



National Highways Authority of India
(Ministry of Road Transport & Highways)

PATEL CHOLOPURAM - THANJAVUR HIGHWAY PRIVATE LIMITED

Four Laning of Cholopuram - Thanjavur from Km 116.440 to
Km.164.275 section of NH-45C in the state of Tamilnadu under
NHDP Phase-IV on Hybrid Annuity Mode.

INDEPENDENT ENGINEER
M/s. Theme Engineering Services Pvt. Ltd

MONTHLY PROGRESS REPORT
DECEMBER 2018

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Executive Summary

The old National Highway (NH -36) runs through the state of Tamil Nadu. The project road is part of the 168 km long Vikravandi to Thanjavur section of the existing National Highway 36 (NH-36). Recently MORTH has amended the number and Length of the National Highways. The old NH 12 in the state of Tamil Nadu has become the part of the New National Highway 45C. It links Chennai with Thanjavur and is 418 km long.

The Cholopuram to Thanjavur section of NH-45C is an important link to connect Metropolitan city of Chennai to religious and tourist places of Kumbakonam, Thanjavur, Tiruchirapalli. The project is also expected to provide improved connectivity to other religious places & other major cities like Thanjavur, Rameswaram, Madurai, Tiruchirappalli, etc.

Project Synopsis

The Government of India had entrusted to the National Highway Authority of India (NHAI) the development, maintenance and management of National Highway No. 45C including the section from km 116.440 to Km 164.275 (approx. 47.835 Km). The Authority had resolved to augment for four Lining of Cholopuram - Thanjavur from Km 116.440 to Km 164.275 section of NH - 45C in the State of Tamilnadu under NHDP Phase-IV on "Hybrid Annuity" basis.

The scope of work will broadly include rehabilitation, upgradation and widening of the existing carriageway to four - lane standards with construction of new pavement, rehabilitation of existing pavement, construction and/or rehabilitation of major and minor bridges, culverts, road intersections, interchanges, drains etc. Including those prescribed in the Concession Agreement and its Schedule and the operation and maintenance itself. The map of project road is given in Figures below. The details of habitations are given in table - 01.

Figure 1: Project Location Map

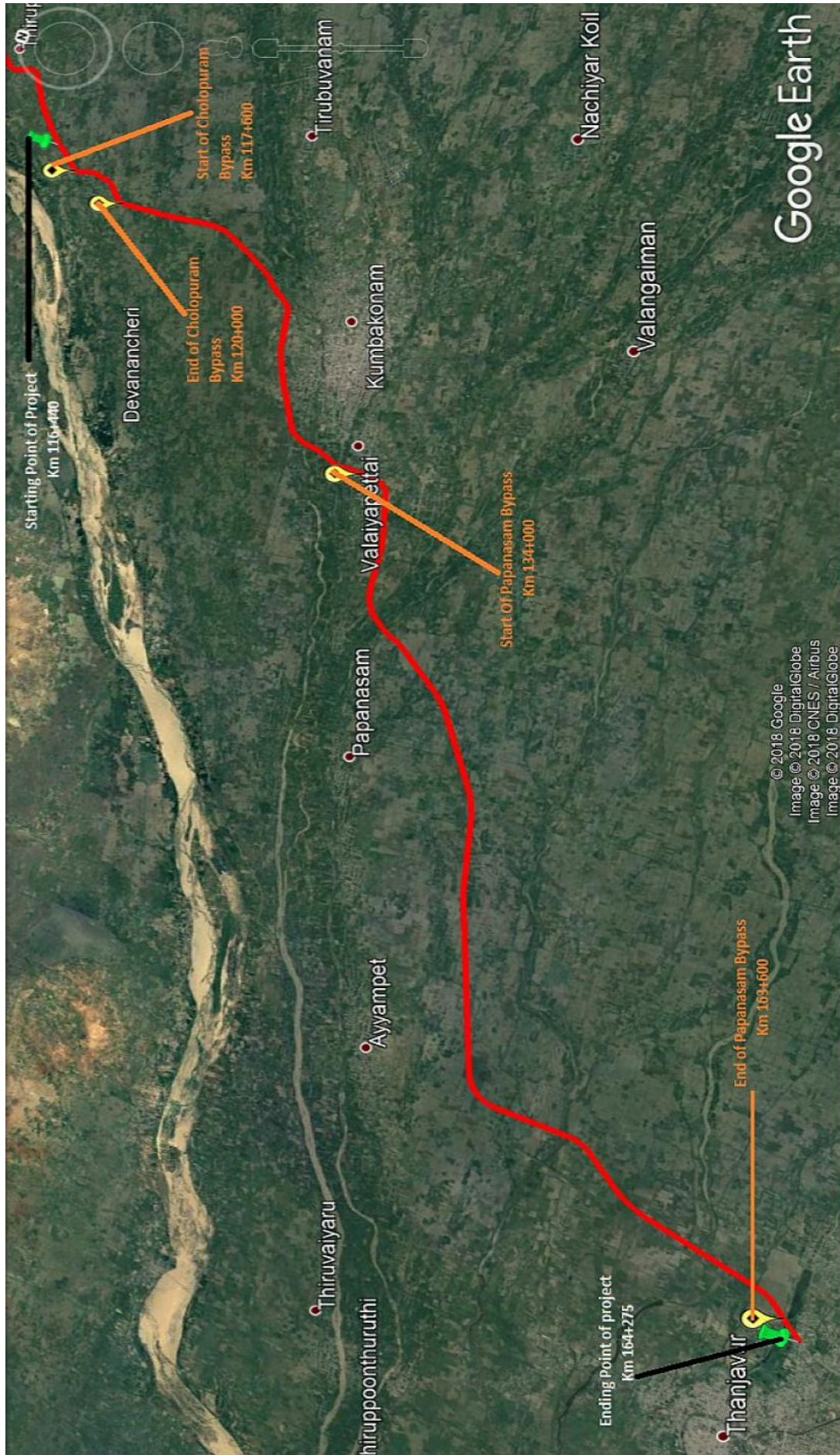


Table- 01: Details of Project Alignments

Sr. no.	Design Chainage (Km)		LENGTH (Km)	TCS Type	Remarks
	From	To			
1	116.440	117.200	0.760	Type-B (Fig 2.6 of the manual) without service road	Concentric widening
2	117.200	117.900	0.700	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
3	117.900	119.600	1.700	Type-A-3 (Fig 2.4 of the manual)	Bypass
4	119.600	120.420	0.820	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
5	120.420	122.000	1.580	Type-B (Fig 2.6 of the manual) without service road	Concentric widening
6	122.000	125.300	3.300	Type-A-3 (Fig 2.4 of the manual)	Eccentric widening
7	125.300	125.700	0.400	Type-B (Fig 2.6 of the manual) without service road	Concentric widening
8	125.700	127.700	2.000	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
9	127.700	128.300	0.600	Type-B (Fig 2.6 of the manual) without service road	Concentric widening
10	128.300	129.100	0.800	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
11	129.100	129.970	0.870	Type-B (Fig 2.6 of the manual) without service road	Concentric widening
12	129.970	130.700	0.730	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
13	130.700	131.050	0.350	Type-B (Fig 2.6 of the manual) without service road	Concentric widening
14	131.050	131.850	0.800	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
15	131.850	132.100	0.250	Type-A-3 (Fig 2.4 of the manual)	Eccentric widening
16	132.100	133.580	1.480	Type-B (Fig 2.6 of the manual) without service road	Concentric widening
17	133.580	134.800	1.220	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
18	134.800	136.000	1.200	Type-A-3 (Fig 2.4 of the manual)	Bypass
19	136.000	136.600	0.600	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
20	136.600	138.500	1.900	Type-A-3 (Fig 2.4 of the manual)	Bypass
21	138.500	139.750	1.250	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
22	139.750	141.100	1.350	Type-A-3 (Fig 2.4 of the manual)	Bypass

Sr. no.	Design Chainage (Km)		LENGTH (Km)	TCS Type	Remarks
	From	To			
23	141.100	141.800	0.700	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
24	141.800	144.450	2.650	Type-A-3 (Fig 2.4 of the manual)	Bypass
25	144.450	145.580	1.130	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
26	145.580	147.600	2.020	Type-A-3 (Fig 2.4 of the manual)	Bypass
27	147.600	148.320	0.720	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
28	148.320	149.720	1.400	Type-A-3 (Fig 2.4 of the manual)	Bypass
29	149.720	150.450	0.730	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
30	150.450	152.700	2.250	Type-A-3 (Fig 2.4 of the manual)	Bypass
31	152.700	153.300	0.600	Toll Plaza	
32	153.300	156.000	2.700	Type-A-3 (Fig 2.4 of the manual)	Bypass
33	156.000	157.350	1.350	Figure 7.8- Grade separator and its approaches with RE wall and both side 7.5 m wide Slip road	
34	157.350	164.275	6.925	Type-A-3 (Fig 2.4 of the manual)	Bypass
			47.835		

1.1. Project Overview

Name of Work	Four Laning of Cholopuram-Thanjavur from km. 116.440 to Km.164.275 of NH-45C under NHDP-IV on Hybrid Annuity Mode Basis
Name of Employer	National Highways Authority of India (NHAI) G-5 & 6, Sector-10, Dwarka, New Delhi -110075
Name of Concessionaire	Patel Cholopuram-Thanjavur Highway Pvt Ltd, Patel House, Beside Prakruti Resorts, Chanani Road, Vadodara. Gujarat- 391740 Tel: +91-265 277 6678 Fax: +91-265 277 7878
Independent Engineer	M/s. Theme Engineering Services Pvt. Ltd, 8, Thomaiyammal Nagar, 6 th Street, R.S College (Post), Thanjavur-613005.
EPC Contractor	M/s. Patel Infrastructure Limited, Patel House, Beside Prakruti Resorts, Chanani Road,Vadodara Gujarat- 391740, Tel: +91-265 277 6678 Fax: +91-265 277 7878
Design Consultant	CTL Global Services Pvt. Ltd. 101, IST Floor, Krishna Chambers, HAL, Airport Road, Bangalore-560017
Senior Lender	Punjab National Bank, Large Corporate Branch, Neelkamal Building, Opp. Sales India, Ashram Road, Ahmedabad - 380009
Lenders Independent Engineers	Sharul Techno-Financial Consultancy Services Pvt. Ltd., 403, Aspire Tower 5, Amanora Park Town, Hadapsar, Pune - 411028.
Length of Road (Design Length)	47.835 Kms.
Total Bid Cost	Rs. 1345.60 Crores (as per concession agreement)
Date of Concession Agreement	October 12, 2017
Concession Period	17 Years (Construction Period 2 Years from Appointed date, Operation period 15 years from COD)
Appointed Date	06.09.2018
Construction Period	02 years from Appointed date
Completion Date	04.09.2020
Maintenance Period	15 years from COD

1.2. Salient Project Features

Besides the construction of new carriageways and widening and strengthening of existing carriageways, the following table summaries the major elements of the project construction:

4 - Lane Divided Carriage Way	47.835 Kms
Service Road/ Slip Road	27.100 Kms
Major Bridge	06 Nos.
Minor Bridge	56 Nos.
Grade Separate Intersection	06 Nos.
Vehicular Underpass	10 Nos.
Pedestrian Underpass	02 Nos.
Rail-road Bridges	01 Nos
Box Culverts	74 Nos.
Slab Culverts	29 Nos.
Major Intersections	20 Nos.
Minor Intersections	22 Nos.
Bus Bays	05 Nos.
Rest Area	01 Nos
Toll Plaza	01 Nos.

1.3. Contractual Project Milestones

Following is a listing of the Key Project Milestones:

Mile Stone	Description	Target Date
Mile Stone-I	Concessionaire shall expended not less than 20 % of the Total capital cost and shall have commenced construction of the project and achieved 20% of physical progress on 214 th day from the Appointed Date.	07 th April 2019
Mile Stone-II	Concessionaire shall expended not less than 35% of the Total capital cost and shall have commenced construction of the project and achieved 35% of physical progress on 334 th day from the Appointed Date	05 th August 2019
Mile Stone-III	Concessionaire shall expended not less than 75 % of the Total capital cost and shall have commenced construction of the project and achieved 75% of physical progress on 584 th day from the Appointed Date	11 th April 2020
Scheduled Completion	Concessionaire shall have completed Project on 730 th day from the Appointed Date	04 th September 2020

1.4. Payment milestone during Construction Period

Payment Mile Stone	Eligibility Criteria	Payment Amount (Rs.)
Mile Stone-I	On Achievement of 10% of Physical Progress	107.65 Crs.
Mile Stone-II	On Achievement of 30% of Physical Progress	107.65 Crs.
Mile Stone-III	On Achievement of 50% of Physical Progress	107.65 Crs.
Mile Stone-IV	On Achievement of 75% of Physical Progress	107.65 Crs.
Mile Stone-V	On Achievement of 90% of Physical Progress	107.65 Crs.

1.5. Permits & Approvals

Sr. No.	Details	Authority	Current Status	Remarks
1	Extraction of Boulders from Quarries	Distt. Mining Officer	Obtained	We have engaged Agate Infra Engineering for supply of boulders that is having a valid license for extraction of boulders and other required permission for the quarry at Kalpadi Village, Perambalur District.
2	Installation of Crusher	Village Panchayat Head	Obtained	
3	-----D O-----	Pollution Control Board	Obtained	
4	Use of Explosives	Distt. Collector	Obtained	
5	Labour License	Labour Commissioner	Obtained	
6	Environmental Clearance		NA	
7	Trees Cutting Permission	Forest department through NHAI	Obtained	Work in Progress, Felling Permission issued except Teak wood trees
8	Electric Poles Shifting	Tamilnadu Electricity Board	In progress	14 Nos. Estimates for shifting of electrical poles and transformers have been obtained from the concerned department in respect of Thanjavur District. All the 15 No of Estimates are approved by Competent Authority. Estimate for shifting of 04 towers has to be obtained from TANTRASCO. Joint inspection completed with filed officers.
9	Water Pipes Shifting	Tamilnadu Water Supply and Drainage Board	In progress	30 Nos. Estimates have been received from Kumbakonam Union, 01 Estimate from Darasuram Municipality and 1 estimate from EE, TWAD Thanjavur has been received. All the estimates are approved by the RO, NHAI Madurai.
10	Drawing Water from river/ reservoir	-	NA	-

2.1. Land Acquisition

As per the Schedule – A of Concession Agreement, the Proposed Right of Way (ROW) is of 45 & 60 meters as per table below.

Table 2.1-1: Details of proposed ROW as per Schedule-A

	Design Chainage (Km)	Design Length (Km)	Width (m)	Remarks
(i) Full Right of Way (full width)				
Stretch	116.440 to 117.600	1.160	30	Within 15 (Fifteen) days from the date of Agreement.
Stretch	117.600 to 120.000	2.400	60	
Stretch	120.000 to 134.000	14.000	30	
Stretch	134.000 to 164.275	30.280	60	
Total Length		47.835		

Balance Right of way (width)

	Design Chainage (Km)	Design Length (Km)	Width (m)	Remarks
Stretch	116.440 to 117.600	1.160	30	Within 90(Ninety) days of the Appointed date
Stretch	120.000 to 120.340	0.34	20	
Stretch	124.700to 126.100	1.40	20	
Stretch	126. 700 to 127 .655	0.95	20	
Stretch	130.600 to 134.000	3.40	20	
Total Length		7.250		

Besides this, the Authority has to acquire additional land at Toll plaza location, Bus bays, turning radius at Major junctions.

Table 2.1-2: Status of Land Acquisition as per Site Condition

Sl. No.	Description	Unit	Present Status	Remarks
A)	Total Length of the Project Highway	Km	47.835	
i)	Use of Existing Road Portion	Km	15.835	
ii)	Proposed Bypass / Realignment portion	Km	32.000	
B)	Hindered Length			
i)	LA Issues	Km	8.820	
ii)	Existing Buildings	Km	2.515	
iii)	Pending for Disbursement of Payment	Km	5.475	
iv)	Electrical Lines	Km	10.480	
v)	Rural Water Supply lines	Km	11.205	
C)	Net Hindered Length (both Side)	Km	22.290	
D)	Total Project Length (both Side)	Km	47.835	
E)	% Hindered Length	%	46.60%	

The details of land acquisition status and available hindrances are produced on a strip chart under section 04.

The status of compensation disbursed is as below: -

Sl No.	Name of the District	Total No. of Land cases	Amount paid (in Nos.)	Balance to be Paid (in Nos.)	Remarks
1	Thanjavur	1467	1039	428	
	Total in Nos.	1467	1039	428	
	Total in %		70.82%	29.17%	

Sl No.	Name of the District	Total No. of structures	Amount paid (in Nos)	Balance to be Paid (in Nos)	Remarks
1	Thanjavur	723	541	182	
	Total in Nos	723	541	182	
	Total in %		74.82%	25.18%	

The details of chainages under hindrance due to such balance compensation issues to their land owners, structure payment issues, standing crops, water pipe lines etc. are as below –

2.2. Removal of Religious Structures

The following structures coming within the ROW are to be demolished

Sl. No.	Name of the District	Total No. of structures	Removed as on Date (in Nos.)	Balance (in Nos.)
1	Thanjavur	13	0	13
Valuation of Religious structures is in progress.				

2.3. Shifting of Utilities and Electrical HT/LT Lines

To proceed with the project construction, several utilities are required to be shifted under the supervision of the respective authorities. These include a water supply line, hand pumps, overhead water tanks, besides Electrical lines, as shown in the table below.

Sl. No	Name of the District	Chainages			Total Number of Estimates	Remarks
		From	To	Length in Km		
1	Thanjavur	116+440	164+275	47.835	33	Work to be Commenced

Table 2.3-2: Status of sanction of Estimates - Electrical Lines Relocation

Sl. No	Name of the District	Chainages			Number of Estimates	Present Status	Remarks
		From	To	Length in Km			
1	Thanjavur	116+440	164+275	47.835	14	Work in Progress	

Estimates for shifting of the above Electric lines have been prepared. The estimated cost is approximately Rs. 10.50 crores.

Estimates have been done for the shifting of the water supply pipeline & related items mentioned above. The estimated cost is approximately Rs. 6.8 crores.

Table 2.3-3: Status of Utility Relocation

Sl. No.	Authority	Description	Unit	Total Length/ Nos.	Work done	Balance	Remarks
1	BDO & EE, TWAD	Water Supply Pipe Line	Kms.	31.04	0	31.04	
2	BDO of Concern Union	Hand Pump/Pump Room with Bore well	Nos.	16	0	16	
3	BDO of Concern Union	Over Head Tank	Nos.	2	0	2	
4	TNEB	Electrical Lines	Kms.	19.215	8.735	10.480	Work in Progress

2.4. Tree felling

Table 2.4-1: Status of Tree felling

Sl.No.	Name of the District	Chainages			Effected Length in Kms	Total No. of Trees	Felled/Removed as on Date	Balance no. of Trees	Remarks
		From	To	Length in Km					
1	Thanjavur	116+440	164+275	47.837	15.310	1461	210	1251	Work in Progress
Total				47.835					

3.1. Pre-Construction Activities

Detailed Design & Drawings

The Plan and Profile, as well as the Pavement Designs for the entire 47.835 km project length has been completed and reviewed by the Independent Engineer (IE). Construction Methodology, QA & QC procedures submitted to the IE has been reviewed and accepted.

Table 3.1-1: Status of Design and Drawings-Highway

Sl No.	Description	Unit	Total Scope as per Sch.B As per Sch. B	Design submitted	Drawing Approved
1	Pavement Design	Km	47.835	47.835	-
2	Plan & Profile	Km	47.835	47.835	45.835
3	Typical Cross Sections	Type	3	3	-
4	Major Intersections	No	20	-	-
5	Minor Intersections	No	22	-	-
6	Toll Plaza (Typical Details)	No	01	-	-
7	Rest Area	No	01	-	-
8	BusBay	No	05	-	-
9	Service Roads	No	27.10	-	-

Table 3.1-2 : Status of Design and Drawings –Structures

Sr. No	Description	Unit	Total Scope As per Sch. B	Design Submitted	Drawing Approved
1	Major Bridges	No	06	0	-
2	Minor Bridges	No	56	44	44
3	Grade Separated Intersection	No	06	6	-
4	VUP/PUP	No	12	12	-
5	Box /Slab Culvert	No	103	80	47
6	ROB	No	01	0	GAD approved

4. Physical Progress of Work

4.1. Physical Progress of Work

The following table summarize the quantum of work achieved towards the construction of the various elements of the highway.

The Progress of the Major Works carried out at the Site in the Month of November 2018 is as follows.

CUMMULATIVE STATEMENT

For Main Carriageway

Sr. No.	Description	Total Length of Highway Excluding Toll Plaza (in. Km.)	Progress up to Previous Month (in Km)	Progress during this Month (In Km.)	Cumulative Progress Achieved up to this Month (In Km)	In Progress (In Km.)	Balance Length to be Completed	Cumulative % of Progress Achieved
1	Clearing and Grubbing							
	LHS	46.925	19.08	0	19.08	0	27.845	40.66%
	RHS	46.925	18.75	0	18.75	0	28.175	39.96%
2	Embankment							
	LHS	46.925	0	0	0	3.72	46.925	0.00%
	RHS	46.925	0	0	0	3.37	46.925	0.00%
3	Sub grade							
	LHS	46.925	0	0	0	0	46.925	0.00%
	RHS	46.925	0	0	0	0	46.925	0.00%
4	GSB/ Cement Treated Base							
	LHS	46.925	0	0	0	0	46.925	0.00%
	RHS	46.925	0	0	0	0	46.925	0.00%
5	Wet Mix Macadam							
	LHS	46.925	0	0	0	0	46.925	0.00%
	RHS	46.925	0	0	0	0	46.925	0.00%
6	Dense Bitumen Macadam							
	LHS	46.925	0	0	0	0	46.925	0.00%
	RHS	46.925	0	0	0	0	46.925	0.00%
7	Bituminous Concrete							
	LHS	46.925	0	0	0	0	46.925	0.00%
	RHS	46.925	0	0	0	0	46.925	0.00%

For Service Road

Sr. No.	Description	Total Length of Service Road (Km.)	Progress up to Previous Month (in Km)	Progress during this Month (In Km.)	Cumulative Progress Achieved up to this Month (In Km)	In Progress (In Km.)	Balance Length to be Completed	Cumulative % of Progress Achieved
1	Embankment	27.1	0	0	0	0	27.1	0.00%
2	Sub grade	27.1	0	0	0	0	27.1	0.00%
3	GSB/ Cement Treated Base	27.1	0	0	0	0	27.1	0.00%
4	Wet Mix Macadam	27.1	0	0	0	0	27.1	0.00%
5	Dense Bitumen Macadam	27.1	0	0	0	0	27.1	0.00%
6	Bituminous Concrete	27.1	0	0	0	0	27.1	0.00%

Structure Work

Sr. No.	Type of Structure	Total No. of Structures	No. of Structures		
			Completed	In Progress	Balance
1	Culvert	103	0	15	88
2	Light Vehicular Underpass	2	0	0	2
3	Vehicular Underpass	10	0	0	10
4	Minor Bridges	56	0	5	51
5	Major Bridge	5	0	0	5
6	Flyover	6	0	0	6

Figure 3: Financial Progress - Planned vs Achieved - S Curve

6.1. List of Lab Equipment's

A site laboratory has been set up with all equipment required for testing soil, GSB, WMM, Bitumen, aggregate and concrete. Following tables represents the list of QA/QC equipment's available at Pateeswaram Lab.

Table 6.1 - 2 QA/QC Lab Equipment at Pateeswaram Lab		
Sl. No	Equipment List	Quantity
A) SOIL		
1	Proctor Moulds (Big) Collar or Base plate & Rammer 4.89 kg	6
2	Proctor Moulds (Small) Collar or Base plate & Rammer 2.6 kg	4
3	Atterberg Limits Test(Apparatus)	1
4	Soil Cone Penetrometer	1
5	CBR Moulds with collar or Base Plate	60
6	CBR Plunger	4
7	Proving Ring(25 KN)	1
8	Proving Ring(10 KN)	1
9	Proving Ring(2.5 KN)	1
10	FSI JARS BOROSIL -100 ml	40
11	Spacer Disc(with Handle)	4
12	CBR Testing Machine	1
13	CBR Surcharge Central Hole Weights 2.5 kg	60
14	CBR Surcharge Slotted Weights 2.5 kg	60
15	CBR Perorated Brass plates	60
16	Sand Pouring Cylinders (100 mm Dia) Complete with Calibrating Container with Trays	2
17	Sand Pouring Cylinders (150 mm Dia) Complete with Calibrating Container with Trays	2
18	Sand Pouring Cylinders (200 mm Dia) Complete with Calibrating Container with Trays	2
19	Rapid Moisture Meters	4
20	Calcium Carbide Bottles	10
21	Spatula Big	10
22	Spatula Small	10
23	Hammers big	4
24	Chisels big	20
25	Electronic Balance Capacity 100 kg (10 gram accuracy)	1
26	Electronic Balance Capacity 50 kg (1 gram accuracy)	2
27	Electronic Balance Capacity 30 kg (1 gram accuracy)	2
28	Electronic Balance Capacity 10 kg (1 gram accuracy)	1
29	Electronic Balance Capacity 5 kg (0.5 gram accuracy)	1
30	Electronic Balance Capacity 600gram(0.01 gram accuracy)	2
31	Hot Air Oven (Big)250°C	1
32	Hot Air Oven (Small)250°C	1
33	Direct Shear Test Apparatus	1

Sl. No	Equipment List	Quantity
34	Filter Paper Dia 100 mm	10
35	Filter Paper Dia 150 mm	10
36	Pipettes	4
37	Plastic Bottles	4
38	Enamel tray -450x300x40 mm	12
39	G.I tray-1500x1500x100mm	4
40	French Curves	2
B) CONCRETE WORKS		
41	Compressive Testing machine(2000KN)	1
42	Flextural strength testing machine digital	1
43	Concrete Cube Moulds With Base Plate(15cm)	200
44	Concrete Cube Moulds With Base Plate(10cm)	18
45	Motor Cube Moulds (7.06cm) with Base Plate	12
46	Motor Cube Vibrating Machine(12000 Rmp)	1
47	Concrete Mixer Electrically Operated	1
48	Cube Vibrating Machine (Big)	1
49	Slump Cone Testing Appratus	10
50	Vicat Needle Apparatus , with dash pot complete with set of needles and brass mould	2
51	Soundness Testing Apparatus	2
52	Trowels With Wodden Handles	4
53	A I V Testing Machine	1
54	Loss Angels abrasion Testing Machine	1
55	Sand Equivalant Testing Apparatus	1
56	Flakiness Index Test Guage	1
57	Elongation Index Test Guage	1
58	Density Basket	2
59	Bulk Density Cylinder (5lt)	1
60	Bulk Density Cylinder (15lt)	1
61	Bulk Density Cylinder (30lt)	1
62	Gi trays -450x600x50mm	9
63	Enamal trays -300x250x40 mm	9
64	Trays for Samples Collections	12
65	Riffle Box (40 MM)	1
66	Riffle Box (20 MM)	1
67	PYcnometer Bottels (1000 ml)	4
68	Specific Gravity & water absorotion test apparatus with Electronic balance	1
69	DLC Compaction vibrating hammer	1
70	Cement mortar cube mould 5.0 cm	12
71	Sandard Sand Grade-1 bag of 25 kg	2
72	Sandard Sand Grade-2 bag of 25 kg	2
73	Sandard Sand Grade-3 bag of 25 kg	2
C) BITUMINOUS WORKS		
74	Specific Gravity Bottels (50 ml)	2
75	Specific Gravity Bottels (100 ml)	2

Sl. No	Equipment List	Quantity
76	Pen Sky- Martins closed Tester (Flash & Fire point)	2
77	Dial gauge 0.01x30 mm adis make	4
78	Ring & Ball Apparatus (Softening Point)	1
79	Bitumen Penetrometer (automatic)	1
80	Marshall Stability Apparatus (set)	1
81	Marshall Compaction Pedestal	2
82	Marshall Compaction Rammer 4.53 KG	4
83	Marshall Moulds (101.6 mm Dia)	30
84	Modified Marshall Compaction Pedestal	1
85	Modified Marshall Compaction Rammer 10.2 KG	4
86	viscometer u tub size no 12	2
87	Breaker - glass 600 ml for ring and ball apparatus	4
88	Bitumen Extraction Apparatus (centrifuge Type)	1
89	Proving Ring(50 KN)	1
90	Proving Ring(100 KN)	1
91	Digital Thermometers	10
92	Glass Thermometer	10
93	IR Thermometer	5
94	Core Cutting Machine With Apparatus (set)	1
95	Diamond Core Cutting Bit (100mm Dia)	1
96	Core Barrels for Core Cutting Machine	1
97	Vacuum Pump (specific Gravity of Bitumen Mix GMM)	1
98	Constant temperature Water bath (Digital)	2
99	Penetration cup 55x70 mm	2
100	penetration cup 55x35 mm	2
101	Specific Gravity Flask (2000 ml)	1
102	Specific Gravity Flask (5000 ml)	1
103	Specimen Extractor (Tikki, Goli & Rod)Marshall	1
104	Emulsion Trays	6
105	Viscometer viscosity of emulsified bitumen	1
106	Stop Watch	4
107	Hot Plates Electrical	2
108	Viscometer viscosity of bitumen	1
FOR I.S SIEVES 450 MM DIA		
109	100MM	2
110	90MM	2
111	75MM	2
112	63MM	2
113	53MM	2
114	50MM	2
115	45MM	2
116	40MM	2
117	37.5MM	2
118	31.5MM	2
119	26.5MM	2

Sl. No	Equipment List	Quantity
120	25MM	2
121	22.4MM	2
122	20MM	2
123	19MM	2
124	16 MM	2
125	14MM	2
126	13.2MM	2
127	12.5MM	2
128	11.2MM	2
129	10MM	2
130	9.5MM	2
131	6.3MM	2
132	5.6MM	2
133	4.75MM	2
134	2.36 MM	2
FOR I.S SIEVES 200 MM DIA		
135	37.5MM	2
136	26.5MM	2
137	22.4MM	2
138	19MM	2
139	16MM	2
140	14 MM	2
141	13.2MM	2
142	12.5MM	2
143	11.2MM	2
144	10MM	2
145	9.5MM	2
146	5.6MM	2
147	4.75MM	2
148	2.80MM	2
149	2.36MM	2
150	2.00MM	2
151	1.80MM	2
152	1.40MM	2
153	1.18MM	2
154	1.00MM	2
155	0.710 mc	1
156	0.600 mc	2
157	0.500 mc	1
158	0.45 mc	1
159	0.425 mc	2
160	0.355 mc	2
161	0.300 mc	2
162	0.150 mc	2
163	0.090 mc	2
164	0.075mc	6

Sl. No	Equipment List	Quantity
GENERAL & CONTROL OF PROFILE AND SURFACE EVENNESS		
165	Rain Guage	1
166	Vernier Calliper	1
167	Glass Measuring Cylinder -1000 ml	2
168	Glass Measuring Cylinder -500 ml	2
169	Glass Measuring Cylinder -250 ml	2
170	Glass Measuring Cylinder -250 ml	2
171	Plastic Measuring Cylinder- 1000 ml	2
172	Plastic Measuring Cylinder- 500 ml	2
173	Plastic Measuring Cylinder- 250 ml	2
174	Plastic Measuring Cylinder- 250 ml	2
175	Depth gauge	4
176	Digital thermo hygrometer	2
177	Sampling containers 100 gms	200
178	3 Meter straight edge and measuring wedge	1
179	Camber template board	2
180	5 mtr tape	2
181	10 mtr tape	2
182	30 mtr tape	4
183	50 mtr tape	4

6.2. Quality Control Test Summary

Table 6.2 - 1 Quality Control Test Summary Report

7. Weather Report

Date	Temperature (Celsius)		Humidity (%)		Rainfall (mm)	Cumulative Rain fall (mm)	Remarks
	Min	Max	Min	Max			
1-Dec-18	22.4	33.9	46	80	0.00	0.00	Sunny
2-Dec-18	24.0	35.2	49	82	0.00	0.00	Cloudy
3-Dec-18	25.4	33.9	55	86	30.00	30.00	Rainy
4-Dec-18	26.0	32.8	64	89	15.00	45.00	Rainy
5-Dec-18	24.8	34.9	56	95	20.00	65.00	Rainy
6-Dec-18	25.1	35.1	50	93	0.00	65.00	Cloudy
7-Dec-18	25.3	34.5	52	90	0.00	65.00	Sunny
8-Dec-18	24.5	34.2	53	87	0.00	65.00	Sunny
9-Dec-18	24.1	33.6	51	84	0.00	65.00	Sunny
10-Dec-18	23.3	33.7	49	85	0.00	65.00	Sunny
11-Dec-18	23.4	34.2	49	86	0.00	65.00	Sunny
12-Dec-18	23.9	34.7	47	86	0.00	65.00	Sunny
13-Dec-18	23.4	33.4	52	84	0.00	65.00	Sunny
14-Dec-18	24.5	33.9	47	84	0.00	65.00	Sunny
15-Dec-18	24.6	31.9	55	76	0.00	65.00	Sunny
16-Dec-18	21.4	31.5	50	78	0.00	65.00	Sunny
17-Dec-18	23.2	33.9	40	86	0.00	65.00	Sunny
18-Dec-18	24.3	34.3	38	87	0.00	65.00	Sunny
19-Dec-18	22.3	32.1	53	82	0.00	65.00	Sunny
20-Dec-18	24.5	33.4	49	82	0.00	65.00	Cloudy
21-Dec-18	25.2	31.1	61	86	39.00	104.00	Rainy
22-Dec-18	24.8	28.8	71	88	20.00	124.00	Rainy
23-Dec-18	26.9	27.2	82	83	20.00	144.00	Rainy
24-Dec-18	23.5	31.8	60	90	0.00	144.00	Cloudy
25-Dec-18	22.8	32.1	52	89	0.00	144.00	Sunny
26-Dec-18	33.9	23.1	91	49	0.0	144.00	Sunny
27-Dec-18	34.1	23.5	88	47	0.0	144.00	Sunny
28-Dec-18	34.2	23.9	89	47	0.0	144.00	Sunny
29-Dec-18	31.9	22.9	89	56	0.0	144.00	Sunny
30-Dec-18	31.9	22.4	85	47	0.0	144.00	Sunny
31-Dec-18	31.4	23.1	86	48	0.0	144.00	Sunny

Various issues related to environment and safety, such as traffic management, safety signage's, disposal of waste materials and oil spillage, housekeeping, area barricading and traffic management, etc., are being taken care of during the execution of the project.

Periodic Safety meetings being conducted on a regular basis and the details of the photographs for the same along with action taken are as below.

1. Safety induction meeting conducted for Structure subcontractor team M/s R Gunasekaran at Ch. 118+490 on 21st December 2018 at 06.05.13 pm



2. Safety induction meeting was conducted for sub contractor M/s Sri Syam tubewell Company on 24th December 2018 at 12.32.31 pm



Concessionaire requests NHAI to take early action on the following issues:

1. Pending Disbursement of Payment to the beneficiaries from CALA towards Land and Buildings in Thanjavur District. – Request Authority to advise/instruct the Competent Authority of Land Acquisition to speed up the process of disbursement of pending payment.
2. Relocation of High Tension transmission tower lines.
3. NOC from PWD/WRO for commencement of construction activities for Irrigation Structures.
4. Permission from Local Authorities for procurement of Borrow Earth from Irrigation Tanks.
5. Rerouting of existing canal between Km:124+150 to 124+750 Km:117+760 to 118+480 and 146+600 to 148+100
6. Removal/relocation of existing irrigation sluice and regulator in the locations of Km:150+800, Km:152+900.
7. Additional land acquisition for Toll plaza location, Bus bays. Turning radius at Major junctions.
8. Removal of Teak wood trees from the Project Highway.
9. Removal of Religious structures and Bus stand to be removed from the carriage way.

10. Important Events

Table 10.1. Details of Important Events			
Sl. No	Date of Events	Description of Events	Remarks
1)	1.12.2018	World AIDS Day Celebration & Awareness Programme	
2)	26.12.2018	Green Highways Convention at the Academy of Administration, Bhopal – Nomination of Representatives from NHAI, RO, Madurai	

The following figures represent the organization structure of the EPC and SPV Team.

1. Fig. 4 - Organization Chart - EPC Team
2. Fig. 5 - Organization Chart - SPV Team

12. List of Plants, Machinery and Equipment's

Table 12.1 - List of Plants, Machinery and Equipment's				
S.No	Name of the Machinery	Capacity / Model	Mobilized in Nos.	Remarks
1	Grader	120K2	4	
2	Excavator	JCB-220	2	
3	Dozer			
4	Soil Compactor	HAMM 311	4	
5	Backhoe Loader	JCB 3DX	2	
6	Tipper	Bharat Benz- 3128C	21	
7	Transit Mixer	2523C		
8	Loader	455 ZX	6	
9	Trailer		1	
10	Water Tanker		6	
11	Boom Placer	S-36	1	
12	Tractor	5036 D V-2	4	
13	Mobile Service Van		1	
14	Tower Light	AJASKY	1	
11	Hydra Crane		1	
12	Asphalt Batch Mix Plant		1	
13	Wet Mix Plant	250 TPH	1	
14	Concrete Batch Mix Plant 45 cum	45 cum	1	
15	Concrete Batch Mix Plant 60 cum	60 cum	1	
16	Crusher Plant (3 Stage)	250 TPH	2	
17	Weigh Bridge for Camp 100MT	100MT	2	
18	Weigh Bridge for Crusher 100MT	100MT	1	
19	Genset Base Camp	25KV	3	
20	Genset 63KVA Boiler	63KVA Boile	1	
21	Genset (H.M & B/P)	82.50KV	1	
22	Genset (B/P-CP-45)	125KV	1	
23	Genset Concrete Plant-180 KVA	180 KVA	1	
24	Genset (Structure)		3	
25	Genset (Gantry)		1	
26	Genset (Crusher)	1010KVA	3	

Table 13.1 - Status of Change of Scope Proposals

Sl. No	Proposal Details	Date of Proposal	Current Status	COS Amount	Actual Date of Approval
1.	Replacement of Pipe Culvert with box Culvert	25.04.2018	Approved in-principle by Authority. Preparation of Detailed Quantities in proper order is in Progress	NA	NA
2.	VUP at Km. 134+900 at Merging of Kumbakonam Bypass	23.08.2018	The Proposal for VUP at 134+900 has been submitted to IE/Authority through letter No. PCTHPL/CTP/IE/038/2018 dated 23.08.2018 and awaiting for the Change of Scope Notice from IE/Authority	NA	NA

The following tables list out the correspondences between the parties.

Table 14.1. - Concessionaire to NHAI

Table 14.2. - NHAI to Concessionaire

Table 14.3. - Concessionaire to Independent Engineer

Table 14.4. - Independent Engineer to Concessionaire

15. Progress Photographs

Sl. No	Description	Location	Side	Remarks
1.	Base camp Office at 138+200 in Sundhraperumal Kovil (Patteeswaram)	138+200	RHS	



Sl. No	Description	Location	Side	Remarks
2.	Base camp Office at 138+200 in Sundhraperumal Kovil (Patteeswaram)	138+200	RHS	



Sl. No	Description	Location	Side	Remarks
3.	Mobilized Machineries	138+200	RHS	



Sl. No	Description	Location	Side	Remarks
4.	Mobilized Machineries	138+200	RHS	



Sl. No	Description	Location	Side	Remarks
5.	RMC plant at Base camp	138+200	RHS	



Sl. No	Description	Location	Side	Remarks
6.	HM Plant erection in progress	138+200	LHS	



Sl. No	Description	Location	Side	Remarks
7.	Crusher Erection In Progress			



Sl. No	Description	Location	Side	Remarks
8.	RE Wall Blocks Casting in progress			



Sl. No	Description	Location	Side	Remarks
9.	Utility -200mm Pipes unloaded at Site			



Sl. No	Description	Location	Side	Remarks
10.	Tree Cutting In Progress	128+800		



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Sl. No	Description	Location	Side	Remarks
11.	Patch work at Melacauvery	128+400		



Sl. No	Description	Location	Side	Remarks
12.	New Electrical Utility Contractor Mobilized the materials			



Sl. No	Description	Location	Side	Remarks
13.	Dismantling of Shops at Kovilacheri	121+295	RHS	



Sl. No	Description	Location	Side	Remarks
14.	Mosque Dismantling in Progress	130+200		



Sl. No	Description	Location	Side	Remarks
15.	Minor bridge Raft Reinforcement Binding work	119+400		



Sl. No	Description	Location	Side	Remarks
16.	Minor Bridge Raft Concrete Completed	119+100	BHS	



Sl. No	Description	Location	Side	Remarks
17.	Box Culvert Raft Concrete Completed	140+040	BHS	



Sl. No	Description	Location	Side	Remarks
18.	DBM Laying at Diversion Road	130+000		



Sl. No	Description	Location	Side	Remarks
19.	World Aids Day Celebration & Awareness Programme held at Camp	138+200	RHS	

