

**AECOM****PADECO****dar al-handasan**
engineers and planners**TYLIN**
INTERNATIONAL*OK*

General Consultant for Mumbai Trans Harbour Link Project

Ref No: MTHL/GC/MMRDA/LT/QPR-0000 *738*/20192nd May 2019

To,
The Chief Engineer
Engineering Division
Mumbai Metropolitan Regional Development Authority (MMRDA)
2nd Floor, New MMRDA Building,
Plot No R-06 & R-12, 'E' Block
Bandra Kurla Complex, Bandra (E),
Mumbai, Maharashtra, India 400051

Sub: General Consultancy services for Mumbai Trans Harbour Link (MTHL) project -
Submission of Quarterly Progress Report (QPR) No. 8 for January-March 2019

Dear Sir,

With reference to the above subject, please find enclosed 1 hard copy of Quarterly Progress Report (QPR) No. 8 for the period of January-March 2019. You may forward the same to JICA at your earliest convenience.

Thanking you,

Yours faithfully,

Mr. Sham

P.82
Dr. S H Robin Sham, CBE
(BSc, PhD, DIC, FCGI, FRSA, CEng, FICE, FStructE, FHKIE)
The Engineer
General Consultant (MTHL)

Encl: 1 Copy of Quarterly Progress Report No. 8 (January-March 2019)

CC: Superintendent Engineer - MMRDA - Mr. Sakhalkar
Superintendent Engineer - MMRDA - Mr. Varaskar
Executive Engineer - MMRDA - Mr. Bhisikar
Executive Engineer - MMRDA - Mr. Vishal Jambhale

*03/5/19*



एम एम आर डी ए
MMRDA

Mumbai Metropolitan Region Development Authority

Mumbai Trans Harbour Link Project

Quarterly Progress Report - No.8

(From 1st January 2019 to 31st March 2019)



**Mumbai Trans Harbour Link Project
Quarterly Progress Report No. 8
1st January 2019 to 31st March 2019
Loan Agreement No. ID-P255 (Tranche-I)**

ORGANIZATION INFORMATION

Borrower	Mumbai Metropolitan Region Development Authority	
	Person in Charge	Metropolitan Commissioner, MMRDA
	Contact Address	M.M.R.D.A. New Office Building, Bandra-Kurla Complex, Plot no. R-5, R-6 & R-12, E Block, Bandra (East), Mumbai - 400051 Phone: +91-22-26594000 Fax No:+91-22-2659 1264
Executing Agency	Mumbai Trans Harbour Link Project Implementation Unit	
	Headed by:	Chief Engineer Mumbai Trans Harbour Link Project Implementation Unit
	Contact Address	M.M.R.D.A. New Office Building, Bandra-Kurla Complex, Plot no. R-5, R-6 & R-12, E Block Bandra (East), Mumbai - 400 051 Phone: +91-22-2659 4034 Fax No: +91-22-2659 4179

Details of JICA Loan

Source of Finance	JICA ODA Loan Portion:	238,572 million Japanese YEN (JPY)
	Tranche-I:	144,795 million Japanese YEN (JPY) (Loan Agreement signed on 31 st March 2017)
	Tranche-II:	66,909 Million Japanese YEN (JPY) (Loan Agreement to be signed)
Terms and Conditions of JICA ODA Loan (Tranche-1)	Interest Rate:	0.10533% (LIBOR-0.00533% + SPREAD RATE -0.1000%) from 20 th March 2019 to 19 th September 2019.
	Repayment Period:	30 years, including 10 years of grace period.

DOCUMENT VERIFICATION AND REVISION RECORD

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DOC NO.		8	DATE OF ISSUE		05/04/2019
DOC TITLE		Quarterly Progress Report No. 8			
REV No.	DATE OF ISSUE	DESCRIPTION	PREPARED BY	CHECKED BY	APPROVED BY
R0	05/07/2017	Quarterly Progress Report No. 1 (Apr-Jun 17)	J Senthil	Dr T Sundaram	Dr Robin Sham
R0	05/10/2017	Quarterly Progress Report No. 2 (Jul-Sep 17)	J Senthil	Dr T K Sundaram	Dr Robin Sham
R0	05/01/2018	Quarterly Progress Report No. 3 (Oct-Dec 17)	J Senthil	Dr T K Sundaram	Dr Robin Sham
R0	05/04/2018	Quarterly Progress Report No. 4 (Jan-Mar 18)	J Senthil	Dr T K Sundaram	Dr Robin Sham
R0	24/07/2018	Quarterly Progress Report No. 5 (Apr-Jun 18)	Prashant B	Dr T K Sundaram	Dr Robin Sham
R0	10/10/2018	Quarterly Progress Report No. 6 (Jul-Sep 18)	Prashant B	Dr T K Sundaram	Dr Robin Sham
R1	08/02/2019	Quarterly Progress Report No. 7 (Oct-Dec 18)	Prashant B	J Senthil/ Dr T K Sundaram	Dr Robin Sham
R0	05/04/2019	Quarterly Progress Report No. 8 (Jan-Mar 19)	Prashant B	J Senthil	V. D. Sharma/ Dr Robin Sham

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1.0 PROJECT DESCRIPTION

1.1 Project Objective

Original:

To improve connectivity in Mumbai Metropolitan region by constructing the Mumbai Trans Harbour Link connecting Mumbai with Navi Mumbai, thereby contributing to mitigation of traffic congestion and promoting regional economic development.

Actual (P/R, PCR)

There is no change in the Project Objective.

1.2 Necessity of the Project

The Project is consistent with the development policy, sector plan, national/regional development plans and demand of target group of the recipient country.

Benefits from MTHL Project

- Saving in travel time for commuters from Mumbai to Navi Mumbai.
- Improved comfort and accessibility between the island and the mainland.
- Reduced operating costs of vehicles due to lesser congestion.
- Smooth traffic flow from Navi Mumbai airport to Mumbai Island.
- Accelerated economic development of Navi Mumbai and nearby regions.
- Greater economic integration of Mumbai island with Navi Mumbai and extended regions of Pune, Goa, Panvel and Alibaug.
- Improvement in environment and reduced pollution levels.
- Improved safety due to reduction in accidents.
- Improvement in trade competitiveness through faster and improved logistics.
- Accelerated growth of Navi Mumbai.
- Decongestion of Mumbai Island and dispersal of population to Navi Mumbai region & beyond.

Necessity of the Project

1. Although the urbanization in India has been rapidly progressing, infrastructure development in the urban areas has not caught up its progress. Particularly, the traffic congestion in the urban areas due to a lack of road network hinders the economic development. Thus, Government of India (GOI) places transport and connectivity as one of the "Growth Enablers" and plans to enhance road network in the "Three Year Action Agenda 2017-2018 to 2019-20 (NITI Aayog)".
2. Mumbai Metropolitan Region, which includes Mumbai and Navi Mumbai, has about 18.4 million people in population as of 2011 (Census 2011) and the population density reaches 20,694 people per square km in the center of Mumbai, which is one of the most overpopulated and high-density cities in the world.
3. Mumbai, the narrow stretch of land that has traditionally been the epicentre of India's commerce, has seen a steady increase in population in the last three decades despite obvious spatial constraints. Thus, the development of Navi Mumbai has been identified as

an urgent requirement for broad development in Mumbai Metropolitan Region.

4. The Government of Maharashtra (GoM), of which Mumbai Metropolitan Region is under jurisdiction, has been facilitating various development plans particularly in Navi Mumbai area, which stands at the opposite site of Mumbai across the Mumbai Bay and still has spacious area for development, such as a new international airport, Special Economic Zone (SEZ) and expansion of Jawaharlal Nehru Port in order to promote the sustainable economic development in Mumbai Metropolitan Region.
5. Furthermore, a lack of connectivity in Mumbai has stunted its growth. The GoM has given importance to construct the faster connection with Mumbai to Navi Mumbai International Airport, Jawaharlal Nehru Port, Mumbai-Pune expressway and main hinterland.
6. Accordingly, the Mumbai Trans Harbour Link (MTHL) has been identified as the important infrastructure to improve the connectivity between Mumbai and Navi Mumbai and continue economic development in Mumbai Metropolitan Region.

The MTHL is proposed to be developed as an expressway link comprising of a dual three-lane main carriageway bridge connecting Sewri in Mumbai to Chirle in Navi Mumbai. When completed, MTHL will reduce the distance between Mumbai and Navi Mumbai and will help save approximately an hour in travel time. Also, development of Navi Mumbai along with the imminent construction of the Navi Mumbai airport will lead to increased traffic between Mumbai and Navi Mumbai. Consequently, the project is envisaged to; improving accessibility between Mumbai and Navi Mumbai, accelerating growth of Navi Mumbai, smooth traffic flow from Navi Mumbai airport to Mumbai, accelerating economic development of Navi Mumbai and surrounding regions, greater economic integration of Mumbai with Navi Mumbai and extended regions of Pune, Goa, Panvel and Alibaug, and decongestion of Mumbai and dispersal of population to Navi Mumbai region and beyond.

7. The Comprehensive Transportation Study (CTS) for Mumbai Metropolitan Region which was guided by Mumbai Metropolitan Region Development Authority (MMRDA) and supported by World Bank, was completed in July 2008, which was over 25 years after the issuance of the last comprehensive transport study. The report provided a vision for Mumbai's future transportation as seamless and integrated system, in which commuters can make their journeys safely and conveniently by various modes of transport, particularly by public transport, and recommended the development of Multi Modal Corridor to take care of the varied travel demands of the region for the period up to 2031. The CTS proposed to develop the highway network in the region. The MTHL has been regarded as the priority road for Mumbai, considering its function and importance connecting between Mumbai and Navi Mumbai.
8. Necessity of the Project: - To promote economic development in Mumbai Metropolitan Region it is essential to improve the connectivity between Mumbai and Navi Mumbai, by constructing MTHL.

Actual (P/R, PCR)

There is no change in the Necessity of the Project preamble.

1.3 Rationale of the Project Design

- Timing, Scale, Technology of the Project:

Demand Analysis

- At the opening year 2022, the daily traffic on the main bridge is expected to be 39,300 PCU. The traffic is projected to increase up to 103,900 by 2032 and up to 145,500 by the year 2042. The daily breakdown by vehicle class on the main bridge link is presented in the Table 1.3.1 below:

Table 1.3.1 Demand Projections Over the Period

Vehicle Type	Between Sewri Interchange and Shivaji Nager Interchange			Between Shivaji Nager Interchange and Chirle Interchange		
	2022	2032	2042	2022	2032	2042
Car	24,100	66,400	94,100	4,900	21,300	43,300
Taxi	2700	14,100	20,200	100	400	2,300
Bus	2,700	3,700	3,700	2,700	3,700	3,700
LCV	2,200	4,100	5,600	700	1,300	1,800
HCV	3,000	6,500	8,100	1,000	2,000	2,200
MAV	4,600	9,100	13,800	400	900	1,700
Total	39,300	103,900	145,500	9,800	29,600	55,000

LCV: Light Commercial Vehicle; HCV: Heavy Commercial Vehicle; MAV: Multi Axle Vehicle

- At the opening year in 2022, the traffic flow on MTHL represents a diversion of 10% on the traffic across Thane creek which will increase up to 16% in 2032. If only Thane Creek Bridge is considered, then the diverted traffic from the bridge will be 21% in 2022 which will rise up to 35% in 2032.
- 6-lane of main carriageway was decided by GoM. It was reviewed based on the forecasted result of future traffic volume by Manual of Specification and Standards for Expressways (IRC: SP:99-2013). The result of the review shows that 6-lane will be required in 2032 (10 years later after traffic open). Although, 8-lane will be required in 2042, it is assumed that the level of service of MTHL would be maintained as additionally metro might be constructed in parallel with MTHL.

Design Parameters / Overall Design

- The MTHL which is 21.8 km long road bridge partly on the land and partly over the creek across the Mumbai Bay between Sewri in Mumbai and Chirle in Navi Mumbai, is to be constructed with the approach sections and interchanges. ITS (Intelligence Transport System) and the other necessary facilities will be provided for full access-controlled bridges.
- As per the provisions of IRC (Indian Road Congress) SP:99-2013, the Width of each lane of the Main Carriageway is 3.5 meters.
- When the design speed is 100 km/h according to the traffic demand forecast the large vehicle, ratio will be as low as 9.4% (2022).
- The shoulder width of bridge towards outside of each carriageway is 2.5 meters and towards median side of each carriageway is 0.75 meters.
- The major portion of MTHL structure is on sea and partly towards ends is on land with

different type and with different span, viz., PC box girder with 50 m spans which is typically applied on marine viaduct since, it is economical, easy to construct and maintain.

9. On the land portion, the PC box girder having span of generally 30m is used.
10. As far as the location in which long span (150-180 m) is required to cross significant obstacles, such as navigation channels, pipelines and creeks, the steel box girder bridge with steel deck is proposed with large block erection method to shorten the construction period.
11. The project is coded with three lanes of traffic in each direction. The reference toll is presented in the Table 1.3.2 below for each vehicle class in Year 2022 (based on 2015 monetary value reflecting price escalation).

Table 1.3.2: Base Toll Rates (Rs) for different class of vehicles between Interchanges

Vehicle Type	Sewri to Shivaji Nagar	Shivaji Nagar to Chirle	Total
Car	180	60	240
Bus	420	130	550
LCV	240	70	310
HCV	420	130	550
MAV	600	180	780

Intelligent Transport Systems (ITS) and Toll Management System (TMS)

12. The Toll Management System will be implemented in MTHL to collect tolls from all road users of MTHL. Two types of toll collection method will be adopted; Electronic Toll Collection (ETC) and Manual (paying by cash).
13. The lanes corresponding to these toll collection methods are dedicated ETC lanes and Manual lanes, and Manual system shall be installed to ETC lanes for backup to be able to cope at the time of the trouble of ETC equipment failure.

Traffic management System

14. Traffic Management System is a support system to Manage the traffic on MTHL safely and efficiently. The System consists of the information collection system including Closed-Circuit Television (CCTV), Emergency Call Box (ECB), Automatic Traffic Counter-Cum-Classifer (ATCC) and Meteorological Data System (MDS), and Information Dissemination System including Variable message Sign (VMS).
15. CCTV Cameras shall be installed at around three places per 1 km, on Both side of main route and the monitoring of the traffic condition of the whole stretch of MTHL will be almost enabled in the Traffic Control Centre and VMS displays the appropriate information for road users on the collated information.
16. The Information collected by these devices shall be transmitted to the Traffic Control Centre through the medium of an Optical Fiber Cable laid in MTHL.

Actual (P/R, PCR)

There is no change in the Rationale of the Project Design.

2.0 PROJECT IMPLEMENTATION

2.1 Project Scope

Refer Table 2.1.1 and 2.1.2 for details on Scope of the Project.

Table 2.1.1 Comparison of Original and Actual location

Location	Original: (P/M) Mumbai Metropolitan Region Development Authority, Mumbai, State of Maharashtra	Actual: (P/R and PCR)
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Table 2.1.2 Comparison of Original and Actual Scope

Items	Original	Actual
Construction work: 6-lane Marine Bridge Road (21.8 km)		
Package-1 Ch 0+000-10+380 (10.380 km)	<ul style="list-style-type: none"> 1 Interchange (Sewri) Viaduct superstructure (Marine Portion: PC Box Girder & Steel Box Girder with Steel Slab Land Portion: PC Box Girder & PC-I Girder) Viaduct Substructure (RC Concrete Structure) Viaduct Foundation (Bored piles) Road Furniture and road side facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers) 	(P/R and PCR)
Package-2 Ch 10+380-18+187 (7.80 km)	<ul style="list-style-type: none"> 1 Interchange (Shivaji Nagar) Viaduct superstructure (Marine Portion: PC Box Girder & Steel Box Girder with Steel Slab Land Portion: PC Box Girder & PC-I Girder) Viaduct Substructure (RC Concrete Structure) Viaduct Foundation (Bored piles) Road Furniture and road side facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers) 	(P/R and PCR) Actual: No View Barriers
Package-3 Ch 18+187-21+800 (3.61 km)	<ul style="list-style-type: none"> 2 Interchanges (State Highway-54, National Highway-4B) Viaduct superstructure (Marine Portion: PC Box Girder & Steel Box Girder with Steel Slab Land Portion: PC Box Girder & PC-I Girder & Steel Truss Girder for Rail-over-Bridges (ROB)) Viaduct Substructure (RC Concrete Structure) Viaduct Foundation (Bored piles) Cutting Section (6-lane with Slope Protection) Road Furniture and road side facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers) 	(P/R and PCR) Actual: No Noise Barriers & View Barriers

Items	Original	Actual
Package-4 ITS (Intelligent Transport System)	<ul style="list-style-type: none"> • Administrative Buildings • Toll Booths (1 for main alignment and each on and off rumps for 3 interchanges) • Traffic Management System (Traffic Control Centre, Closed Circuit Television (CCTV), Meteorological Observation System (MET), Emergency Call Box (ECB), Automatic traffic Counter-cum-Classifer (ATCC), Variable Message Sign (VMS)) • Highway Lighting (Whole sections Low-positioned lighting for some sections) • Electrical Powering System including HV/ LV Ring Network across the Bridge. 	<p style="text-align: center;"><i>(P/R and PCR)</i></p>
Consulting Services	<ul style="list-style-type: none"> • Tender Assistance • Construction Supervision • Facilitation of Implementation of Environmental Management Plan (EMP), Environmental Monitoring plan (EMoP). 	<p style="text-align: center;"><i>(P/R and PCR)</i></p>

2.2 Implementation Schedule

2.2.1 The Original Implementation Schedule

Table 2-2-1 Comparison of Original and Actual Schedule

Items	Original	Status (P/R and PCR) as on 31 st March 2019
1) Completion of Land Acquisition and Resettlement	March 2019	May 2019
2) Consulting Services		
a) Selection of Consultant	May – December 2016	May – December 2016
b) Consultancy Works	December 2016 – September 2024	December 2016 – September 2024
3) Selection of Contractor		
Package 1-3 (Civil)		
a) Pre-Qualification Process	May – December 2016	May – December 2016
b) Main Bidding	January – December 2017	January – December 2017
c) JICA's Concurrence of Contract	February-2018	February-2018
Package 4 (ITS)		
a) Pre-Qualification Process	January 2019 – May 2019	March 2019 – August 2019
b) Main Bidding	June 2019 – September 2020	September 2019 – December 2019
Package 5 (Geotechnical Investigation)		
a) Main Bidding	March-2016	March-2016
4) Civil Construction		
Package 1 and 2	March 2018 – September 2022	March 2018 – September 2022
Package 3	March 2018 – September 2021	March 2018 – September 2021
Package 4	October 2020 – September 2022	January 2020 – June 2022
Package 5 (Geotechnical Investigation)	March 2016– June 2016	March 2016– June 2016
5) Defect Liability Period		
Package 1, 2 and 4	October 2022 – September 2024	October 2022 – September 2024
Package 3	October 2021 – September 2023	October 2021 – September 2023
6) Commencement of Toll Collection	September -2022	September -2022
7) Selection of O&M Organization	October 2020 – September 2021	October 2021 – September 2022

Attachment: Project Implementation Programme updated till the quarter (Jan-Mar 2019) end, 31st March 2019.

2.2.2 Reasons for changes of the schedule and their effects to the Project

(P/R and PCR)

No change in the Implementation Schedule except the selection of O&M Organization timeline.

2.3 Project Cost

2.3.1.a Comparison of Originally Planned and Actually Incurred Cost BY ITEM

Table 2.3.1.a.(i) Originally Planned Cost BY ITEM

Cost Breakdown	Foreign Currency Portion			Local Currency Portion			Total		
	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)	Total (Rs. mil)	JICA Portion (Rs. mil)	Others (Rs. mil)	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)
Package-1	34,398	34,398	0	45,376	45,376	0	105,713	105,713	0
Package-2	26,513	26,513	0	32,617	32,617	0	77,774	77,774	0
Package-3	759	759	0	8,276	8,276	0	13,766	13,766	0
Package-4 (ITS)	0	0	0	1,444	1,444	0	2,269	2,269	0
Package-5 (Geotechnical Investigation)	0	0	0	166	0	166	260	0	260
Dispute Boards (Package-1, 2, 3 & 4)	63	63	0	45	45	0	134	134	0
Price Escalation	2,251	2,251	0	7,133	7,133	0	13,460	13,460	0
Physical Contingency	6,398	6,398	0	9,506	9,489	17	21,338	21,312	26
Consulting Services	1,650	1,650	0	1,587	1,587	0	4,145	4,145	0
Land Acquisition*	0	0	0	11,293	0	11,293	17,748	0	17,748
Administration Cost	0	0	0	4,898	0	4,898	7,698	0	7,698
GST	0	0	0	18,238	0	18,238	28,663	0	28,663
Import Tax	0	0	0	13,435	0	13,435	21,114	0	21,114
Interest during construction	2,942	0	2,942	0	0	0	2,942	0	2,942
Front End Fee	477	0	477	0	0	0	477	0	477
Total	75,451	72,032	3,419	154,013	105,967	48,046	317,501	238,572	78,929

(Note) 1. Exchange Rate: US\$1=Rs. 71.9, US\$1=JPY 113.0, Rs.1 = JPY 1.57

2. Price Escalation (a) Foreign Currency Portion: 1.83% p.a.

(b) Local Currency Portion: 4.13% p.a.

3. Physical Contingency: 10%

4. Base Year for Cost Estimation: December 2018

* Base Cost for Land Acquisition considered in the year 2016 was INR 9,062,669,696.

The base cost has been revised to INR 11,293 million considering Price Escalation and 10% Physical Contingency.

Table 2.3.1.a.(ii) Actually Incurred Cost BY ITEM

Cost Breakdown	Foreign Currency Portion			Local Currency Portion			Total		
	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)	Total (Rs. mil)	JICA Portion (Rs. mil)	Others (Rs. mil)	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)
Package-1	4,085	4,085	-	8,636	8,636		17,718	17,718	
Package-2	3,705	3,705	-	5,699	5,699		11,665	11,665	
Package-3	35	35	-	471	471		801	801	
Package-4 (ITS)	-		-	-			-		
Package-5 (Geotechnical Investigation)	-			196		196	308		308
Dispute Boards (Package-1, 2, 3 & 4)	-			-			-		-
Price Escalation	-			4	4		6	6	-
Physical Contingency	-			-			-		-
Consulting Services	253	253		256	256		736	736	
Land Acquisition*	-			3332		3332	5231		5231
Administration Cost	-			734		734	1152		1152
GST	-			1868		1868	2933		2933
Import Tax	-			-			-		-
Interest during construction	-			-			-		-
Front End Fee	-			-			-		-
Total	8,078	8,078	-	21,196	15,065	6,130	40,550	30,927	9,624

(Note) 1. Exchange Rate: Rs.1 = JPY 1.57 for MMRDA Portion only

2. Price Escalation (a) Foreign Currency Portion: 1.83% p.a.
(b) Local Currency Portion: 4.13% p.a.

3. Physical Contingency: 10%

4. Base Year for Cost Estimation: December 2018

* Base Cost for Land Acquisition considered in the year 2016 was INR 9,062,669,696. The base cost has been revised to INR 11,293 million considering Price Escalation and 10% Physical Contingency.

2.3.1.b Comparison of Originally Planned and Actually Incurred Cost BY YEAR

Table 2.3.1.b.(i) Originally Planned Cost BY YEAR

(All Figures are in JPY mil)

Cost Breakdown	Total	JICA Portion				Others (MMRDA Portion)
		Tranche I	Tranche II	Tranche III	Sub Total	
FY 2017	12,679	10,134	0	0	10,134	2,545
FY 2018	30,771	22,707	0	0	22,707	8,064
FY 2019	72,379	56,816	0	0	56,816	15,563
FY 2020	92,944	55,138	16,040	0	71,178	21,765
FY 2021	66,397	0	50,869	0	50,869	15,527
FY 2022	27,683	0	0	20,113	20,113	7,570
FY 2023	3,723	0	0	565	565	3,158
FY 2024	10,925	0	0	6,189	6,189	4,735
Total	317,501	144,795	66,909	26,868	238,571	78,929

Table 2.3.1.b.(ii) Actually Incurred Cost BY YEAR

(All Figures are in JPY mil)

Cost Breakdown	Total	JICA Portion				Others (MMRDA Portion)
		Tranche I	Tranche II	Tranche III	Sub Total	
FY 2017	13,738	9,232	-	-	9,232	4,506
FY 2018	26,813	21,695	-	-	21,695	5,118
FY 2019						
FY 2020						
FY 2021						
FY 2022						
FY 2023						
FY 2024						
Total	40,551	30,927	-	-	30,927	9,624

(Note) 1. Exchange Rate used: Rs.1 = JPY 1.57 for MMRDA Portion only

2. Fiscal Year starting from 1st April and ending on 31st March.

2.3.2 Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(P/R and PCR)

There is No major gap between the original and actual cost.

2.4 Organization for Implementation

2.4.1 Executing Agency

Original:

Executing Agency

Mumbai Metropolitan Region Development Authority (MMRDA) was established on 26th January 1975 in accordance with the Mumbai Metropolitan Development Act, 1974 to make Mumbai Metropolitan Region (MMR) a destination for economic activity by promoting infrastructure and regional planning. MMRDA takes all the necessary measures, required from time to time, in an effective manner and be fully responsible for the Project implementation. After completion of the Project, MMRDA continues to be responsible for the efficient operation and maintenance of the Project.

The GoM appointed MMRDA as the implementing/ executing agency of MTHL vide Government Resolution dated 4th February 2009 and further the ownership of MTHL would be with MMRDA vide Government Resolution dated 8th June 2011.

Organization's Role

To construct, execute, carryout, improve, work, develop, administer, manage, control or maintain in MMR all types of roads, highways, express routes, paths, streets, bridges, sideways, tunnels and other infrastructure, works and conveniences, approach road, etc. Under the Project, MMRDA is responsible for all the tendering process including employment of consultants, as well as for the construction process.

Project Implementation Unit (PIU)

The PIU is in charge of the Projects. The PIU is headed by Chief Engineer, comprising of 6 Divisions/Cells (Finance Division, Social Development Cell, Engineering Division, Land Cell, Administrative Division and Environmental Cell), Supervision/ ITS Consultant and supporting staff.

Procurement

MMRDA shall have to adopt the JICA's Standard Biding Documents of the latest version, as stipulated in Section 4.01 (2) of "Guidelines for Procurement under Japanese ODA Loans.

Procurement of goods and services, except for consulting services, converted by the Japanese ODA Loan should be implemented in accordance with "Guidelines for Procurement under Japanese ODA Loans", dated in April 2012. Employment of consultants should be implemented in accordance with "Guidelines of Employment of Consultant under Japanese ODA Loans", dated in April 2012. "Principles of Procurement under the Project" is attached for brief explanation of the above Guidelines.

Actual, if changed: (P/R and PCR)

There is no change made in original Organisation Set-up & Implementation methods. Refer Annexure III Organisation Chart.

2.4.2 Contractor(s)/ Supplier(s), and Consultant(s) and their Performance:

2.4.2.1 Procurement & Consultant

Table 2.4.2 Procurement of Contractor(s)/ Supplier(s) and Consultant(s)

Contract Package	Selection Method		
	Original: (P/M)	Actual: (P/R and PCR)	
Construction Works			
1	<u>Package-1:</u> From CH 0+000 - To CH 10+380 (10.38 km)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	No Change
2	<u>Package-2:</u> From CH 10+380 - To CH 18+187 (7.80 km)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	No Change
3	<u>Package-3:</u> From CH 18+187 - To CH 21+800 (3.61 km)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	No Change
4	<u>Package-4:</u> To install ITS (Toll Management System and Highway Traffic Management System)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	No Change
5	<u>Package-5:</u> To conduct the geotechnical investigation	Local Competitive Bidding Process	No Change
Consulting Services			
1	Consulting Service for Supervision	Short List Method (QCBS)	No Change

2.4.2.2 Performance

Consultant's Progress:

January 2019:

- 1 GC scrutinized & certified following invoices:
 - i) Package-1: IPC-007 (80% ad-hoc), IPC-006 (detailed verification), MAPC-004
 - ii) Package-2: IPC-004 (80% ad-hoc), IPC-005 (80% ad-hoc), IPC-003 (detailed verification), MAPC-003
 - iii) Package-3: IPC-003 (80% ad-hoc), IPC-003 (detailed verification)
- 2 GC scrutinized & certified second part of the Mobilization Advance for the Package-1 & Package-2.
- 3 Monthly Progress Review Meetings with the Package-1 & 2 Contractors were conducted at the GC Office, on 2nd January 2019 and, for Package-3, on 3rd January 2019. GC prepared the MOM and forwarded to the concerned stakeholders for further action.
- 4 GC submitted a revised draft of Pre-Qualification Document of the Package-4 (ITS) to MMRDA for their review and to seek further approval from JICA.

February 2019:

- 1 Monthly Progress Review Meetings with the Package-1 & Package-2 Contractors were conducted on 12th February 2019 at the GC Office. GC prepared the MOM and forwarded to the concerned stakeholders for further action.
- 2 GC scrutinized & certified following invoices:
 - i) Package-1: IPC-007 (detailed verification), IPC-008 (80% ad-hoc)
 - ii) Package-2: IPC-004 (detailed verification), IPC-006 (80% ad-hoc), IPC-007 (80% ad-hoc)

March 2019:

- 1 Monthly Progress Review Meetings with the Package-2 & Package-3 Contractors were conducted on 6th March 2019 and with the Package-1 Contractor on 7th March 2019 at the Site Office. GC prepared the MOM and forwarded to the concerned stakeholders for further action.
- 2 GC scrutinized & certified following invoices:
 - i) Package-1: IPC-010 (80% ad-hoc), IPC-010 (detailed verification)
 - ii) Package-2: IPC-008 (80% ad-hoc)
 - iii) Package-3: IPC-004 (80% ad-hoc)
- 3 Dispute Board (DB) Meeting regarding Dispute Notified by the Package-2 Contractor conducted on 27th March 2019.

Contractor's Progress:

Package-1 Physical Progress

S. No	Activity	Total Scope	Unit	Cumulative Work done Achieved	% of Work done Progress	Remarks
1	Geotechnical investigation (Field Works)					
1.1	Marine	202	No.	202	100%	
1.2	Intertidal	117	No.	117	100%	
1.3	Interchange (Land Section)	228	No.	216	95%	
	Total	547	No.	535	98%	
2	Gantry Track Foundation for PC Yard					
2.1	Gantry Track Foundation	1814	Rmt	1814	100%	
3	Temporary Access Bridge					
3.1	Piles	626	No.	298	48%	
3.2	Bridge Deck	2953	Rmt	1030	35%	
3	Test Pile					
3.1	Test Piles	5	No.	4	80%	
4	Permanent Bridge Works (Intertidal Zone)					
4.1	Piles	236	No.	24	10.20%	
4.2	Pile Cap	57	No.	1	1.80%	
5	Permanent Bridge Works (Marine Zone)					
5.1	Piles	478	No.	16	3.30%	
5.2	Pile Cap	100	No.	1	1%	
6	Permanent Bridge Works (Land/ Interchange Zone)					
6.1	Piles	509	No.	0	0%	
6.2	Pile Cap	157	No.	0	0%	
7	Permanent Bridge Works (Total)					
7.1	Piles	1223	No.	40	3.20%	
7.2	Pile Cap	314	No.	2	0.63%	

Package-2 Physical Progress

S. No	Activity	Total Scope	Unit	Cumulative Work done Achieved	% of Work done Progress	Remarks
1	Geotechnical investigation (Field Works)					
1.1	Marine	160	No.	158	99%	
1.2	Intertidal	84	No.	84	100%	
1.3	Interchange	66	No.	66	100%	
	Total	310	No.	308	99%	
2	Gantry Track Foundation for PC Yard					
2.1	Gantry Track Foundation	1480	Rmt	1465	98%	
3	Temporary Access Bridge					
3.1	Piles	805	No.	310	39%	
3.2	Bridge Deck	2060	Rmt	480	23%	
4	Test Pile					
4.1	Test Piles	4	No.	2	50%	
5	Permanent Bridge Works (Intertidal Zone)					
5.1	Piles	274	No.	0	0%	
5.2	Pile Cap	68	No.	0	0%	
6	Permanent Bridge Works (Marine Zone)					
6.1	Piles	552	No.	8	1.40%	
6.2	Pile Cap	122	No.	0	0%	
7	Permanent Bridge Works (Land/ Interchange Zone)					
7.1	Piles	466	No.	0	0%	
7.2	Pile Cap	116	No.	0	0%	
8	Permanent Bridge Works (Total)					
8.1	Piles	1292	No.	8	0.60%	
8.2	Pile Cap	306	No.	0	0%	

Package-3 Physical Progress

S. No	Activity	Unit	Total Scope	Cumulative Work done Achieved	% of Work done Progress	Remarks
1	Survey Works					
1.1	Topography Survey	3.61	skm	3.26	90%	
1.2	Tree Survey	3.61	skm	3.61	100%	
2	Geotechnical Investigation Works					
2.1	Geotechnical Investigation Works (Field)	208	No.	200	96%	
3	Casting Yard Development					
3.1	Boundary Demarcation & Fencing for the Casting Yard	1100	Rmt	330	30%	
3.2	Gantry Track Foundation	1120	Rmt	285	25%	
4	Permanent Foundation Works					
4.1	No. of Foundations	204	No.	4	2%	

Package-4 (ITS)

Pre-Qualification documents have been submitted to MMRDA on 28th Jan 2019.

Health & Safety and Environment (HSE)

The HSE Plan has been submitted by the respective construction agency for the Packages which is being monitored by the GC on a regular basis.

Package-1 Safety Report

Sr. No	Description	For Jan- Mar 2019	Cumulative till 31 st Mar 2019
1	Number of Man-Hours (Accident Free Man-Hours)	1428360	1971612
2	Number of Man-Days	178545	217014
3	Number of Reportable Fatal Accidents	0	0
4	Number of Non-Fatal Accidents	0	0
5	Number of Near Miss Incidents	6	3
6	Number of First Aid Cases	13	12
7	Number of Dangerous Occurrences	0	0
8	Number of Reportable Sick Cases	0	0
9	Number of Man-Hours Lost	0	0
10	Number of Man-Days Lost	0	0
11	Number of Reportable Accidents per 100,000 Man-Hours Worked	0	0
12	Number of Inspections done for Offices & Site	60	32
13	Number of Training/ Induction done for Office & Site	25	44
14	Daily Average Manpower (Including all Workmen & Staff) for the Month	4298	655

Package-2 Safety Report

Sr. No	Description	For Jan- Mar 2019	Cumulative till 31 st Mar 2019
1	Number of Man-Hours (Accident Free Man-Hours)	721900	1543452
2	Number of Man-Days	65258	143134
3	Number of Reportable Fatal Accidents	0	0
4	Number of Non-Fatal Accidents	0	0
5	Number of Near Miss Incidents	1	11
6	Number of First Aid Cases	10	22
7	Number of Dangerous Occurrences	0	01
8	Number of Reportable Sick Cases	0	0
9	Number of Man-Hours Lost	0	00
10	Number of Man-Days Lost	0	0
11	Number of Reportable Accidents per 100,000 Man-Hours Worked	0	00
12	Number of Inspections done for Offices & Site	90	257
13	Number of Training/ Induction done for Office & Site	846	2143
14	Daily Average Manpower (Including all Workmen & Staff) for the Month	2230	419

Package-3 Safety Report

Sr. No	Description	For Jan- Mar 2019	Cumulative till 31 st Mar 2019
1	Number of Man-Hours (Accident Free Man-Hours)	110781	191784
2	Number of Man-Days	13847	23973
3	Number of Reportable Fatal Accidents	0	0
4	Number of Non-Fatal Accidents	0	0
5	Number of Near Miss Incidents	1	01
6	Number of First Aid Cases	4	04
7	Number of Dangerous Occurrences	0	0
8	Number of Reportable Sick Cases	0	0
9	Number of Man-Hours Lost	0	0
10	Number of Man-Days Lost	0	0
11	Number of Reportable Accidents per 100,000 Man-Hours Worked	0	0
12	Number of Inspections done for Offices & Site	24	60
13	Number of Training/ Induction done for Office & Site	13	33
14	Daily Average Manpower (Including all Workmen & Staff) for the Month	414	693

Please refer **Attachment 5 - Site Progress Photos** for the development of the project.

3.0 BENEFITS DERIVED FROM THE PROJECT (EFFECTIVENESS)

3.1 Operational and Physical Condition

(This section will be developed when the operational plan is available)

Facilities	Description of condition	Problems, its Background and Remedial Action Plan
(P/R and PCR)	(P/R and PCR)	(P/R and PCR)

3.2 Precautions (Measures To Be Adopted/ Points Which Require Special Attention)

Original Issues and Countermeasure(s)	Actual Issues and Countermeasure(s)
<p>3.2.1 General Issues</p> <p>1. Toll Arrangement/ Toll Rate Fixed toll rate as per the type of vehicle will be levied for the road users after the completion of the Project. An appropriate tolling policy/ rates will be finalized in consultation with the state government prior to the completion of Civil works.</p> <p>2. Operation and Maintenance MMRDA proposes to appoint separate agencies for Operation & Maintenance of the bridge and for Toll Management System. Both the agencies for O & M and Toll Management System may be appointed through open tendering process. Overall monitoring of the two agencies would be done by MMRDA in house through a separate cell which could be constituted for the purpose. MMRDA has confirmed to allocate adequate budget for engaging the Contractors.</p>	<p>(P/R and PCR)</p> <p>Appropriate Tolling Policy/ Rates will be finalized by December 2020.</p> <p>Single Operation and Maintenance Contractor will be appointed by December 2020.</p>
<p>3.2.2 Environmental and Social Consideration</p> <p>a. CRZ Clearance</p> <p>i. Supplemental EIA has been approved by MMRDA and disclosed on the website of JICA. Supplemental EIA report has been disclosed also on the website of MMRDA.</p> <p>ii. Furthermore, renewed CRZ Clearance has been obtained in January 2016.</p> <p>iii. In accordance with the conditions for</p>	<p>(P/R and PCR)</p> <ul style="list-style-type: none"> • MMRDA has disclosed Supplemental EIA & SIA on MMRDA website. • The renewed CRZ clearance was granted on 25/1/2016 from MoEF&CC and the approval conditions have been imposed on the Contractors as the Employer's requirements. MMRDA has actively monitored the compliances of the approval conditions and maintains throughout the construction phase. • MMRDA appointed Mangroves & Marine

<p>CRZ Clearance, appropriate measures shall be taken, and necessary budget shall be secured by MMRDA.</p>	<p>Biodiversity Foundation for bird monitoring and implementation of Flamingos and bird monitoring program for the MTHL project during the construction as well as the long-term monitoring after the construction.</p> <ul style="list-style-type: none"> • Rs 91.42 Crore has been transferred to Mangroves & Marine Biodiversity Foundation, Mumbai for the development & conservation of mangrove area and its afforestation. Such funds will be managed by the mangrove foundation of Maharashtra State. • As per the renewed CRZ clearance condition, IIT Mumbai has been appointed for the DPR study to develop a Mahul creek Effluent Treatment Plant (ETP). Rs 4.98 Crore was secured for IIT services. Draft DPR was submitted by IIT and has been under review by the “Environmental committee (EC)” of the MTHL CRZ clearance.
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b. Required Permits

The Permits to be obtained by MMRDA/ Contractors and the present status is given in the following Table.

Table 3.2.2 Present Status of some Important Permits

Clearance Required	Approving Authority	Responsible Organization	Obtained by when	Remark /Status
Mangrove Cutting	Hon. Bombay High Court	MMRDA/ Contractor	Approval received from Hon. Bombay High Court on 28 th November 2016	Mangrove cutting operation was completed with full compliance and as of now, no further follow up work is required.
Tree Cutting /Transplantation	Respective Tree Authorities	Contractor for respective Packages	-	Pkg-1 Tree cutting/ Transplantation permission is awaited from Tree Authority. Pkg-2 Tree Cutting/ Transplantation permission obtained & completed. Pkg-3 Tree Survey completed, and the report submitted to the forest department for approval.
Consent to Establish	Maharashtra Pollution Control Board	Contractor for respective Packages	Pkg-1-18.07.2018 Pkg-2-16.08.2018	Pkg-3 has applied for obtaining the Consent to Establish to MPCB.

3.3 Environmental and Social Impacts

Major environmental and social impacts have occurred during project implementation (e.g. involuntary resettlement, poverty reduction, impacts on the natural environment).

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>1. Establishment of Effective Environmental and Social Cell in PIU</p> <p>MMRDA confirmed that Social Development Cell (2 Officers), Land Cell (3 Officers), and Environmental Cell (2 Officers) had been set up.</p>	<p>Cell is established by MMRDA (Annexure III, Organization chart)</p>
<p>2. Rehabilitation and Land Acquisition Issues</p> <p>a. Affected Area and Population</p> <p>Due to the Project, 1282 non-titleholders will be involuntary resettled, and 108.09 ha of land will be handed over by CIDCO.</p>	<p>Sewri: Involuntary resettlement in Sewri section has been further validated by Social Development Cell of MMRDA. Out of 298 Project Affected Households (PAHs) have given consents as follows:</p> <ul style="list-style-type: none"> • 165 PAHs Kanjurmarg for residential • 25 PAHs Kanjurmarg for commercial • 7 PAHs (Satsangi Plot) Kanjurmarg for Commercial • 1 PAHs (commercial to residential) for Bhakti Park • 100 PAHs HDIL Kurla for residential <p>Navi Mumbai: CIDCO has been finalizing the land acquisition closely monitored by Land Cell of MMRDA. Except private land and forest, CIDCO has possessed all required land of 108.09 ha. Out of the 108.09 ha, 101.95 ha has been handed over by CIDCO to MMRDA. CIDCO has yet to acquire 6.14 Ha with the help of Collector, Raigad.</p>
<p>b. Entitlement Policy</p> <p>MMRDA prepared the entitlement matrix for resettlement of non-title holders in Sewri, which meets the Resettlement and Rehabilitation Policy for Mumbai Urban Transportation Project (1997, amended in 2000) and JICA guidelines for Environmental and social considerations (2010) (“Guidelines”) (Attachment 2-5).</p>	<p>There have been no changes during the enforcement. As per the Attachment 2-5 of JICA MoD, MMRDA has committed to enforce the agreed/ approved policy.</p>

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>c. Compensation to Project affected Fishermen</p> <p>Detailed baseline survey will be undertaken by MMRDA in order to identify fishermen who are affected by the Project. Based on the result of the baseline survey, MMRDA will compensate them in accordance with compensation policy prior to the construction. Monitoring will be conducted by MMRDA with assistance of the Consultant to gasp the exact impact during construction and operation phase.</p>	<p>Updated Attachments 2-8 and 2-10 are enclosed in the report.</p>
<p>d. Implementation Schedule</p> <p>The Implementation schedule for land acquisition, resettlement and rehabilitation is attached as per Attachment 2-10.</p>	<p>Updated Attachment 2-10 is enclosed in the report.</p>
<p>e. Grievance Redressal Mechanism</p> <p>Grievance Redressal Committee (“GRC”) set under MMRDA will deal with grievances raised by PAPs in Sewri and fishermen to be affected by the Project. Any grievances raised by PAPs whose land is acquired by CIDCO shall be resolved by CIDCO.</p>	<p>Sewri: FLGRC (Field Level Grievance Redressal Committee) and SLGRC (Senior Level Grievance Redressal Committee) were set as per the RAP and in operation. Compensation Committee has been constituted to address the issues of Compensation to Lease Holders at Sewri.</p> <p>Fishermen: GRC for resolving grievances of the fisherfolk was set up as per the compensation policy and is in operation.</p>
<p>f. Internal Monitoring</p> <p>Internal Monitoring of the Resettlement Action Plan (RAP) implementation will be conducted by MMRDA in accordance with the RAP with necessary assistance of the consultant. RAP Internal Monitoring Form (Attachment 2-8) will be submitted to JICA on a quarterly basis as a part of PSR during the RAP implementation.</p>	<p>Internal Monitoring updates are mentioned in Attachment 2-8.</p>
<p>g. Qualitative Independent Evaluation</p>	

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>An Independent Evaluation Agency will be hired by MMRDA for evaluation of RAP implementation. An external evaluation report will be submitted to MMRDA at mid-term and end-term. MMRDA would submit the evaluation report to JICA in a timely manner.</p>	<p>Updated Attachment 2-10 is enclosed in the report.</p>
<p>h. RAP Implementation Budget</p> <p>The amount of estimated resettlement and compensation budget is Rs.906.26 Cr MMRDA informed to the JICA Mission that RAP implementation cost would be borne by MMRDA and ensured sufficient and timely allocation of funds for smooth implementation.</p>	<p>As updated in Aid Memoire dated 14/12/18, the base cost Budget towards RAP Implementation is updated as Rs 1129.3 Cr.</p>
<p>i. Environmental Management Plan (“EMP”)</p> <p>The mitigation measures against air pollution, waste, noise, and water pollution etc. shall be taken during construction and operation phase. Mitigation measures such as installation of noise barrier, appropriate waste management, etc. have been prepared by MMRDA. The mitigation measures are listed in the EMP matrix. (Attachment 2-1). During the detailed design stage, MMRDA, with assistance of the Consultant, will update the EMP, as necessary.</p>	<p>EMP will be updated, if required, in due course of construction activities/progress.</p>
<p>j. Environmental Monitoring Plan (“EMoP”)</p> <p>MMRDA takes overall responsibility for implementation of EMoP. During construction, environmental monitoring will be carried out by contractors under supervision by Construction Supervision consultant. The result shall be reported to the JICA India Office on a quarterly basis as a part of Progress Status Report (PSR) by filling in the Reporting Form of Environmental</p>	<p>Updated Environmental Monitoring Plan with package wise updated cost is reported in Attachment 2-3.</p> <p>Environmental Monitoring Results during the construction phase are reported in Attachment 2-4.</p>

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>Monitoring Result. (Attachment 2-4). After completion of the construction, EMoP shall be implemented by MMRDA, and the results shall be submitted to the JICA India Office semi-annually until two years after complementation of construction. The required amount of estimated environmental monitoring budget is borne by MMRDA.</p>	
<p>k. Long Term Bird Monitoring</p> <p>MMRDA committed to conduct the long-term monitoring of birds and its habitat in Sewri mud-flats with the assistance of hired bird expert. During the long-term monitoring, MMRDA will share information and receive advices from external experts including the one from NGOs and civil society.</p>	<ul style="list-style-type: none"> • MMRDA has entrusted the work of bird monitoring and implementation of Flamingos and birds related mitigation measures & bird monitoring program to Mangrove and Marine Biodiversity Foundation. • Rs. 31.92 Crore deposited to Mangrove foundation, Mumbai for periodical disbursement to BNHS.

3.4 Qualitative and Quantitative Data of Monitoring Indicators

Operation and Effect Indicator EIRR and/ or FIRR

Supporting data for Computing EIRR and/ or FIRR

Indicators	Original (Year 2015)	Target (Year 2024) 2 Years After Commercial Operation
Average Annual Daily Traffic (PCU/ day)	-	47,400
Daily Average Travel Time (min) * 1	61 min	15.8 min
Number of Users (Persons/ year) * 2	-	46,077,504
Cargo Volume (tons/ year) * 3	-	13,511,759

*1 Section on Sewri – Chirle

*2 Assumptions: average passengers of car and taxi (2.6 persons), bus (37.2 persons) based on JICA study. Number of passengers of LCV, HCV and MAV is assumed as 1 person each.

*3 Assumptions: the maximum capacity of respective vehicle (LCV: 1 ton, HCV and MAV: 15 tons) is used for estimation.

EIRR	<p>Original: 15.4% Cost: Project cost (excluding Price Escalation, Tax and Duties and Administration cost) O&M cost, Land Acquisition Benefit: Travel Time cost and Vehicle Operation cost Project Life: 32 Years</p>	<p>Actual: (PCR) _____% Cost: Benefit: Project Life: Attachment(s): Supporting data for computing EIRR</p>
FIRR	<p>Original: 1.6% Cost: Project Cost, O&M cost, Land Acquisition cost Benefit: Toll Revenue Project Life: 32 Years</p>	<p>Actual: (PCR) _____%</p>

3.5 Monitoring Plan for the indicators

Monitoring Methods, Section(s)/ department(s) in charge of monitoring, frequency, the term and so forth are given below:

<p>Original: (P/M and PCR)</p> <p><u>Monitoring Organization</u></p> <p>PIU shall be In-Charge of Monitoring activities for the Project.</p> <p><u>Submission of QPR and PCR</u></p> <p>The timely submission of the following documents is required by MMRDA.</p> <p>a. Quarterly Progress Report (QPR): The progress report for the Project should be submitted by MMRDA to JICA on quarterly basis, not later than 30 days after the concerned quarter, in the form of Project Status Report (PSR) attached hereto as per Annex I; Updated status land Acquisition, milestone achieved with respect to Action Plan with Timetable, the monitoring form for environmental and social consideration should also be appended to the PSR. In addition, MMRDA shall also forward the Monthly & Quarterly Progress Reports (including S-Curve Chart) prepared by the Consultant to JICA India Office on regular basis till project completion.</p> <p>b. Project Completion Report (PCR): A project completion report should be submitted by MMRDA to JICA promptly, but in any event not later than six months after completion of the Project, in the form of Project Status Report (PSR) attached hereto as per Annex I.</p>
<p>Actual: (P/R and PCR)</p> <p>Monitoring Organization</p> <p>PIU for MTHL has been established for monitoring the Project.</p> <p>Submission of QPR and PCR</p> <p>This QPR No. 8 is submitted for a period of 1st January to 31st March 2019.</p>

3.6 Achievement of the Project Objective

(PCR)

4.0 OPERATION AND MAINTENANCE (O&M) (SUSTAINABILITY)

4.1 O&M and Management

- Organization Chart of O&M
- Operational and maintenance system (structure and the number, qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc.)

Original: (P/M)

Operation & Maintenance, Toll Management and ITS

MMRDA proposes to engage two separate agencies for O&M and Toll Management System. Though MMRDA will not directly carry out O&M, the overall monitoring over the O&M agency will be the responsibility of MMRDA. O&M Budget will be allocated by MMRDA. O&M and increase in toll rate will be done in accordance with the NHAI's manuals such as "NHAI Works manuals".

Actual: (PCR)

4.2 O&M Cost and Budget

- The actual annual O&M cost for the duration of the project, as well as the annual O&M budget.

(PCR) This will be reported when the outcome of the above work study is available.

5.0 EVALUATION

5.1 JICA and Borrower / Executing Agency performance

JICA:

(PCR)

Borrower/ Executing Agency:

(PCR)

5.2 Overall Evaluation

Please describe your evaluation on the overall outcome of the project.

(PCR)

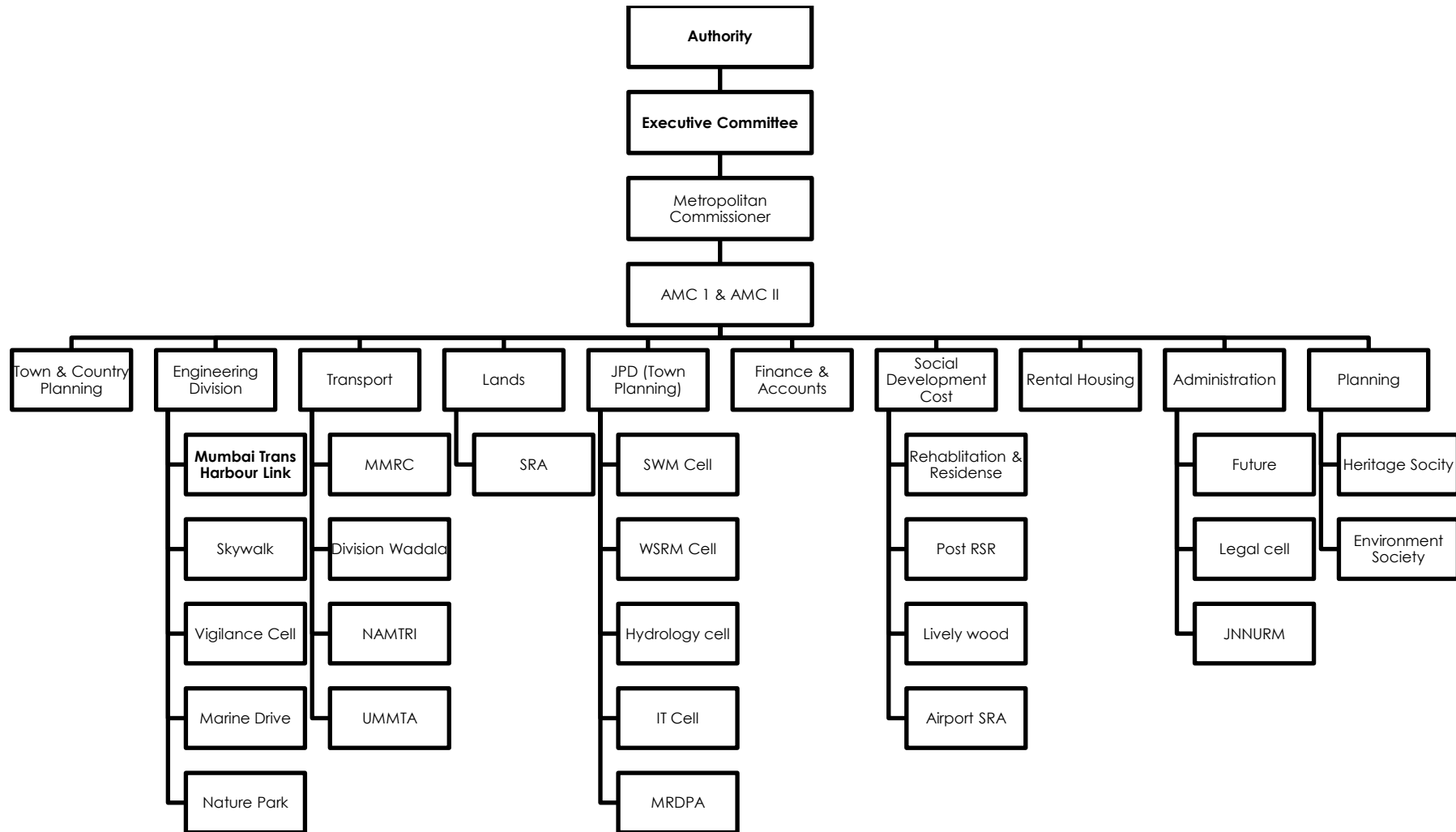
5.3 Lessons Learnt and Recommendations

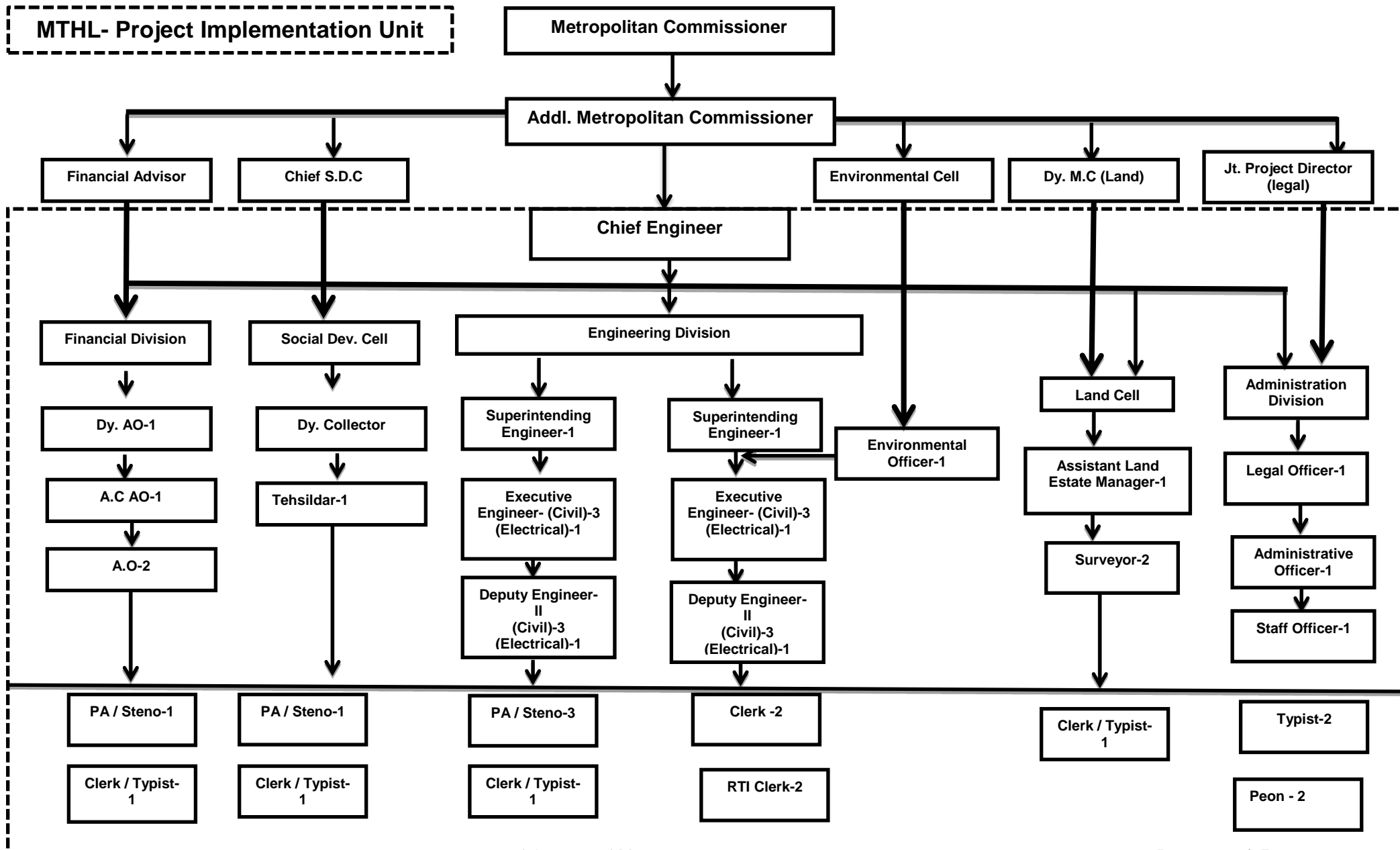
Please raise any lessons learned from the project experience, which might be valuable for the future JICA assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

(PCR)

Attachment 1- MMRDA & PIU Organization Chart

MMRDA Organization chart





Attachment 2- Environmental & Social Impacts Attachments

Attachment 2-3 - Environmental Monitoring Plan

Attachment 2-4 – Environmental Monitoring Result Reporting Form

Attachment 2-6 – MTHL Land Acquisition Status

Attachment 2-8 – RAP Internal Monitoring Form

Attachment 2-10 – Schedule of the RAP Implementation

Updated Environmental Monitoring Plan with Packagewise Estimated Cost

Category	No.	Impacted Item on JICA Guidelines	Parameter	Method	Location	Frequency a year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Standard Central Pollution Control Board (CPCB) - Ministry of Environment & Forest (MoEF)	Remarks
Pollution	1	Air pollution	SO ₂ , NO ₂ , PM ₁₀ , PM _{2.5} , O ₃ , CO, (6 Items)	National Ambient Air Quality Standards, 2009	1. Sewri & Sewri bay area for package I	Fortnightly at all locations except 2 locations each near Batching plants	1,800,000	15,000,000	1,800,000	742,500	17,542,500	National Ambient Air Quality Standards (NAAQS) by Central Pollution Control Board (CPCB)	P1 contractor team is conducting Ambient air quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement.
					2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year						(Standard for 24hrs: Industrial and Residential/ Ecological Sensitive area)	P 2 contractor Monitoring plan has been designed as per EIA of 2015
					3. Gavhan & Chirle for package III	Fortnightly only for 3 months (jan-2019 to Mar-2019). Then quarterly monitoring as per MOEF and CPCB norms						SO ₂ : 80 / 80µg/m ³	P3 contractor team is conducting Ambient air quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement.
												NO ₂ : 80 / 80µg/m ³	P 1 received Consents CTE & CTO from MPCB and they are following MPCB frequency in addition to frequency set by Environment Expert from GC. The NAAQ standards are showing High rate as that is the usual procedure. The frequency of monitoring is set by us which varies for different parameters as either Statutory requirements or as required by us to ensure we have sufficient data in hands if there are additional claims for Compensation in C5 category. Summary : Although the contract conditions for all packages were same at the time of bidding. Later modifications suggested by GC were not accepted by P 2. P1 and P3 accepted the modifications and hence the difference. Second point is P 1 carrying out monitoring as per the obatiend CTE and CTO. Both other packages have applied for CTE but haven't obtained it yet. So we expect the monitoring frequency would change after obtaining CTE.
	2	Water pollution	pH, BOD, DO, Turbidity and O&G	IS / AWWA	1. Sewri & Sewri bay area for package I	Quarterly	810,000	2,400,000	810,000	0	3,210,000	Marine water quality Standards – Class SW-IV Harbour Waters (MPCB)	Water Pollution not applicable for Pkg. 3
					2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year						pH : 6.5-9	
					3. Gavhan & Chirle for package III	Not applicable						DO: 3 mg/l Turbidity: 30 NTU BOD: 5 mg/l O & G: 10 mg/l	
	3	Waste	Volume of waste soil, cutting tree and domestic garbage	Volumetric	1. Sewri & Sewri bay area for package I	Daily	500,000	299,200,000	500,000	600,000	300,300,000		The cost of waste disposal for P1 includes C&D waste, Pile muck etc. from all areas like, interchange, intertidal and marine. The disposal location is at MCGM approved location Bhayandarpada, Thane.

Category	No.	Impacted Item on JICA Guidelines	Parameter	Method	Location	Frequency a year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Standard Central Pollution Control Board (CPCB) - Ministry of Environment & Forest (MoEF)	Remarks
					2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year						Municipal Solid Waste Management Rules, 2013 Generated waste shall be reused or disposed at designated site. Sites have been identified and the location for Pkg. 1 is at Bhayandar Pada in Thane. For Pkg. 2 & 3 is in Navi Mumbai at Pushpak Node near "Teen Taki Junction" along the Amar Marg.	P2 contractor has considered only Domestic garbage with respect to CIDCO. Other wastes are not considered. Construction wastes will be
				3. Gavhan & Chirle for package III	Once site clearing work/execution part of work start.								
	4 and 8	Soil Contamination/ sedimentation	Heavy Metals & Oil & Grease (5-10 items shall be selected from Soil pollution standards)	IS / Methods Manual Soil Testing in India by Department of Agriculture and Cooperation, January 2011	1. Sewri & Sewri bay area for package I 2. Nhava temporary bridge & casting yard in Gavhan for package II 3. Gavhan & Chirle for package III	1. Muck: 1 Time / Year 2. Sediments: 4 Times / Year *If any spillage/leakage take place from chemical, fuel storage area. *One time grab sample to be collected during Bridge Construction *Pre & Post Monsoon at Storage area only	150,000	1,500,000	150,000	100,000	1,750,000	Soil Pollution Standard in India (MOEF) · Cd: 0.01mg/l · Lead: 0.01mg/l · Chromium (VI): 0.05mg/l · Arsenic: 0.01mg/l · T-Mercury: 0.0005mg/l · Copper: 125mg/kg (some items shall be selected from totally 25 standards items)	
	5	Noise and vibration	Ambient and road side noise (dB(A) _{L_{eq}}) Vibration (dB L10 or mm/sec)	IS Standard	1. Sewri & Sewri bay area for package I 2. Nhava temporary bridge & casting yard in Gavhan for package II 3. Gavhan & Chirle for package III 1 Location Gavan area for package III	Fortnightly 2 Times / Year Fortnightly Half yearly	150,000 75,000	54,000 0	150,000 75,000	369,000 400,000	573,000 475,000	-Construction Noise; 85dB(A) -Ambient Noise Standards in India (dB (A) _{Leq}) 1.Industrial Area Day Time: 75 (6-22hr) Night Time: 70 (22-6hr) 2.Commercial Area: Day Time: 65 (6-22hr) Night Time: 55 (22-6hr) 3.Residential Area: Day Time: 55 (6-22hr) Night Time: 45 (22-6hr) 4.Silence Zone Day Time: 50 (6-22hr) Night Time: 40 (22-6hr) - Construction vibration 75dB -Vibration Standards roadside 1. Commercial /Industrial Area Day Time: 70 (7-20hr) Night Time: 65 (20-7hr) 2. Residential Area: Day Time: 65 (7-20hr) Night Time: 60 (20-7hr)	Not applicable for Pkg. 1
	9 and 10	Protected Area /Ecosystem	1. Monitoring of mudflat conditions including fauna-flora 2. Monitoring of Cutting Tree and replantation/transplanting area 3. Monitoring of Mangrove Plantation area appointed by MoEF	Ocular inspection and quantitative survey 1-1. Fauna-Flora Line-Point census and record number and appeared species	Along MTHL alignment and mangrove replant area for Package I Along MTHL alignment and mangrove replant area for package II Not applicable for Package III	Quarterly during the construction Period 4 Times / Year	6,500,000	7,200,000	6,500,000	0	13,700,000	Significant impacts are not caused by the project Note)	Not applicable for Pkg. 3

Category	No.	Impacted Item on JICA Guidelines	Parameter	Method	Location	Frequency a year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Standard Central Pollution Control Board (CPCB) - Ministry of Environment & Forest (MoEF)	Remarks
Natural environment			4. Monitoring of sedimentation soil and ecological parameter (18 items on Supplemental EIA Table 6.1.15 for soil and 7 items such as 1) Net primary productivity, 2) Chlorophyll-a, 3) Phosphate, 4) Nitrate, 5) Nitrite, 6) Particulate Organic Carbon, 7) SiO ₂)	1-2: Mangrove density and community survey								Detailed monitoring plan will be setup during basic design stage Standard for Soil; Supplemental EIA Table 6.1.15 Standard for Ecological Parameter: · Net primary Productivity <1,500 mgC/m ³ /day at surface · Chlorophyll-a <4mg/m ³ · Phosphate: 0.1-90µg/l · Nitrate: 1.0-500µg/l · Nitrite: <125µg/l · Particulate Organic Carbon: 10-100mg/m ³ · SiO ₂ : 10-5,000µg/l	
				1-3: Benthos Survey									
				2-1: Cutting trees confirmation									
				3-1: Mangrove survey in the replanted area									
	11	Hydrology	Flooding situation	Flood level measurement during high precipitation periods	Not applicable for Package I		350,000	0	350,000	0	350,000	Project activities and structures does not cause flooding and impacts on tidal conditions	Not applicable for Pkg. 1 & 3
					2 Locations (CRZ at Sewri and Shivaji Nagar) for Package II	4 Times / Year							
					Not applicable for Package III								
	12	Topography and Geology	Conditions in embankment area	Visual survey about Stability of embankment	Not applicable for Package I		115,000	0	115,000	0	115,000	Embankment shall be stabilized without any landslide and cracks	Not applicable for Pkg. 1 & 3
					Interchange in Shivaji Nagar for Package II	4 Times / Year							
					Not applicable for Package								
Social environment	13	Local economy such as employment and livelihood			Affected area		As per Actuals						
	14	Local conflict of interests	Construction worker's township	Confirmation of workers list from contractor	2 Locations (camp site in Sewri and Shivaji Nagar) for Package II	2 Times / Year	125,000	0	125,000	0	125,000	Employment opportunity shall be provided fairly	
	15	Infectious diseases such as HIV/AIDS	Number of infected patient	Confirmation of health check list from contractor	2 Locations	4 times / year x 4.5 years	525,000	0	525,000	0	525,000	Infection disease rate shall not be caused by the project	
	16	Labour Environment	Construction worker's condition	Confirmation of safety devices and conditions via interviews	2 Location (camp site in Sewri and Shivaji Nagar) for Package II	2 times / year	500,000	0	500,000	0	500,000	"Building And Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996", "The building and other construction worker's welfare cess Act, 1996" and international standards such as "IFC Performance Standard 2 Labor and Working Conditions"	
Other	17	Accidents	Number of accidents	Confirmation of accidents list from local government and State Traffic Police Department	2 Locations (camp site in Sewri and Shivaji Nagar) for Package II	4 Times / Year	400,000	0	400,000	0	400,000	Any accidents are not caused by construction	
							8140500	325,354,000	12,000,000	2,211,500	339,565,500		

The Project for Construction of Mumbai Trans Harbour Link
Reporting Form of Environmental Monitoring during Construction

Attachment 2-4

Attachment 2-4

Monitoring Period - January to March 2019

This form is prepared for reporting the monitoring results to JICA India Office. Only minimum required parameters are included in this form, and not all parameters in EMoP are covered.

1. Environmental Monitoring during Construction for 4.5 years

Area	No.	Item	Parameter	Location	Frequency a year	Item and Standard	Monitoring Result				Remark - reasons why the data is exceeding standard - counter measures when the data is exceeding								
							Location 1- Pkg 1	Location 2- Pkg 2	Location 3- Pkg 3	Location 4									
Pollution	1	Air pollution	SO ₂ , NO ₂ , PM ₁₀ , PM _{2.5}	1. Sewri & Sewri bay area for package I	Fortnightly at all locations except 2 locations each near Batching plants	National Ambient Air Quality Standards (NAAQS) (Standard for 24hrs: Industrial and Residential)	Sewri	Shivaji Nagar	Chirle										
				2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year														
				3. Gavhan & Chirle for package III	Fortnightly only for 3 months (Jan-2019 to Mar-2019). Then quarterly monitoring as per MOEF and CPCB norms	1. SO ₂ : 80µg/m ³							BDL [DL=10]	BDL	16			BDL- Below Detectable Limit	
						2. NO ₂ : 80µg/m ³							16	40	28				
			3. PM ₁₀ : 100µg/m ³	68	304	102			PM10 is high due to the ancillary development taking place around the area around Pkg II (casting yard) & III										
			4. PM _{2.5} : 60µg/m ³	39	43	57													
	2	Water pollution	pH, BOD, DO, Turbidity and O&G	1. Sewri & Sewri bay area for package I	Quarterly	Marine water quality Standards – Class SW-IV Harbour Waters (MPCB)	Zone I	Zone II	Zone III										
				2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year									1. pH : 6.5-9	....	7.5	....	
				3. Gavhan & Chirle for package III	Not applicable	2. DO: 3 mg/l								....	5.1	....		
						3. Turbidity: 30 NTU								....	3	....		
						4. BOD: 5 mg/l								....	BDL[DL=2]	....		
			5. O & G: 10 mg/l	....	BDL[DL=10]	....												
	3	Waste	Volume of waste soil, cutting tree and domestic garbage	1. Sewri & Sewri bay area for package I	Daily	Municipal Solid Waste Management Rules, 2013	Sewri Camp Site	Shivaji Nagar Camp Site	Chirle Camp Site										
				2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year									Generated waste soil (t) total	<u>In Q4 excavated soil disposed is 1455.86 cum. It is disposed to a MCGM approved location in Bhayanderpada</u>	Total 650 CuM of muck collected and disposed at the location allocated by MbPT	Excavated soil shall be reused either for construction or else covering undulated area with in ROW of MTHL package -03	Q4	
				3. Gavhan & Chirle for package III	Once site clearing work/execution part of work start.									Generated cutting tree (ha) total	<u>Tree cutting proposal has been submitted and approval from MCGM is awaited. Tree Cutting so far NIL</u>	NIL	<u>Tree cutting proposal has been submitted and approval from competent authority is awaited. Tree Cutting so far NIL</u>		
														Generated domestic waste (t/month) total	<u>0.35 T/quarter. It is disposed through MCGM daily.</u>	Labor camp established, site municipal waste is collected and disposed by CIDCO.	Labor Camp not established yet, site municipal waste is collected and disposed through CIDCO at Gavan area.		
			Confirmation of adequate disposal (visual survey)	Yes	Yes	Yes													
	4	Soil Contamination/se	Heavy Metals & Oil &	1. Sewri & Sewri bay area for package I	1. Muck: 1 Time / Year	Soil Pollution Standard in India (MOEF)													
				2. Nhava temporary bridge & casting yard in Gavhan for package II	2. Sediments: 4 Times / Year									AB-12 TAB Sewri, dated 21/07.2018					
				3. Gavhan & Chirle for package III	*If any spillage/ leakage take place from chemical, fuel storage area. *One time grab sample to be collected during Bridge Construction *Pre & Post Monsoon at Storage area only	1. Cadmium: 0.01mg/l								0.5	BDL				
2. total cyanide : not detected																			
					3. organic phosphorus: not detected														
					4. lead: 0.01mg/l	0.48								BDL	51.50 mg/l		For package-03, Muck is not stalking yet at site, At diesel and other chemical storage area contain only soil. There is no availability of leachate at this stage. Therefore result will be as per CBCPit is complied in mg/Kg.		
					5. chromium (VI): 0.05mg/l	BDL								BDL					
		6. arsenic: 0.01mg/l or 15mg/kg (agri-land soil)	BDL	BDL															
		7. total mercury: 0.005mg/l	BDL	BDL															

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1. Environmental Monitoring during Construction for 4.5 years

5	Noise and vibration	Ambient and road side noise (dB(A)LAeq)	1. Sewri & Sewri bay area for package I 2. Nhava temporary bridge & casting yard in Gavhan for package II 3. Gavhan & Chirle for package III	Fortnightly 2 Times / Year Fortnightly	8. alkyl mercury: not detected					Regarding soil contamination/sedimentation, some items shall be selected from the total 25 standards items during the Detailed Design. Only the selected items shall be reported to JICA, and the rest of items shall be deleted from this form.						
					9. PCBs: not detected											
					10. copper: 125mg/kg (only paddy field soil)	0.96	0.3									
					11. dichloromethane: 0.02mg/l	3.84										
					12. carbon tetrachloride: 0.002mg/l											
					13. 1,2-dichloroethane: 0.004mg/l											
					14. 1,1-dichloroethylene: 0.02mg/l											
					15. cis-1,2-dichloroethylene: 0.04mg/l											
					16. 1,1,1-trichloroethane: 1mg/l											
					17. 1,1,2-trichloroethane: 0.006 mg/l											
					18. trichloroethylene: 0.03mg/l											
					19. tetrachloroethylene: 0.01mg/l											
					20. 1,3-dichloropropene: 0.002mg/l											
					21. thiuram: 0.006mg/l											
					22. simazine: 0.003mg/l											
					23. thiobencarb: 0.02mg/l											
					24. benzene: 0.01mg/l		0.7									
					25. selenium: 0.01mg/l											
					Vibration (dB) shall be converted from mm/s to dB	1 Location Gavan area for package III	Half yearly	Construction area Standard 75 dB daytime (Japan standard) Not construction area : Vibration Standard (Japan Standard along the road)	Sewri (ST 200-500) (Industrial area)		Shivaji Nagar (Commercial area)	Chirle	Day time : 6-22 hr (continuous)	25	0.06	Not started
													Night time: 22-6 hr (continuous)			Not started
													Note (standard values in Not construction area)			
													1. Commercial /Industrial Area			
													Day Time: 70 (7-20hr)			
													Night Time: 65 (20-7hr)			
													Regarding protected area (CRZ and Important Bird Area) and ecosystem, detailed long-term monitoring plan will be established during baseline survey of birds. This tentative monitoring form shall be updated based on the detailed long-term monitoring plan.			
Standard is not existing, but quantity and quality should not be worsen																
Sewri side (ST500-5500)																
Sea Section (ST5500-16000)																
Shivaji Nagar side (app. ST16000-19000)																
Mangorove Replantation area appointed by State Government																
1. Monitoring of mudflat conditions including fauna-flora 2. Monitoring of Cutting Tree and	Along MTHL alignment and mangrove replant area for package I Along MTHL alignment and mangrove replant area for package II	Quarterly during the construction Period 4 Times / Year	1-1. Fauna-Flora (number of species and quantity)	Sewri side (ST500-5500)	Sea Section (ST5500-16000)	Shivaji Nagar side (app. ST16000-19000)	Mangorove Replantation area appointed by State Government	(1) Number of species of bird	Refer remark	Refer remark	BNHS has submitted two quarterly reports upto now. A total of 80 species of avifauna has been recorded in all of Thane creek. Of these 80 species, 70 species are water fowls and 10 species are prey birds.					
								(2) Number of species of fish								
								(3) Estimated number of Flamingo								

The Project for Construction of Mumbai Trans Harbour Link
Reporting Form of Environmental Monitoring during Construction

Attachment 2-4

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Monitoring Period - January to March 2019

This form is prepared for reporting the monitoring results to JICA India Office. Only minimum required parameters are included in this form, and not all parameters in EMoP are covered.

1. Environmental Monitoring during Construction for 4.5 years

Natural Environment	6	Protected Area	replantation/transplantation area 3. Monitoring of Mangrove Plantation area appointed by MoEF 4. Monitoring of sedimentation soil and ecological parameter (25 items on EIA main text Table 6.1.15 for soil and 7 items such as 1) Net primary productivity, 2) Chlorophyll-a, 3) Phosphate, 4) Nitrate, 5) Nitrite, 6) Particulate Organic Carbon, 7) SiO ₂)			1-2: Mangrove density and community survey					Compensatory mangrove plantation has been completed in 105 ha area in Dhanu, Palghar and Mumbai region. Balance plantation in 125 ha area, suitable sites have been identified in Palghar district.
						(1) Number of species of mangrove					
						(2) Density of mangrove (xx trees/10m x 10m)					
						1-3: Benthos Survey					
						(1) Number of species and quantity by species	152 Species and 95No/m ²				
						2-1: Cutting tree confirmation					
						(1) Number of cutting tree and species				920 numbers of trees surveyed and the proposal has been submitted to Forest Department - Pkg III	
						3-1: Mangrove survey in the replant area					
						(1) Number of species of mangrove					
						(2) Density of mangrove (xx trees/10m x 10m)					
						4. Ecological Parameter					
						(1) Net primary Productivity : <1,500 mgC/m ³ /day at surface	460				
						(2) Chlorophyll-a: <4mg/m ³	1.9				
						(3) Phosphate: 0.1-90µg/l	119				
						(4) Nitrate: 1.0-500µg/l	4402				
(5) Nitrite: <125µg/l											
(6) Particulate Organic Carbon: 10-100mg/m ³											
(7) SiO ₂ : 10-5,000µg/l	2019										
7	Hydrology	Flooding situation	Not applicable for Package I		4 Times / Year	Criteria for evaluation Project activities and structures does not cause flooding and impacts on tidal conditions	Sewri	Shivaji Nagar			
			2 Locations (CRZ at Sewri and Shivaji Nagar) for Package II			Monitoring of flooding situation					
			Not applicable for Package III								
8	Topography and Geology	Conditions in embankment area	2 Locations (1. Embankment of Inter Change in Shivaji Nagar and 2 Cutting area at toll gate in Chirle)	4 times / year x 4.5 years		Criteria for evaluation Embankment shall be stabilized without any landslide and cracks	Shivaji Nagar	Chirle	Chirle	Yet to be observed.	
						Monitoring of embankment					
9	Local conflict of interests	Construction worker's township	2 Locations (major camp site in Sewri and Shivaji Nagar)	4 times / year x 4.5 years		Criteria for evaluation Employment opportunity shall be provided fairly	Sewri Camp Site	Shivaji Nagar Camp Site	Chirle		
						Number of hired workers by community		100-125			
10	Infectious diseases such as HIV/AIDS	Number of infected patient	2 Locations (major camp site in Sewri and Shivaji Nagar)	4 times / year x 4.5 years		Criteria for evaluation Infection disease rate shall not be caused by the project	Sewri Camp Site	Shivaji Nagar Camp Site			
						Confirmation of health check record and inspect project site		Health Checks carried out but HIV/AIDS parameter is not there.	Health checks carried out near by tie up hospital @ ulwe. Form 28 and 29 is recorded by site doctor at present.		
11	Labour Environment	Construction worker's condition	2 Locations (major camp site in Sewri and Shivaji Nagar)	2 times / year x 4.5 years		Criteria for evaluation "Building And Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996", "The building and other construction worker's welfare cess Act, 1996" and international standards such as "IFC Performance Standard 2 Labor and Working Conditions"	Sewri Camp Site	Shivaji Nagar Camp Site	Gavan Camp site		
						Site Visual Inspection		Conforming with BOCW Act 1996	Conforming with BOCW Act 1996		
Other	12	Accident	Number of accidents	2 Locations (major camp site in Sewri and Shivaji Nagar)	4 times / year x 4.5 years	Criteria for evaluation Any accidents are not caused by construction	Sewri Camp Site	Shivaji Nagar Camp Site	Other area		
						Number of recorded accident		Nil	Nil		

MTHL Land Acquisition Status (Attachment 2-6):

Total land required on Navi Mumbai side- 108.09 ha

Land in possession in MMRDA – 101.95 ha

Balance land acquisition- 6.14 ha

Note: The acquisition of 6.14 ha is in progress by CIDCO. The balance acquisition will be likely completed by end of June 2019.

Land Required in ha		Land Acquired in ha		Balance Land to be acquired in ha	Anticipated date for Land Acquisition	Payment status (Payment made to Land Owners by CIDCO)	Remarks
Govt.	Private	Govt.	Private	Private*			
98.75	9.34	98.75	3.20	6.14	30/06/2019	--	1. The payment status to the land owners is awaited from CIDCO. The same would be communicated to JICA on receipt of the same.
Total		98.75	3.20	6.14			
108.09							

***Portions of Private Land**

Sr. No.	Name of Village	Area (Hectare)	Acquired	Non-acquired
1	Gavhan	0.15	-	0.15
2	Jasai	8.72	3.20	5.52
3	Chirle	0.47	-	0.47
Total Area		9.34	3.20	6.14

RAP Implementation Monitoring Form For Mumbai Trans Harbour Link Project (MTHL)

1. General Information

a. RAP Implementation Monitoring Results:	Progress Status Report (PSR) of 1 st quarter of 2019
b. Date of Preparing This form	31.03.2019
c. Person Preparing This form	Name: Robin Sham Position: Engineer and Team Leader Department/Organizations: General Consultants

2. Scale of Impact

2.1 Project Affected Households (PAHs) and Project Affected Persons (PAPs) for Sewri side

Total Project Affected Households (PAHs)	298 Hhs	Titleholders: 0 Hhs Non-titleholders: 298 Hhs
Total PAPs	1,282 persons*	Titleholders: 0 persons Non-titleholders: 1,282 persons*
PAHs who need relocation (as residents)	232 Hhs	Titleholders: 0 persons Non-titleholders: 232 (1,088 persons) *
PAPs who do not need relocation (as residents)	0 persons	Titleholders: 0 persons Non-titleholders: 0 persons
Commercial PAPs who need relocation	66 (194 persons) *	Titleholders: 0 persons Non-titleholders: 53 (194 persons) *
Commercial PAPs who do not need relocation	0 persons	Titleholders: 0 persons Non-titleholders: 0 persons

* - Figures for number of persons do not include no. of family members of few additional PAPs.

2.2 Structures

Structures	Residential: 231 Commercial: 66 Residential + Commercial: 1 (counted in Commercial) Community: 9 (Religious Properties 6, Public Toilets 3) Government: 16 (MbPT Structures 9, Occupants of Leased Plots 6 & Police Chowky1) Total: 323
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2.3 Fishery

Categories of Fisher-folks	Identified Number		Total	Remarks
	Mumbai side	Navi Mumbai side		
C1: Fishing stakes and nets in RoW (250 m.)	217 For Trombay, Sewri & Mahul in process of approval	Survey in progress	217	Nil
C2: Fishing Stakes and Nets within 500 m. of RoW (Southern side)	749	126	875	Scrutiny of the balance applications is in progress.
C3: Hand-pickers	416	1273	1689	

C4: Commercial and Artisanal Fisher-folks (Loss of Time and Increased Operating Costs)	Will be observed during construction period	Will be observed during construction period	---	Nil
C5: Fisher-folks with Loss due to Turbidity	Will be observed during construction period	Will be observed during construction period	---	Nil
C6: Fisher-folks with Damages due to Accidents	Will be observed during construction period	Will be observed during construction period	---	Nil

2.4 Land Acquisition / Transfer

Location	Land Required in Ha.		Land Acquired in Ha.		Balance Land to be acquired in Ha	Remarks
	Govt.	Private	Govt.	Private		
Sewri	10.089	0	10.089	0	0	
Navi Mumbai	98.75	9.34	98.75	3.20	6.14	
Total	118.179		108.839	3.20	6.14	

3. Monitoring Results

3.1 Sewri Section

Activity	Indicator	Total Target	Progress till Last Quarter	Progress during reporting Quarter	Cumulative Progress till Current Quarter	Cumulative Achievement of Total Target (%)	Remarks, If Any
Resettlement	No. of Residential PAHs provided with Allotment Letters of Alternate Tenements	232	75	0	75	32%	
	No. of Residential PAHs given possession of Alternate Tenements	232	0	0	0	0%	
	No. of Commercial/R+C PAPs provided with Allotment Letters of Alternate Shops/Tenements	66	0	0	0	0%	
	No. of Commercial R+C PAPs given possession of Alternate Shops/Tenements	66	0	0	0	0%	

Activity	Indicator	Total Target	Progress till Last Quarter	Progress during reporting Quarter	Cumulative Progress till Current Quarter	Cumulative Achievement of Total Target (%)	Remarks, If Any
	No. of Occupants of MbPT Leased Plots provided Compensation	6	0	0	0	0%	
	No. of Religious properties Relocated / Removed	6	0	0	0	0%	
	No. of Other Community properties Relocated / Removed	4	0	0	0	0%	
	No. of Structures in possession of MbPT Dismantled / Cleared	9	0	0	0	0%	
	No. of PAHs/PAPs provided Shifting Charges / Arrangement	298	0	0	0	0%	
Rehabilitation	No. of PAHs / PAPs identified for Livelihood Support in Post Resettlement Assessment						
	No. of PAHs / PAPs provided Livelihood Support under Program-I (to be identified)						
	No. of PAHs / PAPs provided Livelihood Support under Program-II (to be identified)						
	No. of PAHs / PAPs provided Livelihood Support under Program-III (to be identified)						
	No. of new enterprises started						
Grievance Redress	No. of Grievances Received by FLGRC	4					
	No. of Grievances Disposed by FLGRC	0					
	No. of Grievances Received by SLGRC	0					
	No. of Grievances Disposed by SLGRC	0					
Post Resettlement Assistance	No. of CHSs Registration helped						
	No. of CHSs provided Tenements for Social Amenities						
	No. of CHSs' Maintenance Fund Invested						
	No. of CHSs' Office Bearers provided training						

3.2 Fishery Compensation

Categories of Fisher-folks	Identified Number		Total	Remarks
	Mumbai side	Navi Mumbai side		
C1: Fishing stakes and nets in RoW (250 m.)	217 For Trombay, Sewri & Mahul in process of approval	Survey in progress	217	Nil
C2: Fishing Stakes and Nets within 500 m. of RoW (Southern side)	749	126	875	An amount of about 49 crores has been deposited with the Fisheries Department towards disbursement of compensation to 2564 Nos. of beneficiaries. Further, the Fisheries Department has started disbursing the amount to the individual PAPs on following due procedure. The scrutiny of the balance Nos. of applications of fisherfolk is in the process of scrutiny for deciding their eligibility for the compensation.
C3: Hand-pickers	416	1273	1689	
C4: Commercial and Artisanal Fisher-folks (Loss of Time and Increased Operating Costs)	Will be observed during construction period	Will be observed during construction period	---	Nil
C5: Fisher-folks with Loss due to Turbidity	Will be observed during construction period	Will be observed during construction period	----	Nil
C6: Fisher-folks with Damages due to Accidents	Will be observed during construction period	Will be observed during construction period	----	Nil

List as per C2 & C3 category

Sr. No	Village name	Total No of family units surveyed	No of eligible family units
Mumbai side			
1.	Mahul & Sewri	336	336
2.	Trombay	829	829
Total Mumbai side		1165	1165

Sr. No	Village name	Total No of family units surveyed	No of eligible family units
Navi Mumbai side			
3.	Bamandongri	235	25
4.	Belpada	484	329
5.	Ganeshpuri	25	50
6.	Jasai	26	18
7.	Gavhan	5	4
8.	Morave	190	83
9.	Kopar	548	228
10.	Mora	70	1
11.	Uran	65	0
12.	Jawale	232	1
13.	Shelghar	1	15
14.	Shivaji Nagar	2	64
15.	Ulwe	29	14
16.	Vahal	119	3
17.	Navakhadi	673	326
18.	Moha	222	146
19.	Kombadbhuja	134	92
Total Navi Mumbai side		3060	1399
Total (Mumbai side + Navi Mumbai side)		4225	2564

Note: MMRDA has received 13,112 new applications from Fishing families which are yet to be scrutinized.

Note: The category of fishermen is as per the Fishermen Compensation Policy

Grievance Redressal Committee (GRC) for Fisher-folk Compensation

No. of Cases referred to GRC	No. of Cases		No. of Cases Rejected	No. of Cases under Consideration
	Allowed	Compensation Paid		
Nil	Nil	Nil	Nil	Nil

Implementation Schedule for Fisher-folks Compensation & Land Acquisition in Navi Mumbai

A. Implementation Schedule for Fisher-folks Compensation:-

Sr. No.	Task Designation	Approving authority	Start Date	Completion Date
1	Approval of fisher-folks' compensation Policy	Fisher-folks Compensation Committee (FCC)	08-10-2015	23-12-2015
2	Approval by MMRDA	MMRDA	10-12-2015	23-12-2015
3	Submission to JICA	MMRDA	--	04-01-2016
4	Detailed list of PAP and compensation plan	Detailed list of Fisher-folk PAP & disbursement is finalized by the Fisheries Department.	23-12-2015	<ol style="list-style-type: none"> 1. Total up to date applications scrutinized = 5881 nos 2. Eligible = 2564 nos 3. In-eligible = 06 nos 4. In process of approval = 2043 nos 5. Documents awaited = 1268 nos
5	Validation of compensation plan	Fisher-folks Compensation Committee (FCC)	23-12-2015	<ol style="list-style-type: none"> 1. Approval to the Fisher-folk PAP list obtained from Fisheries Department for Fisherfolk from Sewri, Mahul & Trombay (Mumbai side) – 12th September 2017 and 20th November 2018 for C-2 & C3 Category only.

Sr. No.	Task Designation	Approving authority	Start Date	Completion Date
			23-12-2015	<p>2. Approval to the Fisher-folk PAP list obtained from Fisheries Department for Fisherfolk of Navi Mumbai of C2 & C3 on 25th April 2018.</p> <p>3. Validation of compensation is in progress and would be completed in phases.</p>
6	Approval of compensation plan	FCC	23-11-2015	28-12-2017
7	Approval by MMRDA	MMRDA	23-11-2015	09-03-2018

B. Implementation Schedule for Land Acquisition in Navi Mumbai:-

Land Required in Ha.		Land Acquired in Ha.		Balance Land to be acquired in Ha	Anticipated date for Land Acquisition	Payment status (Payment made to Land Owners by CIDCO)	Remarks
Govt.	Private	Govt.	Private	Private			
98.75	9.34	98.75	3.20	6.14	31/06/2019	--	<p>1. CIDCO is the land acquisition authority for land acquisition for Navi Mumbai</p> <p>2. MMRDA has paid an amount of INR 59.16 Cr to CIDCO as per their demand.</p> <p>3. The payment status to the land owners is awaited from CIDCO. The same would be communicated to JICA on receipt of the same.</p>
Total	108.09	101.95		6.14			

Implementation Schedule for SIA (Sewri Section)

Task No.	Task Designation	Start Date	Completion / Forecast Date
1	Preparation of Final SIA		
1.1	MMRDA Approval	October 2015	January 2016
1.2	JICA Approval	November 2015	January 2016
1.3	Posting of project Information on MMRDA		
1.4	Translation and disclosure of entitlement policy in local language to all PAP's	December 2015	January 2016
2	LARP Implementation		
2.1	Grievance redress mechanism established	August 2016	August 2016
2.2	Staff deployment SIA implementation	June 2016	March 2020
2.3	Staff Deployment Public Relation	June 2016	June 2016
2.4	Hiring of Independent Evaluation Agency	November 2018	June 2019
2.5	Preparation and issue of allotment letters to	June 2018	June 2019
2.6	Notice of PAPs for shifting (Sewri Section)	December 2018	June 2019
2.7	Allotment of dwelling units to PAP's	September 2016	June 2019
2.8	Shifting of PAPs to resettlement Colony	December 2018	July 2019
2.9	Transfer of compensation / allowance/ assistance to PAPs	December 2018	July 2019
2.10	Creation of Community Revolving fund (within 3 months post handing over)	April 2019	July 2019
2.11	Assessment of economic rehabilitation needs by individual household (within 6 months after handing over)	September 2019	December 2019
2.12	Registration of Co-operative housing societies, transfer of maintenance funds. (6 months period)	December 2019	June 2020
2.13	Signing of Civil Contract		January 2017
2.14	Notice of Civil works to proceed		March 2017
3	Monitoring & Evaluation		
3.1	Internal Monitoring- Monthly/ Quarterly	June 2016	January 2020
3.2	Independent Evaluation Mid-term and End term evaluation		
	Mid Term	May 2019	July 2019
	End Term	November 2019	January 2020

Attachment 3- JICA's Concurrence Status

Status of JICA'S Concurrence

Sl. No.	Brief description	Procurement procedure	Bid Cost		JICA'S Concurrence on					
			Local Currency (Cr Rs.)	Total (Cr Rs)	PQ Documents	PQ Evaluation	Bid Documents	Technical Evaluation	Financial Evaluation	Contract
1.	Package-1 (CH 0+000 km to CH10+380 km)	ICB with PQ (2P)	7637.30	7637.30	JICA's Concurrence - 9th May 2016	JICA's Concurrence - 22nd Dec 2016	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 12th Sep 2017	JICA's Concurrence - 12th Oct 2017	JICA's Concurrence - 15th Feb 2018
2.	Package-2 (CH 10+380 km to CH18+187 km)	ICB with PQ (2P)	5612.61	5612.61	JICA's Concurrence - 9th May 2016	JICA's Concurrence - 22nd Dec 2016	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 12th Sep 2017	JICA's Concurrence - 12th Oct 2017	JICA's Concurrence - 15th Feb 2018
3.	Package-3 (CH18+187 to CH21+800)	ICB with PQ (2P)	1013.79	1013.79	JICA's Concurrence - 9th May 2016	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 15th Sep 2017	JICA's Concurrence - 12th Oct 2017	JICA's Concurrence - 15th Feb 2018
4.	Package-4 Intelligent Transport System	ICB with PQ (2P)	144.26	144.26	-	-	-	-	-	-

Attachment 4- Project Procurement and Financial Status till 31st March 2019

PROJECT PROCUREMENT AND FINANCIAL STATUS TILL 31st MARCH 2019

Type	Contract	Awarded or Estimated Value (in Rs. Crore)	Current Status	Contractors	Award Date/ As per PIP Mar- 2018	Actual/ Projected Completion as per PIP Mar-2019	Physical % completion up to March 2019	% of Project Amount Disbursement till March 2019
CIVIL	Package-1 (CH 0+000 km to CH 10+380 km)	7637.30	Awarded	L&T-IHI Consortium	Nov 2017	Sep 2022	9.99%	8.78%
	Package-2 (CH 10+380 km to CH18+187 km)	5612.61	Awarded	DAEWOO-TPL JV	Nov 2017	Sep 2022	7.77%	6.66%
	Package-3 (CH18+187 to CH21+800)	1013.79	Awarded	L&T	Nov 2017	Sep 2021	3.37%	0.91%
ITS	Package-4 Intelligent Transport System	144.26 (Estimated)	Design Stage	--	Jul 2020 (Estimated)	Sep 2022	Nil	Nil

Attachment 5- Project Progress Photos

Package 1- Site Progress Photos



Photo No. 1: Pile Cap Concrete at MP7 location in progress



Photo No. 2: Pile Cap at MP7 after De-shuttering



Photo No. 3: Pile Cap works at MP6 location in progress



Photo No. 4: TAB Progress from MP43 location in progress



Photo No. 5: TAB Concreting from PG-3 in progress



Photo No. 6: TAB Deck Erection at MP43 location in progress



Photo No. 7: Pile Cap works at MP95 location in progress



Photo No. 8: Pile Cap works at MP94 location in progress



Photo No. 9: Test Pile Works at MP125 location in progress



Photo No. 10: Piling Works at MP89 location in progress



Photo No. 11: Piling at MP89 location in progress



Photo No. 12: Piling Works at MP 91 93 94 & 95 location in progress



Photo No. 13: 175 T Gantry Crane Erection & Commissioning Completed



Photo No. 14: Casting Yard Development

Package 2 – Site Progress Photos



Photo No. 15: Pile Boring works at MP 165/03 RHS location in progress



Photo No. 16: Reinforcement Cage installation at MP 162/04 location RHS in progress



Photo No. 17: Pile Concreting at MP 162/02 RHS location in progress



Photo No. 18: Cross Hole Sonic Logging Test at MP 162/02 RHS location in progress



Photo No. 19: Fixing of bracing works at Temporary Bridge Front-2 at MP 214 in progress



Photo No. 20: Pile Reinforcement works at Belapur Jetty location in progress



Photo No. 21: Mould Foundation-wall formwork at Casting Yard Bay-1 in progress



Photo No. 22: Mould Foundation Curing Works at Casting Yard Bay-2 in progress



Photo No. 23: Internal Road works at Casting Yard in progress



Photo No. 24: A group Photo Taken after first Permanent Pile Concreting done at the Marine Location

Package 3 – Site Progress Photos



Photo No. 25: Reinforcement Works at LMP 267 Foundation in progress



Photo No. 26: Curing Works for RMP 268 Foundation in progress



Photo No. 27: PCC Works at LMP 268 in progress



Photo No. 28: NDT Test at Foundation RMP 268 in progress



Photo No. 29: Track beam work at Casting Yard in progress



Photo No. 30: OGL survey at CH 19+980 location in progress



Photo No. 31: Embankment work at CH 18+990 to CH 19+050 in progress



Photo No. 32: Blasting (at Grade) at CH 19+720 to CH 19+920 in progress



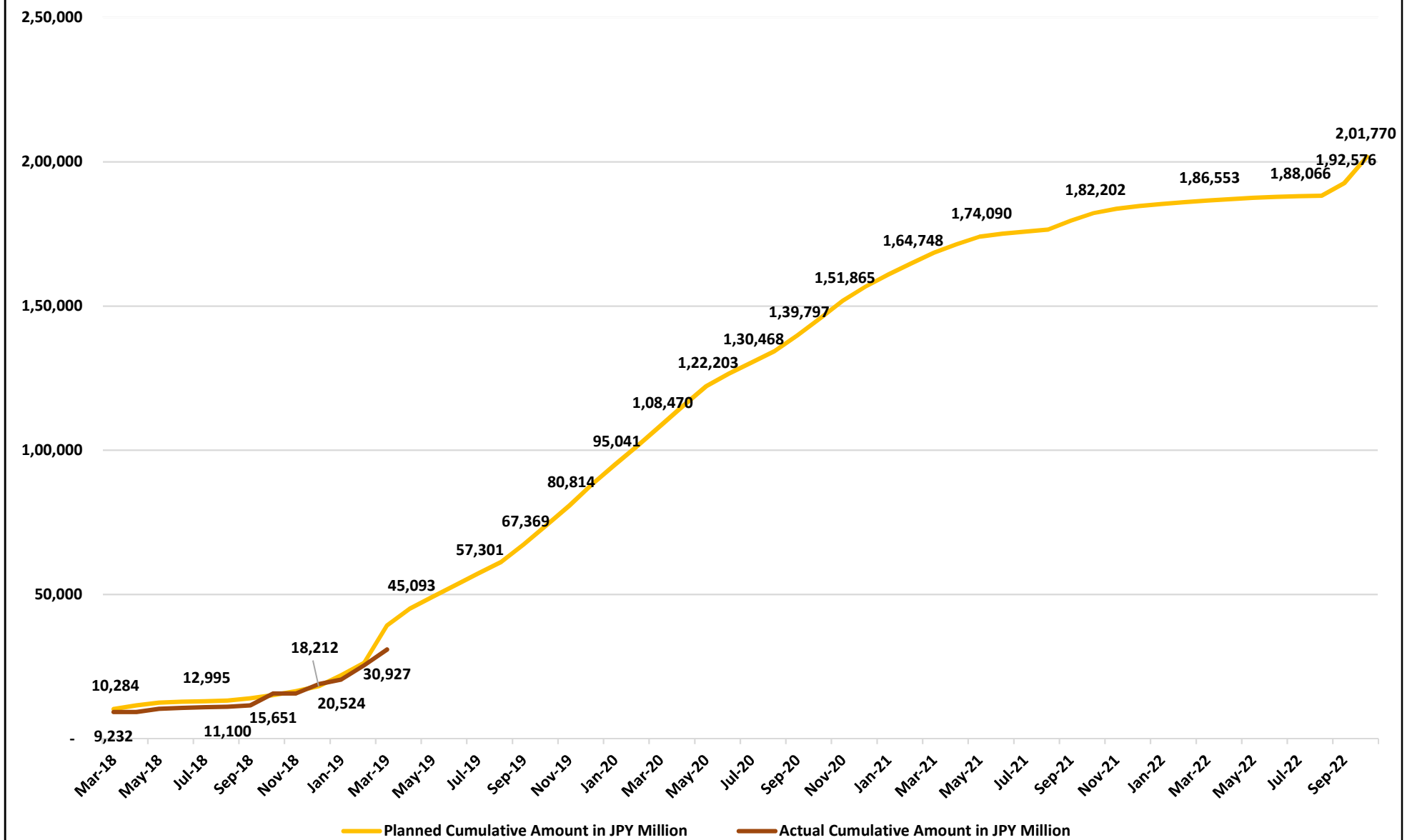
Photo No. 33: Tool box talk at the site



Photo No. 34: Training programme on welding and gas cutting activities at Casting yard

**Attachment 6- S-Curve for Cumulative Planned Vs
Actual Amount in JPY Million**

S - Curve for Planned Vs Actual Cumulative Amount in JPY Millions



**Attachment 7- Project Implementation Programme
Updated Till 31st March 2019**

Activity ID	Activity Name	Duration in Days	Start	Finish	Activity % Complete	2017				2018				2019				2020				2021				2022				2023				2024				2025			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Mumbai Trans Harbour Link (MTHL) PIP						[Gantt Chart Summary]																																			
Milestones						[Gantt Chart Summary]																																			
MTHL-GC						[Gantt Chart Summary]																																			
A1000	Commencement of GC Services	0	14-Dec-16 A		100%	[Gantt Chart Summary]																																			
A1020	Completion of GC Services	0		31-Jan-25	0%	[Gantt Chart Summary]																																			
Package of Civil & ITS						[Gantt Chart Summary]																																			
A2750	Package-3 Completion & Handover to MMRDA	0		11-Apr-22	0%	[Gantt Chart Summary]																																			
A2740	Package-2 Completion & Handover to MMRDA	0		29-Dec-22	0%	[Gantt Chart Summary]																																			
A2730	Package-1 Completion & Handover to MMRDA	0		31-Jan-23	0%	[Gantt Chart Summary]																																			
A2760	Package-4 Completion & Handover to MMRDA	0		01-Feb-23	0%	[Gantt Chart Summary]																																			
A2770	Commercial Operation Date	0		01-Feb-23	0%	[Gantt Chart Summary]																																			
Package - 1 Millstones						[Gantt Chart Summary]																																			
P1-1170	Project Commencement Date	0	23-Mar-18 A		100%	[Gantt Chart Summary]																																			
P1-1180	KD-1 Construction Programme, completion of Soil Investigation, Submit Final plans	0		22-Oct-18 A	100%	[Gantt Chart Summary]																																			
P1-1190	KD-2 Technical Design documents & Drawings for Foundation /substructure Superstructure (concrete and Steel)	0		31-Mar-19	0%	[Gantt Chart Summary]																																			
P1-2170	KD-3 GFC for Foundation /Substructure, Superstructure (concrete & Steel)	0		27-Feb-20	0%	[Gantt Chart Summary]																																			
P1-2180	KD-4 Substantial completion of Foundation, Piles, Piers, Abutments, Earthworks and dolphins.	0		14-Sep-21	0%	[Gantt Chart Summary]																																			
P1-2190	KD-5 Substantial completion of Pile Caps, Piers and Abutments and Pre-Casting Segment Completion.	0		01-Feb-22	0%	[Gantt Chart Summary]																																			
P1-2200	KD-6 Substantial completion of Concrete Superstructure /cast-in-situ concrete structures, & Steel structures	0		24-Aug-22	0%	[Gantt Chart Summary]																																			
P1-2210	KD-7 Substantial completion of Kerbs /Traffic Signs, Marking & Noise barriers, Removal of jetties, Restoration	0		02-Nov-22	0%	[Gantt Chart Summary]																																			
P1-2220	KD-8 Substantial completion of all works in all respects and Starting the Trail Run operation.	0		31-Jan-23	0%	[Gantt Chart Summary]																																			
Package - 2 Millstones						[Gantt Chart Summary]																																			
P2-2110	Project Commencement Date	0	23-Mar-18 A		100%	[Gantt Chart Summary]																																			
P2-2120	KD-1 Construction Programme, completion of Soil Investigation, Submit Final plans	0		22-Oct-18 A	100%	[Gantt Chart Summary]																																			
P2-2130	KD-2 Technical Design documents & Drawings for Foundation /substructure Superstructure (concrete and Steel)	0		31-Mar-19	0%	[Gantt Chart Summary]																																			
P2-2140	KD-3 GFC for Foundation /Substructure, Superstructure (concrete & Steel)	0		09-Feb-20	0%	[Gantt Chart Summary]																																			
P2-2150	KD-4 Substantial completion of Foundation, Piles, Piers, Abutments, Earthworks and dolphins.	0		23-Sep-21	0%	[Gantt Chart Summary]																																			
P2-2160	KD-5 Substantial completion of Pile Caps, Piers and Abutments and Pre-Casting Segment Completion.	0		04-Mar-22	0%	[Gantt Chart Summary]																																			
P2-2170	KD-6 Substantial completion of Concrete Superstructure /cast-in-situ concrete structures, & Steel structures	0		01-Sep-22	0%	[Gantt Chart Summary]																																			
P2-2180	KD-7 Substantial completion of Kerbs /Traffic Signs, Marking & Noise barriers, Removal of jetties, Restoration	0		30-Sep-22	0%	[Gantt Chart Summary]																																			
P2-2190	KD-8 Substantial completion of all works in all respects and Starting the Trail Run operation.	0		29-Dec-22	0%	[Gantt Chart Summary]																																			
Package - 3 Millstones						[Gantt Chart Summary]																																			
P3-1860	Project Commencement Date	0	23-Mar-18 A		100%	[Gantt Chart Summary]																																			
P3-1870	KD-1 Construction Programme, completion of Soil Investigation, Submit Final plans	0		31-Jan-19 A	100%	[Gantt Chart Summary]																																			
P3-1880	KD-2 Technical Design documents & Drawings for Foundation /substructure Superstructure (concrete and Steel)	0		12-Sep-19	0%	[Gantt Chart Summary]																																			
P3-1890	KD-3 GFC for Foundation /Substructure, Superstructure (concrete & Steel)	0		10-Jan-20	0%	[Gantt Chart Summary]																																			
P3-1900	KD-4 Substantial completion of Foundation, Piles, Piers, Abutments, Earthworks and dolphins.	0		01-Jan-21	0%	[Gantt Chart Summary]																																			
P3-1910	KD-5 Substantial completion of Pile Caps, Piers and Abutments and Pre-Casting Segment Completion.	0		02-Jul-21	0%	[Gantt Chart Summary]																																			

█ Actual Work
█ Remaining Work
█ Critical Remaining Work
◆ Milestone

Project Implementation Programme Progress Updated up to 31st Mar 2019

Date	Revision	Checked	Approved
30-Sep-18	Progress Updated up to 31 M...	JS	TL

Activity ID	Activity Name	Duration in Days	Start	Finish	Activity % Complete	2017		2018				2019				2020				2021				2022				2023				2024				2025														
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3														
P3-1920	KD-6 Substantial completion of Concrete Superstructure /cast-in-situ concrete structures, & Steel structures	0		16-Oct-21	0%																																													
P3-1930	KD-7 Substantial completion of Kerbs /Traffic Signs, Marking	0		10-Feb-22	0%																																													
P3-1940	KD-8 Substantial completion of all works in all respects and Starting the Trail Run operation.	0		11-Apr-22	0%																																													
GC's Regular Progress Report & Status Reports		1729	25-Jul-17 A	01-Feb-23		[Summary bar]																																												
A2790	Monthly Reports	1630	25-Jul-17 A	08-Oct-22	32.33%	[Actual/Remaining Work bars]																																												
A2800	Quarterly Reports	1545	25-Jul-17 A	01-Jul-22	34.11%	[Actual/Remaining Work bars]																																												
A2870	Special occurrence report Monthly, Quarterly & Annual Reports	1545	25-Jul-17 A	01-Jul-22	34.11%	[Actual/Remaining Work bars]																																												
A2810	Annual Reports	1400	01-Jan-18 A	22-Jun-22	27.86%	[Actual/Remaining Work bars]																																												
A2820	Supervision Reports	1407	01-Jan-18 A	30-Jun-22	27.72%	[Actual/Remaining Work bars]																																												
A2830	Engineering Reports	1407	01-Jan-18 A	30-Jun-22	27.72%	[Actual/Remaining Work bars]																																												
A2840	Draft Final Reports	365	11-Jun-21	11-Aug-22	0%	[Actual/Remaining Work bars]																																												
A2850	Final Reports	365	26-Nov-21	26-Jan-23	0%	[Actual/Remaining Work bars]																																												
A2860	Completion reports	180	06-Jul-22	01-Feb-23	0%	[Actual/Remaining Work bars]																																												
Preparation/ Finalization of O&M Manuals by GC		180	06-Jul-22	01-Feb-23		[Summary bar]																																												
A2780	Civil Works Manual including offshore and On shore	180	06-Jul-22	01-Feb-23	0%	[Actual/Remaining Work bars]																																												
A2880	Signalling / Traffic Control Manual	180	06-Jul-22	01-Feb-23	0%	[Actual/Remaining Work bars]																																												
A2890	Intelligent Transport Systems (ITS) Manual	180	06-Jul-22	01-Feb-23	0%	[Actual/Remaining Work bars]																																												
A2900	Commercial Manual	180	06-Jul-22	01-Feb-23	0%	[Actual/Remaining Work bars]																																												
A2910	Operating Manual	180	06-Jul-22	01-Feb-23	0%	[Actual/Remaining Work bars]																																												
A2920	Accident and Safety Manual	180	06-Jul-22	01-Feb-23	0%	[Actual/Remaining Work bars]																																												
A2930	Disaster Management Manual	180	06-Jul-22	01-Feb-23	0%	[Actual/Remaining Work bars]																																												
A2940	General Electrical Services and Equipment Manual	180	06-Jul-22	01-Feb-23	0%	[Actual/Remaining Work bars]																																												
A2950	Safety, Health and Environmental Manual	180	06-Jul-22	01-Feb-23	0%	[Actual/Remaining Work bars]																																												
A2960	Quality Assurance Manual	180	06-Jul-22	01-Feb-23	0%	[Actual/Remaining Work bars]																																												
Tender Assistance stage		1231	14-Dec-16 A	19-Nov-20		[Summary bar]																																												
Package-1		378	14-Dec-16 A	23-Mar-18 A		[Summary bar]																																												
A1040	Tender Assistant Leading Team	378	14-Dec-16 A	23-Mar-18 A	100%	[Actual Work bar]																																												
Tender Assistant		41	14-Dec-16 A	31-Jan-17 A		[Summary bar]																																												
A1030	Tender Document Review	40	14-Dec-16 A	29-Jan-17 A	100%	[Actual Work bar]																																												
A1050	Pre bid Meeting	1	30-Jan-17 A	31-Jan-17 A	100%	[Actual Work bar]																																												
Addendum -1		78	31-Jan-17 A	24-May-17 A		[Summary bar]																																												
A1060	Preparing the Tender Pre Bid Quarry 1st Set replay	30	31-Jan-17 A	05-Apr-17 A	100%	[Actual Work bar]																																												
A1080	Preparing the Tender Addenda -1 Contractual Part	30	31-Jan-17 A	07-Mar-17 A	100%	[Actual Work bar]																																												
A1070	Preparing the Tender Addenda -1 Technical Part	30	08-Feb-17 A	07-Mar-17 A	100%	[Actual Work bar]																																												
A1090	Tender Addenda -1 Submitting to MTHL-PIU/JICA	24	07-Mar-17 A	29-Apr-17 A	100%	[Actual Work bar]																																												
A1100	Reviewing Tender Addenda -1 byMTHL-PIU/JICA	24	29-Apr-17 A	24-May-17 A	100%	[Actual Work bar]																																												
Addendum -2		52	07-Apr-17 A	01-Jun-17 A		[Summary bar]																																												
A1110	Preparing the Tender Pre Bid Quarry 2nd Set replay	21	07-Apr-17 A	25-May-17 A	100%	[Actual Work bar]																																												
A1120	Preparing the Tender Addenda -2 Technical Part	21	15-Apr-17 A	10-May-17 A	100%	[Actual Work bar]																																												
A1130	Preparing the Tender Addenda -2 Contractual Part	21	15-Apr-17 A	10-May-17 A	100%	[Actual Work bar]																																												

■ Actual Work ■ Remaining Work ■ Critical Remaining Work
◆ Milestone

Project Implementation Programme Progress Updated up to 31st Mar 2019

Date	Revision	Checked	Approved
30-Sep-18	Progress Updated up to 31 M...	JS	TL

Activity ID	Activity Name	Duration in Days	Start	Finish	Activity % Complete	2017				2018				2019				2020				2021				2022				2023				2024				2025			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
P1-1240	Technical Design documents of substructure	210	19-Sep-18 A	04-Aug-19	40%																																				
P1-1270	Technical Design documents of dolphins	150	19-Sep-18 A	16-Feb-19 A	100%																																				
P1-1400	Submission of samples (GC Sub-Clause 7.2)	150	19-Sep-18 A	16-Feb-19 A	100%																																				
P1-1310	Construction Design documents of foundation	180	31-Oct-18 A	17-Jul-19	40%																																				
P1-1320	Construction Design documents of substructure	210	18-Nov-18 A	03-Oct-19	40%																																				
P1-1250	Technical Design documents of superstructure (concrete)	240	31-Dec-18 A	28-Aug-19	37.5%																																				
P1-1300	Construction Design documents of earthwork	150	31-Jan-19 A	30-Jun-19	39.33%																																				
P1-1340	Construction Design documents of superstructure (steel)	240	28-Feb-19 A	27-Feb-20	12.92%																																				
P1-1350	Construction Design documents of dolphins	90	28-Feb-19 A	29-May-19	34.44%																																				
P1-1330	Construction Design documents of superstructure (concrete)	240	01-Mar-19 A	27-Oct-19	12.5%																																				
P1-1210	Aesthetic Strategy Report and Desktop study for Wind Tunnel Test	1	22-Mar-19 A	23-Mar-19 A	100%																																				
P1-1280	Technical Design documents of pavement	120	30-Apr-19	28-Aug-19	0%																																				
P1-1360	Construction Design documents of pavement	90	28-Aug-19	26-Nov-19	0%																																				
P1-1290	Technical Design documents of bridge ancillaries	120	31-Aug-19	29-Dec-19	0%																																				
P1-1370	Construction Design documents of bridge ancillaries	90	29-Dec-19	28-Mar-20	0%																																				
P1-1380	Preparation and supply of as-built documents (GC Sub-Clause 5.6)	120	01-Jul-22	29-Oct-22	0%																																				
P1-1390	Preparation and supply of Maintenance Manual (Section VII GC Sub-Clause 5.7)	120	01-Jul-22	29-Oct-22	0%																																				
P1-1410	Tests	30	29-Sep-22	29-Oct-22	0%																																				
Schedule No. 3: Temporary Works		1589	30-Apr-18 A	05-Sep-22																																					
P1-1420	Construction of temporary jetties including materials	180	30-Apr-18 A	27-Oct-18 A	100%																																				
P1-1430	Casting yards preparation (50%)	210	30-Apr-18 A	26-Nov-18 A	100%																																				
P1-1450	Salvage value to Contractor (negative cost)	1313	31-Jan-19 A	05-Sep-22	4.49%																																				
P1-1490	Casting yards maintenance and clearing after Contract completion (50%)	1313	31-Jan-19 A	09-Dec-21	25%																																				
P1-1440	Removal of temporary jetties	90	09-Dec-21	09-Mar-22	0%																																				
P1-1460	Removal of casting yards	45	09-Dec-21	23-Jan-22	0%																																				
P1-1470	Clearing of casting yards	45	23-Jan-22	09-Mar-22	0%																																				
Schedule No. 4: Construction of Foundation Piles and Pile Caps for Piers and A		1106	21-Jun-18 A	14-Sep-21																																					
P1-1500	"Materials on the Site (refer to GC Sub-Clause 14.5 (c) (i)): steel reinforcing bars	900	21-Jun-18 A	08-Dec-20	31.44%																																				
P1-1510	Ditto: steel liner pipes	900	21-Jun-18 A	08-Dec-20	31.44%																																				
P1-1530	Loading tests and test reports on bridge pier foundation piles	60	21-Jun-18 A	20-Aug-18 A	100%																																				
P1-1550	Loading tests and test reports on abutment foundation piles	60	30-Sep-18 A	29-Nov-18 A	100%																																				
P1-1520	Construction of Open foundation/Spread foundation/Raft foundation, piles and pile cap	945	29-Nov-18 A	14-Sep-21	5%																																				
P1-1540	Construction of abutment foundation piles and pile caps including geotechnical investigation	180	29-Dec-18 A	19-Oct-19	5%																																				
P1-1570	Loading tests and test reports on electrical platform pier foundation piles	60	30-Dec-18 A	28-Feb-19 A	100%																																				
P1-1590	Loading tests and test reports on emergency rescue station platform pier foundation piles	60	31-Mar-19	30-May-19	0%																																				
P1-1560	Construction of electrical platform pier foundation piles and pile caps including geotechnical investigation	180	19-Oct-19	16-Apr-20	0%																																				
P1-1580	Construction of emergency rescue station platform pier foundation piles and pile cap	180	16-Apr-20	13-Oct-20	0%																																				

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Activity ID	Activity Name	Duration in Days	Start	Finish	Activity % Complete	2017		2018		2019		2020		2021		2022		2023		2024		2025										
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3				
Schedule No. 5: Construction of Piers and Abutments including Pier Caps						1100	28-Feb-19 A	04-Mar-22																								
P1-1670	Construction of cast-in-situ concrete bridge piers and pier caps	1009	28-Feb-19 A	01-Feb-22	3.07%																											
P1-1600	"Materials on the Site (refer to GC Sub-Clause 14.5 (c) (i)): steel reinforcing bars	900	01-Mar-19 A	17-Aug-21	3.33%																											
P1-1610	Ditto: structural steel shapes	900	01-Mar-19 A	17-Aug-21	3.33%																											
P1-1620	Ditto: pre-stressing cables	900	01-Mar-19 A	17-Aug-21	3.33%																											
P1-1630	Construction of cast-in-situ concrete bridge pier caps	1009	30-May-19	04-Mar-22	0%																											
P1-1640	Construction of cast-in-situ concrete abutment caps	450	19-Oct-19	11-Jan-21	0%																											
P1-1680	Construction of cast-in-situ concrete abutment structures	450	19-Oct-19	11-Jan-21	0%																											
P1-1650	Construction of cast-in-situ concrete electrical platform pier caps	180	16-Apr-20	13-Oct-20	0%																											
P1-1660	Construction of cast-in-situ concrete emergency rescue station platform pier caps	180	13-Oct-20	11-Apr-21	0%																											
P1-1690	Construction of cast-in-situ concrete electrical platform piers and pier caps	180	13-Oct-20	11-Apr-21	0%																											
P1-1700	Construction of cast-in-situ concrete emergency rescue station platform piers and pier caps	180	13-Oct-20	11-Apr-21	0%																											
P1-1710	Construction of earthwork (backfill, compaction, etc.) and other works for abutments	180	11-Jan-21	10-Jul-21	0%																											
Schedule No. 6: Construction of Concrete Superstructure						1273	28-Feb-19 A	24-Aug-22																								
P1-1740	Fabrication of precast concrete structural elements for bridges	1040	28-Feb-19 A	03-Jan-22	2.98%																											
P1-1720	Materials on the Site (refer to GC Sub-Clause 14.5 (c) (i)): steel reinforcing bars	900	30-Mar-19 A	15-Sep-21	0.11%																											
P1-1730	Ditto: pre-stressing cables	900	12-Aug-19	28-Jan-22	0%																											
P1-1750	Transportation and erection of precast concrete structural elements for bridges	990	27-Aug-19	13-May-22	0%																											
P1-1760	Construction of cast-in-situ concrete bridge structures	1025	11-Oct-19	01-Aug-22	0%																											
P1-1780	Construction of cast-in-situ /Pre Cast concrete emergency rescue station structures	450	27-Nov-20	20-Feb-22	0%																											
P1-1770	Construction of cast-in-situ concrete electrical platform structures	500	11-Apr-21	24-Aug-22	0%																											
Schedule No. 7: Fabrication and Erection of Steel Superstructure						1123	03-Jul-19	31-Jul-22																								
P1-1790	Materials on the Site (refer to GC SubClause 14.5 (c) (i)): structural steel materials	990	03-Jul-19	19-Mar-22	0%																											
P1-1800	Fabrication of steel structural elements for bridges	900	02-Aug-19	18-Jan-22	0%																											
P1-1810	Fabrication of steel structural elements for others	900	30-Nov-19	18-May-22	0%																											
P1-1820	Transportation to and erection at the Site of fabricated steel structural elements for bridges	900	30-Nov-19	18-May-22	0%																											
P1-1830	Transportation to and erection at the Site of fabricated steel structural elements for others	820	29-Mar-20	27-Jun-22	0%																											
P1-1840	Surface anti-corrosion coating of erected steel structure for bridges	730	01-Jul-20	01-Jul-22	0%																											
P1-1850	Surface anti-corrosion coating of erected steel structure for others	450	07-May-21	31-Jul-22	0%																											
Schedule No. 8: Construction of Earthworks						660	19-Sep-19	10-Jul-21																								
P1-1860	Materials on the Site (refer to GC SubClause 14.5 (c) (i)): steel reinforcing bars for retaining walls, etc.	450	19-Sep-19	12-Dec-20	0%																											
P1-1870	Construction of reinforced concrete retaining walls	600	18-Nov-19	10-Jul-21	0%																											
P1-1880	Construction of earthwork (fill, compaction, etc.)	600	18-Nov-19	10-Jul-21	0%																											
Schedule No. 9: Construction of Dolphins and Fenders						780	31-Mar-19	19-May-21																								
P1-1890	"Materials on the Site (refer to GC Sub-Clause 14.5 (c) (i)): steel reinforcing bars	180	31-Mar-19	27-Sep-19	0%																											
P1-1900	Ditto: steel liner pipes	180	31-Mar-19	27-Sep-19	0%																											
P1-1910	Construction of dolphin foundation piles including geotechnical investigation	210	31-Mar-19	27-Oct-19	0%																											
P1-1920	Loading tests and test reports on dolphin foundation piles	60	31-Mar-19	30-May-19	0%																											
P1-1930	Construction of concrete structure	300	27-Oct-19	22-Aug-20	0%																											
P1-1940	Fenders including Materials	270	22-Aug-20	19-May-21	0%																											
Schedule No. 10: Fabrication and Installation of Bridge Ancillaries						660	20-Oct-20	11-Aug-22																								
P1-1950	Materials on the Site (refer to GC SubClause 14.5 (c) (i)): bridge bearings (shoes)	600	20-Oct-20	12-Jun-22	0%																											
P1-1960	Ditto: expansion joints	600	20-Oct-20	12-Jun-22	0%																											
P1-1990	Crash barriers including Materials	600	19-Nov-20	12-Jul-22	0%																											
P1-2000	Deck waterproofing including Materials	600	19-Nov-20	12-Jul-22	0%																											
P1-1970	Installation of bridge bearings (shoes)	450	18-May-21	11-Aug-22	0%																											
P1-1980	Installation of expansion joints	450	18-May-21	11-Aug-22	0%																											
Schedule No. 11: Construction of Asphalt Pavement						270	01-Feb-22	29-Oct-22																								
P1-2010	Asphalt pavement including Materials	270	01-Feb-22	29-Oct-22	0%																											
Schedule No. 12: Fabrication and Installation of Miscellaneous Items						600	10-Jun-21	31-Jan-23																								

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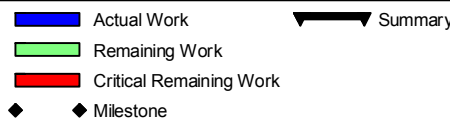
Activity ID	Activity Name	Duration in Days	Start	Finish	Activity % Complete	2017				2018				2019				2020				2021				2022				2023				2024				2025			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
P2-1190	Technical Design documents of earthwork	90	21-Jun-18 A	19-Sep-18 A	100%																																				
P2-1200	Technical Design documents of foundation	180	21-Jul-18 A	04-Aug-19	30%																																				
P2-1230	Technical Design documents of superstructure (steel)	365	21-Jul-18 A	11-Dec-19	30%																																				
P2-1210	Technical Design documents of substructure	210	19-Sep-18 A	25-Aug-19	30%																																				
P2-1240	Technical Design documents of dolphins	150	19-Sep-18 A	14-Jul-19	30%																																				
P2-1370	Submission of samples (GC Sub-Clause 7.2)	150	19-Sep-18 A	14-Jul-19	30%																																				
P2-1270	Construction Design documents of earthwork	150	30-Sep-18 A	14-Jul-19	30%																																				
P2-1220	Technical Design documents of superstructure (concrete)	240	19-Oct-18 A	21-Oct-19	15%																																				
P2-1280	Construction Design documents of foundation	180	31-Oct-18 A	02-Nov-19	30%																																				
P2-1290	Construction Design documents of substructure	210	18-Nov-18 A	24-Oct-19	30%																																				
P2-1300	Construction Design documents of superstructure (concrete)	240	12-Mar-19 A	20-Dec-19	7.92%																																				
P2-1180	Aesthetic Strategy Report and Desktop study for Wind Tunnel Test	1	22-Mar-19 A	23-Mar-19 A	100%																																				
P2-1310	Construction Design documents of superstructure (steel)	240	14-Jun-19	09-Feb-20	0%																																				
P2-1250	Technical Design documents of pavement	120	23-Jun-19	21-Oct-19	0%																																				
P2-1320	Construction Design documents of dolphins	90	14-Jul-19	12-Oct-19	0%																																				
P2-1260	Technical Design documents of bridge ancillaries	120	13-Aug-19	11-Dec-19	0%																																				
P2-1330	Construction Design documents of pavement	90	21-Oct-19	19-Jan-20	0%																																				
P2-1340	Construction Design documents of bridge ancillaries	90	11-Dec-19	10-Mar-20	0%																																				
P2-1350	Preparation and supply of as-built documents (GC Sub-Clause 5.6)	120	01-Aug-22	29-Nov-22	0%																																				
P2-1360	Preparation and supply of Maintenance Manual (Section VII GC Sub-Clause 5.7)	120	01-Aug-22	29-Nov-22	0%																																				
P2-1380	Tests	30	30-Oct-22	29-Nov-22	0%																																				
Schedule No. 3: Temporary Works		1617	31-May-18 A	03-Nov-22																																					
P2-1390	Construction of temporary jetties including materials	180	31-May-18 A	27-Nov-18 A	100%																																				
P2-1400	Casting yards preparation (50%)	210	31-May-18 A	27-Dec-18 A	100%																																				
P2-1450	Casting yards maintenance and clearing after Contract completion (50%)	1313	21-Feb-19 A	15-Jan-21	50%																																				
P2-1420	Salvage value to Contractor (negative cost)	1313	31-Mar-19	03-Nov-22	0%																																				
P2-1410	Removal of temporary jetties	90	15-Jan-21	15-Apr-21	0%																																				
P2-1430	Removal of casting yards	45	15-Jan-21	01-Mar-21	0%																																				
P2-1440	Clearing of casting yards	45	01-Mar-21	15-Apr-21	0%																																				
Schedule No. 4: Construction of Foundation Piles and Pile Caps for Piers and A		1169	21-Jun-18 A	23-Sep-21																																					
P2-1460	"Materials on the Site (refer to GC Sub-Clause 14.5 (c) (i)): steel reinforcing bars	900	21-Jun-18 A	07-Dec-20	31.44%																																				
P2-1470	Ditto: steel liner pipes	900	21-Jun-18 A	07-Dec-20	31.44%																																				
P2-1490	Loading tests and test reports on bridge pier foundation piles	60	31-Oct-18 A	30-Dec-18 A	100%																																				
P2-1510	Loading tests and test reports on abutment foundation piles	60	31-Oct-18 A	30-Dec-18 A	100%																																				
P2-1480	Construction of Open foundation/Spread foundation/Raft foundation, piles and pile cap	945	31-Jan-19 A	23-Sep-21	4%																																				
P2-1530	Loading tests and test reports on electrical platform pier foundation piles	60	15-Feb-19 A	16-Apr-19	73.33%																																				
P2-1500	Construction of abutment foundation piles and pile caps including geotechnical investigation	180	31-Mar-19	27-Sep-19	0%																																				
P2-1550	Loading tests and test reports on emergency rescue station platform pier foundation piles	60	16-Apr-19	15-Jun-19	0%																																				

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Activity ID	Activity Name	Duration in Days	Start	Finish	Activity % Complete	2017				2018				2019				2020				2021				2022				2023				2024				2025		
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3				
P3-1580	Materials on the Site (refer to GC SubClause 14.5 (c) (i)): structural steel materials	600	01-Mar-19 A	21-Oct-20	5%	[Gantt Chart]																																		
P3-1590	Fabrication of steel structural elements for bridges superstructure	730	09-Apr-19	08-Apr-21	0%	[Gantt Chart]																																		
P3-1600	Fabrication of steel structural elements for other components	730	09-Apr-19	08-Apr-21	0%	[Gantt Chart]																																		
P3-1610	Transportation to and erection at the Site of fabricated steel structural elements for bridges	540	13-Feb-20	06-Aug-21	0%	[Gantt Chart]																																		
P3-1620	Transportation to and erection at the Site of fabricated steel structural elements for other components	540	13-Feb-20	06-Aug-21	0%	[Gantt Chart]																																		
P3-1630	Surface anti-corrosion coating of erected steel structure for bridges	210	09-Mar-21	05-Oct-21	0%	[Gantt Chart]																																		
P3-1640	Surface anti-corrosion coating of erected steel structure for other components	210	14-Mar-21	10-Oct-21	0%	[Gantt Chart]																																		
Schedule No. 7: Construction of Earthworks						[Gantt Chart]																																		
P3-1650	Materials on the Site (refer to GC SubClause 14.5 (c) (i)): steel reinforcing bars for retaining walls, etc.	300	15-Apr-19	09-Feb-20	0%	[Gantt Chart]																																		
P3-1660	Construction of reinforced concrete retaining/compound walls	600	14-Jun-19	03-Feb-21	0%	[Gantt Chart]																																		
P3-1670	Construction of earthwork (fill, compaction, etc.)	600	14-Jun-19	03-Feb-21	0%	[Gantt Chart]																																		
Schedule No. 8: Fabrication and Installation of Bridge Ancillaries						[Gantt Chart]																																		
P3-1710	Installation of expansion joints	60	19-Apr-21	18-Jun-21	0%	[Gantt Chart]																																		
P3-1730	Deck waterproofing including Materials	180	19-Apr-21	16-Oct-21	0%	[Gantt Chart]																																		
P3-1680	Materials on the Site (refer to GC Sub-Clause 14.5 (c) (i)): Bridge bearings (shoes)	180	19-May-21	15-Nov-21	0%	[Gantt Chart]																																		
P3-1690	Ditto: expansion joints	180	19-May-21	15-Nov-21	0%	[Gantt Chart]																																		
P3-1720	Crash barriers including Materials	210	19-May-21	15-Dec-21	0%	[Gantt Chart]																																		
P3-1700	Installation of bridge bearings (shoes)	180	18-Jun-21	15-Dec-21	0%	[Gantt Chart]																																		
Schedule No. 9: Construction of Asphalt Pavement						[Gantt Chart]																																		
P3-1740	Asphalt pavement including Materials	270	16-May-21	10-Feb-22	0%	[Gantt Chart]																																		
Schedule No. 10: Fabrication and Installation of Miscellaneous Items						[Gantt Chart]																																		
P3-1760	Drainage facility including Materials	450	17-Nov-20	10-Feb-22	0%	[Gantt Chart]																																		
P3-1750	Safety fences including Materials	365	10-Feb-21	10-Feb-22	0%	[Gantt Chart]																																		
P3-1770	Kerbs including Materials	365	10-Feb-21	10-Feb-22	0%	[Gantt Chart]																																		
P3-1780	Road furniture including Materials	270	16-May-21	10-Feb-22	0%	[Gantt Chart]																																		
P3-1790	Pavement marking including Materials	180	14-Aug-21	10-Feb-22	0%	[Gantt Chart]																																		
P3-1810	Gantry/overhang (cantilever)-type signage support structures including Materials	180	14-Aug-21	10-Feb-22	0%	[Gantt Chart]																																		
P3-1800	Road signage including Materials	120	13-Oct-21	10-Feb-22	0%	[Gantt Chart]																																		
P3-1820	Median openings including Materials for movable barrier	120	13-Oct-21	10-Feb-22	0%	[Gantt Chart]																																		
P3-1830	Traffic signals including Materials and testing	60	10-Feb-22	11-Apr-22	0%	[Gantt Chart]																																		
P3-1840	Restoration of removed items	60	10-Feb-22	11-Apr-22	0%	[Gantt Chart]																																		
P3-1850	Other miscellaneous items including Materials and testing as required	60	10-Feb-22	11-Apr-22	0%	[Gantt Chart]																																		
Schedule No. 11: Provisional Sums						[Gantt Chart]																																		
P3-1970	Schedule No. 11: Provisional Sums	600	20-Jun-20	10-Feb-22	0%	[Gantt Chart]																																		
Remaining Works & Taking Over Certificate						[Gantt Chart]																																		
A2540	Achieve Issuance of Taking Over Certificate	0	11-Apr-22	11-Apr-22	0%	[Gantt Chart]																																		
Package 4: Intelligent Transport System						[Gantt Chart]																																		
Contractor's Construction and GC Construction Supervision Activities						[Gantt Chart]																																		
Contractor's Design, Manufacturing and Delivery of Equipment to Site						[Gantt Chart]																																		
A2600	Contractor to Complete Preliminary Design & Detailed Design (As Per Design Submission Programme)	180	19-Nov-20	18-May-21	0%	[Gantt Chart]																																		
A2610	GC to Review / Proof Check / Approve Contractor's Detailed Design	180	18-Jan-21	17-Jul-21	0%	[Gantt Chart]																																		
A2620	Manufacturing, Testing and Delivery of ITS Equipment to Site	240	17-Feb-21	15-Oct-21	0%	[Gantt Chart]																																		
A2630	Manufacturing, Testing and Delivery of O&M Facility & Equipment to Site	240	18-May-21	13-Jan-22	0%	[Gantt Chart]																																		
Installation, Testing and Pre-Commissioning of ITS Equipment						[Gantt Chart]																																		
A2640	Installation, Testing and Pre-commissioning of Traffic Management System	420	18-May-21	12-Jul-22	0%	[Gantt Chart]																																		
A2650	Installation, Testing and Pre-commissioning of Toll Management System	420	18-May-21	12-Jul-22	0%	[Gantt Chart]																																		
A2660	Contractor to Achieve Issuance of Completion Certificate	60	12-Jul-22	10-Sep-22	0%	[Gantt Chart]																																		
Integrated Testing and Commissioning						[Gantt Chart]																																		
A2670	Integrated Testing with all External Interfaces and Authority Control Centres and Trial Operation	60	12-Jul-22	10-Sep-22	0%	[Gantt Chart]																																		
A2680	Commercial Operation Date	1	31-Jan-23	01-Feb-23	0%	[Gantt Chart]																																		
DLP Stage						[Gantt Chart]																																		
A2710	Package 3: 3.6 km long road & bridge(10+187 to 21+800) + interchanges	730	11-Apr-22	10-Apr-24	0%	[Gantt Chart]																																		
A2690	Package 1 Sewri Interchange and adjoining 10.38 km bridge (0+000 to 10+380)	730	01-Feb-23	31-Jan-25	0%	[Gantt Chart]																																		
A2700	Package 2: 7.8 km long bridge (10+380 to 18+187) + interchanges	730	01-Feb-23	31-Jan-25	0%	[Gantt Chart]																																		



Project Implementation Programme Progress Updated up to 31st Mar 2019

Date	Revision	Checked	Approved
30-Sep-18	Progress Updated up to 31 M...	JS	TL

Activity ID	Activity Name	Duration in Days	Start	Finish	Activity % Complete	2017				2018				2019				2020				2021				2022				2023				2024				2025		
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
A2720	Package 4: Intelligent Transport System	730	01-Feb-23	31-Jan-25	0%																																			

- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- Summary

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