Mumbai- 400001  
India

**Consultant:**  
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India

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## 1 INTRODUCTION

### General

This volume is provided in conjunction with the Employer's Requirements.

### Contents of this Volume

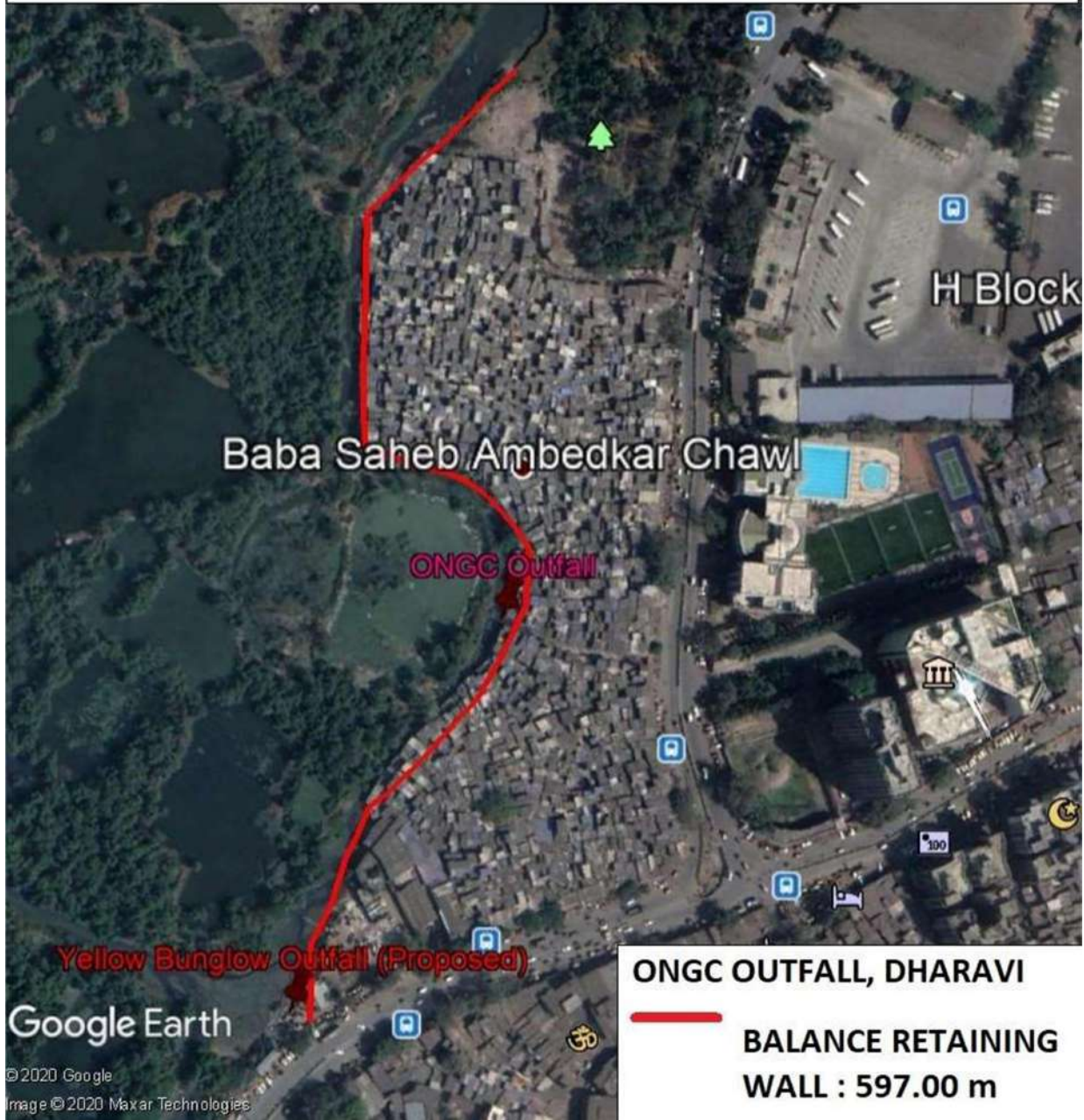
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**SECTION ;-1 RETAINING WALL**

**LOCATION PLAN OF RETAINING WALL**



LOCATION PLAN OF RETAINING WALL

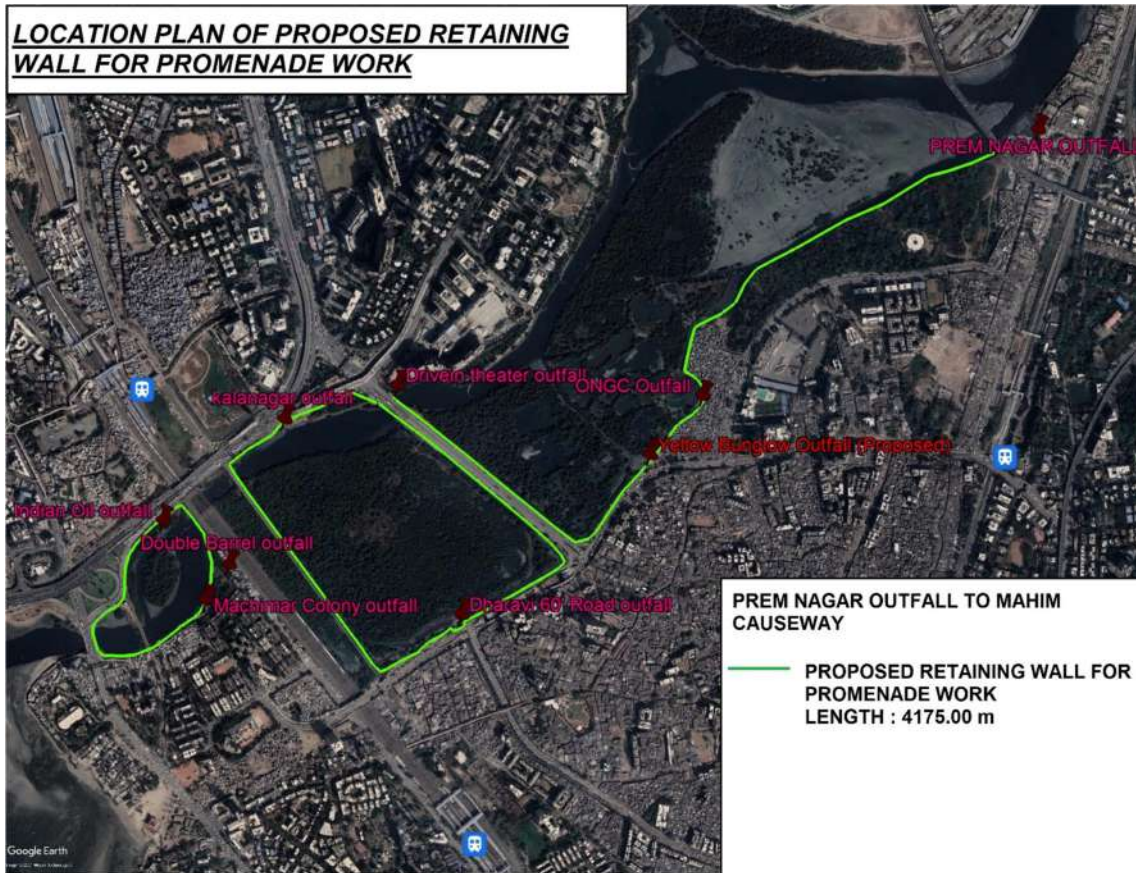




**LOCATION PLAN OF RETAINING WALL**

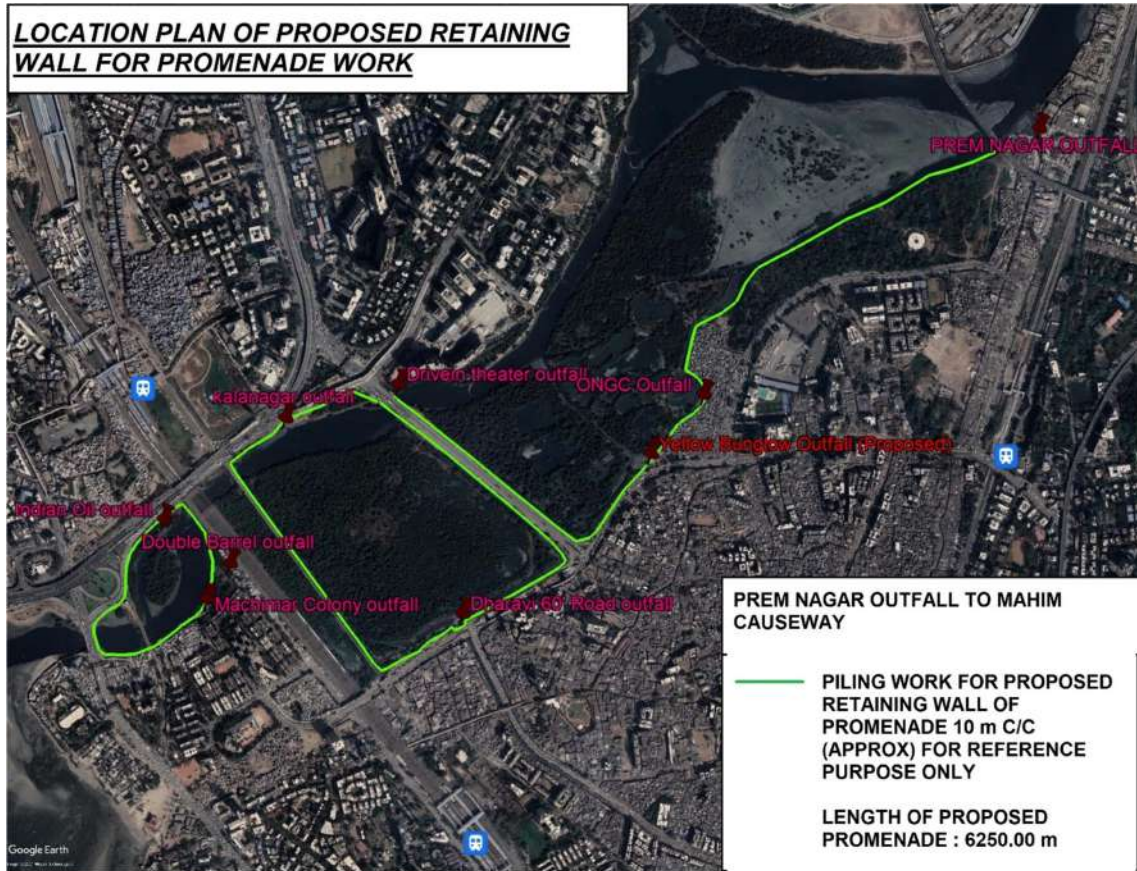


**LOCATION PLAN OF PROPOSED RETAINING WALL FOR PROMENADE WORK**

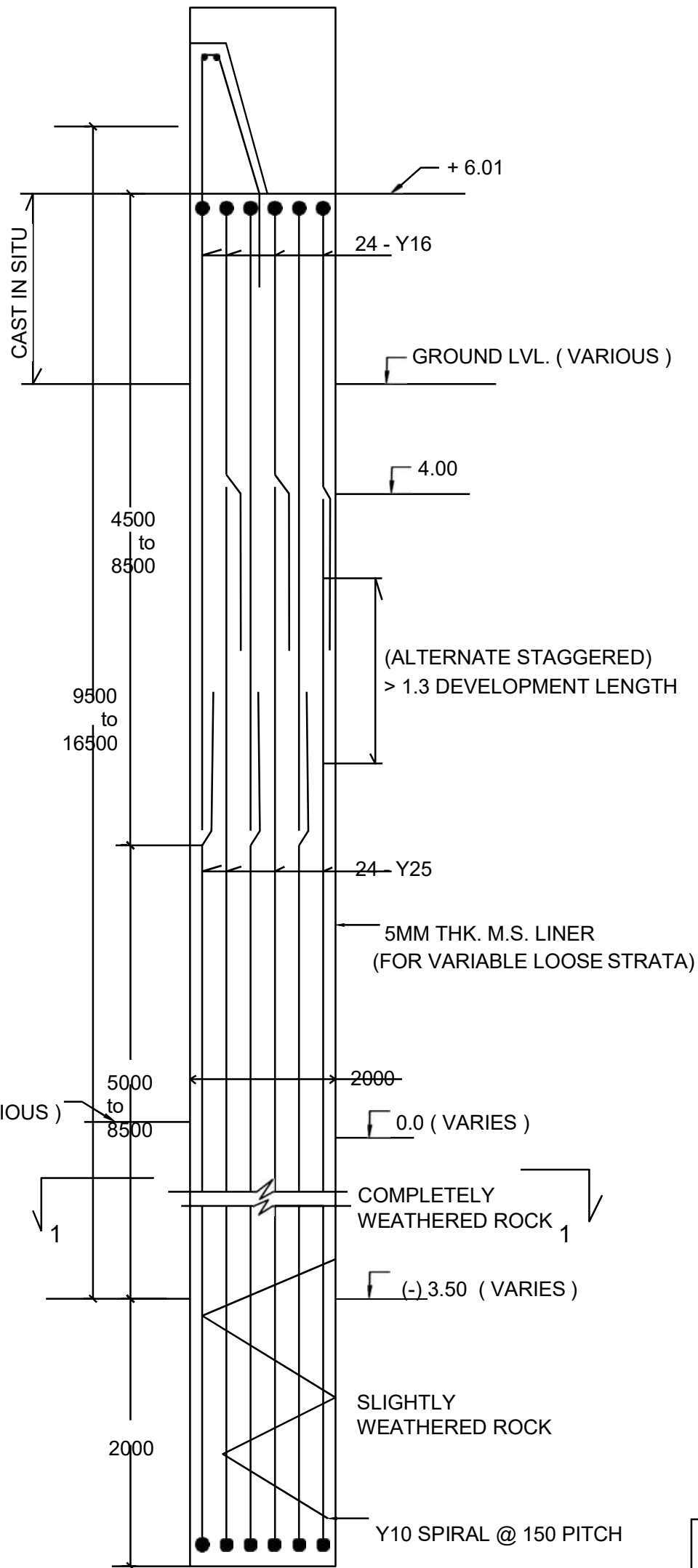




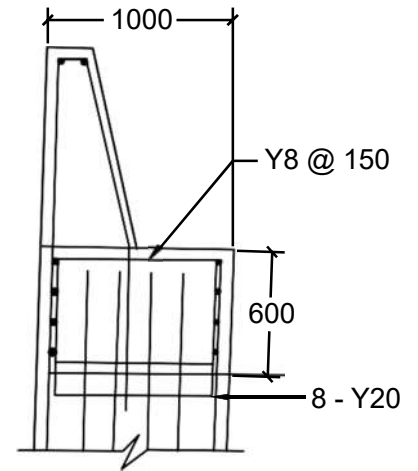
**LOCATION PLAN OF PROPOSED RETAINING WALL FOR PROMENADE WORK**



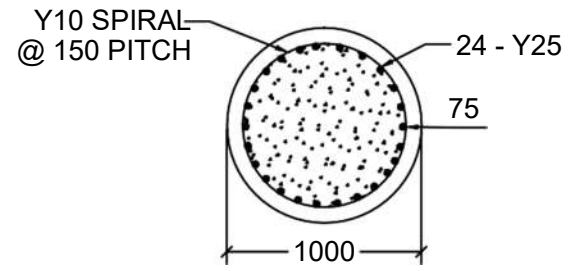
Google Earth



**ELEVATION**  
SCALE : N.T.S.



**DETAIL - A**  
SCALE : N.T.S.

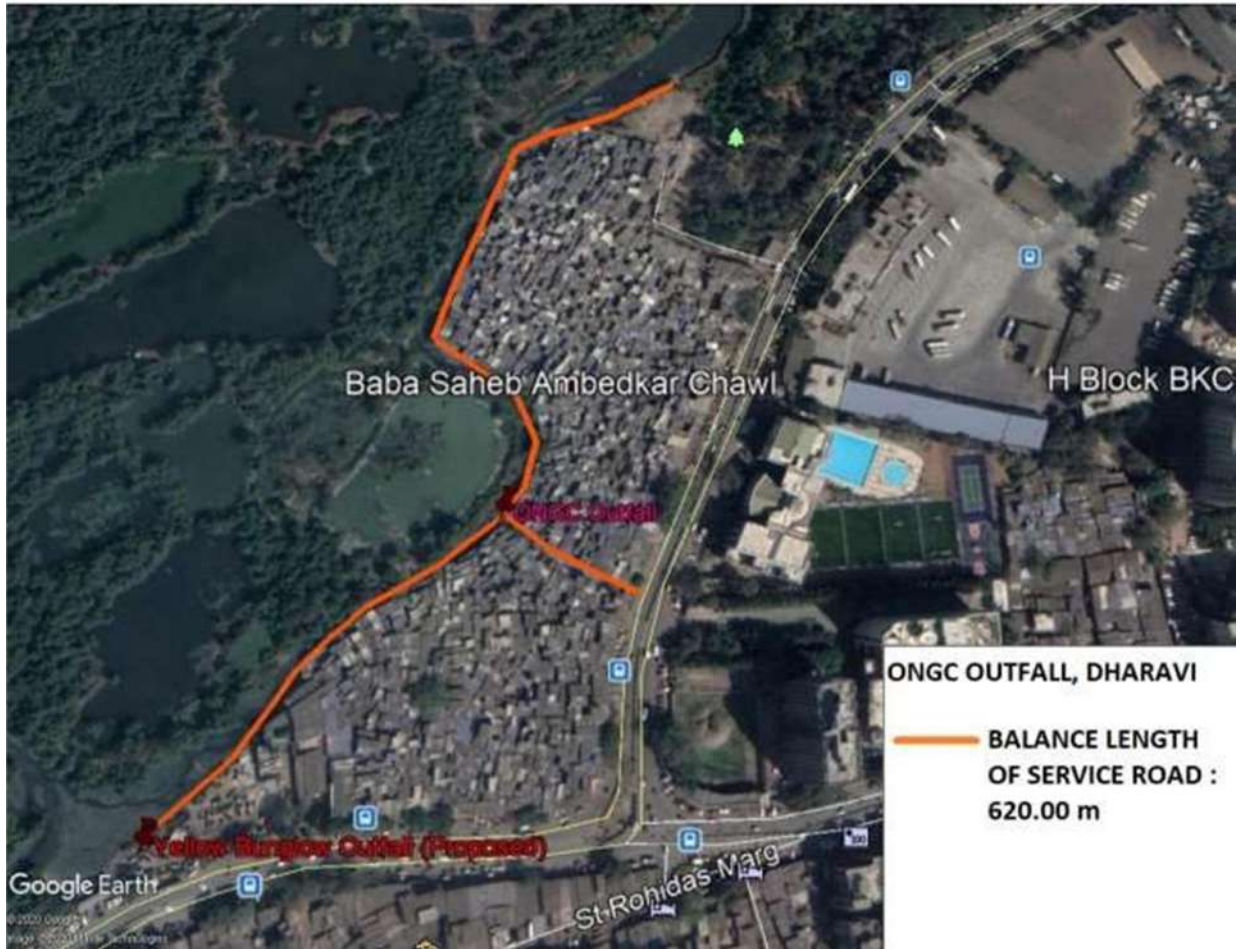


**SECTION - 1 - 1**  
SCALE : N.T.S.

**TYPICAL CROSS SECTION OF PILE FOR MITHI RIVER WATER QUALITY IMPROVEMENT PROJECT PACKAGE III ( FOR REFERENCE PURPOSE ONLY )**

**SECTION :- 2 SERVICE ROAD**

**LOCATION PLAN OF SERVICE ROAD**



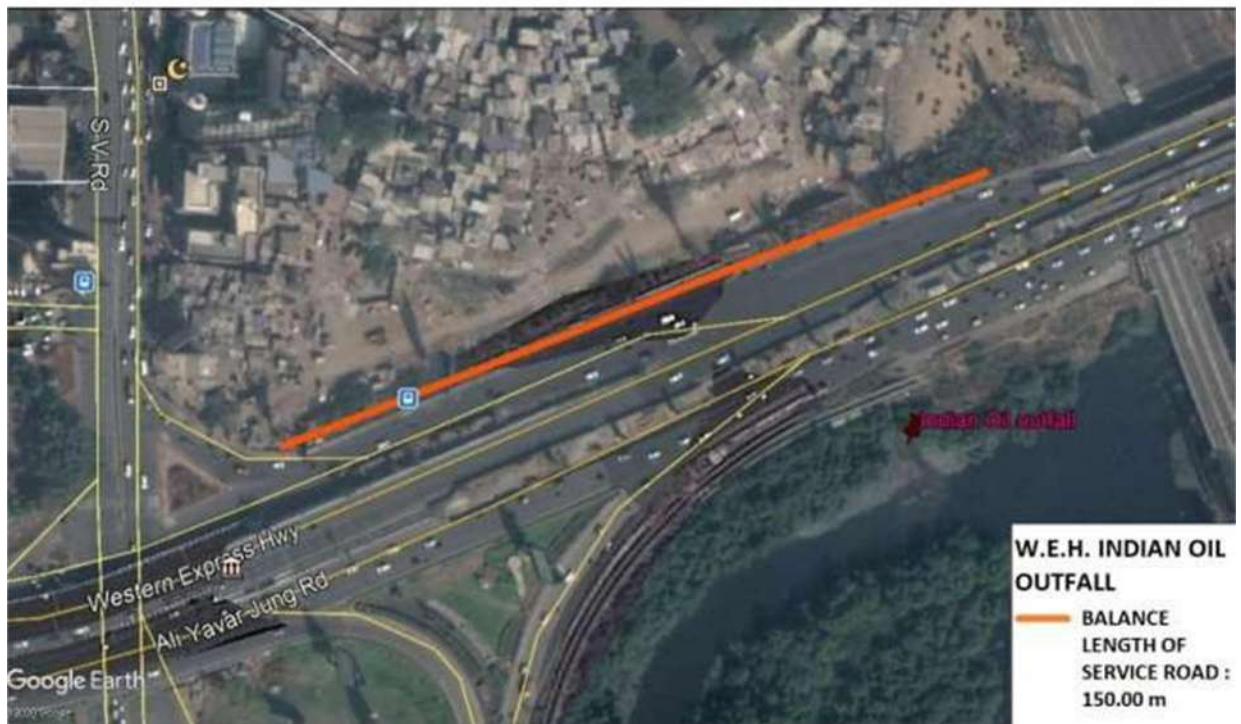


**LOCATION PLAN OF SERVICE ROAD**

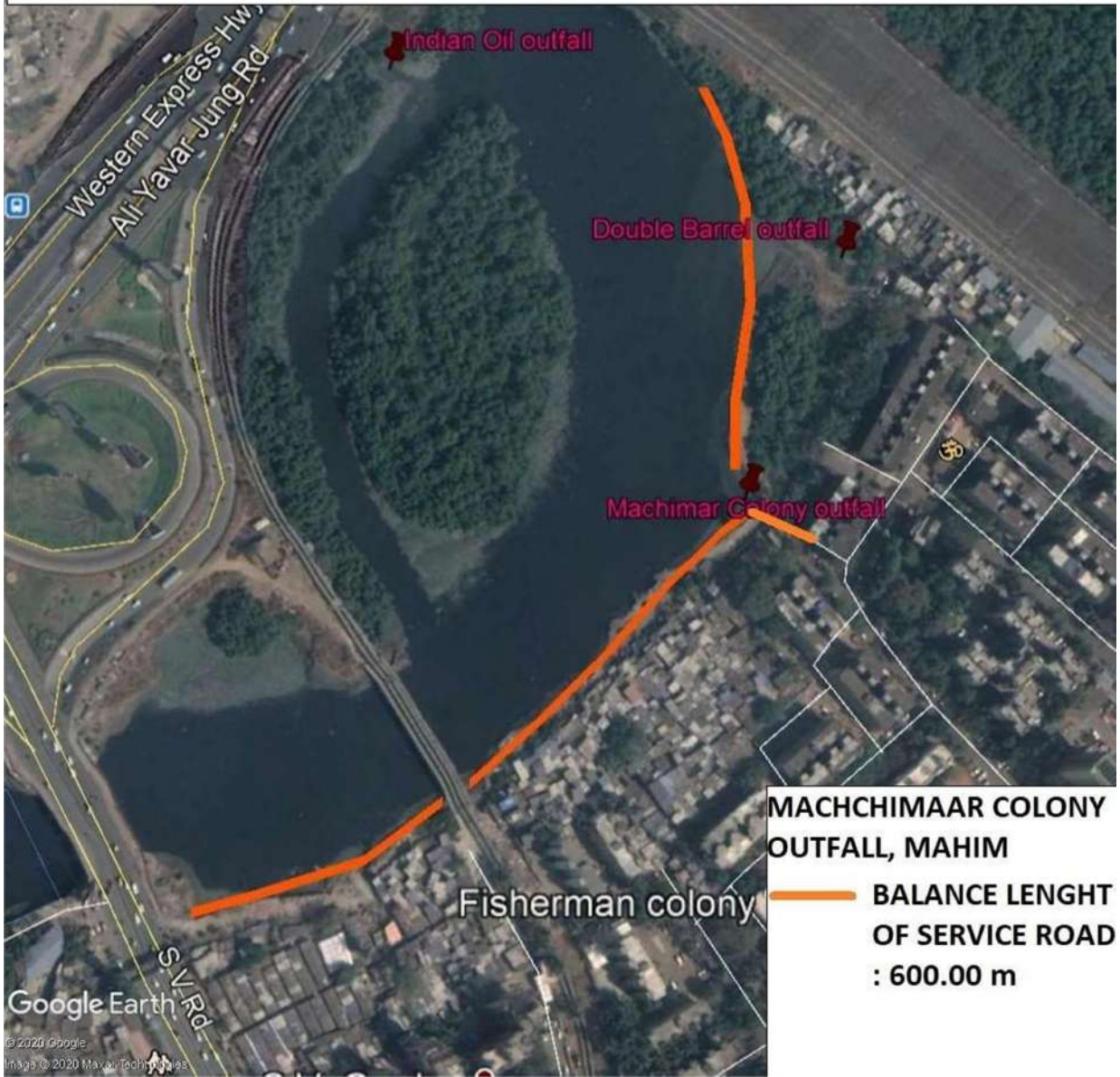




LOCATION PLAN OF SERVICE ROAD

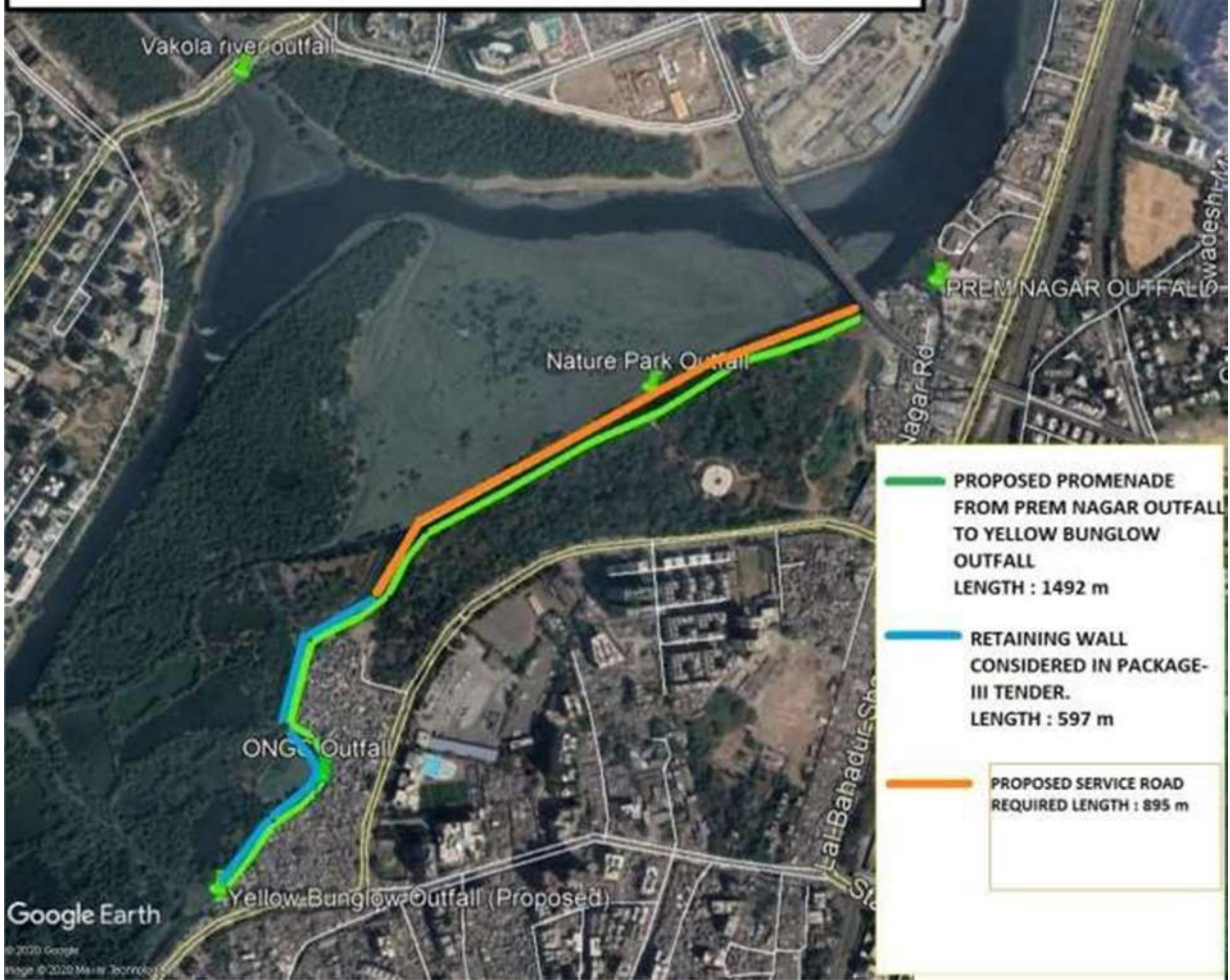


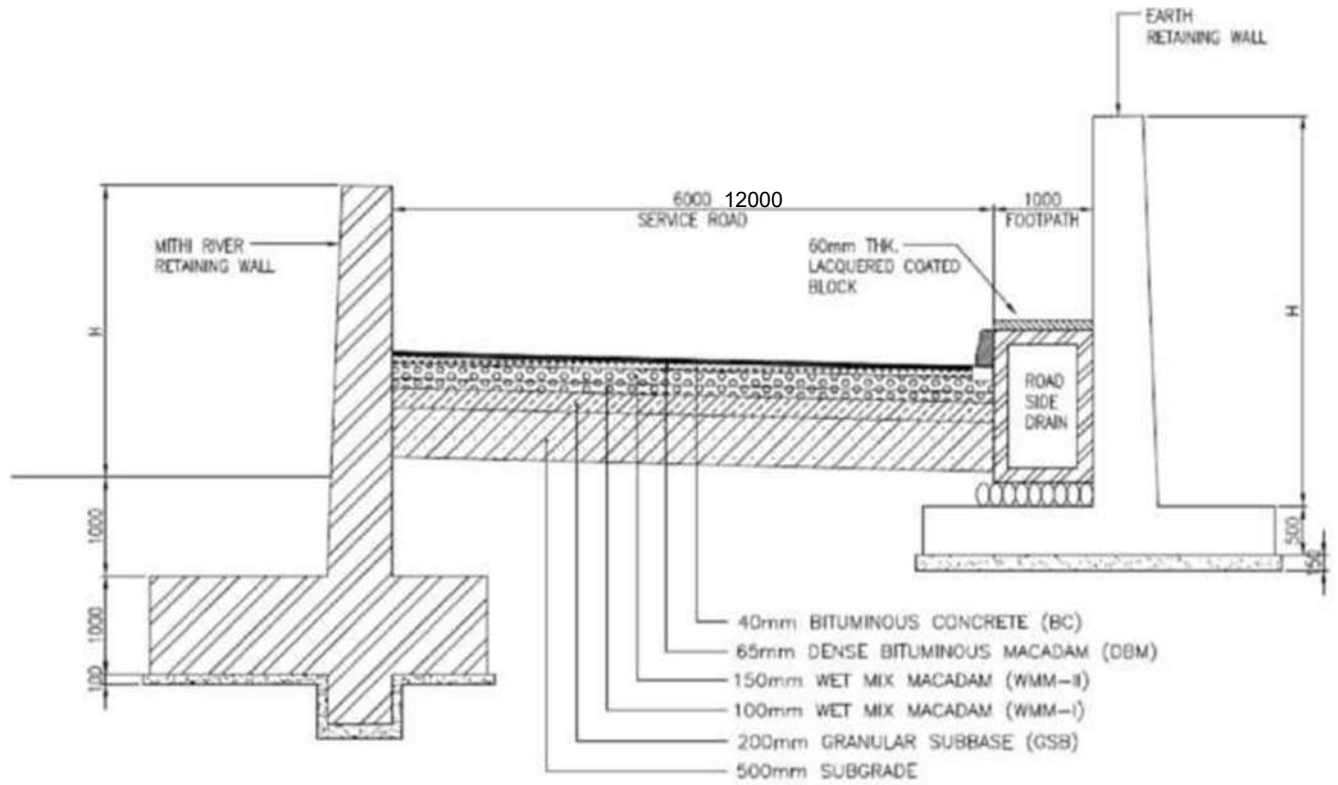
**LOCATION PLAN OF SERVICE ROAD**





**PROMENADE ALONG MITHI RIVER :  
PREM NAGAR TO YELLOW BUNGLOW OUTFALL**





**CROSS SECTION OF SERVICE ROAD**



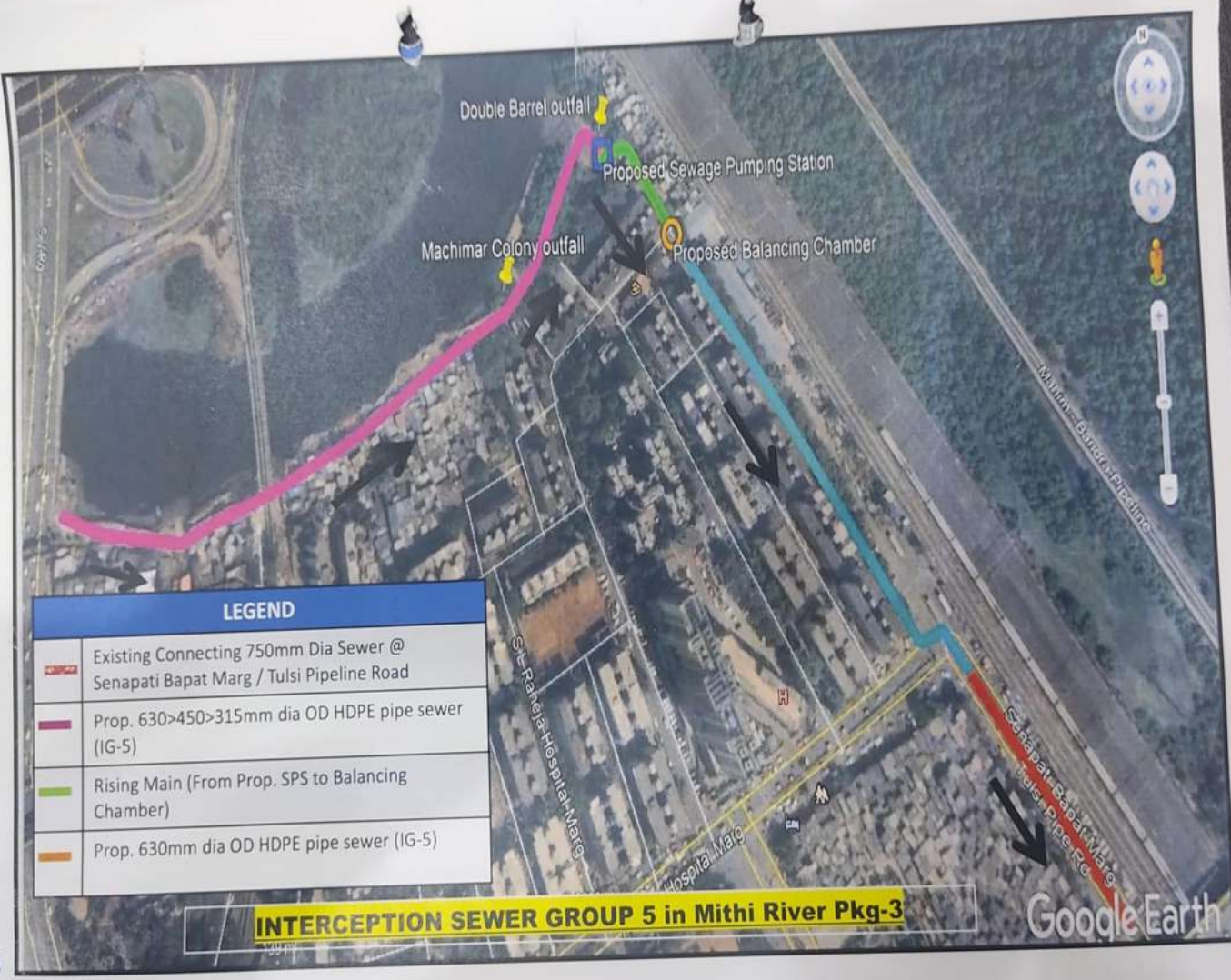
### SECTION 3 :- SEWER LINE





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




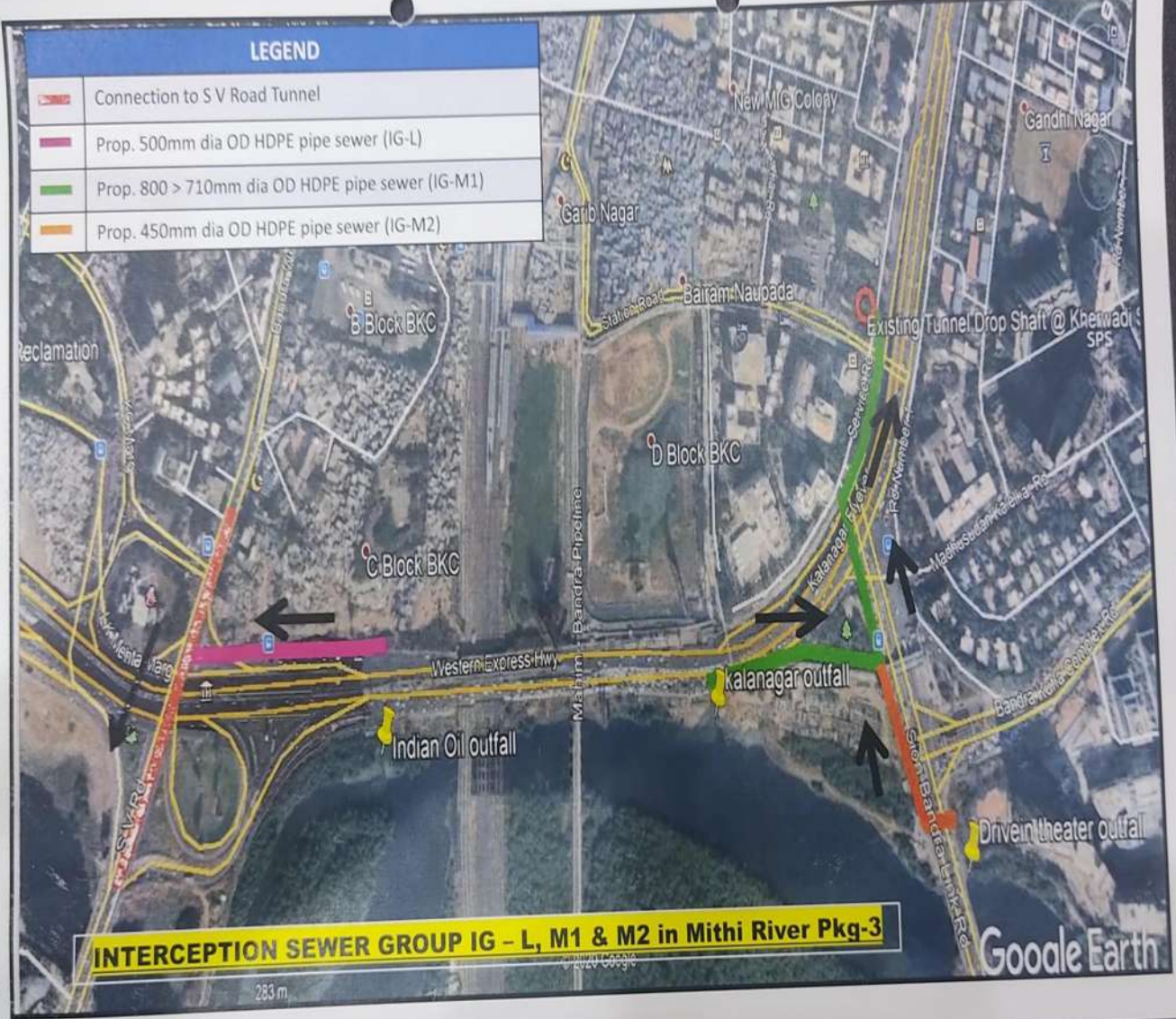
LEGEND	
	Existing Connecting 750mm Dia Sewer @ Senapati Bapat Marg / Tulsi Pipeline Road
	Prop. 630>450>315mm dia OD HDPE pipe sewer (IG-5)
	Rising Main (From Prop. SPS to Balancing Chamber)
	Prop. 630mm dia OD HDPE pipe sewer (IG-5)

**INTERCEPTION SEWER GROUP 5 in Mithi River Pkg-3**

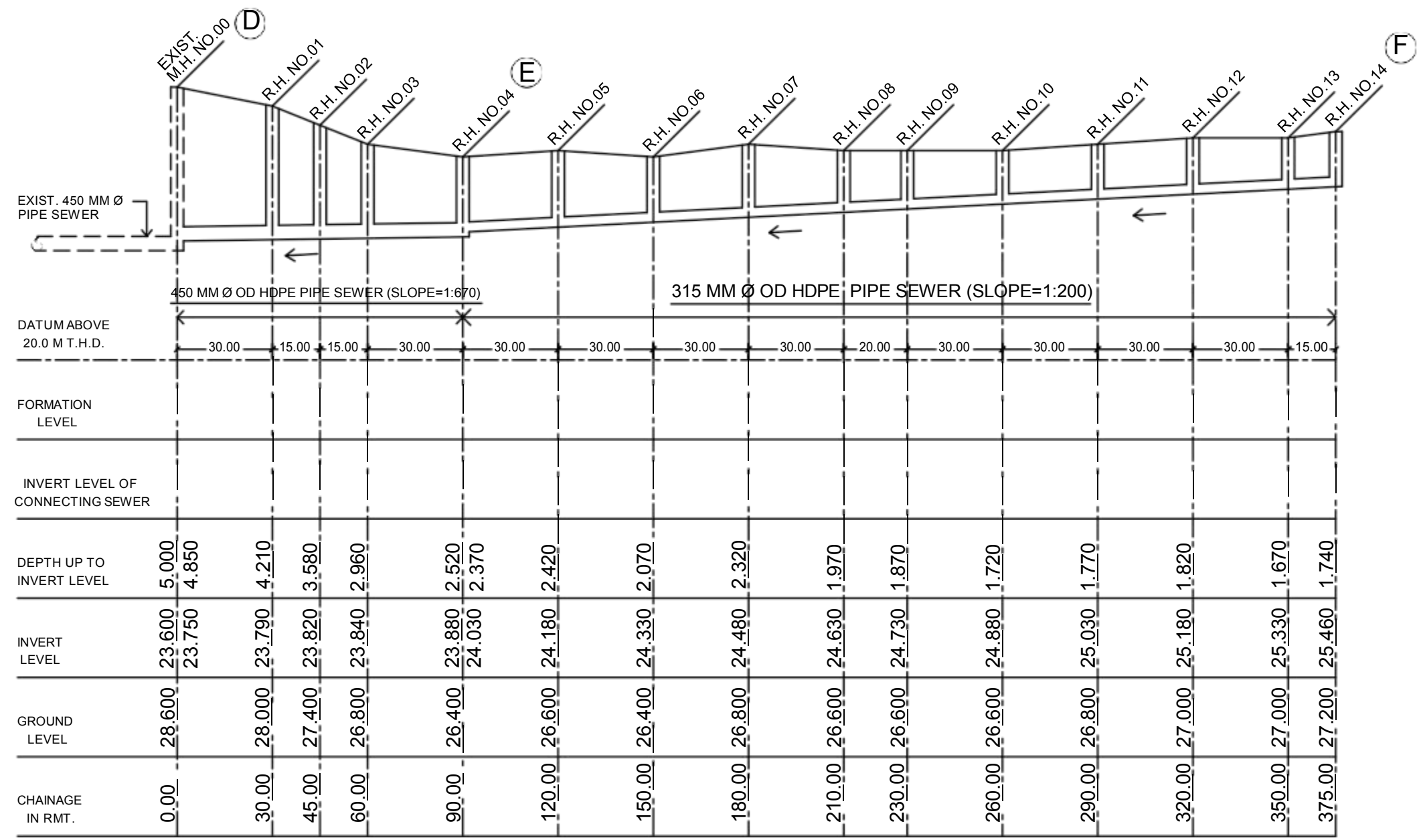
Google Earth

15

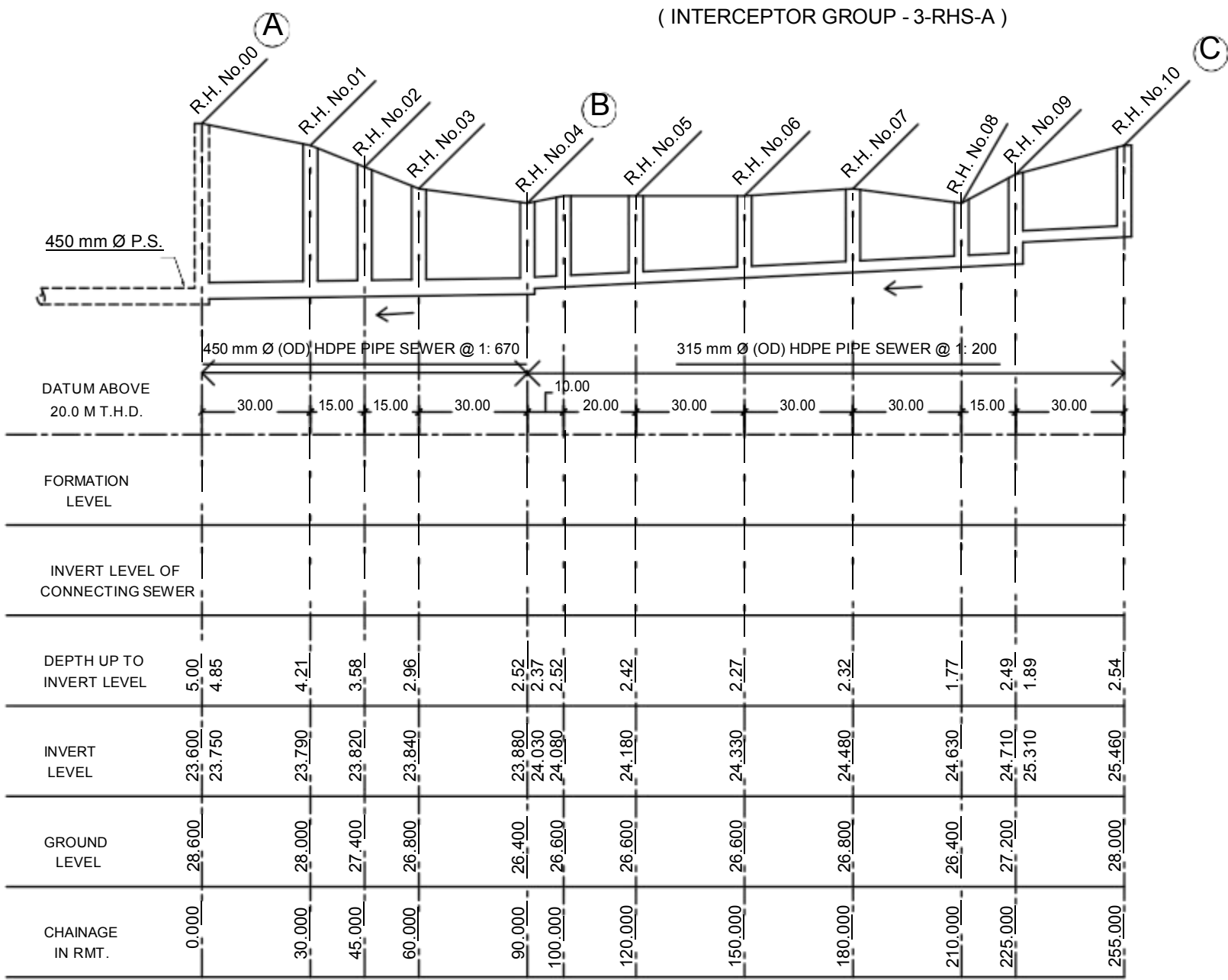
LEGEND	
	Connection to S V Road Tunnel
	Prop. 500mm dia OD HDPE pipe sewer (IG-L)
	Prop. 800 > 710mm dia OD HDPE pipe sewer (IG-M1)
	Prop. 450mm dia OD HDPE pipe sewer (IG-M2)



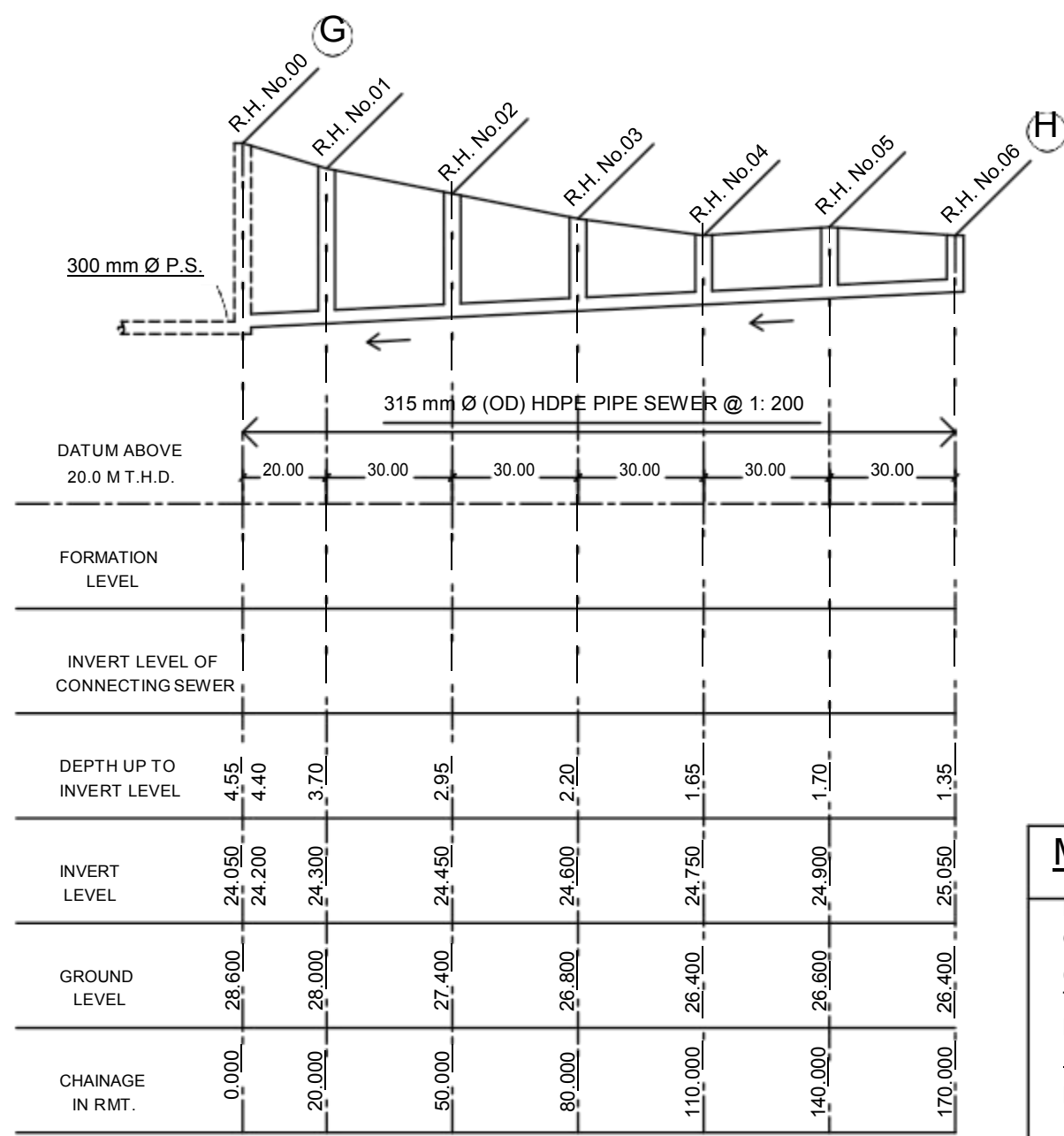




L - SECTION SCALE - VER. - 1cm = 1.0 mt  
HOR. - 1cm = 10.0 mt  
(INTERCEPTOR GROUP - 3-RHS-A)



L - SECTION SCALE - VER. - 1cm = 1.0 mt  
HOR. - 1cm = 10.0 mt  
(INTERCEPTOR GROUP - 3-LHS)



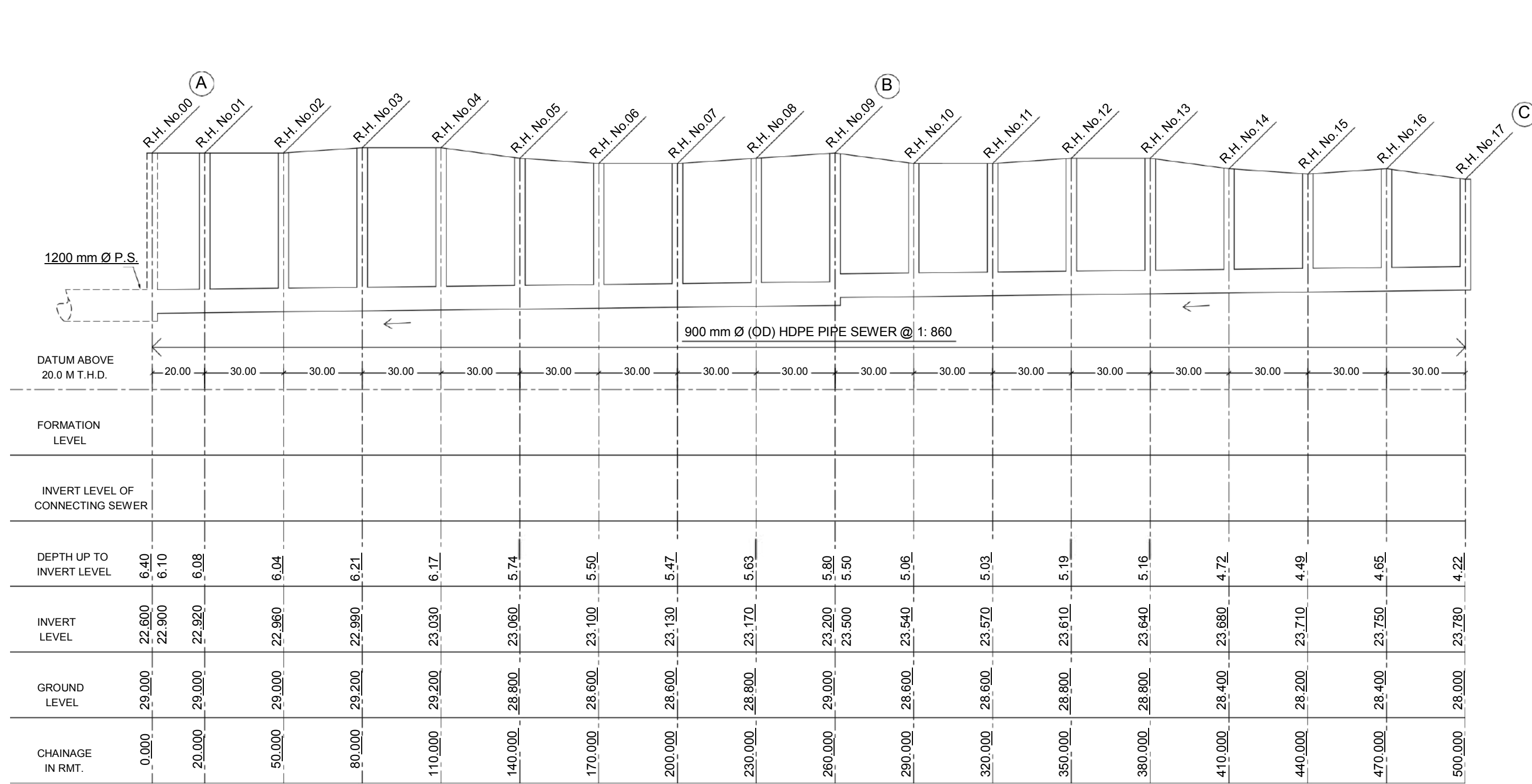
L - SECTION SCALE - VER. - 1cm = 1.0 mt  
HOR. - 1cm = 10.0 mt  
(INTERCEPTOR GROUP - 3-RHS-B)

**MUNICIPAL CORPORATION OF GREATER MUMBAI**

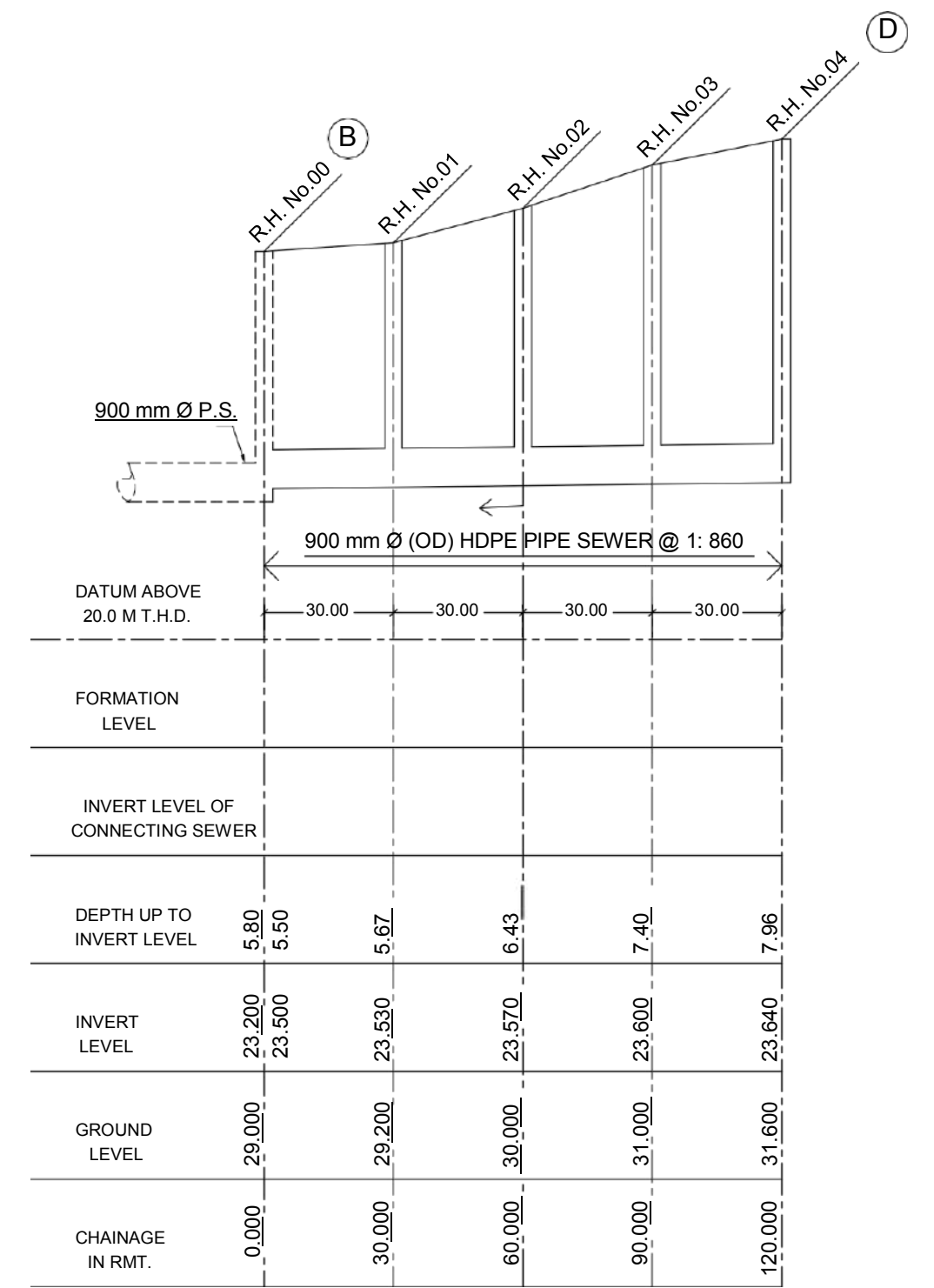
PROVIDING AND LAYING 450mm > 315mm DIA. OD HDPE PIPES OF PE-80 GRADE AND PN-6 CLASS PIPE SEWER LINE FROM DHARAVI DEPOT ROAD (OPPOSITE TO ONGC / BHARATNATHA RAJIV GANDHI STADIUM) TOWARDS MITHI RIVER ALONG PROPOSED SERVICE ROAD ALONG NALLA AND MITHI RIVER IN G/NORTH- WARD.  
(INTERCEPTOR GROUP - 3-RHS-A)

PROVIDING AND LAYING 315mm DIA. OD HDPE PIPES OF PE-80 GRADE AND PN-6 CLASS PIPE SEWER LINE FROM DHARAVI DEPOT ROAD (OPPOSITE TO ONGC / DHARAVI DEPOT) TOWARDS MITHI RIVER IN G/NORTH - WARD.  
(INTERCEPTOR GROUP - 3-RHS-B)

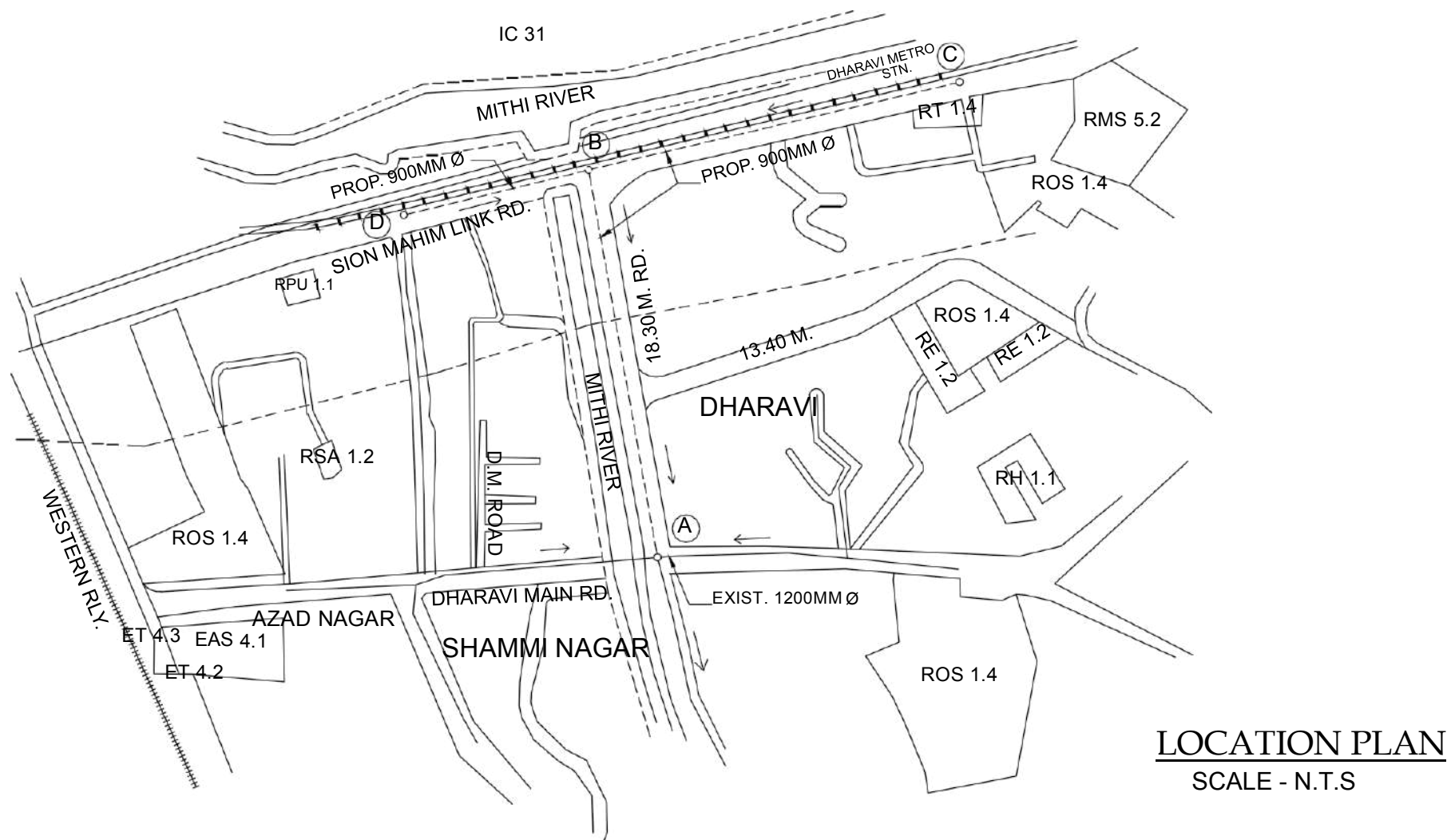
PROVIDING AND LAYING 450mm > 315mm DIA. OD HDPE PIPES OF PE-80 GRADE AND PN-6 CLASS PIPE SEWER LINE FROM DHARAVI DEPOT ROAD (OPPOSITE TO ONGC / BHARATNATHA RAJIV GANDHI STADIUM) TOWARDS MITHI RIVER ALONG PROPOSED SERVICE ROAD ALONG NALLA AND MITHI RIVER IN G/NORTH- WARD.  
(INTERCEPTOR GROUP - 3-LHS)



**L - SECTION**  
 SCALE - VER.- 1cm = 1.0 mt  
 HOR.- 1cm = 10.0 mt  
 (INTERCEPTOR GROUP - 4-A)



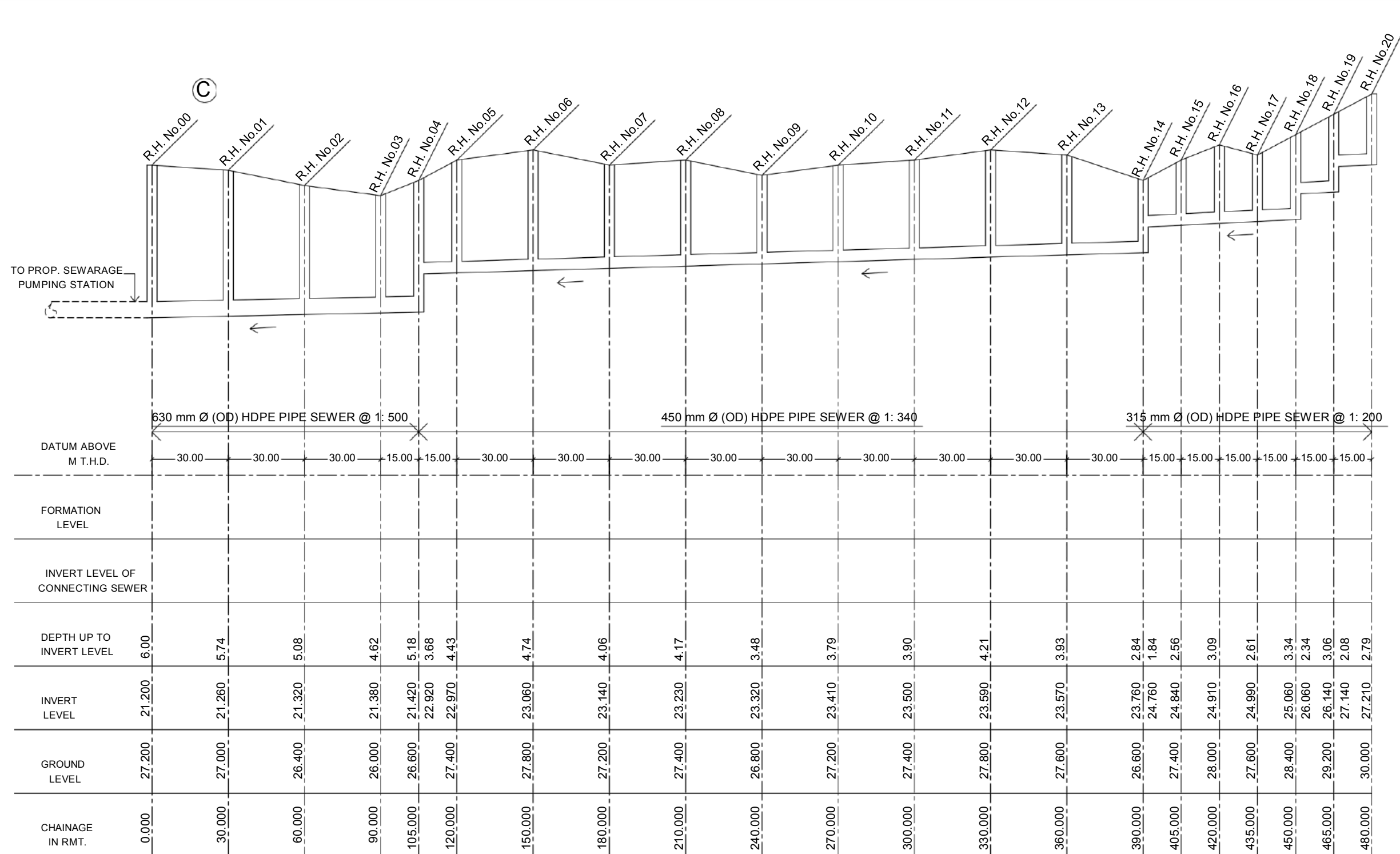
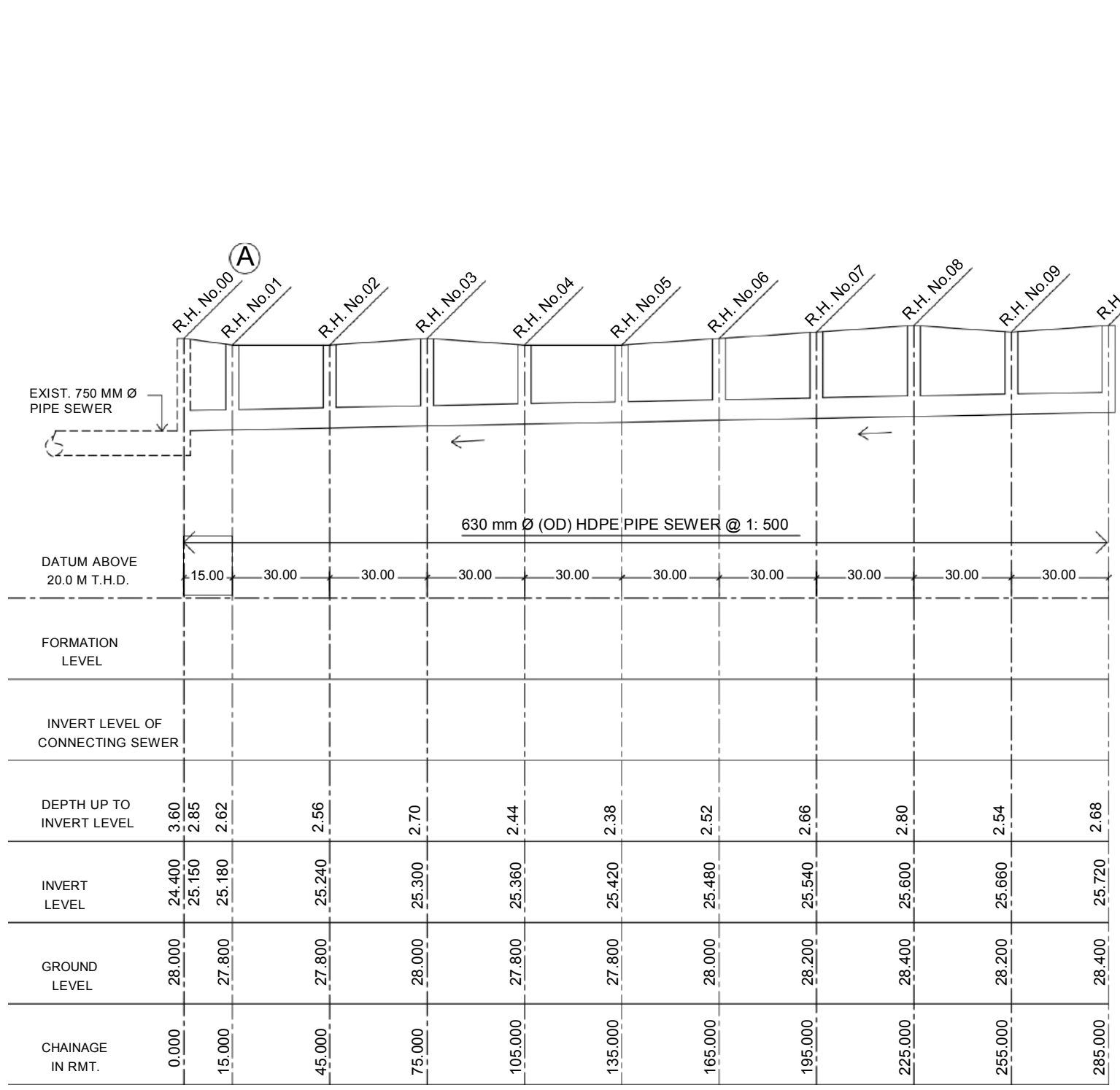
**L - SECTION**  
 SCALE - VER.- 1cm = 1.0 mt  
 HOR.- 1cm = 10.0 mt  
 (INTERCEPTOR GROUP - 4-B)



**MUNICIPAL CORPORATION OF GREATER MUMBAI**

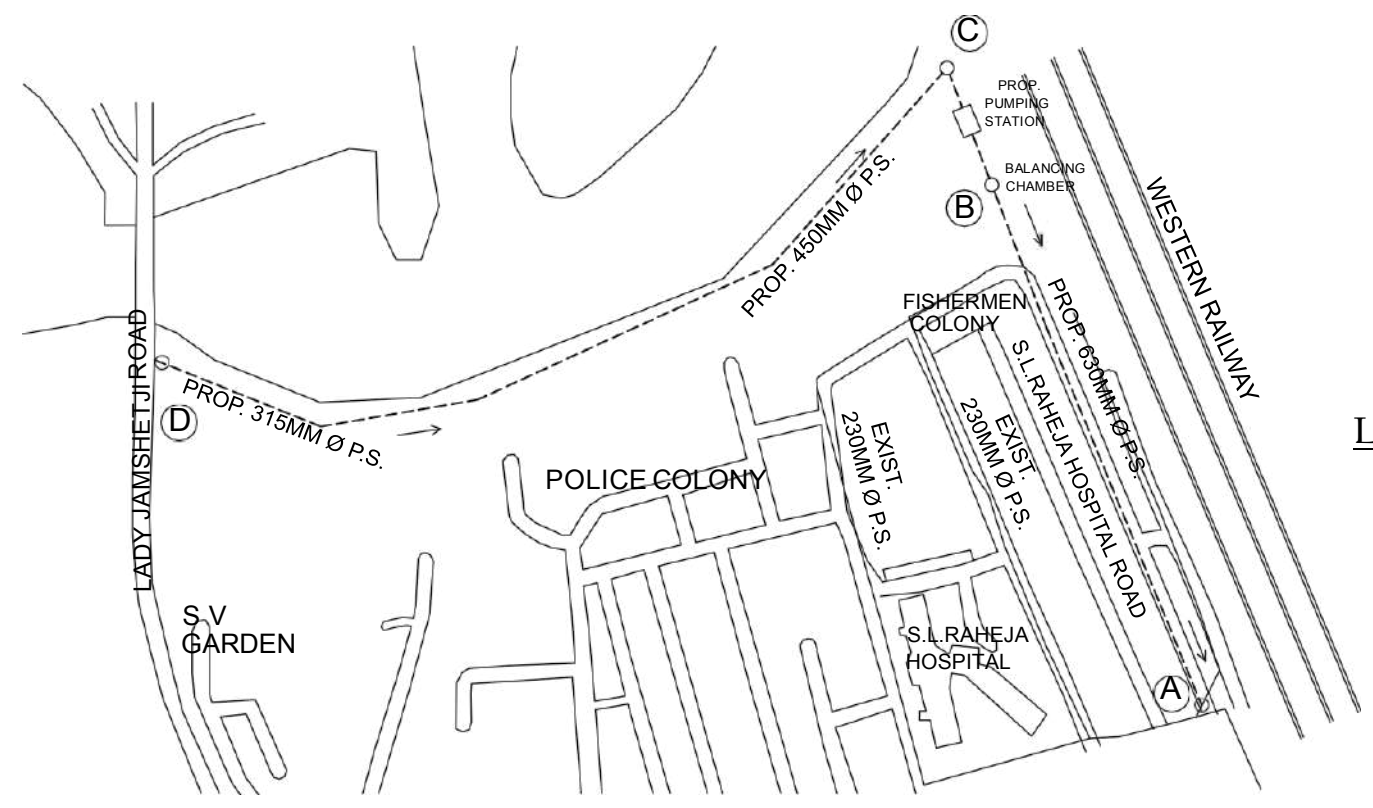
P/L 900 MM DIA. OD HDPE PIPES OF PE-100 GRADE & PN-6 CLASS PIPE SEWER LINE FROM EXISTING 1200 MM Ø SEWER LINE ALONG 60'-0" ROAD AT JUNCTION DHARAVI MAIN ROAD TO DADAR- DHARAVI NALLA OUTFALL TO MAHIM-SION LINK ROAD (RIGHT) OUTFALL IN "G/NORTH" WARD. ( NODE - ABC ) ( INTERCEPTOR GROUP - 4-A )

P/L 900 MM DIA. OD HDPE PIPE OF PE-100 GRADE & PN-6 CLASS PIPE SEWER LINE FROM NODE - B OF INTERCEPTOR GROUP 4-A AT DADAR- DHARAVI NALLA OUTFALL TO MAHIM-SION LINK ROAD ( LEFT ) OUTFALL IN "G/NORTH" WARD. ( NODE - BD ) ( INTERCEPTOR GROUP - 4-B )

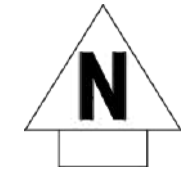


**L - SECTION**

SCALE - VER.- 1cm = 1.0 mt  
 HOR.- 1cm = 10.0 mt



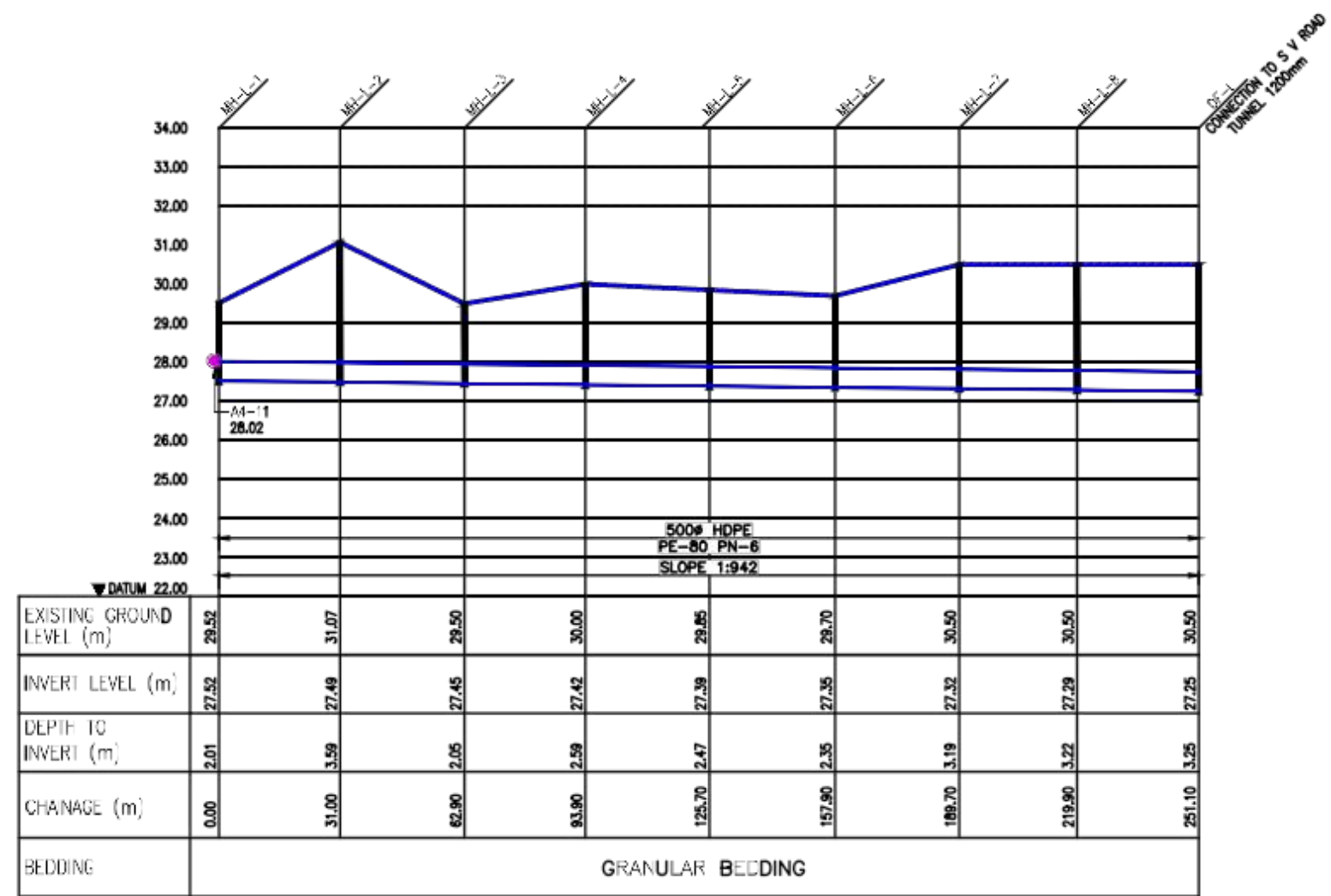
**LOCATION PLAN**  
 SCALE - N.T.S



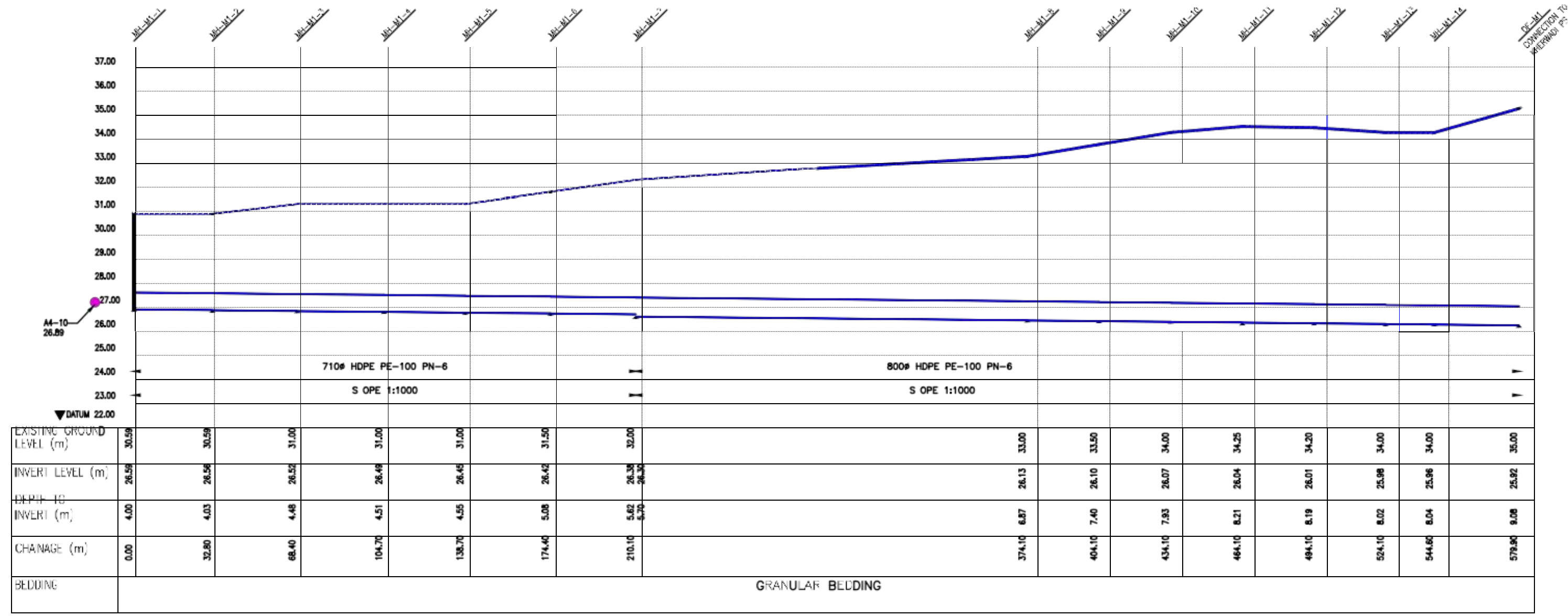
**MUNICIPAL CORPORATION OF GREATER MUMBAI**

- 1) P/L 630MM DIA. OD HDPE PIPES OF PE-80 GRADE & PN-6 CLASS PIPE SEWER LINE FROM EXISTING 750MM DIA. SEWER LINE ALONG SENAPATI BAPAT MARG AT JUNCTION RAHEJA HOSPITAL MARG TO PROPOSED SEWAGE PUMPING STATION NEAR DOUBLE BARREL OUTFALL ALONG PROPOSED SERVICE ROAD ALONG BANK OF MITHI RIVER IN G/NORTH WARD. (NODE - AB)
- 2) P/L 630>450>315MM DIA. OD HDPE PIPES OF PE-80 GRADE & PN-6 CLASS PIPE SEWER LINE FROM PROPOSED SEWAGE PUMPING STATION NEAR DOUBLE BARREL OUTFALL TO MACHCHIMAR COLONY OUTFALL TO LADY JAMSHETJI ROAD JUNCTION ALONG PROPOSED SERVICE ROAD ALONG BANK OF MITHI RIVER IN G/NORTH (NODE - CD) (INTERCEPTOR GROUP - 5)

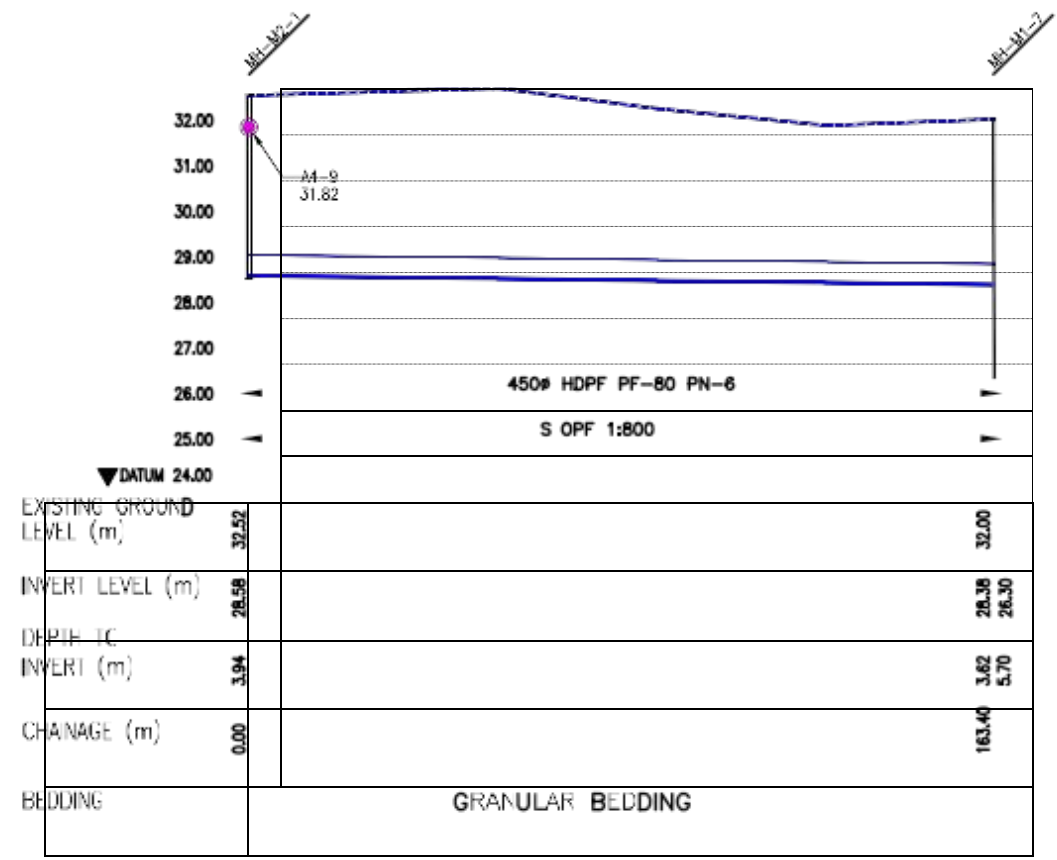




PLAN INTERCEPTION IG-L



PLAN INTERCEPTION IG-M1



PLAN INTERCEPTION IG-M2

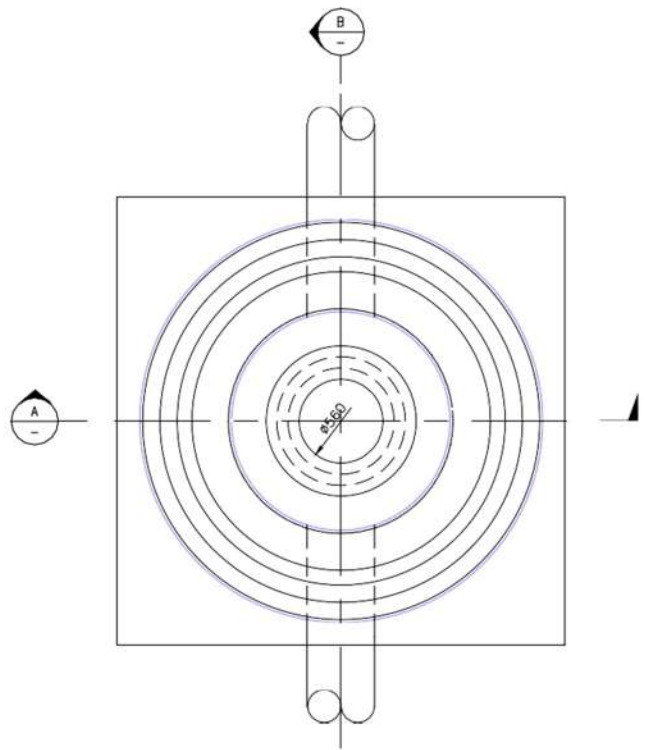


SCHEDULE OF MANHOLE

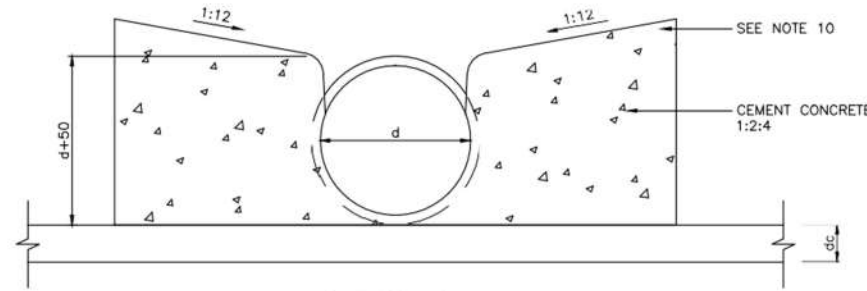
MAN-HOLE TYPE	DIA MAN-HOLE (D)	DEPTH OF MAN-HOLE	H1	H2	H3	H4	T1	T2	T3	T4	PCC (dc)
A	900	UP TO 1650	900	MAX. 750	-	-	1Bk	1Bk	-	-	150
B	1200	1660 TO 2300	1500	MAX. 800	-	-	1Bk	1Bk	-	-	150
C	1500	2310 TO 3300	1500	800	700	300	1Bk	1½ Bk	2Bk	2½ Bk	200

LEGEND & ABBREVIATIONS

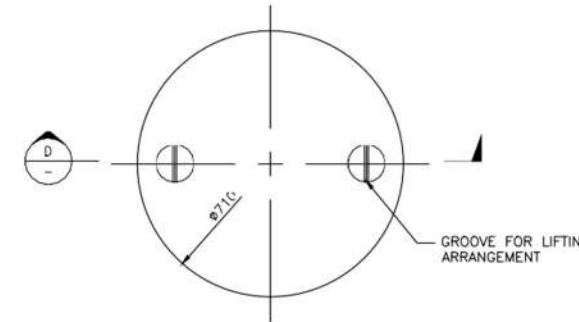
TYP - TYPICAL  
 DIA - DIAMETER  
 UN - UNLESS NOTED  
 THK - THICK  
 PCC - PLAIN CEMENT CONCRETE  
 EQ - EQUAL  
 C.I. - CAST IRON  
 SFRC - STEEL FIBRE REINFORCED CONCRETE  
 dc - DEPTH OF PCC  
 CM - CEMENT MORTAR  
 GL - GROUND LEVEL  
 d - DIA OF PIPE  
 D - DIA OF MANHOLE  
 Bk - BRICK



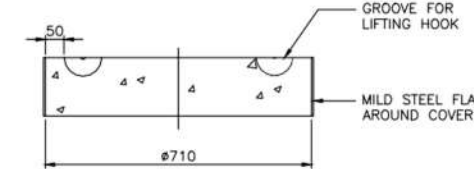
PLAN  
SCALE 1:25



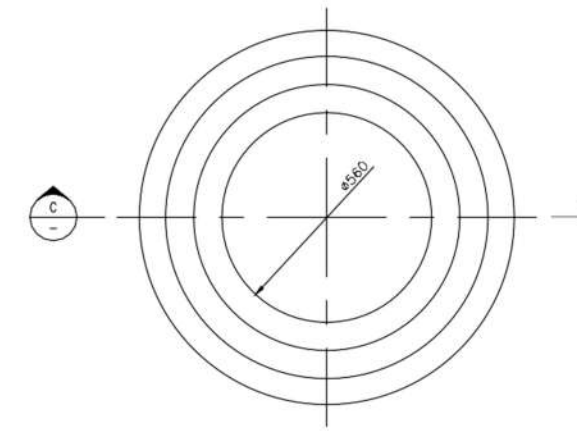
DETAIL-A  
SCALE 1:10



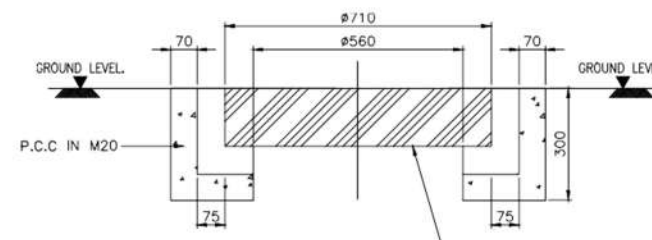
DETAIL-B  
PLAN OF MANHOLE COVER  
SCALE 1:10



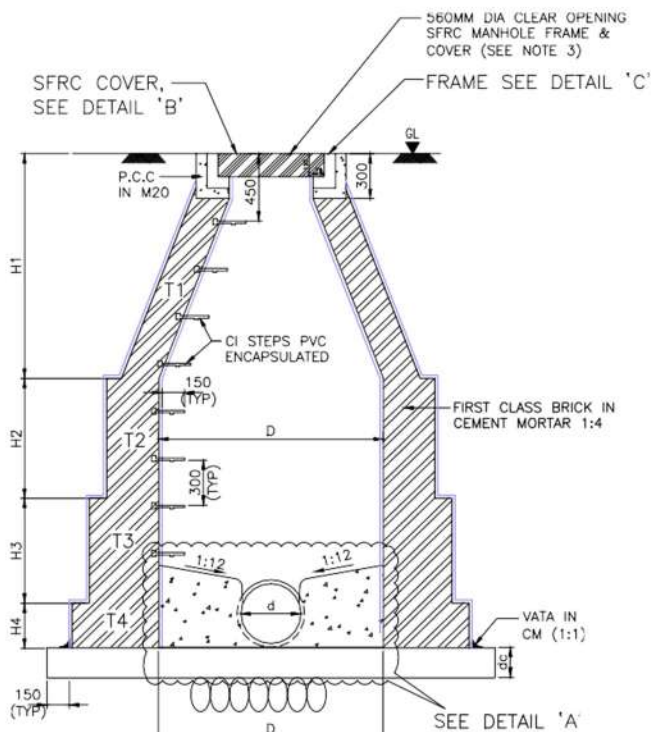
SECTION D-D  
SCALE 1:10



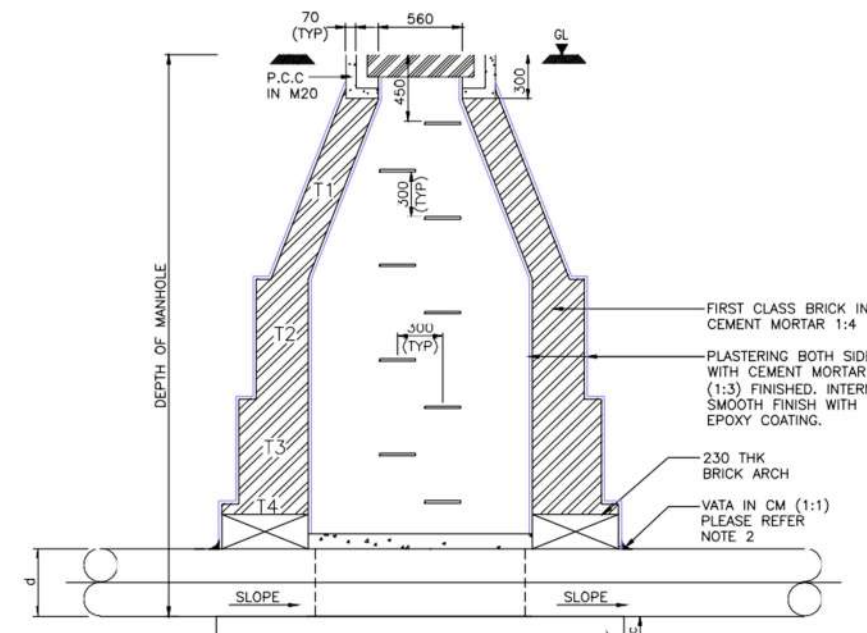
DETAIL-C  
PLAN OF MANHOLE COVER FRAME  
SCALE 1:10



SECTION C-C MANHOLE COVER  
SCALE 1:10



SECTION A-A  
SCALE 1:25



SECTION B-B  
SCALE 1:25


KEY PLAN

NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES EXCEPT OTHERWISE STATED.
- VATA IN C.M.(1:1) SHALL BE PROVIDED ALL AROUND THE PIPE ENTERING AND LEAVING THE MANHOLE AND ALSO AT THE JUNCTION OF BRICK MASONRY AND CONCRETE BASE SLAB.
- MANHOLE LOCATED ON ROAD SHALL HAVE MANHOLE COVER FLUSH WITH FINISHED ROAD SURFACE. 300 THICKNESS OF CONCRETE CAP CAN BE VARIED TO FLUSH MANHOLE COVER AND FRAME WITH ROAD SURFACE.
- AT A GIVEN DEPTH, THE THICKNESS OF BRICK MASONRY SHALL NOT BE LESS THAN THAT SHOWN IN THIS DRAWING.
- THICKNESS SPECIFIED FOR BRICK MASONRY IS EXCLUDING THE THICKNESS OF CEMENT PLASTER ON BOTH FACES.
- CHANNELS FOR MANHOLE ARE TO BE CONSTRUCTED DULY CONSIDERING THE DIRECTION OF FLOW AS WELL AS ALIGNMENT AND INVERT LEVEL OF PIPES ENTERING/ LEAVING THE MANHOLE AND AS DIRECTED BY ENGINEER-IN-CHARGE.
- SFRC COVER & FRAME SHALL BE PROVIDED AS PER IS.12592-2002. EXTRA HEAVY DUTY SHALL BE PROVIDED FOR MANHOLE ON ROADS AND MEDIUM DUTY FOR THE MANHOLE WHICH ARE NOT SUBJECTED TO VEHICULAR LOADING.
- CI STEP FIXED WITH CEMENT MORTAR 1:3.
- HDPE PE-100 PN-6 PIPE SHALL CONFIRM IS 14333:1998.
- THE BENCHING AT THE SIDE OF THE CHANNEL SHALL BE 50MM ABOVE THE CROWN OF THE PIPE AND THEN RISE WITH A SLOPE OF 1 IN 12 TOWARDS THE SIDE OF THE MANHOLE. SEMICIRCULAR PORTION WILL BE ACHIEVED IN CEMENT CONCRETE FINISHING ITSELF.
- SOIL BELOW FOUNDATION TO BE COMPACTED AT 95% MODIFIED PROCTOR DENSITY.
- SOIL BEARING CAPACITY OF SOIL SHALL BE MINIMUM 20 T/M.
- GROOVE FOR LIFTING HOOK IS ARRANGEMENT IS VENDOR SPECIFIC AND SHALL BE APPROVED BY ENGINEER IN CHARGE.
- 1BK = 230 THK. BRICK WALL  
 1½BK = 345 THK. BRICK WALL  
 2BK = 460 THK. BRICK WALL  
 2½BK = 575 THK. BRICK WALL  
 3BK = 690 THK. BRICK WALL

REV	DATE	DRAWN	DESCRIPTION	CHKD.	APPD.
R3	29.11.2017	PSS	TENDER DRAWING PACKAGE-2	SL	MH
R2	28.09.2017	PSS	ISSUE FOR FINAL FEASIBILITY REPORT	SL	MH
R1	22.08.2017	PSS	ISSUE FOR FEASIBILITY REPORT	SL	MH
RO	07.06.2017	SMR	BD DOCUMENT FOR SHORT TERM WORKS (FOR COMMENTS)	SL	MH

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CLIENT  
  
**Municipal Corporation of Greater Mumbai**  
 SW Department

PROJECT  
**CONSULTANCY SERVICES FOR PREPARATION OF DETAIL PROJECT REPORT ON MITHI RIVER**

TITLE  
**TYPICAL DETAILS OF MANHOLE**

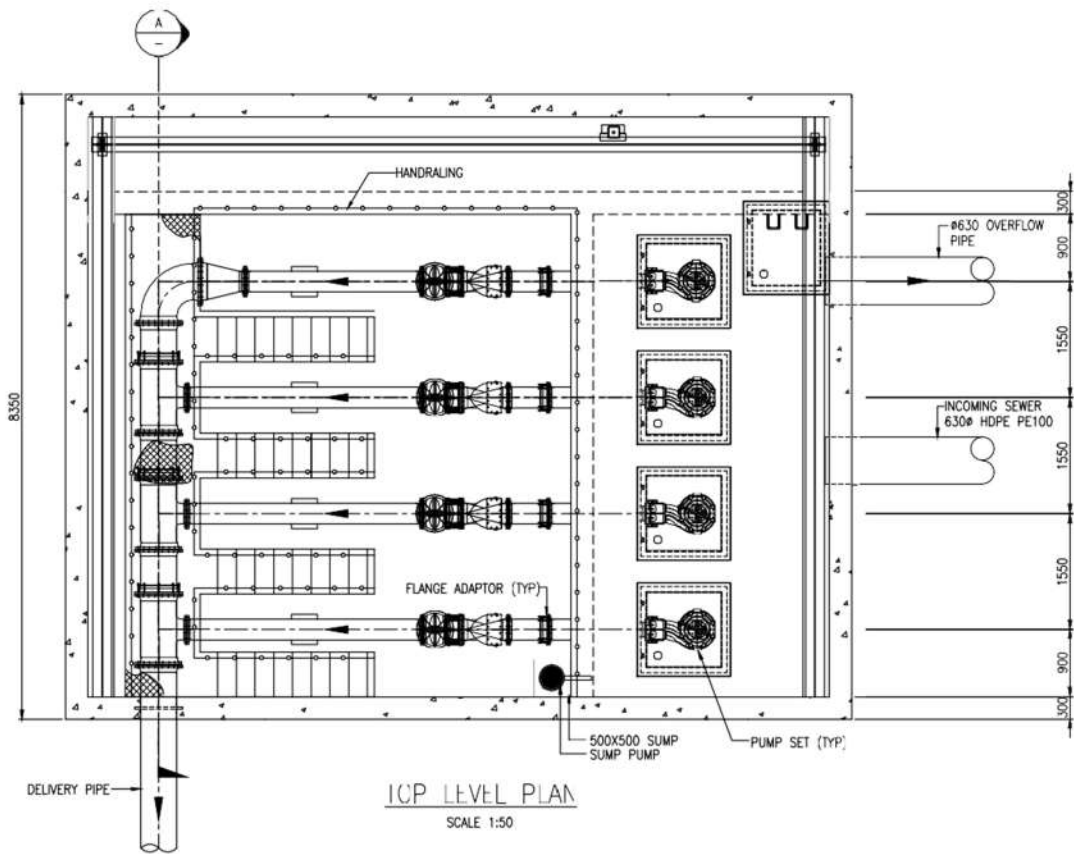
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DRAWN	SMR	APPROVED	MH
SCALE	AS SHOWN	DATE	19.05.2017
DRAWING NO			REV
DE178004C020			R3

### SECTION 4 :- PUMPING STATION

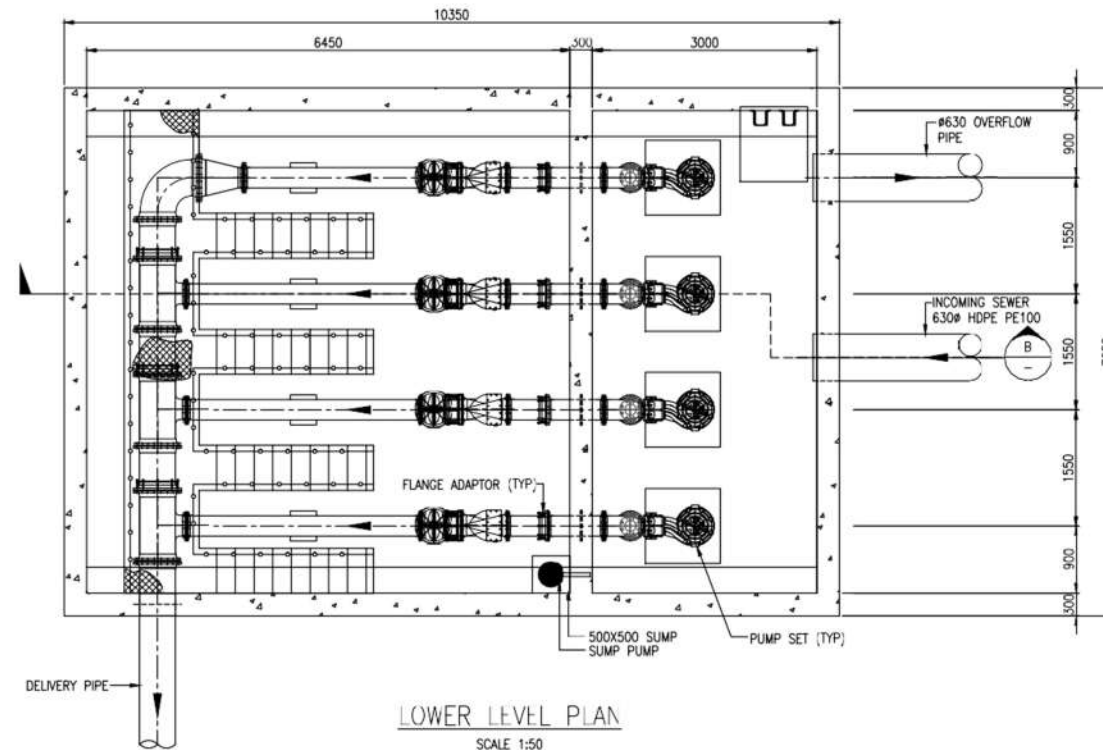
#### LOCATION PLAN OF PUMPING STATIONS



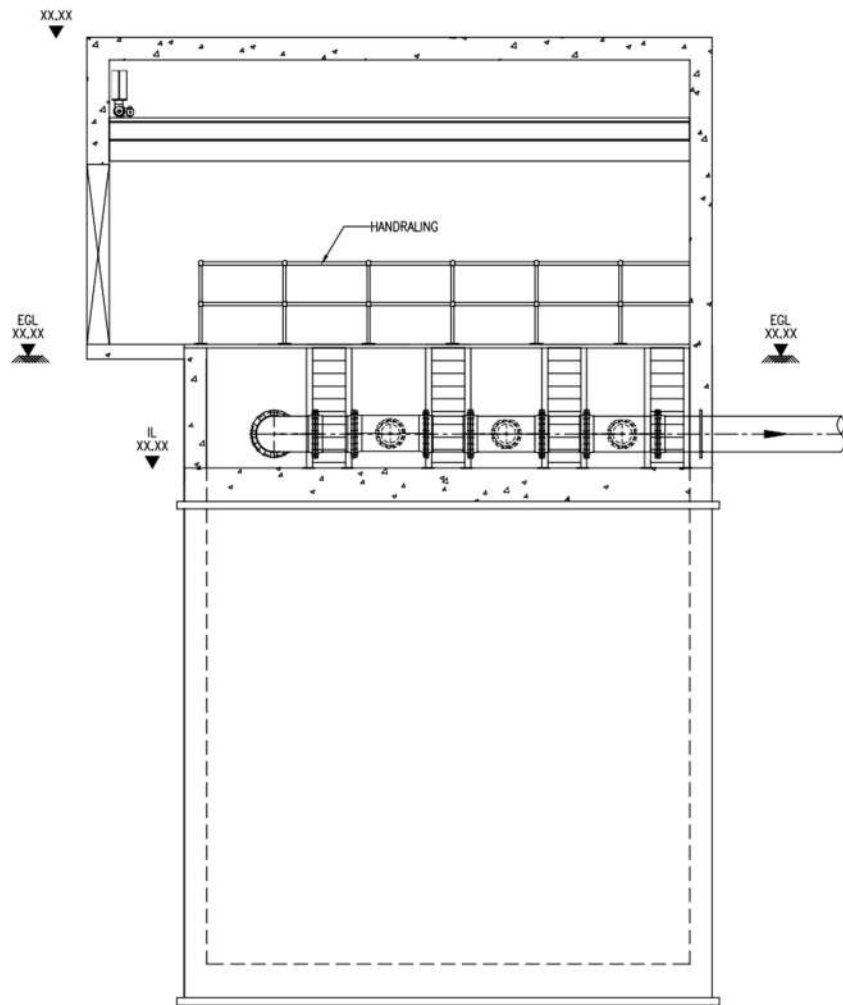




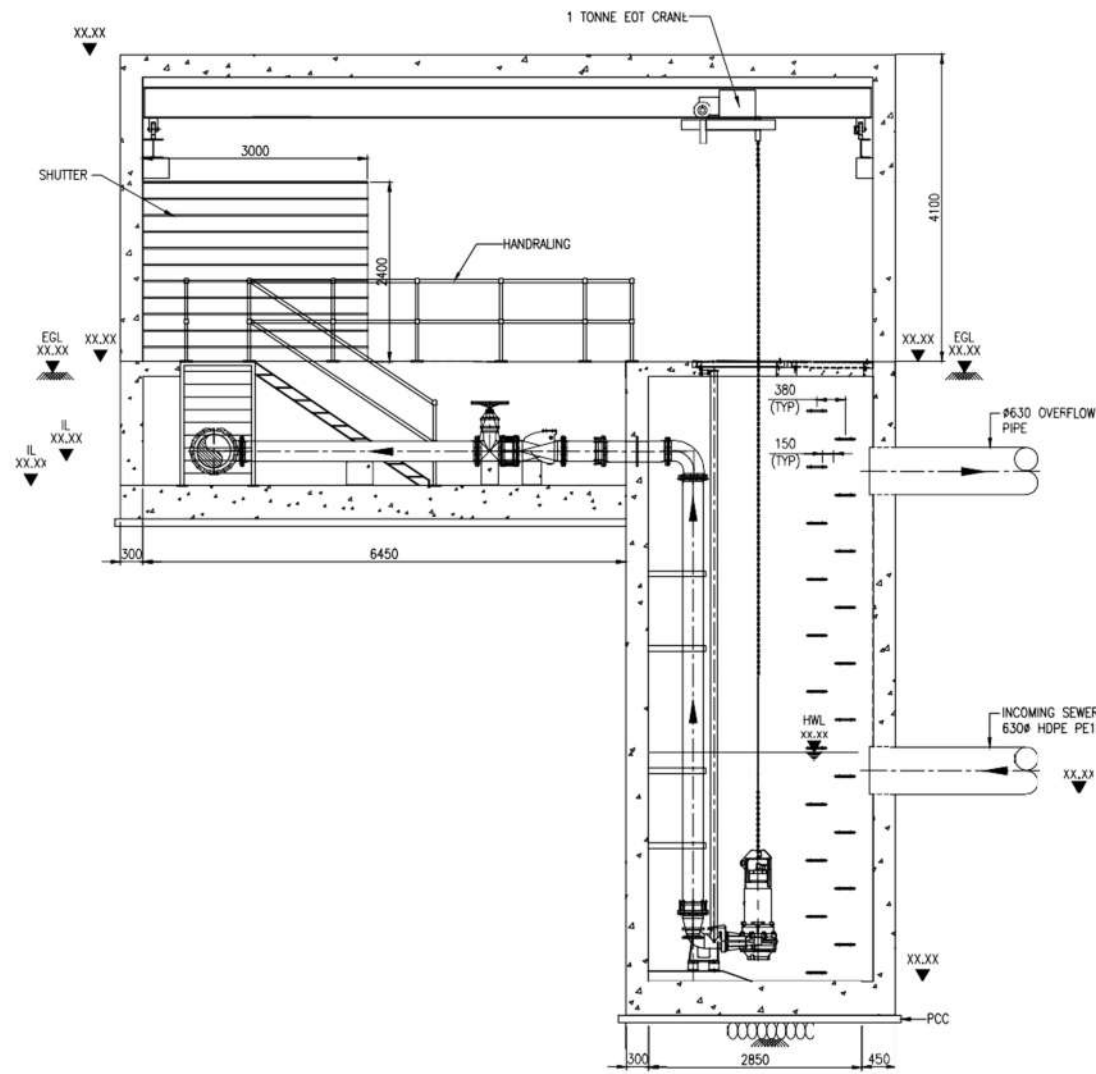
ICP LEVEL PLAN  
SCALE 1:50



LOWER LEVEL PLAN  
SCALE 1:50



SECTION A-A  
SCALE 1:50



SECTION B-B  
SCALE 1:50

KEY PLAN


NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES.
2. REINFORCEMENT SHALL BE HYSD BARS CONFORMING TO IS:1786.
3. CEMENT SHALL CONFORM TO IS:269/8' 12.
4. CONCRETE SHALL BE OF M30 GRADE FOR SUBSTRUCTURE AND M20 FOR SUPERSTRUCTURE UNLESS NOTED. MINIMUM CEMENT CONTENT IN CONCRETE SHALL NOT BE LESS THAN 360 Kg/CUM AND MAXIMUM 200mm SIZE AGGREGATES.
5. CAPACITY OF SEWAGE PUMPING STATION, PIPING AND VALVES, SEWER INLET AND DELIVERY PIPE ETC. SHALL BE BASED ON SYSTEM DESIGN.
6. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORK
7. STRUCTURE TO BE FOUNDED ON SOLID MATERIAL. SOFT EARTH AND DISTURBED SOIL TO BE REMOVED AND REPLACED WITH SUITABLE COMPACTED FILL MATERIAL.
8. A 25X 25MM CHAMFER TO BE PROVIDED TO ALL THE EXPOSED EXTERNAL EDGES OF CONCRETE
9. ALL CONSTRUCTION MATERIAL AND EQUIPMENT WEIGHING MORE THAN 20KGS TO BE LIFTED USING MECHANICAL MEANS
10. CONTINUOUS DEWATERING TO BE ENGAGE IF GROUND WATER LEVEL RISES ABOVE BOTTOM LEVEL OF PUMPING STATION DURING CONSTRUCTION.
11. STRUCTURAL CONCRETE SHALL BE SULPHATE RESISTANT AS PER IS 12330: 1988, WHERE SULPHATE ARE PRESENT IN CONCENTRATION THAT WOULD DAMAGE NORMAL PORTLAND CEMENT CONCRETE OR MORTAR.
12. POWER AND CONTROL CABLES TO BE ROUTED ON TRAYS ALONG HANDRAIL
13. ACTUAL LOCATION OF OVERFLOW PIPE WILL BE AS PER HFL OF MITHI RIVER.
14. EMERGENCY OVERFLOW SHALL INCORPORATE A DEVICE (AT THE DISCHARGE) TO PREVENT REVERSE FLOWS FROM RECEIVING WATERS BACK INTO THE PUMPING STATION.
15. ACCESS WITH VENTED COVER SHALL BE PROVIDED IN WET WELL.



RO	29.11.2017	SPD	TENDER DRAWING PACKAGE-2	SL	MH
REV	DATE	DRAWN	DESCRIPTION	CHKD.	APPD.

CONSULTANT  
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CLIENT  

**Municipal Corporation of Greater Mumbai**  
 SW Department

PROJECT  
**CONSULTANCY SERVICES FOR PREPARATION OF DETAIL PROJECT REPORT ON MITHI RIVER**

TITLE  
**STANDARD DETAIL- SEWAGE PUMPING STATION**

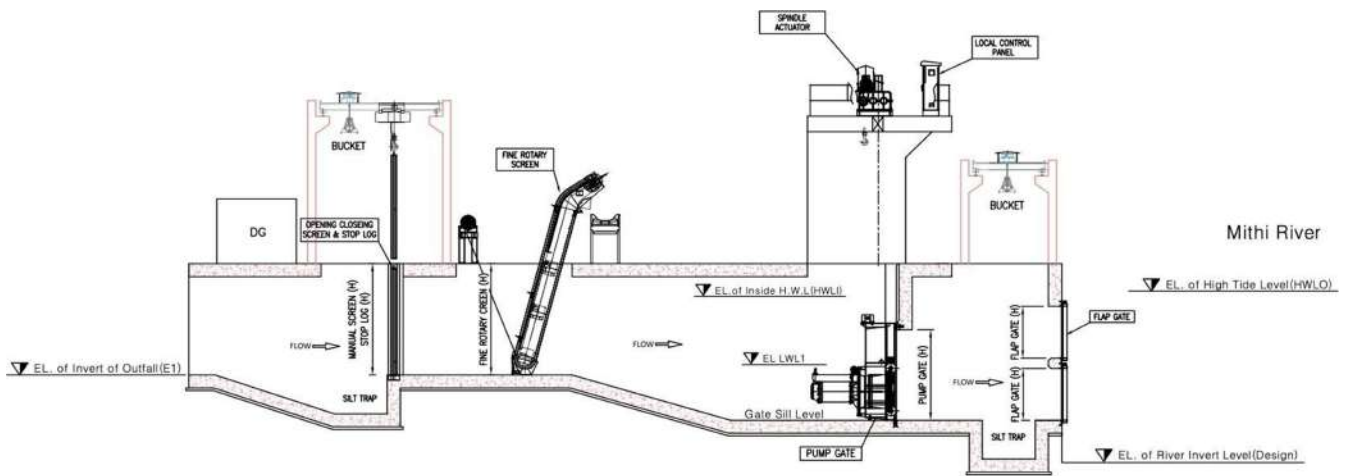
DESIGNED	AK	CHECKED	SL
DRAWN	SPD	APPROVED	MH
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DRAWING NO	DE178004M105		
			REV R0

**SECTION 5 :- GATE PUMPS**



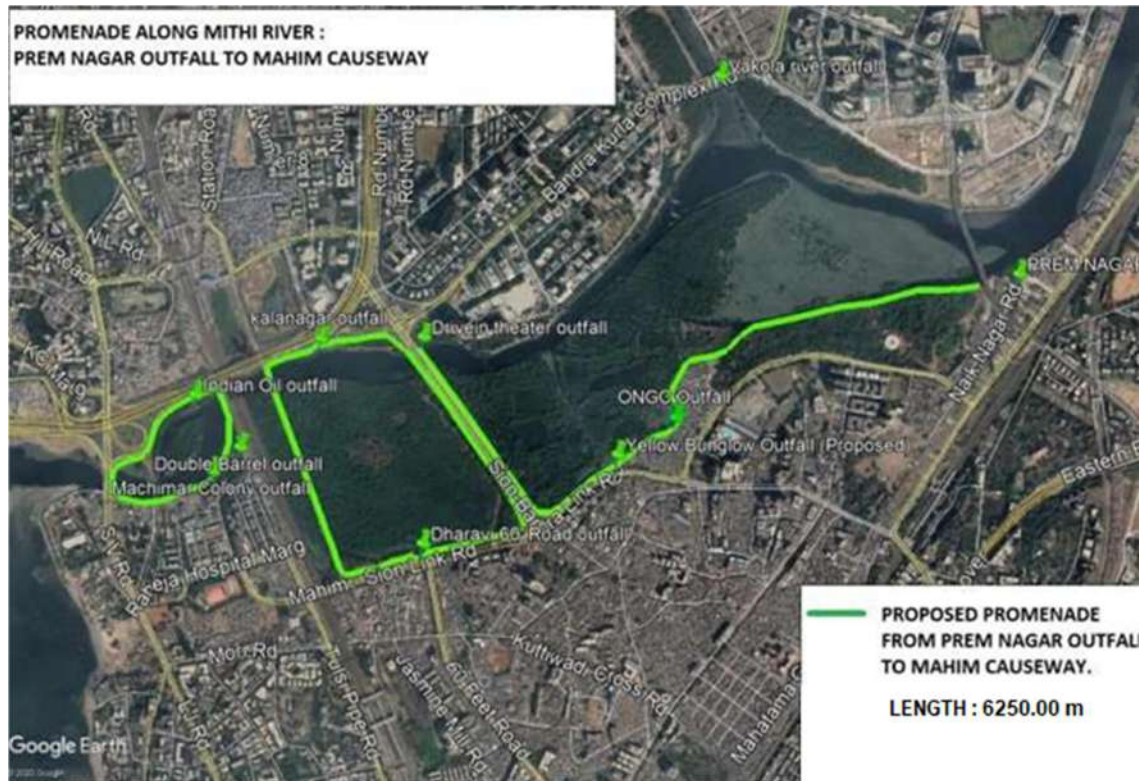


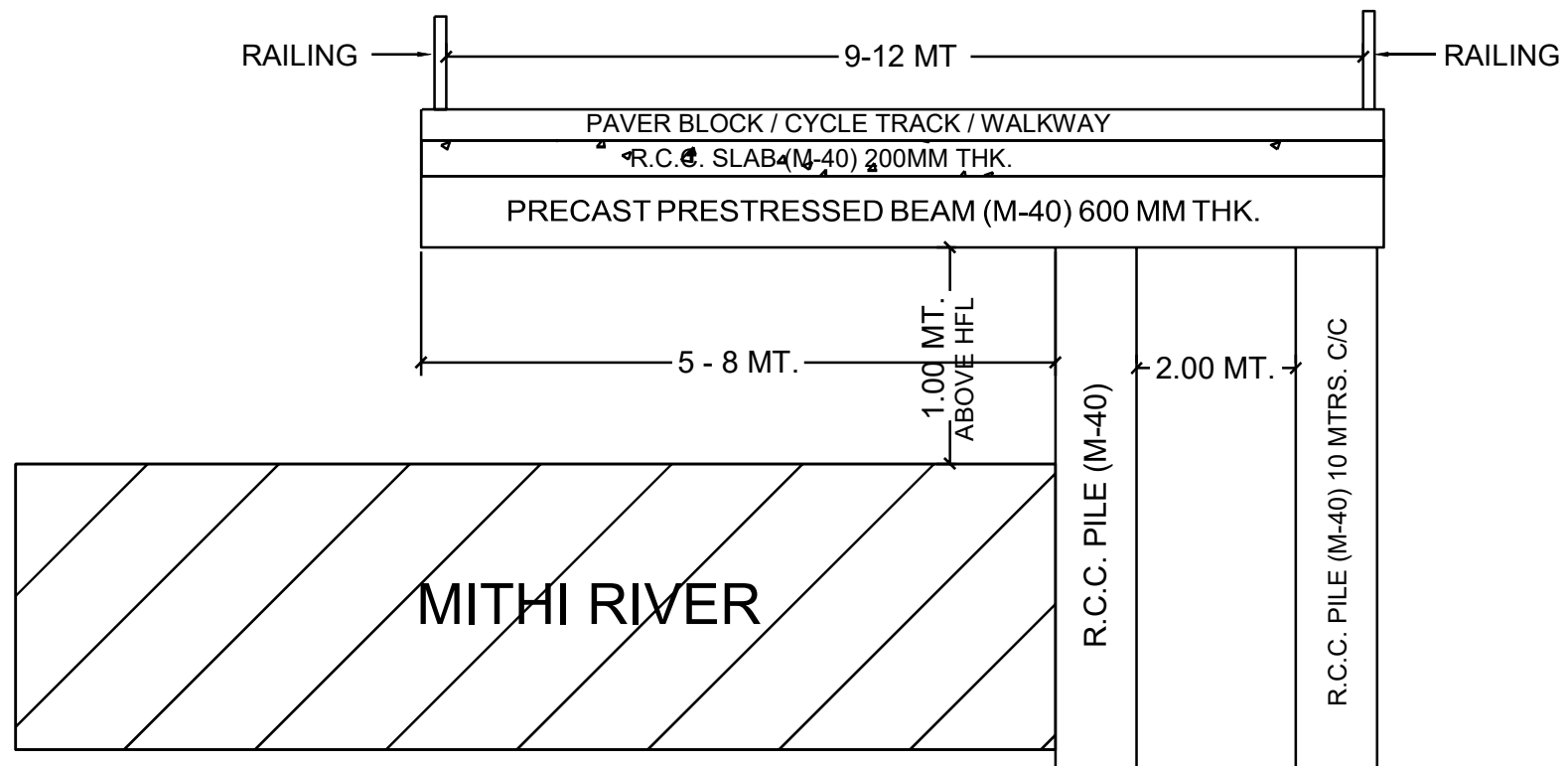
# Typical Cross Section of Gate Pump (For Reference Purpose Only)



PUMP GATE SECTION VIEW

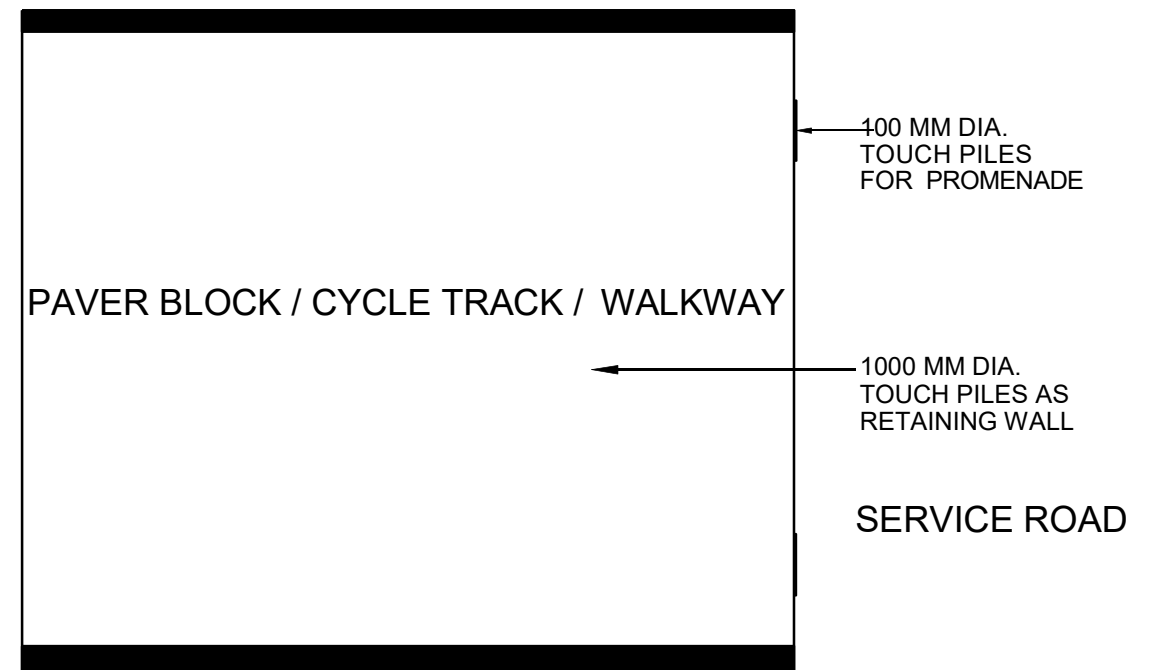
### SECTION 6 :- PROMENADE WORK





CROSS SECTION DRG. OF PROMENADES

SCALE : N.T.S.

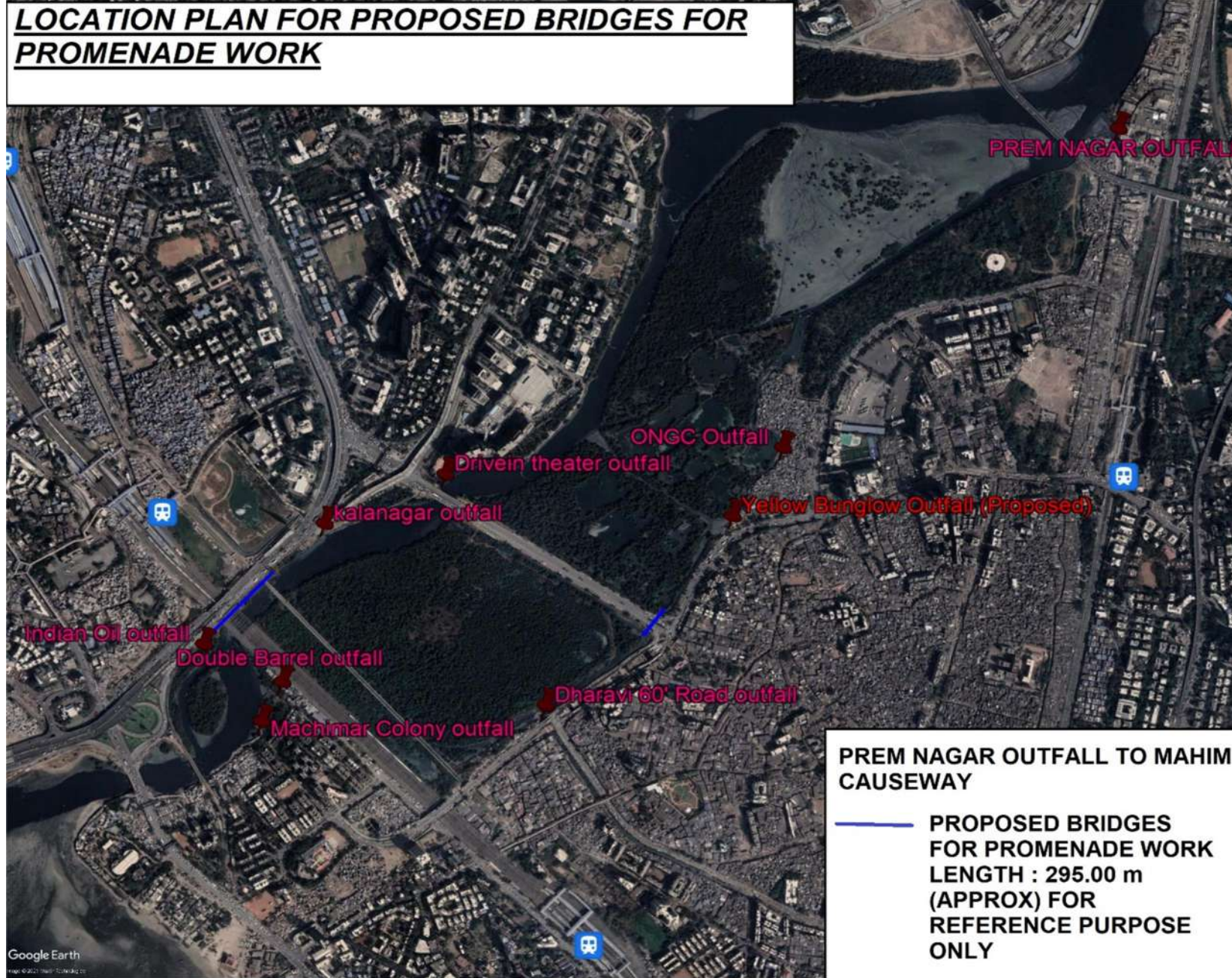


CONSTRUCTION PROCEDURE OF PROMENADES

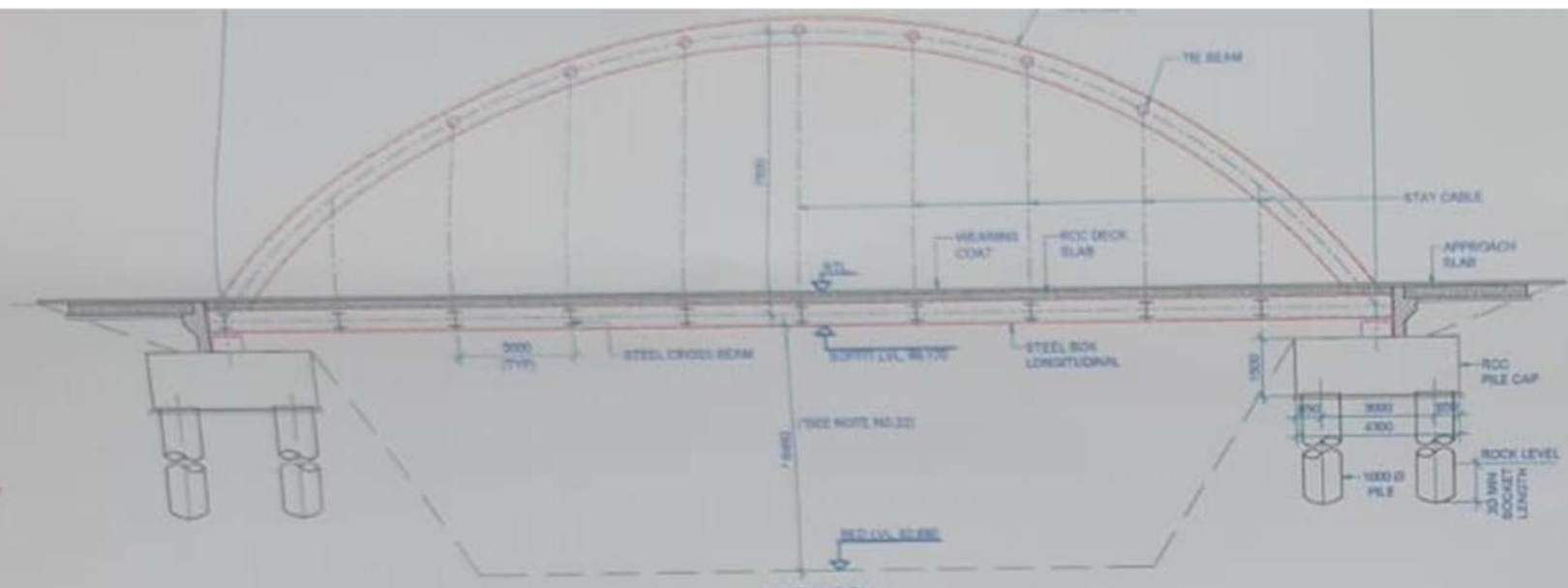
SCALE : N.T.S.



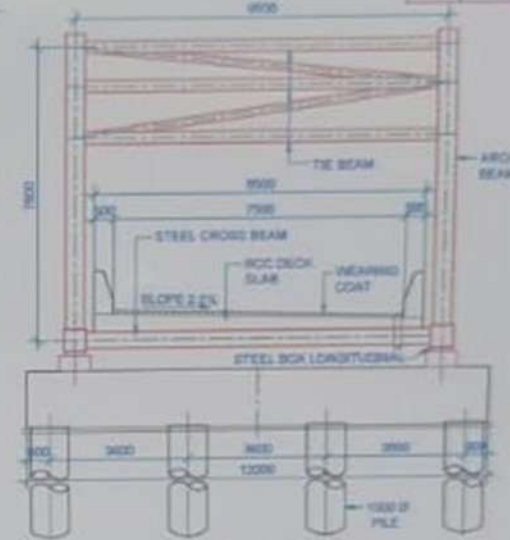
**LOCATION PLAN FOR PROPOSED BRIDGES FOR PROMENADE WORK**



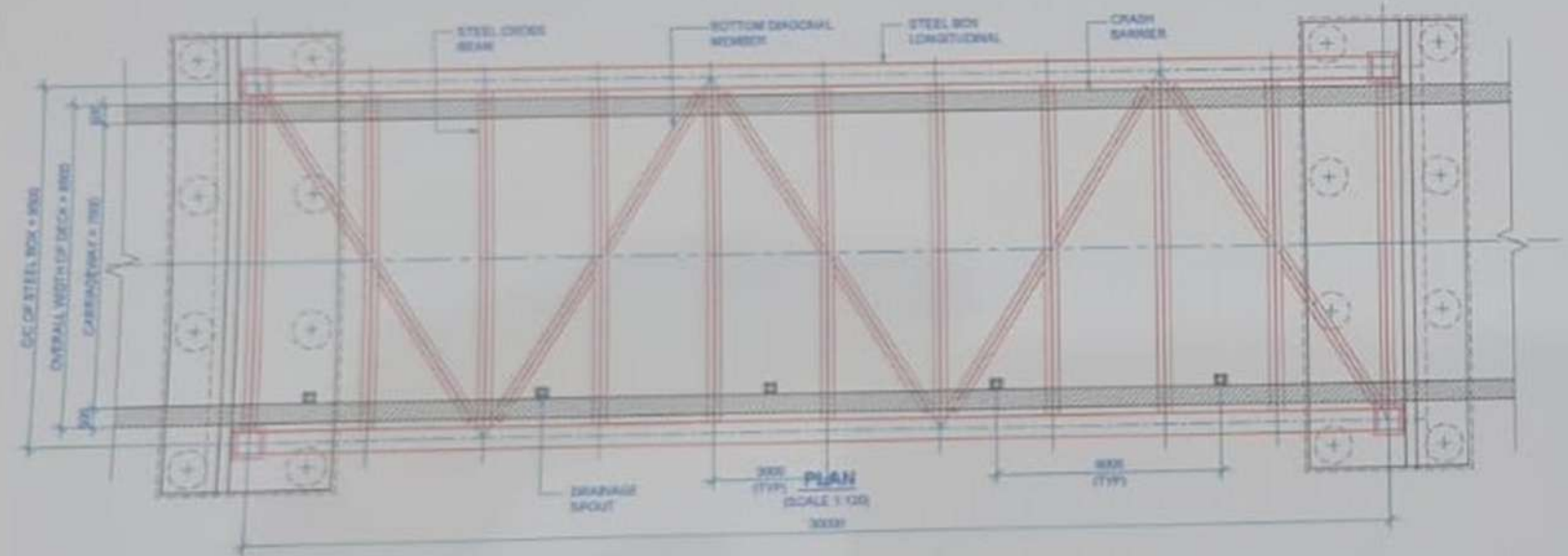




ELEVATION  
SCALE 1:100



CROSS SECTION  
SCALE 1:100



PLAN  
SCALE 1:100

TYPICAL DETAILS OF BRIDGE  
(FOR REFERENCE PURPOSE ONLY)

- NOTES :-**
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
  2. DO NOT SCALE THE DRAWING. FOLLOW THE WRITTEN DIMENSIONS ONLY.
  3. PROPOSAL SHOWN IN THIS DRAWING IS TENTATIVE AND IS SUBJECT TO MODIFICATION WILL BE FINALISED DURING DESIGN & DRAWING.
  4. ALL STRUCTURAL SECTION SHOWN IN DRAWING IS TENTATIVE.
  5. GRADE OF CONCRETE ARE :-  
 a) RCC PILE & PILE CAP & RETAINMENT WALL - M40  
 b) PCC/SLABING COURSE ARE - M15  
 c) DECK SLAB - M40  
 d) CHAIN BARRIER & PARAPET - M40
  6. GRADE OF STRUCTURAL STEEL - E 250 BSL YIELD STRESS 235 MPa CONFORMING TO IS 2062 (MS) (MSL QUALITY), PROVIDED 2 COAT OF EPOXY REE COATED ZINC PHOSPHATE PRIMER OF 50 MICRON EACH OF THE COATS OF EPOXY COMPRESSION RESIN SHALL BE APPLIED PART OF 48 HOURS.
  7. UTILITY SURVEY SHOULD BE CARRIED OUT BY CONSTRUCTION AGENCY BEFORE EXECUTION OF WORK.
  8. UNDERGROUND UTILITIES AT THIS LOCATION NEED TO BE SHIFTED UNDER THE SUPERVISION OF COMPETENT AUTHORITY.
  9. S&I TO BE PREPARED WHEN UTILITY SURVEY DETAILS WERE NOT FURNISHED. HOWEVER PRIOR TO THE EXECUTION OF WORK UTILITY SURVEY DETAILS SHOULD BE GIVEN TO THE DESIGN CONSULTANT BY WORK.
  10. S&I TO BE PREPARED WHEN SOIL INVESTIGATION REPORT IS NOT FURNISHED. THE FOUNDATION DETAILS SHOWN ON THE DRAWING ARE INDICATIVE ONLY.
  11. SUSTAINABLE NOT CORROSION PROTECTIVE COATING SHALL BE PROVIDED FOR SUBMERGED PARTS. ALL PILES TENDERS & RETAINING WALLS.
  12. ALL PUBLIC UTILITIES SERVICES SHALL BE CARRIED OVER THE BRIDGE.
  13. CONCRETE SHALL BE CONTROLLED CONCRETE WITH CURING AND AS PER IS 10262.
  14. ALL REINFORCEMENT SHALL BE HYSD CONFORMING TO IS 1786 OR 1786 (B) MULTIPHASED FUSION BUNDLED EPOXY COATING REINFORCING STEEL BAR AS PER IS 1786.
  15. WEARING COAT A COAT OF MASTIC APPROX 7 TO 8 mm THICK, 50 mm OVER 10 mm WEARING COAT PER WORK REQUIREMENT.
  16. SAFETY OF ALL CONSTRUCTION STRUCTURE WHICH ARE NEAR BY THE PROPOSED BRIDGE SHALL BE TAKEN INTO ACCOUNT BY THE CONTRACTOR ONLY DURING THE EXECUTION OF WORK.
  17. EXHAUSTION SYSTEM SHALL BE STIFF SEAL TYPE AS PER BS 5151 OR IS SPECIFICATION.
  18. THE STRUCTURE SHALL BE DESIGNED FOR SEVER CONDITION OF EXPOSURE.
  19. ALL SPECIFICATIONS SHALL BE AS PER THE LATEST EDITION OF ALL SPECIFICATIONS FOR BRIDGE & RETAINING WALLS.
  20. WATER SPOUT PIPES SHOULD BE PROVIDED AT 5000 mm LONGITUDINAL INTERVAL ON EITHER SIDE OF CARRIAGEWAY.
  21. STAY CABLE SHALL BE AS PER TENDER SPECIFICATION.
  22. VERTICAL CLEARANCE FROM BED LEVEL TO TOP OF CHAIN SHOULD BE VERIFIED FROM S & I DEPARTMENT.