ENVIRONMENT ASSESSMENT REPORT(EA)
For
UG Electrical Cable Works Covering Cuddalore Municipality (Vinayaga Nagar, Semmandalam ,Varadharajan Nagar, Annandale, Sorakalpattu, Seetharam Nagar , Pudupalayam, R.P. Nagar, Kamaraj Nagar, Devanampattinam, Sothikkuppam, Sivanandhapuram, Sellankuppam, VSR Palayam etc settlements of Cuddalore Municipality (Package 2)

Tamil Nadu Distribution and Generation Corporation Ltd. (TANGEDCO)

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CONTENTS

LIST OF FIGURES

LIST OF TABLES

LISTS OF ANNEX

List of Abbreviations

AE/AEE	Assistant Engineer/Assistant Executive Engineer
CDRRP	Coastal Disaster Risk Reduction Project
CRZ	Coastal Regulation Zone
CZMA	Coastal Zone Management Authority
CZMP	Coastal Zone Management Plan
ESE	Environmental/Social Expert
EIA	Environmental Impact Assessment
ESMF	Environmental And Social Management Framework
ESMP	Environmental And Social Management Plan
GoTN	Government Of Tamil Nadu
HT	High Tension
IA	Implementing Agency
LT	Low Tension
MoEF	Ministry Of Environment And Forest
OHL	Overhead Line
PIU	Project Implementation Unit
PM	Particulate Matter
PMU	Project Management Unit
PIU	Project Implementation Unit
SE	Superintending Engineer
SIPCOT	State Industries Promotion Corporation Of Tamil Nadu
SPCB	State Pollution Control Board
TANGEDCO	Tamil Nadu Generation And Distribution Corporation Ltd.
TNPCB	Tamil Nadu Pollution Control Board
UG	Underground
WB	World Bank

Chapter 1 EA Background

1.1 Introduction CDRRP

To reduce the vulnerability of the coastal communities to a range of natural hazards such as cyclone, storm surge, floods, tsunamis etc. over the longer term, the government of Tamil Nadu has requested World Bank for financial assistance. As suggested by World Bank a new project namely Coastal Disaster Risk Reduction Project (CDRRP) was prepared and the same was finalized for further planning and implementation.

The CDRRP objective was to safeguard the coastal communities through building resilient infrastructure, enhancing livelihood and coastal risk management capacity of stakeholders and improving the recipient's capacity to respond promptly and effectively to an eligible crisis or emergency.

The CDRRP is comprised of 4 components with a number of subcomponents as under (Table1):

Table 1: CDRRP Components and Sub-Components

Components	**Sub-** Components
Component 1: Vulnerability Reduction	***Sub-Component1.1*:**Resilient Housing ***Sub- Component 1.2:*** Multipurpose evacuation Shelters, Emergency evacuation routes and Early warning systems ***Sub- Component 1.3:*** Cyclone Resilient Electrical Network
Component 2: Sustainable Fisheries Works Pertaining to fisheries Sector	***Sub- Component 2.1***: Fisheries Infrastructures [on going & New] ***Sub- Component 2.2:*** FIMSUL II Implementation of marine Fisheries Co-management, improved Capacities and Knowledge management, Fisheries livelihood support, Management support and Providing Wireless Communication

	Facilities
Component 3: Capacity building in Disaster Risk Management	***Sub- Component 3.1:*** Strengthening of State Disaster Management Authority, Setting up a Comprehensive GIS platform and GIS cell in the SDMA ***Sub- Component 3.2:*** Community based Disaster Risk Management Program ***Sub- Component 3.3:*** Curriculum Development for Disaster Risk Reduction in schools and Training institutions ***Sub-Component3.4:***-Integrated Coastal Zone Management
Component 4: Implementation Support	

The total project cost under CDRRP for Tamil Nadu appropriated was US$ 190 million.

An Environmental Management Framework (EMF) for the CDRRP was prepared by Project Management Unit, Government of Tamil Nadu with an objective to i) Enhance positive and sustainable environmental and social outcomes associated with Project implementation; ii) Support the integration of environmental and social aspects associated with the numerous sub-projects into the decision making process; iii) Support displaced persons in their efforts to restore their livelihoods and living standards and compensate any loss of livelihood or assets; iv) Enhance positive environmental and social outcomes; v) Minimize environmental degradation as a result of either individual sub-projects or their cumulative effects; vi) Protect human health; and viii) Minimize impacts on cultural property.

The EMF for CDRRP projects requires preparation of Environmental assessment prior to the implementation of the CDRRP components and sub-projects complaint with applicable laws and regulation of

India/Tamil Nadu State and with relevant bank policies on Environmental& Social Development Issues.

1.2 Underground Cable Network - TANGEDCO Packages

This project is sub component 1.3 of Component 1, of CDRRP. The sub-component is planned for implementation in the coastal towns of Cuddalore, Nagapattinam and Velankanni in the District of Cuddalore, and Nagapattinam of Tamil Nadu (Figure 1 and 2).

Figure 1: Location Map of Cuddalore Town

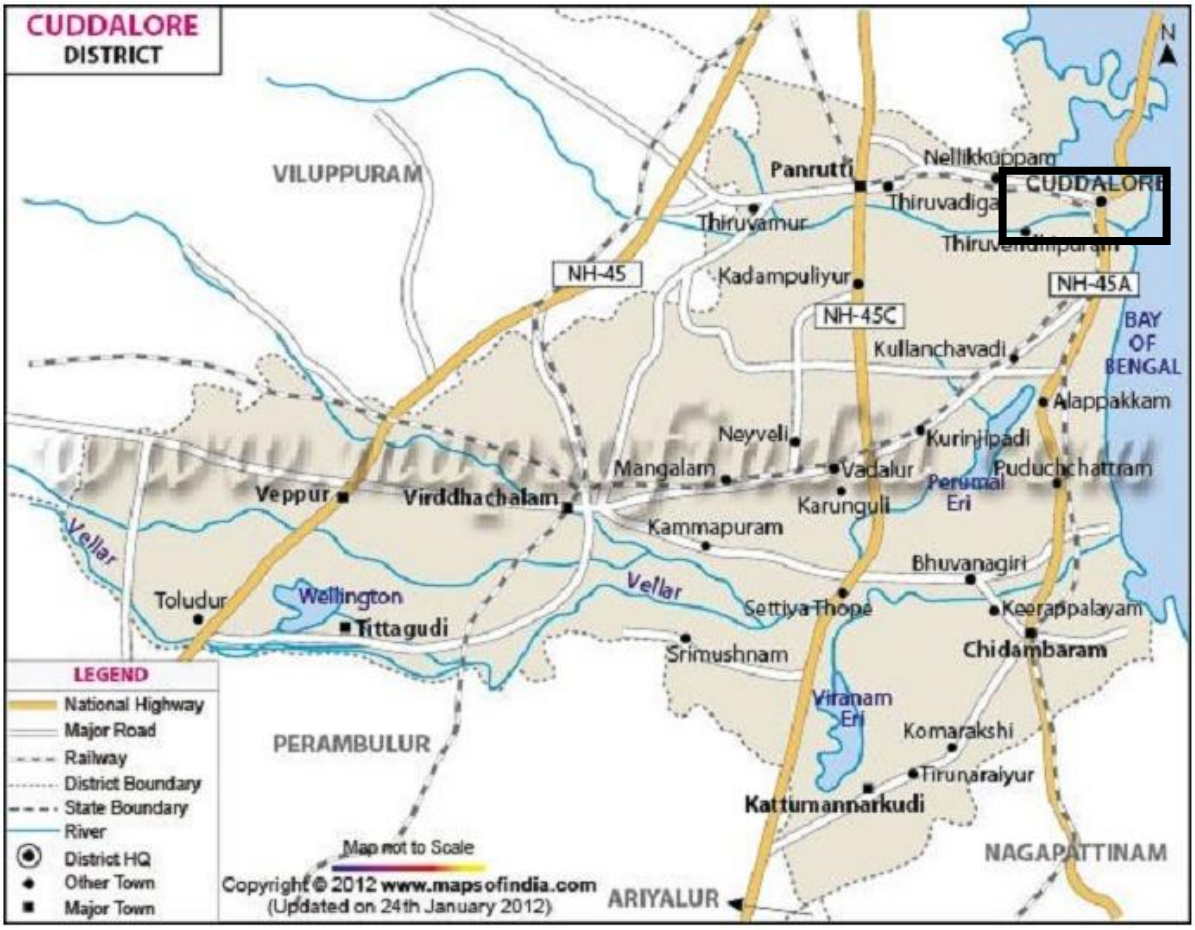
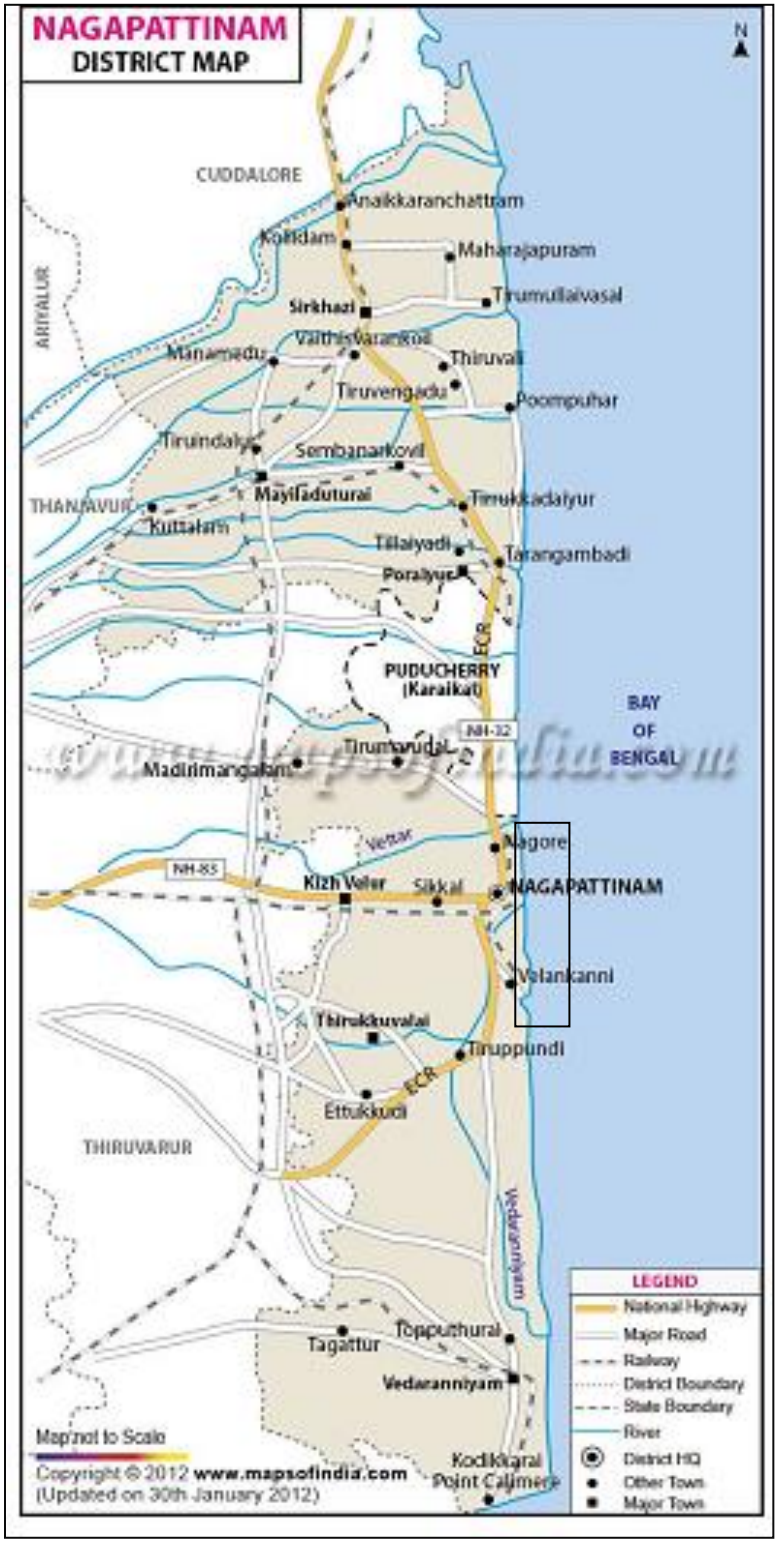


Figure 2: Location Map of Nagapattinam and Velankanni



The sub-component is comprised of 7 packages, 3 packages in the Cuddalore district and 4 packages in the Nagapattinam district (Table 2).

Table 2: Sub-Project Packages

Package	Feeder Name	Town/Districts
Package 1	Manjakuppam	Cuddalore Town, Cuddalore District
	Vandipalayam	
Package 2	**Cuddalore New Town**	
	Sellankuppam	
Package 3	Alpettai	
	Suthukulam	
	Pentesia	
Package 4	Nagapattinam Town	Nagapattinam Town, Nagapattinam District
Package 5	Thonithurai	
	Nagore	
	Velipalayam Water Works	
Package 6	Velipalayam	
Package 7	Velankanni	Velankanni Town, Nagapattinam District

The objective of the sub-component packages is to avoid risk exposure to cyclone, winds and related hazards to the existing electrical networks through replacement of overhead (OH) lines with underground (UG) cables. The Implementing Agency (IA) of the sub-component packages isTANGEDCO. This sub-component packages expected to benefit coastal community towns and villages of Cuddalore and Nagapattinam Districts, particularly in terms of an early resumption of power / electricity in the aftermath of natural disasters.

ESA of the sub-component envisages minor construction-related reversible physical environmental impacts, e.g. storage and disposal of debris including occupational health impacts to unskilled workforce and community health and safety concerns to the nearby settlements.

ESMF for the Component 1 sub-component 1.3 recommended an ESA study with EMP / RAP (as needed) integrating OHS issues for implementation by the IA with the help of consultants. This ESA

report has been prepared to meet the EMF requirement by the consultant and encloses EMP as per the ESA study.

1.3 Environmental Assessment and EMP for Package -2, CuddaloreTown

This Environmental Assessment (EA) for the Underground Electricity/Power Cable Network at Cuddalore New Town, Sellankuppam & some part of Manjakuppam feeders in Cuddalore Town, Cuddalore district under Package No.2, is prepared in line with the EMF based on the guidelines specified under Indian Regulatory Framework and guidelines/ policies of World Bank (WB).

1.4 Structure of the Report

This EA report is organized in 11 chapters.

Chapter 1 briefly describes CDRRP components and sub-projects within the components highlighting on the objectives of the CDRRP and associated packages. It also summarizes the EMF requirements while undertaking EMP study and preparation of needed EMP and RAP for the sub-project Packages

Chapter 2 highlights on the Project's descriptions (Package-2);

Chapter 3 reviews the relevant environmental and social safeguard policies, and legislative framework of the Government of India/Tamil Nadu State including the applicable Bank Policies highlighting on the requirement of needed clearance with timelines for the Project (Package -2);

Chapter 4 presents the Project (Package-2) area environmental baseline features;

Chapter 5 is dedicated for the assessment and identification of Project impacts (Package -2);

Chapter 6 analyses the Project's (Package-2) Alternatives;

Chapter 7 presents the descriptions of mitigation measures to avoid, minimize and or compensate the adverse impacts identified for the Project (Package-2).

Chapter 8 presents the Stakeholder / public consultations with focus on the impacts and construction phase issues for the Project's Packages in the Cuddalore district.

Chapter9presents the Specific environmental management/monitoring plan to mitigate and manage impacts for the project (Package-2)

Chapter 10 presents Risk Assessment and Disaster Management

Chapter 11 presents EMP Review implementation plan and Budget estimation.

Chapter 2

2.1 Location

The Project (Package-2) is located in the Cuddalore district, covering nearly 9km^{2}area in the southern parts of Cuddalore Municipality along the coast line. The key settlements covered by this Project are Vinayaga Nagar,Devanampattinam, Ishwari Nagar, Durai Sami Nagar, Nehru Nagar, Anna Nagar, Court, VGP Nagar, Semmandalam,Varadharajan Nagar, Annandale, Sorakalpattu, Seetharam Nagar, Pudupalayam, R.P. Nagar, Kamaraj Nagar, Devanampattinam, Sothikkuppam, Sivanandhapuram, Sellankuppam, VSR Palayam, Etc. Settlements.

2.2 Details of Project (Package-2)

Project (Package-2) proposes to convert about 59.7 km of HT line and about 90.88 km of LT line (Table 3) into underground electrical cable (Table 4). The estimated cost of the Package is Rs. 157.50 crores.

Table 3: Existing OH network of the Package –2

S.NO.	Feeder Name	HT Length (kms)	No. of DTs	LT Length (in km)	Feeder Load (in Amp)	1 ph consumer	3 ph consumer
1	New Town	33.45	252	60.1	220	6980	2992
2	Sellanakuppam	12.65	140	24.98	214	6548	920
3	Manjakuppam	13.6	113	5.8	----	555	193
Grand total		**59.7**	**505**	**90.88**		**14083**	**4105**

Table 4: Proposed UG Cable network of the Package–2

Feeder Name	New Town feeder-2	New Town feeder-6	New Town feeder-8	Manjakuppam feeder-7	Sellanakuppam feeder-5	Sellanakuppam feeder-9	Grand Total
HT Length(km)	14.064	11.812	15.010	13.82	12.90	9.698	77.304
LT Length(km)	38.866	16.529	5.545	6.453	37.38	36.499	141.272
Service cables (km)	127.600	82.920	20.360	29.92	148.16	150.320	559.28

Feeder Name	New Town feeder-2	New Town feeder-6	New Town feeder-8	Manjakuppam feeder-7	Sellanakuppam feeder-5	Sellanakuppam feeder-9	Grand Total
Street light cables (km.	8.66	7.36	5.82	5.36	6.56	5.544	39.304
DTs (Nos.)	68	88	99	113	96	44	508
LT Panel (Nos.)	33	25	4	5	29	28	124
Feeder Pillars(Nos.)	121	61	12	17	99	107	417
Service Pillars (Nos.)	489	225	63	125	507	478	1887
Trenchless crossings (Nos.)	16	25	15	2	16	23	97
Pipe crossings(Nos.)	304	138	114	105	307	207	1175
RMU (Nos.)	72	101	97	111	95	49	525

2.3 Key Features in the Project (Package-2) Area

A detailed strip layout plan of the underground electrical cables, DTs, Feeder Pillars, and Service Pillars is attached in Annexure 1. The layout strip maps have been prepared based on the GPS survey. It shows the alignment of the UG cable networks along with locations of DTs, Feeder Pillars and Service Pillars including the locations of the key sensitive features such as open drains, schools, health facilities, shrines, trees, road crossings, railway crossings, rivers/streams/drain crossings vendor's standing areas, structural ramps etc. Each of the roads and streets are numbered such that the key sensitive features could be easily identified and located with reference to Drawing Nos., Map Nos. and Road/Street Nos.

Key Project (Package-2) features are summarized in Table 5.

Table 5: Existing Features of Project (Package-2)

S.No	Features	Quantity
1	Required Land	Public Land (Roads and Streets)
2	Name of the Village / Location	Cuddalore Municipality (Vinayaga Nagar,Devanampattinam, Ishwari Nagar, Durai Sami Nagar, Nehru Nagar, Anna Nagar, Court, VGP Nagar, Semmandalam,Varadharajan Nagar, Annandale, Sorakalpattu, Seetharam Nagar, Pudupalayam, R.P. Nagar, Kamaraj Nagar, Devanampattinam, Sothikkuppam, Sivanandhapuram, Sellankuppam, VSR Palayametc.)
3	Terrain	Plain
4	Existing Land use	Roads and street
5	Railway crossing (Nos)	1
6	NH Crossing (Nos)	44
7	SH crossing (Nos.)	12
8	Other road crossing (Nos.)	821
9	Religious Structures within 50 m UG trench)	90
12	Health Facilities within 50 m from UG Trench(Hospitals) nearby (Nos.)	14
13	Educational institutions within 50m UG Trench nearby (Nos.)	26
14	Major River crossings (Nos.)	2
15	Nallah/StreamCrossing (Nos.)	8
16	Vendor's Locations (Nos.)	19
17	Vendor (Nos.)	113
18	Ramp Crossings (Nos.)	126
19	(a) No of Locations with Trees	8

	(b) Number of trees within 5 m from the UG Trench (Nos.)	24
21	Forest Areas	Nil
22	CRZ Areas	Yes (CRZ –II and CRZ III)
23	Tribal Area, if any	Nil
24	Dense settlement locations (Nos.)	15
25	High Activity Area locations (Nos.)	12 (Markets, Bus Stops, and Tempo stands etc.)

The Key Project (Package-2) activities are: i) underground laying of the electrical cables, ii) installation and testing of the underground electrical cable network and iii) dismantling of the OH cables, DTs, and electrical poles.

The electrical cables will be laid underground by opening of trenches along the existing road infrastructure. The direct impact of the UG trench limits within the width and depth of excavation while indirect access impacts extends throughout the corridor.

Width and the depth of the excavated trenches will vary from 0.3 to 1.06m and 0.82 to 1.2m respectively depending on the numbers of HT, LT, and service cables to be laid in the trench. A combination of man and machine will be used for the trench excavation installation of DTs, Feeder Pillars, Service pillars and dismantling of the OH cables, DTs and electrical poles.

Estimated construction schedule for Package 2 is 21 months.
Estimated numbers of construction workers for the package is 320 per day during the construction period.

CHAPTER 3 POLICY, LEGAL AND REGULATORY RAMEWORK

The key policies and legal frameworks (National, State and World Bank) attracted by the underground cabling works under the Project (Package-2) have been briefly highlighted hereunder.

3.1 National/State Policies and Legal Frameworks

Keeping in view of the underground electric cable layout, location and activities, the key National environmental legislation triggered are:

- Environment (Protection) Act, 1986
- Environmental Impact Assessment Notification 2006,
- Coastal Regulation Zone (CRZ) Notification 2011 (as amended)
- Water (Prevention and Control of Pollution) Act, 1974
- Air (Prevention and Control of Pollution) Act, 1981
- Hazardous Waste (Management, Handling and Transboundary Movement) Rules 2008 as amended in 2016.
- Ancient Monuments and Archaeological Sites and Remains Act, 1958
- The control of National Highways (Land and Traffic) Act, 2002
- The Tamil Nadu Highways Act, 2001
- Tamil Nadu Town and Country Planning Act, 1971
- Tamil Nadu Panchayats Act, 1994
- The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014
- Contract Labour Act, 1970;
- The Bonded Labour System (Abolition) Act, 1976,
- Child labour (Prohibition and Regulation) Act 1986 along with Rules, 1988
- Children (Pledging of labour) Act, 1933 (as amended in 2002)

Environmental (Protection) Act, 1986 is the umbrella legislation enacted for the protection of environment. Environment (Protection) Rules under this act including Environmental Impact Assessment Notification (2006) and Coastal Zone Regulation (CRZ) Regulation, 1991 and CRZ notification 2011 stipulates legal procedures to be complied prior the inaction of the development works.

The underground electrical cable project is exempted for environmental studies as per EIA Notification 2006. But due to its location and type of development, it is triggered by CRZ, 2011 Notification of the Environmental (Protection) Act, 1986.

This notification prohibits certain development activities totally within CRZ while regulates some of the development activities with the clearance of Ministry of Environment and Forest (MoEF) on the recommendations of concerned State or Union Territory Coastal Zone Management Authority (CZMA).

The proposed project is permitted activity under the section 4.ii.d of the CRZ Notification 2011.

Water (Prevention and Control of Pollution) Act, 1974 is likely to be attracted by the action of the contractors, particularly related to disposal of spoils at or near the pathways of the monsoon run off or the water bodies located adjacently. Similarly, the Air (Prevention and Control of Pollution) Act, 1981 is likely to be attracted by fugitive emissions of the excavated earth in the given wind conditions in the Project (Package-2) area.

As the underground electric cable works locates within the jurisdiction of the Highways, the control of National Highways (Land and Traffic) Act, 2002 and The Tamil Nadu Highways Act, 2001 are triggered.

The Tamil Nadu Town and Country Planning Act, 1971 and Tamil Nadu Panchayats Act, 1994 are triggered because; i) the sub-project plan be integrated with the overall development plans of the Towns and Panchayats; ii) use of the Municipal/ Panchayat operated / maintained roads for the sub-projects and iii) establishment of construction and labour camps.

The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014; Minimum Wages Act, 1948; Contract Labour Act, 1970; The Bonded Labour System (Abolition) Act, 1976; Child labour (Prohibition and Regulation) Act 1986 along with Rules, 1988; and Children (Pledging of labour) Act, 1933 (as amended in 2002) are triggered because the Project (Package-2) is likely to i) temporarily displace vendors, and ii) involves workers of all types and age.

The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014: Government of India (GOI) recently enacted the act that specifically aims to protect the rights of urban street vendors and to regulate street vending activities. It provides for Survey of street vendors and protection from eviction or relocation; issuance of certificate for vending; provides for rights and obligations of street vendors; development of street vending plans; organizing of capacity building programs to enable the street vendors to exercise the rights contemplated under this Act; undertake research, education and training programs to advance knowledge and understanding of the role of the informal sector in the economy, in general and the street vendors, in particular and to raise awareness.

As per Street vendors Act.2014, the definitions refers therein are as under:-

"Street Vendors" means a person engaged in vending of articles , goods , wares, food item or merchandise of everyday use or offering services to the general public, in a street, lane side walk, footpath, pavement , public park or any public place or private area, from a temporary built up structure or by moving from place to place and includes hawker, peddler, squatter and all other synonymous terms which may be local or region specific; and the words "street vending" with their grammatical variations and cognate expressions, shall be construed accordingly

"Town Vending Committee" means the body constituted by the appropriate Government under section 22;

"vending zone" means an area or a place or a location designated as such by the local authority, on the recommendations of the Town Vending Committee, for the specific use by street vendors for street vending and includes footpath, side walk, pavement, embankment, portions of a street, waiting area for public or any such place considered suitable for vending activities and providing services to the general public.

Further, the Act requires that no street vendor shall be evicted or relocated till a survey is conducted and a Certificate of vending is issued by Town Vending Committee formed under Section 22 of the Act. According to Section 18 of the act, the local authority may, on

the recommendations of the Town Vending Committee, declare a zone or part of it to be a no-vending zone for any public purpose and relocate the street vendors vending in that area. No street vendor shall be relocated or evicted by the local authority from the place specified in the certificate of vending unless he has been given thirty days' notice. However, every street vendor, who possesses a certificate of vending, shall, in case of his relocation under section 18, be entitled for new site or area, as the case may be, for carrying out his vending activities as may be determined by the local authority, in consultation with the Town Vending Committee.
This is applicable to Tamil Nadu as well.

3.2 World Bank Policies

In view of the Project (Package-2) layout, location, construction and operational activities, the envisaged potential impacts of the project are minor, temporary and fully reversible. For this reason the sub-project is environmentally screened as "Category B" project. Since the Project (Package-2) physically interacts with the already modified land resource triggers the following World Bank Policies:

- OP/BP 4.01 Environmental Assessment
- OP/BP 4.11 Physical Cultural Resources

The policy for Physical and Cultural Resource is potentially attracted in the cultural and historical places. The sub-project envisages excavation along the streets for the laying of UG cable to connect the sites of cultural and historical significance and there is a likelihood of chance finding of cultural and historical artefacts.

Considering the project layout it is not expected to trigger the OP/BP 4.12 Involuntary Resettlement Policy and OP/BP 4.10 Indigenous Peoples Policy. Temporary disturbances to vehicular and pedestrian access, vegetable vendor markets etc, however, is potential during the construction period.

3.3 Required Approval, Consent and Permits

To comply with the above stated Acts and Regulation provisions, prior to the Project (Package-2)implementation, conforming to this EMP, and in page with the legislative framework of the Government of Tamil Nadu /India, Implementing Agency (TANGEDCO) shall

procure Approval, Consent and Permits from the following agencies (***Table 7***).

Table 6:List of Major Crossing (Package-2)

S.No	TYPE OF CROSSING	NO. OF CROSSING	LOCATION
1	N.H. 45A	2	DTR-08 MANGAI MAHAL
2	N.H. 45A	1	NEAR KSM SCHOOL
3	N.H. 45A	2	MARKET COMMITTEE SS-II
4	N.H. 45A	2	MARKET COMMITTEE SS-I
5	N.H. 45A	1	NEAR KSM SS-IV
6	N.H. 45A	1	IPPENAR SS-II
7	N.H. 45A	1	NEAR VELLI VINYAGAR SS-I
8	N.H. 45A	1	NEAR SELLANAKUPPAM BUS STOP
9	N.H. 45A	1	NEAR TVS SHOWROOM
10	N.H. 45A	2	VELLI VINYAGAR SS-II
11	N.H. 45A	5	VELLI VINYAGAR SS-I
12	RAILWAY	1	VSR PALAYAM RAILWAY GATE
13	N.H. 45A	1	NEAR KVS COMPLEX OLD TOWN
14	N.H. 45A	2	NEAR JUBLE CLUB
15	N.H. 45A	1	KALLA CHETTY STREET
16	N.H. 45A	1	GANDHI PARK O.T.
17	N.H. 45A	2	MANIKUND SS-II
18	N.H. 45A	2	NEAR SUTHUKULLAM RAILWAY GATE
19	N.H. 45A	2	NEAR PETROL BUNK
20	N.H. 45A	2	POLICE STATION SS LT NETWORK
21	N.H. 45A	2	JUBLE CLUB SS LT NETWORK
22	N.H. 45A	1	MERKET SS-I LT NETWORK
23	N.H. 45A	1	AGRO SS LT NETWORK
24	N.H. 45A	1	FWA SS-I LT NETWORK
25	S.H.9	1	NEAR EMPLOYMENT OFFICE
26	S.H.9	1	NEAR CHURCH PONDY BY PASS
27	S.H.9	1	NEAR ASHOK LEYLAND TRACTOR AGENCY
28	S.H.9	1	PAPPAMAL NAGAR SS
29	S.H.9	1	KONDUR SS-XI
30	S.H.9	1	S.N. CHAVADI BUS STOP
31	S.H.9	1	MANAKOLLI SS-III
32	S.H.9	1	NEAR HONDA ABVR NELLIKUPPAM ROAD
33	S.H.9	2	SUNDRAM NAGAR SS-I

34	S.H.9	1	GENERAL HOSPITAL CUDDALORE
35	S.H.9	1	BSNL OFFICE NELLIKUPPAM ROAD
36	S.H.9	1	CIRCUIT HOUSE
37	NH-45A	1	OPP. SURIYAPRIYA HOTEL
38	NH-45A	1	NEAR ALC CHURCH
39	NH-45A	1	NEAR WOODLAND HOTEL
40	NH-45A	1	NEAR MUNCIPALITY OFFICE
41	NH-45A	1	NEAR BANK OF BARODA
42	NH-45A	1	NEAR RAJATHI SHOWROOM
43	NH-45A	1	NEAR GDM SS-I

Table 7: Approval, Consent and Permits Requirement Matrix

Types of Clearance	Authority for clearance	Lead Time of clearance application before implementation[1]	Responsible agency for clearance application	Over sighting Agency
No Objection Certificate for CRZ Clearance application	District Coastal Zone Management Authority	A month before CRZ Clearance Application	Project Implementation Unit	TANGEDCO
CRZ Clearance	State of Tamil Nadu Coastal Zone Management Authority	Six month before implementation	Project Implementation Unit	TANGEDCO
Consent Under Air (Prevention and Control of Pollution) Act, 1981	Tamil Nadu State Pollution Control Board	Prior to commencement of works	Project Implementation Unit	TANGEDCO
Consent Under Water (Prevention and Control of Pollution) Act, 1974	Tamil Nadu State Pollution Control Board	Prior to commencement of works	Project Implementation Unit	TANGEDCO
Consent in compliance to the control of National Highways (Land and Traffic) Act, 2002 (Clearance for NH Crossings)	National Highway Authority	Prior to commencement of works	Sub - Project Implementation Unit	TANGEDCO
Consent in compliance to the Tamil Nadu Highways Act, 2001 (Clearance for SH Crossing)	Tamil Nadu State Highway Authority	Prior to commencement of works	Sub - Project Implementation Unit	TANGEDCO

[1] Lead time for clearance application to various agencies is estimated based on the legal time requirement for clearance and general practices in the region such that the permissions and approval are acquired at least two months before project actual construction.

Types of Clearance	Authority for clearance	Lead Time of clearance application before implementation[1]	Responsible agency for clearance application	Over sighting Agency
Consent in compliance to The Tamil Nadu Town and Country Planning Act, 1971 and Tamil Nadu Panchayats Act, 1994	Planning Department Cuddalore Municipality,	Prior to commencement of works	Sub - Project Implementation Unit	TANGEDCO
Consent with the Utility Service Agencies	Cable Agencies Water Supply, Drainage and Sewage Agencies	Prior to commencement of works	Sub - Project Implementation Unit	TANGEDCO

CHAPTER 4 ENVIRONMENTAL BASELINE

This chapter presents baseline profile of the Project (Package-2) area. Since the baseline environmental scenario is more or lessconsistent in the Cuddalore Municipality, the following sections provide an environmental setting of Cuddalore Municipality and specific features related to Package 2 (where available).

4.1 Climate

The climate of the Cuddalore area is tropical monsoon type. The temperature during winter seldom goes below 18°C, while in peak summer it might exceed 39°C. The area receives rain from both the northeast and southwest monsoon. The average annual rainfall ranges between 1300 to 1400mm, maximum being in the northeast monsoon (October to December). The southwest monsoon (June to September) is relatively mild, while minimum rainfall occurs in the month of March. In the area relative humidity ranges between 62% to 80%, minimum being in the month of March and maximum in the months of November and December. In general the wind speed ranges between 4 to 13 km/hour, maximum being in the months of June through December coinciding with the southwest and northeast monsoons.

4.2 Physical Environment

4.2.1 Land Resources

The Cuddalore Municipality and its adjoining area represents a central section of the pelagic coastline on the east coast of Tamil Nadu. Topographically, it represents the edge of a gradually falling landscape. The slopes are extremely flat on the landward side and the same is generally true on the seaward side as well. Morphologically, this part of the coastal tract consists of an upland plain (denudation), flood plain (fluvial), deltaic plain and coastal plain (marine)[2] developed over the Cauvery delta. The coast relief is disturbed by estuaries and lagoons formed along the river and their distributaries (South Pennaiyar,Uppannar and Gadilam River system)

[2]*Chandrasekar N 1992 Beach placer mineral exploration along the central Tamil Nadu coast; unpublished Ph.D thesis, Madurai Kamaraj University, Madurai, Tamil Nadu, India.; Mohan P M, Shepherd K, Suresh Gandhi M andRajamanickam G V 2000 Evolution of Quaternary sediments along the coast between Vedaranyam and Rameshwaram, Tamil Nadu; J. Geol . S oc. India 56 271–28.*

behind the coast line. These lagoons or estuaries are narrow water bodies separated from the open ocean by spits and barriers bars/ islands. Beach ridges representing barrier bars/islands are present along the coast line of the sub-project area, which lie almost parallel to the present shoreline indicating that the shoreline is receding towards the sea[3]. Since, the sub-project influence area is located on the beach ridge systems, effects of heavy rainfall and storm surge is imminent. The coastal landforms of the sub-project are subjected to three seasonal meteorological cycles in a year such as NE monsoon (October–December), SW monsoon (June–September), and non-monsoon (January–May).In addition to the above yearly cycles, the coastline landscape is remolded by the occasional cyclones storm surge usually in the northeast monsoon period.

Geologically, the CuddaloreMunicipality and adjoining area is comprised of unconsolidated recent deposits of fluvial, fluvio-marine, aeolian and marine origin. In general, the shore areas and estuaries are made up of marine tidal flat deposits comprising of black clay overlain by beach sand and sand dunes at the immediate shore front, while further inland marine -paleo- tidal flat deposits comprising of brown to grey brown medium sand deposits exists. Further onshore fluvial flood basin deposits made up of clay and sandy clay occurs. These soft quaternary deposits yield easily to denudation by the force of nature such as tidal waves, cyclones, and monsoon runoff in areas not protected by vegetation cover.

As of the date, Cuddalore area land use is predominantly occupied by dense to scattered urban settlements, followed by cultivable lands with miscellaneous tree crops, barren lands and water bodies. Forest cover is insignificant, except for the coconut and casuarina plantation at the shore line behind the beaches and remnant of the mangroves along the river estuaries.

4.2.2 Ambient Air Quality

SPCB ambient air quality monitoring data is not available for Cuddalore Municipal area. In some places of Cuddalore municipality near the waste management sites concentrations of PM 10 is

[3]*Revathy G, Suresh Gandhi M, Chandrasekar N and Rajamanickam G V 2002. Coastal land forms in betweenNagapattinam and PortoNovo, Tamil Nadu , east coast of India; Indian J. Geomorphol . 7(1& 2) 119–133.*

reported to exceed the threshold limits of CPCB and ranged from 134.3-198.4 µg/m³ in pre monsoon and 117.5-112.8µg/m³ in the post monsoon[4]. The field observations in 2015, particularly along the National and State Highways and the market centers, PM 10 values are expected to be within the PCB threshold limits

4.2.3 Water Resources

The surface water resources lie in a zone of water mixing where sea water mixes with the fresh water of the rivers such as South Pennaiyar, Gadilam & Uppannar and associated estuaries/lagoons and river distributaries. Water quality parameters of Cuddalore municipality are reported to show elevated pollutants in estuary suggests increasing pollution due to discharge of State Industries Promotion Corporation of Tamil Nadu (SIPCOT) industrial effluents which often exceeds CPCB standards particularly in toxic metals and nutrient concentrations.

The groundwater potential of the Project (Package-2) coast line is variable based on the rainfall, recharge etc. Four different aquifer systems have been identified namely: i) water table, ii) filter peine, iii) shallow and, iv) deep aquifer system. The groundwater is mainly confined on the coastal sand dunes. Wide variation occurs in the water quality of fresh water and saline aquifers depending on the hydro-geological situation and has a risk of sea water intrusion due to over exploitation. TNPCB is monitoring the quality of water from the Cuddalore area. According to TNPCB[5] the quality of water is normal in the monitoring station chosen for overall assessment. The groundwater water table show wide fluctuation seasonally. It fluctuates from nearly 2.5m from surface to 10 m, being near surface at the peak of northeast monsoon and minimum towards the end of summer.

4.2.4 Noise Environment

Monitoring database for the noise levels in the Cuddalore area are not available. In view of the road side and market area activities,

4B.AbrahamLingan, G. Poyyamoli, and U.JagadeeshChandira Boss; 2014.Assessment of Air Pollution and Its Impacts near Municipal Solid Waste Dumping Site Kammiyampet, Cuddalore, India. International Journal of Innovative Research in Science, Engineering and Technology, Vol. 3, Issue 5, May 2014

[5] Personnel communication, 2015

expected noise level at the day time and night time could be as high as 70 and 50 dB (A) in the busy road corridors and market centers.

4.3 Biological Environment

4.3.1 Flora

The Project (Package-2) areas are devoid of officially designated forest areas[6]. Patches of littoral highly denuded and degraded coastal grass and scrub with occasional trees could be seen adjoining shoreline in some sections. The, remnant littoral forests trees is constituted of *Thespesiapopulnea, Lanneacoromandelica, Ficusreligiosa, Ficushispida, Calophylluminophyllum, Morindacoreia, Syzygiumcumini, Pongamiapinnata, Azadirachtaindica, Madhucalongifolia, Borassusflabellifer, Vitexnegundo, Calamusrotang* and Pandanusodoratissimus. In most areas, the natural forests are largely replaced by casuarinas, cashew (*Anacardiumoccidentale*) and coconut plantations. Other horticultural species including the palm (*Borassusflabellifer*) and a variety of fruit trees including jack.

4.3.2 Fauna

The terrestrial as well as the aquatic habitats of the Project (Package-2) area are highly modified man made habitats with only few patches of degraded natural habitats. Wildlife in these manmade habitats is those which are resilient to the human activities. Among mammals only few small carnivore such as terrestrial rodents (*Tateraindica*), have been reported. Among herpetofauna, flapshell turtle (*Lissemyspunctata*), water snakes (*Xenocrophispiscator, Cerberus rhyncops*and*Atretiumschistosum*), Dog-faced water snake (*Cerberus rhynchops*), and frogs (*Bufomelanostictus, Polypedatesmaculatus, Hoplobatrachuscrassus, Hoplobatrachustigerinus, Euphlyctiscyanophlyctis, Euphlyctishexadactylus, Limnonecteslimnocharis, Microhylaornata, Ramanellavariegata, Kaloulataprobanica and Tomopternarolandae*) have been reported[10]. Waterfowl (storks, herons and egrets) were the most common birds in the backwater estuaries.

[6] *State of Environment Report Tamil Nadu*

4.4 Socio-economic Environment

4.4.1 Demographic Features Cuddalore Municipality

The basic demographic characteristics of Cuddalore Municipality are presented in Table 8.

Table 8: Basic Demographic Features of Cuddalore Municipality

Description	Male	Female	Total
Population	85,593	87,768	173,361
Child (0-6 years)	8153	7787	15940
Sex Ratio	-	-	1025
Child Ratio	-	-	955
Literates	72083	67305	139388
Average literacy (%)	93.03	84.15	88.54

Source: Census India, 2011

The Cuddalore Municipality has a total population of 173,636 of which 85,700 (49.36 %) are males while 87,936 (50.64%) are females as per census India 2011. The total population of children (0-6) in Cuddalore Town is 15940. The child forms 9.19 % of total population of Cuddalore town. There were 8153 boys while 7787 are girls. The sex ratio of Cuddalore Town is 1025 per 1000 males against Tamil Nadu State average of 996. The child sex ratio of girls is 955 per 1000 boys compared to Tamil Nadu state average of 943 as per census India 2011.

In education sector, total literates in Cuddalore town are 139,388 of which 72,083 are males while 67,305 are females. Average literacy rate of Cuddalore town is 88.54 percent higher than Tamil Nadu state average of 80.09 %. The male and female literacy was 93.08 and 84.15 percent respectively (Census India, 2011).

Currently Cuddalore municipality has total administration over 42,174 houses to which it supplies basic amenities like water and sewerage. It is also authorize to build roads within Municipality limits and impose taxes on properties coming under its jurisdiction.

According to the Census India 2011 the population of Schedule Caste (SC) constitutes 13.22 % while Schedule Tribe (ST) population was 0.30 % of total population in Cuddalore municipality.

The slums constitute a significant chunk of the total population. Out of the total population, the slum comprises nearly 30 % in Cuddalore Municipality.

Out of total population, 62,115 were engaged in work or business activity. Of this 48,047 were males while 14,068 were females. In census survey, worker is defined as person who does business, job, service, and cultivator and labor activity. Of total 62115 working population, 84.07% were engaged in Main Work while 15.93 % of total workers were engaged in Marginal Work (Census India, 2011).

4.4.2 Households and Population under Project (Package-2)

Project (Package-2) serves a total of 14000 households/service connections and comprises about 65600 of people in total. It is envisaged that the male female ratio, and educational attainments of the population under the Project is similar to that of Cuddalore Municipality.

CHAPTER 5 ANTICIPATED ENVIRONMENTAL IMPACTS

An analysis of the expected project activities in conjunction with the urban and semi-urban setting in the given work sites (road corridors) and associated ecological backdrop leads to the identification of the following impact for the electrical UG cable construction and operation works.

5.1 During Construction Phase

5.1.1 Physical Environment

Land Use

Temporary change in land use along the electrical underground cable alignment is envisaged during the construction phase. The present lands chosen for electric cable laying are built up areas such as roads and streets which will be reinstated after the cable laying operations.

Environmental Pollution (Air, Water, Noise and Land)

The project actions, particularly trenching and backfilling operations of UG cable laying and dismantling of the OH electrical networks are the key elements which are potential of environmental pollution related to air, water, land and noise.

Air Pollution

Air pollution, particularly fugitive emissions from the excavated earth mismanagement and movement of vehicles carrying the construction material, etc. will result in the emission of dust particles thereby affecting ambient air quality marginally at the site. To minimize the air pollution sprinkling of water twice a day is proposed over the excavated soil of trench. Cost for sprinkling water is taken Rs.500 per 200M so for total trench of 127.7 Km, total cost for water sprinkling is 6.39 Lakhs rupees. Necessary provisions has been made for monitoring the air quality by the contractor during pre construction and construction phase

Water Pollution

There is no significant water pollution during the construction and operation phase. It is recommended to avoid trenching operation works during monsoon season.

Land Pollution

Land pollution related to disposal of the excavated soil, or the sludge of transformer oil on lands, or dumping of the offsite reusable materials in the storage yards of TANGEDCO and other potential scrap materials (Table 9) has potentials of adding the existing land pollution at the storage yards.

Table 9: Scrap Materials from Existing OH networks

S.No	Description	Project (Package-2) Cuddalore District		
		R	**Ro**	**S**
1	HT Line Conductor (km)	**R**	**Ro**	**S**
2	LT Line conductor (km)	0	36.66	24.44
3	Service line cable (km)	0	46.104	30.74
4	Transformers (No)	0	0	316.2
5	Poles (Nos)	426	24	0
6	Insulator	0	2927	1952
7	AB Switch (Nos)	0	9854	14782
8	Lightning Arrester (Nos)	0	233	0
9	Cross Arm MT	0	296	444

Note: R = Reused in the UG cable network, RO = Can be reused offsite in other OH lines , S = Scrap cannot be reused

Noise Pollution

Noise pollution related to excavation equipment, workers activities and movement of construction vehicles are of concern. The concern of noise pollution is high particularly during the night hours as in some of the stretches, construction activities will have to undertaken during the night time to minimise traffic congestions. Necessary provisions have been made for monitoring the noise level by the contractor during pre construction and construction phase.

5.1.2 Biological Environment

Flora

Approximately 24 local planted trees within 5 m distance from the alignment of the Underground electrical cables trench. These trees are located at 8 locations. Details of the location of the sites, number of nearby locating trees and street name is presented in Annex 2. During underground electric cable laying operation there is potential of damage to the tree roots.

Fauna

The proposed land for underground electric cable laying are not used for grazing by domestic animals like cow, buffalo, goats etc; hence negligible disturbance to local animals is anticipated during construction.

5.2 During Operation Phase

5.2.1 Physical Environment

Land Use

The Project works will not bring any change in the land use, except for the small areas at the locations of DTs, Feeder Pillars, Service Pillars by the side of the roads in the public land.

Environmental Pollution

The project is not expected to bring any unwanted air pollution and noise pollution during the project operation phase.

5.2.2 Biological Environment

The Project maintenance works during the operation phase is not envisaged to impart impacts on the surrounding flora and fauna.

CHAPTER 6 ANALYSIS OF ALTERNATIVES

The Project (Package-2) alternatives have been evaluated keeping in view of the Project's objectives and environmental sustainability.

6.1 No Project Alternative

The Project(Package 2) with an objective to replace the overhead electrical HT/LT network by the UG HT/LT network is conceived after the aftermath of Thane Cyclone.

The concept of electrical UG cable evolved because of its robustness to the effects of high speed cyclonic wind gust and flooding compared to the overhead electrical networks. The other advantages of the electrical UG cables compared to the overhead HT/LT network are:

- Enhancement of aesthetic beauty of the sea shore and settlements due to removal of the ugly looking networks of HT/LT electrical lines
- Reduction on the vehicular accident risks due to removal of HT and LT poles along the road side
- Avoid recurrent risk of damage to the overhead electrical networks due to Natural Calamity.
- Avoid risk of theft of energy by direct hooking in overhead lines
- Increase electrical system reliability
- Eliminate the risk of electrocution which is high in overhead HT/LT networks
- Minimize normal wear and tear risk of the electrical network system which is high in overhead HT/LT
- Increased efficiency of the man power in attending the fuse off call which is rather inefficient in overhead electrical system
- Reduce the vulnerability of power supply restoration to the coastal communities on the aftermath of the natural hazards such as cyclone, storm surge, flood and tsunami etc. over the longer term.

In view of the above advantages of electrical UG cables against the overhead electrical networks, there is no project alternative better

than U/G cabling to upgrade the present distribution system in order to enhance its reliability and sustainability. It is therefore, the existing overhead electrical networks are discarded in favor of the electrical UG cable networks.

6.2 Electrical UG Cable Route Alternatives

In the given geo-physical backdrop, two potential alternative alignments for UG cable laying could be conceived, i) Alternative I - along the existing OH HT/LT alignment, and ii) Alternative II - along the existing road corridors .

Alternative I alignment in some sections, while connecting the substations with the settlement areas, pass through the private land and properties. Following this alternative route for UG cables will involve acquisition of private land and property.

The Alternative – II, on the other hand along the existing road network does not involve implication on the private land and property. This option has better construction easement than the Alternative I. As alternative II option has superior construction easement and also avoids land acquisition and other upfront social issues related to land and property acquisition is selected as the best and sustainable alternative compared to Alternative I from environmental and social safeguard aspect.

6.3 Electrical UG Cable Route Alternative within Alternative II Corridor

Haphazard placing of the UG cable within the Alternative II Corridor (existing roads) has potential to damage the other utility infrastructures networks such as communication cables, storm water drainage, sewage mains and collectors, drinking water supply mains and distribution lines etc. Most of the road corridors of the Project (Package-2) area have one or other types or combination of all utility services buried under the roads.

To minimize the risks of disruption of the existing utility services during construction, the alignments of the UG cables has to be planned only after obtaining the precise alignments and depths of the other underground utility infrastructures on the road corridor as far as possible. In case such precise information on the existing utilities

alignments and depths are not available, the construction contractor shall be informed of the situation and made responsible to minimize the damage and for the restoration of the utility services within stipulated time as agreed between the service provider and the service recipient. A working mechanism shall be designed to better address this problem and provisions will be made in the project requirements so that responsibility is fixed.

6.4 Alternatives for Rivers/Wetland and Railway Line Crossing

The service areas of the electrical UG cables extend across rivers, creeks, depressed/water logged areas and railway lines. Electrical UG cables will have to cross these vulnerable areas. In the context of the sub-project's Package 2 area, three options could be conceived: i) UG cable laying beneath the wetlands, Rivers and Railway lines, ii) Dedicated cross –over structures across such areas, and iii) Using the existing crossing structures such as Overhead pole crossing, bridges, culverts, underground tunnels etc.

Laying electrical UG cables underneath the wetlands and River will be avoided in any case, as this involve damage to the aquatic biota, habitat and water quality. Apart from this, across the river and wetland, special permission will be required as such crossing sites invariably locate within CRZ II and III as per CRZ notification. For the Railway line crossing, special permission, clearance and approval is required from the Railway authorities.

Dedicated cross over structures option also has a risk of damage to the surrounding ecological system of wetlands and River, while it will require special permission, clearance and approval from Railway authorities for Rail line crossing. Besides, this also involves high financial costs.

Use of the existing pole structures, bridges and culverts and underground tunnels across the rivers, creeks and railway line avoid issues related to ecological damage, water quality, lengthy approval processes etc. This option, however, has potential of increasing the length of the UG cable system. Compared to the costs involved in the first two options, cost of the additional UG cables is cheap. It is therefore this option is opted as the best sustainable option from environmental and economic perspective.

6.5 Alternatives to Minimise Tree cutting / impacts of trees

The Project (Package -2) UG cable trenches pass along the area with standing trees (24 Nos. within 5m distance) at 6 locations (refer Annex 1 and Annex 2). The UG trenches are flexible structures and can be aligned by slight alteration of the route to safeguard the standing trees. It is therefore to avoid the damage/loss of standing trees, the contractors shall abide by such practices of slight alteration of the cable route in such areas.

6.6 Alternatives for Reuse and Waste Minimization

The Project (Package 2) waste stream relates to: i) dismantling of the existing overhead network with wastes materials such as transformers, conductors, poles etc. and ii) excavated earth while laying the electrical UG cables.

In the context of the Project area, these wastes could have multiple reuse options such as: i) reuse of the existing transformers and oil contained in DTs by filtering in the UG cable network system and elsewhere in a different project area ii) reuse of overhead conductors in the rural area electrification project elsewhere iii) reuse of the electrical poles for street lighting (many of the electrical poles in the sub-project area are also used for street lighting and they can be left where they are for street lighting) and iv)reuse of the excavated earth for backfilling and compaction of the UG cable trenches.

The reuse options listed will reduce the burden of waste management on site and off site and shall be applied wherever applicable. The remaining dismantled wastes related to overhead electrical networks shall be discharged through the authorized waste disposal vendors. Remaining excavated earth after backfilling will be transported to land fill site of the Cuddalore Municipality. As this is inert material, it can be used as soil cover of the municipal solid waste.

CHAPTER 7 ENVIRONMENTAL MITIGATION MEASURES

This section prescribes the environmental and social mitigation measures for the environmental and social safeguard from the anticipated identified impacts.

7.1 During Construction Phase

First and foremost mitigation measures for all types of anticipated impacts is to make local communities aware of the Project works, anticipated impacts resulting from the construction activities and mitigation actions planned for environmental and social safeguards. For the preparation of the local communities following measures are prescribed prior to the start of the construction activities at all construction sites.

- ***Information to the local communities :*** The project manager, social expert will use various communication tools like Print (brochure, leaflet, flyer, and newspaper both local and national); Electronic (FM radio, TV) in disseminating the project related information to the project affected people and the community. Prior to the start of the construction works, the contractor in co-ordination with the IA shall disseminate information related to project construction particularly schedules of the construction works through public notices at newspaper, Radios, miking, distribution of pamphlets to the potentially affected communities (road users, utility service users, shop keepers, vendors, education and health institutions, local shrines, traffic police, municipal authorities and ward offices sets etc.).The information will also be provided on the potential impacts and measures to be taken to address the anticipated impacts and expected timings of reinstatement of damaged infrastructures and disrupted services. The notices, brochures and pamphlets will provide information on the project construction route, potential impacts and its gravity and steps taken by the project to minimize the impacts. These and similar efforts of information dissemination and disclosures will also be continued during project implementation periods. The mode of communication to disseminate information will be in local languages understandable to general public, affected communities and stakeholders. The

affected vendors will be notified before 30 days of construction start as per the legal provision. At least one month advance notice will be given to the affected farmers for crop harvest.

- **Project Information:** The contractor install Project Information Boards within the project area at important locations (minimum 3 locations) indicating the project information like (area of project), Contractor details (Name, phone number , address), project duration , project cost, Name of Implementing Agency and contact details of grievance redressal cell.

- ***Frequent interaction with the stakeholders***: Frequent and regular interaction with the involved stakeholders (community leaders, shop keepers, vendors, utility service providers, municipal and ward level administrative authorities, traffic police, community watch groupsets) prior to the pre-construction and during construction till reinstatement of damaged infrastructure and disrupted services should be a priority activity of the contractors in coordination with IA.

7.1.1 Physical Environment

Land Use

- ***Reinstatement and Rehabilitation of the Temporarily affected land***: The road infrastructure and temporary camp sites disrupted by the trenching operation shall be reinstated as to the approval conditions of the concerned road authority and the landowners.

Environmental Pollution (Air, Water, Noise and Land)

Air Pollution:

- ***Strict compliance to work schedules of the day***: UG cable laying operations will comply with a work schedule that ensures completion of trench excavation, laying of the cable and backfilling on the same day. Such action limits the fugitive dust emissions from the excavated materials.
- ***Water sprinkling***: In the given climatic conditions, moisture content of the excavated earth could be lost within few hours of excavation and the loose earth could be easily picked up by the wind gusts. To minimize the wind born fugitive dust emissions

from the excavated earth, light water sprinkling shall be exercised at least two times a day in the late morning and afternoon.

- ***Deposition of the excavated earth on the footpath side of the road*:** The excavated earth from the UG cable trenches shall be placed on the foot path side of the road to minimize the wind borne fugitive emissions from the spoil material by the whirling air currents of the moving vehicles. Necessary protection arrangements will be made to retain the excavated earth piled near the drainage on either side of the road so that the flow of drainage will not be chocked.

Water Pollution

- ***Avoid UG cable trenching operation in the monsoon season*:** The Project work sites experiences high amount of precipitation in the monsoon season (September – December) and is usually associated with high water runoff. To minimize the water pollution effects of monsoon runoff washout, the monsoon season shall be avoided for the UG cable trenching operation.
- ***Chemical Testing of the Transformer oil:*** Prior to the dismantling of the existing transformer, the oil used in the transformer shall be checked by the contractors for PCBs. The PCB contaminated oil shall be managed separately through authorised vendors.
- ***Prohibition on the discharge of solid and liquid wastes on the pathways of receiving water bodies:*** All solid and liquid wastes generated at the construction sites, and in the camps shall not be discharged to the pathways of the receiving water bodies.

Land Pollution

- ***Construction site and Camp Waste Management:*** Solid and liquid waste generated at the construction sites or at the camps shall be properly collected, stored, and managed. Left over inert earth materials shall be transported to landfill site of the Cuddalore municipality, while the spent oils and lubricants or other hazardous waste are disposed through the authorised vendors
- ***Management of the Overhead Electric Network Wastes***: The onsite unused waste materials of the OH electric cable networks shall be managed through the authorised vendors.

These materials shall not be stored in the TANGEDCO sites for later reuse, as there is no space for storing the materials.

Noise Pollution

- ***Restriction on the use of noisy equipment's at the night time working areas:*** Noisy equipment's and vehicles shall be restricted for use in areas where the work schedule requires night time works.

7.1.2 Biological Environment

Flora

- ***Protection of trees of the underground electrical cable alignment***: The trees located along to the underground electric cables (Refer Annex 2, for locations) shall be protected by slightly altering the alignment of the cable to protect the trees.

7.2 During Operation phase

7.2.1 Physical Environment

As adverse impacts are not anticipated, mitigation measures are not proposed.

7.2.2 Biological Environment

As adverse impacts are not anticipated, mitigation measures are not proposed.

CHAPTER 8 STAKEHOLDER CONSULTATION AND INFORMATION DISCLOSURE

8.1 Consultations with Institutional Stakeholders

Stakeholders' consultation has been done to collect the following specific information.

- Site visit for underground electric cable networking
- Alternative alignments for underground electric networking
- Any ecological sensitive area passing through / close to underground electric cable networking sites
- Project features related with environmental and social issues
- Secondary data base on utility services, socio-economic features, health concerns available maps etc of the Project area

List of key stakeholders consulted during 3-9 April, 2015, for the project at institutional level is given in Table 10.

Table 10: List of stakeholders during Institutional Consultation

S.N	Institution	Person Consulted	Designation
1	Tamil Nadu Generation and Distribution Corporation (TANGEDCO), Office of Superintendent Engineer , Cuddalore	Mr. R. Ayyappan	Executive Engineer /General
2	TANGEDCO, Office of Executive Engineer , Operation and maintenance Cuddalore	Mr. Kamaraj	Executive Engineer
3	TANGEDCO, Office of Executive Engineer , Operation and maintenance	Mr. S. Kumar	Assistant Executive Engineer

S.N	Institution	Person Consulted	Designation
	Cuddalore		
4	Tamil Nadu Water and Drainage Board (TWADB) –Cuddalore	Mr. Ram Nath	Executive Engineer
5	BSNL - Cuddalore	Mrs. K. Shantha	Divisional Engineer
6	BSNL - Cuddalore	Mr. T. Ramchrijam	SDE
7	BSNL - Cuddalore	Mr. M. DuraiRajan	SDE
8	Office of Divisional Engineer, Highway Department - Cuddalore	Mr. Rajendiran	AE (Highway)
9	Cuddalore Municipality	Mr. R.Murugesan	Municipal Commissioner
10	Cuddalore Municipality	Mr. K. Murugesan	EE
11	Cuddalore Municipality	Dr. N. Shiva Kumar	Municipal and Port Health Officer
12	Pollution Control Board, Cuddalore	Mr. A. Raja	Environment Engineer
13	Traffic Police , Cuddalore	Mr. K. DandaPani	Inspector

8.2 Informal Consultation with Local Potentially Affected Communities

The informal meetings and discussions with the temporary shopkeepers and vendors likely to be affected in various locations within the project sites and town were conducted. Table 11presents the places of such meetings and dates of the meetings, while Annex 3 represents the lists of the consulted people at different locations.

Table 11: Details of Informal Consultations Held in Cuddalore Municipality

Location/street	Municipality / Town	Types of Vending	Date	Total numbers of people consulted
Old City Bus Stand	Cuddalore	Fruits & vegetables	31/7/2015	13
Fish Market, Old Town	Cuddalore	Fish, fruit, vegetables	31/7/2015	8
Main Bus Stand Area	Cuddalore	Vegetables, fruit, melamine items, watches, locks, flowers, etc.	4/8/2015	12

The Key issues /concerns raised by the consulted vendors are as follows:

- The vendors are not against the project of conversion of OH lines to UG lines but their main concerns were to ensure running of their business without disturbance.
- The vending business is the main source of family income and they cannot tolerate any types of involuntary disruption and dislocation of their business, however they did not show any objection, if alternative location is provided nearby to run their business during the construction period of one or two days
- The construction works should be done fast and restoration of damaged road (vending location) should be completed as soon as possible
- They also suggested to work and complete a particular stretch at night so that they can run their business as usual at day time

8.3 Formal Public Consultation

Before finalization of ESA document, due consultation with public at large was done by issuance of the notice and invitation through the Collector office of Cuddalore district. More than 47 participants took

part in the consultation meeting. In the meeting the summary draft ESA report was made available to the participating members of the consultation meeting. The comments / suggestion offered by the public were given due weightage and incorporated in this ESA report. The stakeholder consultation meeting was also covered in the local newspaper with priority news.

Minutes of Meetings, Public Notification, invitation letters, excerpts of the consultation meeting and lists of participants attended including Newspaper coverage of the meetings are attached in Annex 4 as enclosure 1 to 6.

8.4 Disclosure of ESA Report

This ESA Report shall be disclosed in full in English language and Tamil language on PMUs and TANGEDCO's websites (homepages). Hard copies in English and Tamil shall be made available for public at district Collector's office, municipality office and local TANGEDCO offices. These documents shall be made available till certificate of completion is issued to contractor. PMU & TANGEDCO shall ensure that these documents are disclosed as per the EMP provisions and World Bank guidelines.

CHAPTER 9 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

9.1 Components of EMP

The EMP consists of a set of mitigations, monitoring and institutional measures to be taken for the project to avoid, minimize and mitigate adverse environmental impacts and enhance positive impacts. The plan also includes the action needed for implementation of these measures. The major components of the Environmental Management Plan are:

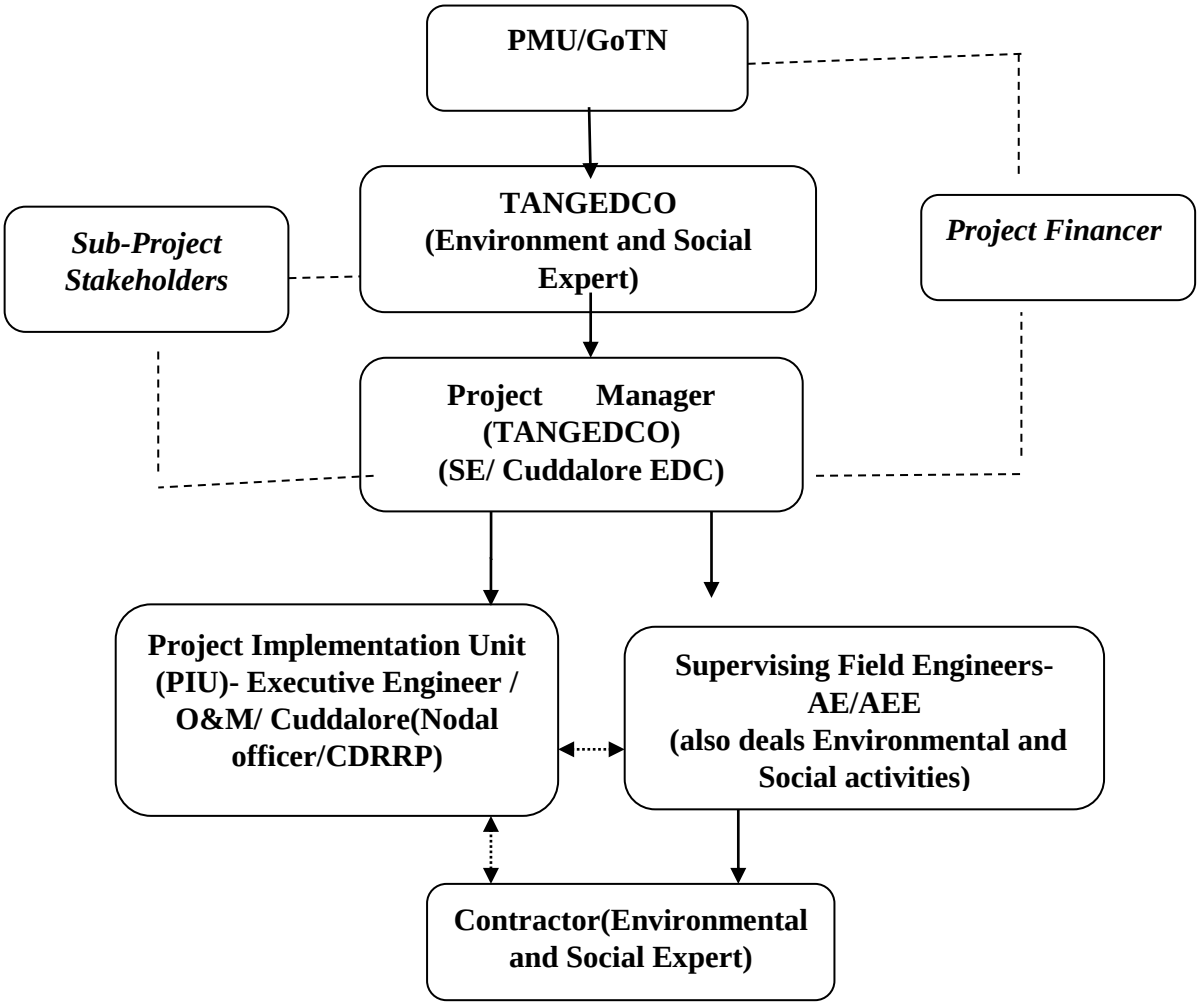
- Institutional arrangements and responsibilities
- Mitigation of potentially adverse impacts and supervision and auditing during project implementation and operation;
- Environmental and Social monitoring;
- Chance Find Procedures;
- Incident management and emergency response procedures;
- Corrective actions,
- Record keeping and reporting
- Complain handling and Grievance redress;
- Capacity building
- EMP review and update
- EMP implementation schedules and plans
- EMP costs

9.2 Institutional Responsibilities, Mitigation and Monitoring

9.2.1 EMP Institutional Arrangements and Responsibilities

The TANGEDCO will ensure implementation of the project EMP with the support of its environmental and social staff. ***Figure 3***shows the institutional arrangement for implementation of the EMP.

Figure 3: Institutional Arrangements for the EMP Implementation



The roles and responsibilities of the involved parties in the EMP implementation are depicted in ***Table 12***.

Table 12: Roles and Responsibilities for EMP Implementation

EMP Implementing Partners	Roles and Responsibilities
Project Management Unit (PMU) Government of Tamil Nadu& TANGEDCO	Overall co-ordination of the Project's EMP activities; Interactions with the different Implementing Agencies on the status / progress of the sub-projects, consultants / contractors employed by these Implementing Agencies and NGOs

EMP Implementing Partners	Roles and Responsibilities
	supporting implementation; Co-ordination on EMP activities with the World Bank
Project Manager-(SE/Cuddalore EDC/Cuddalore)Tamil Nadu Generation and Distribution Corporation (TANGEDCO -PM)	Overall responsibility for environmental and social performance of and implementation of EMP Decision-maker on applicable policies to the Project woks Oversight supervisory role during the construction phase Review reports of the Supervising engineers Approves changes to the EMP, as necessary, as part of an adaptive approach to environmental and social management of the Project worksin line with EMF of CDRRP. Responsible for working with stakeholders in developing an conflict free approach Arrange or co-ordinate for the acquisition required approval consent, permission from the respective governmental institutions on the request of the contractors and the Supervising engineers
Project Implementation Unit (PIU) EE/Nodal officer CDRRP(EE/ O&M/ Cuddalore)	Develop an environmental steering Committee headed by the Project Environmental Officer comprising members from Planning Departments of Municipal/Town Panchayat, Traffic Police, District Magistrate Office, and Civil Society to ensure that actual implementation of the environmental/Social monitoring and management is carried out; Provide training on the environmental l aspects of the project to the staffs of TANGEDCO and contractors and the roles of the concerned parties for the environment and social safeguard of the sub-project; Periodic review of the environmental monitoring reports including site visits and feed back to the TANGEDCO Representing the project at community meetings; Ensure effective community liaison and fulfilling

EMP Implementing Partners	Roles and Responsibilities
	commitments to facilitate public consultation throughout the project cycle
Supervising Field Engineer (AE/AEE) (deals Environmental activities)	Management, implementation, monitoring and compliance of the EMP and any approval conditions, including construction supervision and performance of all contractors and subcontractor; Review of EMP performance and implementation of correction actions, or stop work procedures, in the event of breaches of EMP conditions, that may lead to serious impacts on local communities, or affect the reputation of the project; Ensure effective communication and dissemination of the content and requirements of the EMP to contractors and subcontractors; Assisting the contractor with implementation of EMP; Monitoring of EMP performance; Report environmental performance of the sub-projects to TANGEDCO, PIU, PMU and World Bank; Prepare environmental reports summarizing project activities, as required; Participate at community meetings organized by PIU; Request to TANGEDCO for the required approval, consent, permission as required by the formats as required by the law.
Contractor (Environmental Expert)	A reference to the Environment Assessment and EMP has been made in the bidding documents for the reference of contractor so as to adhere to it strictly. Preparation of the management plans and take approvals from the supervising engineers as required by EMP Implementation of the EMP Prepare and maintain records and all required reporting data as stipulated by the EMP, for submission to the Supervising Engineer

EMP Implementing Partners	Roles and Responsibilities
	Ensure that all construction personnel and subcontractors are informed of the intent of the EMP and are made aware of the required measures for environmental l compliance and performance During construction, maintain traffic safety along roadside construction sites in co-ordination with the traffic police and local communities with special emphasis on the key sensitive sites and market areas
Project Stakeholders	Constitute Citizen Monitoring Committee with at least 33% of women members Participate in the consultation meetings organized by the PIU Participate in the onsite monitoring and review of the environmental performance reports of the supervising engineers Provide feedback to the TANGEDCO for the corrective actions, if so required

9.2.2 EMP Mitigation and Monitoring

The identified environmental issues and suggested mitigation measures with institutional arrangements for implementation, supervision and auditing have been provided in matrix format (Environmental Management Plan) in Table 13. The EMP framework has specifically assigned roles to the responsible stakeholders in conjunction with what to implement, when to implement and where to implement. Similarly, it has also assigned roles for supervising and over sighting authority specifying what indicators were to be monitored for timely corrective actions. For each of the mitigation measures prescribed financial resources required is also estimated. The required financial resources are broadly categorized into two groups:

i) Resource in built with contract bid: This includes cost items which are customarily inbuilt with contract bid such as on site spoil management, reinstatement of damaged utilities etc.

Such costs have not been estimated separately as these costs are already inbuilt with contract bid, and

ii) Resources which are not included in contract bid: This includes costs customarily not included in contract bid such as dust suppression, chemical testing, compensation to vendors etc. These costs have been estimated in consideration of work schedules and time to accomplish the tasks besides sensitivity of the potential issue.

Apart from the above, there are certain mitigation items which do not require additional costs, but only managerial efforts. To ensure that such measures are implemented, it is prescribed to include additional clauses in the contract bid documents.

Prime responsibility for the implementation of prescribed measures lies with agency/stakeholder indicated as responsible for implementation, whereas the role of indicated supervisor and over sighting agency is to ensure that the measures are implemented in time as prescribed. The role of the IA is to ensure the needed resources.

Table 13: Environmental Mitigation Management, Supervision, and Review Plan

Possible Impacts	Mitigation objective / Standard	Mitigation Measures*	Agency responsible for mitigation	Supervision Indicators	Agency responsible for Supervision	Over sighting or Agency	Estimated costs (IC)
During Pre-construction							
Conflict with Approval Agencies	Avoid conflict with approval agencies	Acquisition of permits and approvals as required	PIU	Approval, permit or consent letters	TANGEDCO– (EE O&M Cuddalore)	SE / PM	400000[7]
During Construction Phase							
Physical Environment							
Land Use	Reinstate the land use to pre-project stage	Reinstatement of road infrastructure concomitant to trench filling at all sites	Contractor	Site visit, observation, and reinstatement certificates	AE/AEE	EE(Nodal officer CDRRP)	Include in civil bid
Air Pollution	Minimize air pollution	Strict compliance to work schedules of the	Contractor	Compliance to the	AE/AEE	EE/Nodal officer	Include the clause in

[7] *This is provisional cost. It may be required for the preparation of required maps from the authorized authorities for CRZ classification of the work sites. Such authorities may require some fees against such works.*

Possible Impacts	Mitigation objective / Standard	Mitigation Measures*	Agency responsible for mitigation	Supervision Indicators	Agency responsible for Supervision	Over sighting or Agency	Estimated costs (IC)
		day in the dense settlement, high activity areas and sensitive sites		conditions		CDRRP	the contract bid as responsibility of contractor
		Water sprinkling at least twice a day (9 Am and 1.30PM)	Contractor	Site visit, observation, and community feed back	AE/AEE	EE/Nodal officer CDRRP	638500 @ 500/200m
		Deposition of the excavated earth on the footpath side of the road during construction and transport / management of the left spoil in the municipal waste management sites concomitant to	Contractor	Compliance to the conditions	AE/AEE	EE/Nodal officer CDRRP	Inbuilt in Civil Bid

Possible Impacts	Mitigation objective / Standard	Mitigation Measures*	Agency responsible for mitigation	Supervision Indicators	Agency responsible for Supervision	Over sighting or Agency	Estimated costs (IC)
		completion of trench filling operations					
Water Pollution	avoid and minimize water pollution	Avoid UG cable trenching operation in the monsoon season	Contractor	Compliance to the conditions	AE/AEE	EE/Nodal officer CDRRP	Include the clause in the contract bid as responsibility of contractor
		Chemical Testing of the Transformer oil from 508 transformers	Contractor	Test results from laboratory	AE/AEE	EE/Nodal officer CDRRP	254000 @ 500/ transformer
		Prohibition on the discharge of solid and liquid wastes on the pathways of receiving water bodies	Contractor	Site visit on active construction sites and camps	AE/AEE	EE/Nodal officer CDRRP	Inbuilt in Civil Bid
Land Pollution	Avoid land Pollution	Construction and Camp Waste Managemen Provision	Contractor	Site visit on active	AE/AEE	EE/Nodal officer	Inbuilt in Civil Bid

Possible Impacts	Mitigation objective / Standard	Mitigation Measures*	Agency responsible for mitigation	Supervision Indicators	Agency responsible for Supervision	Over sighting or Agency	Estimated costs (IC)
		of adequate sanitation facilities Garbage collection through adequate collection bins and disposal to Municipal system.		construction sites and camps		CDRRP	
		Management of the Overhead Electric Network Wastes (within a month of OH the dismantling works)	Contractor and TANGEDCO - PM	Site visit, records of contract with the authorized vendors	TANGEDCO-AE/AEE	PMU	350000[8] (lump sum)
Noise Pollution	Minimize noise pollution	Restriction on the use of noisy equipment's at the night time working areas	Contractor	Compliance to the conditions	AE/AEE	EE/Nodal officer CDRRP	Include the clause in the contract bid as responsibili

[8] *This is provisional cost, which may be required for public notification for auction and charges for management by authorized vendors etc.*

Possible Impacts	Mitigation objective / Standard	Mitigation Measures*	Agency responsible for mitigation	Supervision Indicators	Agency responsible for Supervision	Over sighting or Agency	Estimated costs (IC)
							ty of contractor
Biological Environment							
Flora	Avoid loss of tree	Protection of trees (within 5 m of the UG trench) of the underground electrical cable alignment at 6 sites (refer Annex 2) by changing alignment of UG trench as required.	Contractor	Site observation and records of tree damage	AE/AEE	EE/Nodal officer CDRRP	Include the clause in the contract bid as responsibili ty of contractor
During Operation phase							
Physical Environment							
No Impact							
Biological Environment							
No Impact							

Note: For details of the mitigation measures refer Chapter 7

Work Supervision

Scheduled supervision and review of Project (Package-2) construction activities is required to ensure that works are undertaken in accordance with the Project design, environmental plans, permits, approvals, contract conditions, and the principles outlined in this EMP. The overall contractual responsibility of the supervision and monitoring works of the contractor's rests with the Supervising engineers. However, on the environmental matters the supervision and reviews will be mainly carried out by the Environmental/Social expert of supervising engineer while contractor will implement the corrective actions, EMP provisions, other contractual obligations and permit and approval provisions. Supervision oversight will be carried out by PIU.

Pre-construction Phase Pre-construction inspections of the Project sites shall be jointly undertaken by the supervising engineer, contractor and the PIU once the construction contractor has surveyed and pegged each site. These inspections will serve to:

- confirm the location of Project sites;
- identify site specific construction and environmental issues;
- oversight access, services and sensitive sites that will be temporarily disrupted during construction;
- Plan construction phasing at Project sites.

During the inspection, the Environmental/Social expert of Supervising engineer and contractor shall discuss and agree upon the above issues. In particular, the Social expert will document the type and location of all sensitive sites and market services that are to be temporarily disrupted and provide a copy of this to the contractor.

Construction Phase - The AE/AEE shall undertake daily, weekly and monthly inspections of construction sites, work areas, and workforce camps during the construction period. This will involve the protocols described below.

- excavation activities - daily
- stockpiling of excavated material- daily
- spoil disposal - daily

- chemical, fuel and other storage - weekly
- site rehabilitation works – daily
- workforce camps - monthly
- displaced vendors - daily

If any activities are not being undertaken in accordance with the contract and EMP conditions, the AE/AEE shall document these activities and specify corrective measures. A copy of the work order will be passed to the contractor personnel at site and PIU.

Post Construction Phase - The AE/AEE shall undertake a post-construction certification inspection of each completed site. The AE/AEE shall inspect all reinstated access and local services of all temporarily disrupted areas. The AE/AEE shall certify each site if it is in accordance with all contract and EMP conditions, or provide a written list of remedial actions to the contractor to be completed prior to certification.

Environmental Review (Audit)

PIU head will undertake internal environmental review at least once every month. PMU shall undertake an external compliance quarterly to assess the project's compliance with the EMP, the effectiveness of mitigation measures and institutional development, and whether or not any unanticipated effects occurred as a result of project activities and report to The World Bank. The review shall be based on a site inspection and the monitoring reports of the contractors, AE/AEE and PIU internal review.

9.2.3 Environmental Monitoring

Environmental monitoring will occur during Project design/pre-construction, construction and operation, to provide baseline data, confirm project compliance and to detect any adverse impacts/non-compliances.

Front Line Monitoring - Construction contractor as a responsible front line implementation agency shall monitor all of its activities on day to day basis.

Internal Monitoring - Internal monitoring of the mitigation measures will also be carried out by AE/AEE as a part of supervision and monitoring.

PIU will conduct instrumental monitoring for baseline data in the pre-construction phase, while contractors will conduct instrumental monitoring of the environmental indicators for compliance and impact monitoring during Pre-construction and construction phase. ***Table14***provides the matrix of environmental indicators, monitoring methods, monitoring locations, monitoring frequency and monitoring responsibility along with the costs.

Table14:Environmental Monitoring Plan

Monitoring Indicator	Monitoring method	Monitoring Location	Monitoring Frequency	Responsibility	Costs (IC)
Pre-construction phase – Baseline Monitoring					
24 hours PM10 and PM 2.5	High Volume Air sampler	Two places at the centre of the Project area (Dense settlement area)	Once	Contractor	30000.00 @ 15000/site
24 hours Noise Level (leq. dBA)	Sound Level Meter	Two Places at the Centre of the Project area (Dense settlement area)	Once	Contractor	10000.00 @5000/site
Construction Phase – Compliance and Impact Monitoring					
24 hours PM10 and PM 2.5	High Volume Air sampler	At the sites of Baseline monitoring at the time of construction/excavation on this site	Once during active construction period	Contractor	30000.00@ 15000/site
24 hours Noise Level (leq. dBA)	Sound Level Meter	At the site of Baseline monitoring at the time of construction/excavation on this site	Once in active construction period	Contractor	10000.00@ 5000/site
Water Supply	Laboratory Analysis for parameters E-colli bacteria,	All residential construction camps	Once a month during construction period	Contractor	25000 (lump sum)

Environmental Mitigation measures listed in Table 13	Site observation and consultation with communities and Vendors	All Project sites as per Annexure 1 and Annexure 2	Daily, weekly, monthly	AE/AEE/EE/Nodal officer CDRRP of PIU	Cost included in construction management cost

Database of environmental monitoring results will be established by AE/AEE. If monitoring results indicate non-conformance, the AE/AEE shall inform the project PIU immediately, and written orders for appropriate remedial action shall be passed to contractor for compliance by AE/AEE.

External Monitoring - An external monitoring of the Project's environmental and social performance shall be conducted by PMU. The guideline and recommendations of the external monitoring shall be passed through PIU for corrective actions.

9.2.4 Chance Find Procedures

The Project is not expected to affect the visible on surface archeological artifacts. In the event that an archeological resource is discovered during the UG cable trenching process a Chance Find Procedure will be implemented. A Chance Find includes record keeping and expert verification procedures, chain of custody instructions for movable finds, and clear criteria for potential temporary work stoppages that could be required for rapid disposition of issues related to the finds. In accordance with this Procedure, work will cease on a site where archaeological material is found. The construction contractor with the find of the archeological artifacts wills immediately stop the work and report to AE/AEE. The AE/AEE will inspect and secure the site, and will then contact State Department of Archaeology through PIU for advice and arrange for a survey or salvage work as appropriate.

The project implementation area has a long history of religious activities including construction of shrines at different times. Some of these shrines still exist while a few may have been turned into rubbles. In view of such potential, there is likely to involve chance find during UG cable trenching. To ensure that the chance find objects of archeological value are duly taken care of, a provisional sum of Rupees 1000000 has been allocated for the package works. The costs shall cover the Charges for the experts from Archaeology departments, study of the artefacts, and relocation on or off site of the artefacts etc.

9.2.5 Incident Management and Emergency Response Procedures

Incident Management Procedures

The contractor and the AE/AEE will prepare Incident Management Procedures for the Project work phases. Joint meeting of the AE/AEE and the contractors at the onset of the construction shall emphasize the importance of documenting all environmental and social incidents. The contractor shall immediately report all incidents to the AE/AEE at site. These incidents may include:

- theft or misplacement of construction materials;
- outbreak of epidemic
- fatal and serious accidents
- construction activities undertaken outside approved sites;
- damage to private or Government structures or land;
- hazardous material spills; and,

The AE/AEE and contractor shall investigate and act on all incidents by:

- identifying the cause of the incident;
- identifying and implementing necessary corrective action(s);
- identifying personnel responsible for carrying out corrective action(s);
- Implementing or modifying controls necessary to avoid repetition; and, recording any changes required in written procedures**.**

Emergency Response Procedures

The contractor and AE/AEE will develop and implement Emergency *Response Procedures* for the construction phases. The following steps shall be included in the procedures.

- **Define the Problem**
  - The immediate problem is established, to facilitate a review of available options for short-term action.
- **Manage the Situation**
  - The safety of any persons, either workers or others involved in Project construction or operation, is to be ensured as a first priority.

- Environmental damage is to be quickly minimized. All emergency action should take place as soon as possible after the event.

9.2.6 Corrective Actions

Environmental non-conformances usually require the implementation of corrective actions specified in non-conformance reports.

Construction Phase - The contractors will implement the corrective action/s recommended by the AE/AEE. The contractor shall then notify the AE/AEE of the completion of the corrective action/s. The AE/AEE will verify the satisfactory implementation of corrective actions during the subsequent inspection and sign off on the non-conformance/s if satisfactorily rectified, or make a further request, if unsatisfactory. AE/AEE will submit a non-conformity statement to PIU that will be certified by PIU.

Operation Phase - During Project operation, TANGEDCO will approve the corrective action/s recommended by the Maintenance Section of TANGEDCO. Maintenance Section of TANGEDCO shall implement the corrective actions in the time specified and shall notify the TANGEDCO of the completion of the corrective action/s so that the satisfactory implementation can be verified by the concerned authority of TANGEDCO.

9.2.7 Record Keeping and Reporting

Two types of reporting and documentation will be required during the construction phase. The construction contractor will document and report monthly progress for internal reporting, While the AE/AEE/PIU will prepare an environmental and social monitoring and compliance report quarterly for external circulation to the stakeholders.

The contractor will prepare a monthly report of the environmental measures implemented and corrective actions undertaken for the month. The report shall include the followings:

- Environmental measures implemented for the month

- Corrective actions implemented for the month
- Instrumental monitoring results of the month
- Compliance status of the EMP, and permit conditions for the month
- Reasons of noncompliance and plans to comply with schedule
- Employee records of the month (non-immigrant and immigrant etc.)
- Monthly reports on Safety Practices, All accidents and corrective actions undertaken
- Records of the work accomplishment (line length of UG cable laying) for the month
- Records of excavation volume for the month
- Records of spoil management volume for the month
- Records of incident managements for the month
- Records of emergency response if any for the month
- Records of Chance finds if any

The AE/AEE and PIU jointly will prepare an environmental social performance report quarterly based on supervision, monitoring and auditing of the project. The report besides the elements of contractor reporting will incorporate the results of supervision and monitoring and instrumental monitoring including corrective actions recommended, corrective actions accomplished, grievances received, grievances addressed etc. and recommendations for EMP modification if any.

In the operation phase, the Maintenance Section of TANGEDCO (AE/AEE/EE/Nodal officer CDRRP) will prepare an environmental and social performance report quarterly throughout the project operation period.

9.2.8 Capacity Building

Though there is environmental cell at the central level of TANGEDCO, at the district and sub-project division level there is general lack of such sections to oversight the environmental and social related issues. The sub-project division is primarily responsible for day in day out execution of works related to safeguards during project implementation and operation. In other words, there is limited capacity of the existing staffs. It is therefore to improve the work quality, for better results, to easily manage challenges and to minimize environment and social impacts etc., training is needed at the sub-project division and district level.

In order to capacitate the all those responsible for the management, implementation and operation of any aspect of the EMP at the sub-project division level and district level need adequate training for their role and responsibilities related to sub-project safeguard issues. Training records shall be maintained on site, for each employee, to provide evidence for auditing/inspection purposes. Specific training requirements concerning EMP shall include.

- Principles and procedures for environmental impact assessment
- Fundamentals of environmental management
- Compliance assessment, monitoring and follow-up
- Environmental audits
- Community relations and public consultation procedures;
- Air, noise and water sampling procedure
- Waste management
- Fuel and hazardous materials management
- Construction camp management
- Community health and safety issues
- Occupational health and safety issues
- Specific issues related to construction impacts such as access disruption, sensitive sites, archeological sites etc.

The proposed training will be of cascade mode. About 20 master trainers will be trained by a reputed institution; these master trainers in turn will train all the concerned project management and operation staffs including the contractor's field personnel. The tentative cost of master training of 20 master trainers is estimated as Rs. 1,50,000. Similarly estimated budget for the capacity building training to the project staff of TANGEDCO by master trainers is Rs. 2,50,000, which shall cover fees to the trainer involved previously in similar projects, allowances to trainee, stationary and other space arrangements.

Training will be provided at three stages, one in pre-construction phase, and another during construction phase and other one in final phase.

Table 15Training Schedule

S.No.	Training Concept	No. of Trainees	Duration	Expenditure	Output
1	Training or master trainers: (i) donor's IR, IP and environment safeguards policy principles, scope and triggers, definitions, and management; (ii) process and procedures of conducting ESA preparation of EMP; (iii) principles and procedures of land acquisition; (iv) public consultation and participation; (v) entitlements and compensation & assistance disbursement mechanisms including livelihood restoration and relocation; (vi) grievance redress; (vii) implementation of resettlement plan/indigenous peoples plan; and (viii) monitoring of EMP/RAP and VCDP implementation and its reporting	20	5 days	1,50,000	Production of master trainers having sound knowledge on social and environmental safeguard management process and procedures
2	Build safeguard capacity of officials/staff of TANGEDCO and also some persons of contractor in terms of screening of likely potential impact, conduct social assessment, processes and procedures of impact mitigation, implementation of EMPs, continuing meaningful consultations with	20	2 Days	1,00,000	Better quality of work to meet & Safe working environment

	project affected peoples, documentation and reporting of all safeguard activities and safeguards plan disclosure.				
3	Training about UG Cable laying , installation , Jointing, charging and commissioning adhering to social and environmental procedures prescribed in the EMP	20	2 Days	1,00,000	For efficient supervision of the work
4	Training about operation and maintenance of UG Cable distribution system& co-ordination procedure for dismantling of existing OH lines adhering to social and environmental procedures prescribed in the EMP	20	2 Days	50000	For trouble free run of UG Cable network and Proper Planning of Dismantling

CHAPTER 10 RISK ASSESSMENT AND DISASTER MANAGEMENT

10.1 Risk Assessment

10.1.1 Need for Risks assessment

The purpose of this assessment is to offer guidance on those factors that should be addressed by TANGEDCO or by the Contractor and their personnel during construction and operation phase to ensure that the Health, Safety and Environment risks to personnel or assets are minimized. This project is of the nature of cable laying in the excavated trench of minimum depth of 1.2 metres and necessary risk response strategies have been considered by avoiding high-risk activities, adding resources or time, adopting a familiar approach instead of an innovative one. The activities undertaken in the project have very low potential for hazards and disasters during various operations. Effective action at the appropriate time can minimize or avoid the potential loss caused due to accidents. The mitigation scopes are incorporated in Environment Management Plan (EMP) appropriately considering the likely probability of the risk and its consequences.

10.1.2 Occupational Health and Safety Management System:

10.1.2.1 During implementation phase

HSE management system will be in place for ensuring whether proper attention is paid to the health and safety of individuals working in the Project as well as protection of environment from the environmental impacts associated with underground cable laying works. Training will be imparted on OHS issues prior to commencement of works. Necessary provision has also been made for periodic health check-up of the work

force and proper monitoring mechanisms will be in place during implementation and operation phase.

10.1.2.2 Planning the work :

Excavation work should be properly managed to control risks through planning the work based on cable plans available and adopting practices. Most underground utility services such as sewage, Water pipelines and Communication lines belongs to Government utilities such as Municipality, TWAD Board etc. and

underground communication service cables and gas pipelines belongs to private network operators. If a pipeline/ cable recorded in the route of proposed Underground cable, appropriate assistance or advice should be sought from the concerned utility. If digging has to start before such assistance or advice has been obtained, extreme care should be taken. Careful planning and risk assessments are essential before the work starts. Risk assessments should consider how the works are to be carried out, ensuring local circumstances are taken into account.

10.1.2.3 Safe digging practices

Excavation work should be carried out carefully and follow recognized safe digging practices. For locating below ground service lines routes, excavation shall be taken with trial pits at 200 metres intervals that will be dug using suitable hand tools only. Final exposure of the service by horizontal digging is recommended, as the force applied to hand tools can be controlled more effectively.

During laying of Underground Cables all trenches when left open for the period of time shall have safety barricades. Necessary protective equipment is to be provided to all work forces who are engaged in laying of underground cables. No materials/ cables are to be placed or stacked near

the edge of any excavation. No load is to be placed or moved near the edge of excavation, where it is likely to cause collapse on the work side. Safe distance shall be maintained from the edge of trench. No load/ personnel movement across trench is encouraged. Manual handling awareness will be spread for load and electrical cables.

10.1.2.4 Safety towards Working in the Vicinity of Traffic:

When working on road or in the vicinity of traffic, traffic management must be carried out. Prior to commencing underground cable laying works, approval shall be obtained from the agency responsible for the care, control and management of the roads and traffic. Action should also be taken to ensure that all other required authorizations are obtained prior to the commencement of works to avoid increasing the risk of undesired traffic incidents. In addition, other agencies such as emergency services, police, public transport etc. in the area need to be informed well in advance of starting the underground cable laying works. Where the proposed traffic management involves modification to existing signal phasing, number of traffic lanes and / or timing on roads, the proposed changes are to be approved through traffic police.

10.1.2.5 Public Safety:

Cable route markers shall be installed to indicate the route of all underground power cables. Compaction to specified standard site, clearing of debris and refuse, Restoration of site after laying underground cables are essential. Proper marking with danger board sign over electrical cable route and emergency contact numbers are to be displayed.

10.1.2.6 Occupational Health & Safety During Maintenance phase:

A hazard assessment must be carried out by the work crew prior to commencement of maintenance work to ensure that all hazards have been identified and assessed. The appropriate controls have been put in place to

mitigate the hazards. All members of the work crew are aware of the hazards. The safety of the public and other workers has been ensured. TANGEDCO will notify the concern utility if they have any proposed work in the vicinity of underground services of other utility. Necessary personnel safety equipment shall be provided to workers. No workers shall physically handle a distribution cable of any type, if its condition is suspect or doubtful unless the cable is proved to be de-energized.

No personnel shall physically handle a high-voltage cable, while it is live unless it is completely surrounded by an earthed sheath or screen, or both, and precautions are taken, where necessary, to avoid danger from induced voltages and transferred earth potentials. Also, it is essential to prevent public access to the underground cable site or substation property with effective fencing and clear sign board indicating the dangers of the different facilities. The public will be kept clear of all equipment maintenance area. Only EB Persons should access or operate electrical equipments that must be kept locked.

A high-voltage cable shall be isolated, earthed and proved to be de-energised on site prior to commencing maintenance work on the cable. Placing any pressure or load on exposed cables and/or cable joints is not permitted. This is inclusive of stepping on to or using the cable or cable joint for support whilst working on or near the asset. If this is physically impractical, it must be consulted on an alternate work method. Mitigation measures are required to minimise impacts and ensure safety of work force as well as public during dismantling of over head infrastructure that have been included in the contractor scope along with cost provisions wherever required.

Safe operating procedures will be laid down and the personnel will be informed of the safety protocol required. Employees will be given periodical training on various safety precautions to be followed during the operation of the plant. This training will make the workers safety conscious and make them confident to handle any type of emergency situation.

10.2 Hazard Risk and Vulnerability of the Project area:

The underground cable laying sub project is spread across Cuddalore Town, which is under a low risk seismic zone (Zone II). The sub-project influence area is located on the beach ridge systems, effects of heavy rainfall and storm surge is imminent. The coastal landforms of the sub-project are subjected to three seasonal meteorological cycles in a year such as North East monsoon (October–December), South West monsoon (June–September), and non-monsoon (January–May). In addition to the above yearly cycles, the coastline landscape is remoulded by the occasional cyclones usually in the northeast monsoon period.

10.2.1 Disaster Management:

This public utility services project, does not involve any super structures which warrant earthquake resistant designs. Historical data indicates September – December months are the most probable months for occurrence of hydro meteorological depressions, cyclones and severe cyclonic storms in Cuddalore. Therefore, cable laying operations will be stalled for brief periods, in the event of any occurrence of cyclones/ inclement weather conditions during the implementation phase. **This UG cable work is proposed under Disaster Risk Reduction project with the aim to have a resilient underground electrical network, to counter damages, during and after cyclones, thunderstorm and other such natural calamities along coastline of Cuddalore Town.** The network is safer to public lives and property, particularly of people

belonging to lower economic strata of society during natural calamities. Areas covered under this Project are expected to practically remain unaffected in future from power disruptions and associated implications during or after cyclone/ high winds or natural calamities/ inclement weather conditions, hence the project will not cause any impact on weather and climate. Also, the project does not involve large scale construction activities like area development or industrial or other infrastructure development projects, which can induce some impacts on the local climate.

The impacts and the required mitigation measures during construction and operation phase are incorporated in the EMP. The EMP is integrated in the contract/ bidding documents as mandatory contractual obligations. Hence, the contractor is expected to be fully conversant with the EMP requirements of CDRRP underground cable works.

10.2.2 Emergency Preparedness Plan:

1) Most electrical accidents occur because individuals are working on or near equipment which is thought to be dead but which is, in fact, live (or) working on or near equipment which is known to be live, but where those involved are without adequate training or appropriate equipment, or they have not taken adequate precautions. Hence only those with adequate knowledge or experience should work in installation of electrical equipment that could cause danger or injury.
2) First aid facilities and free emergency care shall be provided to all workforce and no cost shall be recovered from them on this account.
3) Appropriate medical services should be taken up on war footing to limit post incident and to combat epidemics particularly water borne diseases
4) Water Quality monitoring mechanisms should be in place to prevent outbreak of epidemics and necessary provision made in EMP.

5) Arrangements will be made with local Police, Transport and Taluk administration in case of major accidents.Adequate fire safety equipment and fire extinguishers with dry chemical, foam spray, water spray should be kept in the storage yard.
6) During natural calamities period the work force will be accommodated in the Multi-Purpose Evacuation Shelter constructed under CDRRP.
7) Mechanisms are in place within department to deal with inter-department co- operation on emergency response.

10.2.3 Contact number of the District Officers in case of emergency

Sl.No	District officials	Contact number	
1	District Officer (i/c), Fire and Rescue Services	04142 -294603, 293400	9445086406
2	Superintendent of Police	04142-284330, 295161	
3	Revenue Divisional Office	04142-231284	9445000426
4	Superintending Engineer,TANGEDCO/ Cuddalore EDC	04142-223793	9445856222
5	Executive Engineer (O&M) TANGEDCO Cuddalore	04142-221220	9445855938
6	Executive Engineer/Operation, Capper Hills/Cuddalore	04142-289117	9445855959
7	Divisional Engineer /Highways	04142-294555	9443227055
8	Divisional Engineer (Rural Roads), Cuddalore	04142-294706	9443349501
9	Regional Transport Officer, Cuddalore	04142-234035	9488030990
10	Joint Director of Medical & Rural Health Services, Cuddalore	04142-230052	9444982662
11	Medical Mobile Unit Deputy Director (Health), Cuddalore	04142-235134	9488990249 9442534652
12	Superintending Engineer,TWAD Board Cuddalore-Villupuram Circle, Cuddalore.	04142-235811	9443114828

10.2.4 List of the Multi-Purpose Evacuation Shelter

Sl.No	Location	Details
1	Sothikuppam	School building
2	Kudikadu H/O Eachankadu	Community Hall
3	Killai [North] MGR Thittu	Community Hall
4	Killai [North] Kozhaiayru	Community Hall
5	Veerankoilthittu	Community Hall

CHAPTER 11 EMP REVIEW, IMPLEMENTATION PLAN AND BUDGET ESTIMATION

11.1 EMP Review

The AE/AEE and PIU jointly shall review the EMP regularly. The review of the EMP shall consider i) adequacy of data collection and analysis; ii) reporting; iii) non-compliances; and iv) corrective actions implemented etc. if the outcome of the review indicate need of the update of EMP to make it more effective, the sections of the EMP may be updated in consultation with Project Manager, contractor and other stakeholders. Since EMP is the Specific/ Official document for environmental and social safeguard vis-à-vis Project sustainability, the updated EMP document shall be numbered as number of amendments with due dates and circulated to all the concerned parties for compliance till further notice.

11.2 EMP Implementation Plan and Schedule

TANGEDCO, Project Manager assumes overall responsibility for the implementation of this EMP. For the overall oversight of the EMP, the Project Manager shall constitute a PIU within its organizational structure. The PIU shall establish co-ordination with other stakeholders for the EMP implementation and monitoring. The organizational structure of PIU is given in *figure 4*and EMP implementation plan is presented in *Table 16*.

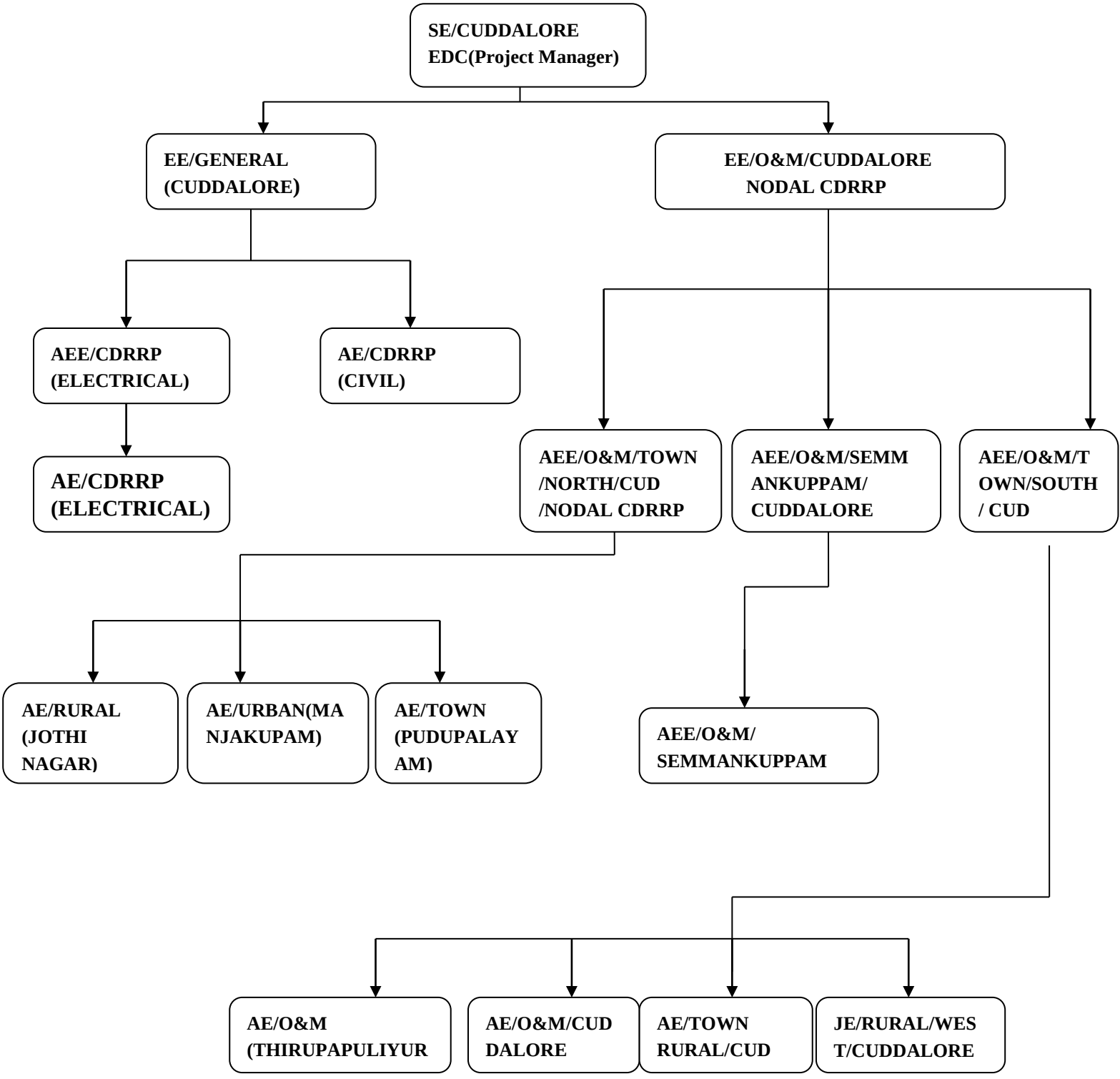


Figure-4 Organizational Structure of PIU

The overall EMP implementation plan shall comply the followings

Table 16: EMP Implementation Plan

Implementation Item	Description	By When	Whom
Preparation of bid document and specification for Construction Contractor	To prepare environmental and social requirements for the Construction Contractor	One month before the final call for Contractors and Supervising engineers	DPR Consultant
Formation of PIU	Oversight unit for environmental and social safeguard for the Project	Within a month of the receipt of the detailed design report	TANGEDCO
Application for approval, consent and permits	Applications required for the approval , consent and permits etc. from different authorities	Six months before the start of construction	EE/Nodal officer CDRRP
Establish a Project Information Centre	The PIU shall establish a project Information Centre to disseminate the Project information to stakeholder and carryout stakeholder consultation	Three months before the project construction works	EE/Nodal officer CDRRP
Establishment of Grievance Redress Committee	Establish a grievance Redress committee as prescribed by this EMP	One month before the start of the construction works	EE CDRRP Head quarters
EMP training	Develop a training plan outlining training requirements, to PIUs, and areas of capacity building etc.	Within a week of contract award by PIU, AE/AEE and contractor initially and as need felt later during construction phase	EE CDRRP Head quarters through training centre of circle level

Implementation Item	Description	By When	Whom
Construction Management Plans	The Construction Contractor shall be responsible for in the preparation of the management plans as prescribed this EMP for approval by the AE/AEE/PIU:	Within a month of contract award	Contractor
Implementation of the environmental management measures	The construction contractor has the key responsibility for the implementation of the environmental management measures stipulated in this EMP	With the start of the construction Throughout construction phase	AE/AEE/EE/Nodal officer CDRRP
Supervision, Auditing and Monitoring of EMP	AE/AEE, PIU, PMU shall conduct supervision, auditing and monitoring and monitoring works of the Project	With the start of the construction works till the completion of the construction works	CE/SE/TANGEDCO Auditors of World Bank , AG's Audit , AE/AEE/EE/Nodal officer CDRRP

11.3 EMP Costs

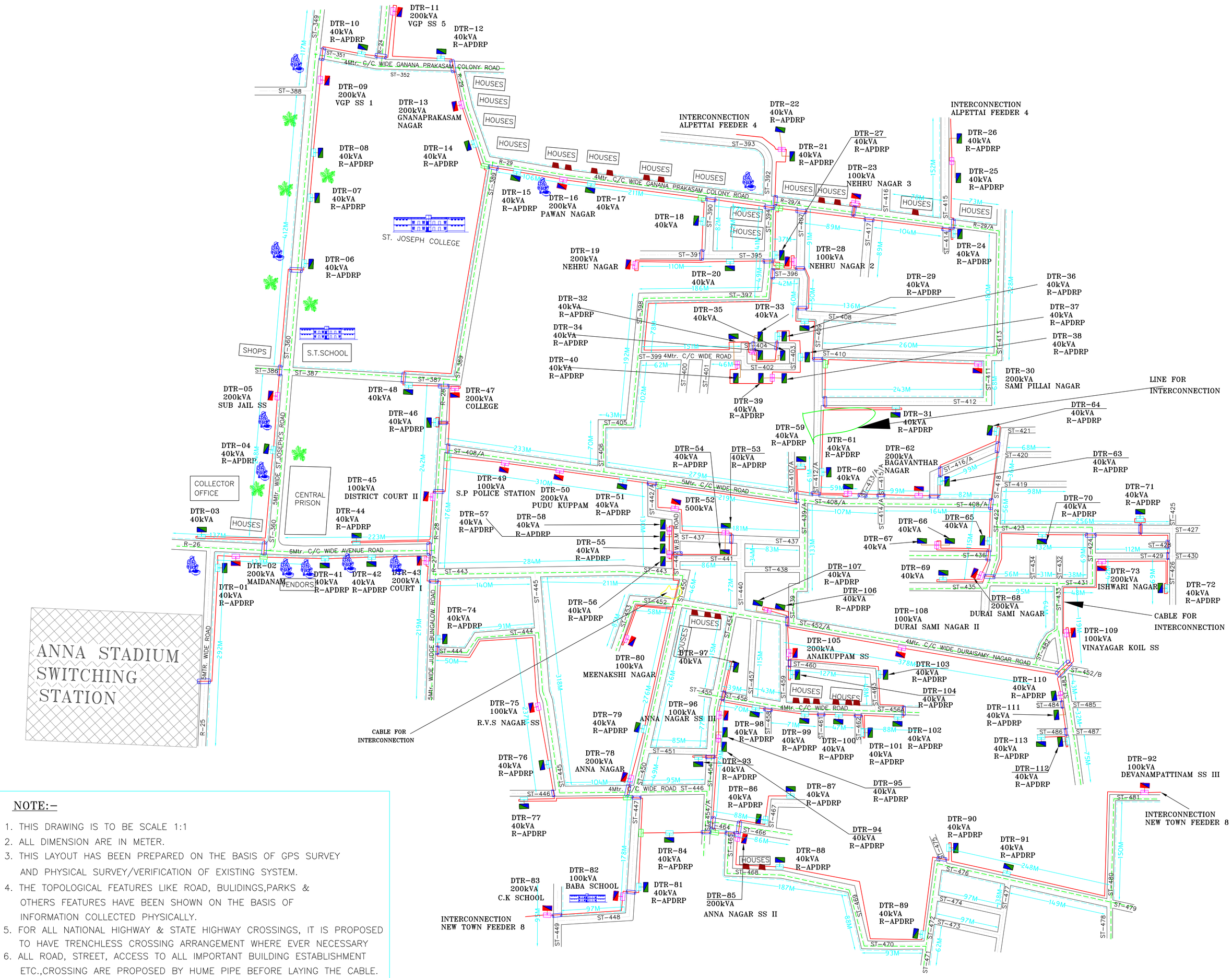
Estimated costs for the implementation of the EMP are presented in ***Table 17.*** Costs have been defined on an initial set up basis. TANGEDCO will revise these costs and develop annual operating costs for the EMP.

Table 17: EMP Cost Summary

EMP Component	Estimated Cost (Indian Currency)
Environmental mitigation and management cost*	1542500.00
Environmental Monitoring costs**	105000.00
Environmental clearance Charges by TANGEDCO	300000.00
Chance finds and other miscellaneous by TANGEDCO***	1000000.00
Grand Total	**2947500.00**

Note: **Cost estimation is derived from Table 13*
*** Cost estimation is derived from Table 14*
**** Cost estimation is derived from Section 9.2.4*
Capacity building cost included in Social Report

PROPOSED HT DISTRIBUTION LAYOUT PLAN MANJAKUPPAM FEEDER NO.-7, SWITCHING STATION : NEAR ANNA STADIUM EXISTING FEEDER-MANJAKUPPAM



LEGEND:-

	PROPOSED HT CABLE 1
	UPGRADED HT CABLE 2
	3CX185 Sqmm. CABLE
	OPEN DRAIN
	WATER PIPE LINE
	BSNL LINE
	SEWAGE
	EXISTING DTR
	R-APDRP DTR
	PROPOSED DTR
	3 WAY RMU WITHOUT SCADA WITH BREAKER
	4 WAY RMU WITH BREAKER (RRLL)
	5 WAY RMU WITH BREAKER (RRLLL)
	4 WAY RMU WITH LOAD BREAK SWITCH (RRRR)
	4 WAY RMU WITH BREAKER(RRR-L)
	3 WAY RMU WITH LOAD BREAK SWITCH (RRR)
	3 WAY RMU WITH BREAKER (RR-L)
	TRENCHLESS CROSSING
	PIPE CROSSING
	ROAD CROSSING
	TEMPLE/CHURCH/MOSQUE
	WATER WORKS
	HOUSE/SHOP/COMPANY
	TREE
	CANAL
	SCHOOL/COLLAGE/ITI
	VENDOR
	PETROL PUMP
	STAIRS/ RAMP
	HOSPITAL/CLINIC
	RAILWAY CROSSING

MAP SHEET NO.

MKM7 P-01
HT

DETAILS:-

NAME OF THE SUBSTATION - ANNA STADIUM	
NAME OF EXISTING FEEDER - MANJAKUPPAM	
NAME OF PROPOSED FEEDER - FEEDER 07	
PROPOSED FEEDER LENGTH 3CX400 Sqmm. CABLE	13.165 KM
OVERHEAD HT LINE LENGTH	0.000 KM
3CX185 Sqmm. CABLE	1.356 KM
TOTAL LOAD	8520 kVA
TOTAL DTR	113 Nos.
EXISTING DTR	30 Nos.
R-APDRP DTR	83 Nos.
PROPOSED DTR	00 Nos.
UPGRADED DTR	00 Nos.
3 WAY RMU WITH BREAKER WITHOUT SCADA RRL	57 Nos.
3 WAY RMU WITH LOAD BREAK SWITCH RRR	09 Nos.
4 WAY RMU WITH LOAD BREAK SWITCH RRRR	02 Nos.
3 WAY RMU WITH BREAKER RRL	27 Nos.
4 WAY RMU WITH BREAKER RRRL	04 Nos.
4 WAY RMU WITH TWO BREAKER RRLL	11 Nos.
5 WAY RMU WITH THREE BREAKER RRLLL	01 Nos.
TOTAL TRENCHLESS	00 Nos.
TOTAL PIPE CROSSING	71 Nos.
RAILWAY CROSSING	00 Nos.

NOTE:-

1. THIS DRAWING IS TO BE SCALE 1:1
2. ALL DIMENSION ARE IN METER.
3. THIS LAYOUT HAS BEEN PREPARED ON THE BASIS OF GPS SURVEY AND PHYSICAL SURVEY/VERIFICATION OF EXISTING SYSTEM.
4. THE TOPOLOGICAL FEATURES LIKE ROAD, BULIDINGS,PARKS & OTHERS FEATURES HAVE BEEN SHOWN ON THE BASIS OF INFORMATION COLLECTED PHYSICALLY.
5. FOR ALL NATIONAL HIGHWAY & STATE HIGHWAY CROSSINGS, IT IS PROPOSED TO HAVE TRENCHLESS CROSSING ARRANGEMENT WHERE EVER NECESSARY
6. ALL ROAD, STREET, ACCESS TO ALL IMPORTANT BUILDING ESTABLISHMENT ETC.,CROSSING ARE PROPOSED BY HUME PIPE BEFORE LAYING THE CABLE.
7. THE UNDER GROUND CABLING TO BE LAID IN BURIED TRENCH, AND THE CABLE TRENCH LAYOUT/SECTION DRAWING TO BE REFERRED
8. MANJAKUPPAM FEEDER-7 IS PART OF EXISTING MANJAKUPPAM FEEDER WHICH WAS FED FROM NATHAPATTU SUB STATION

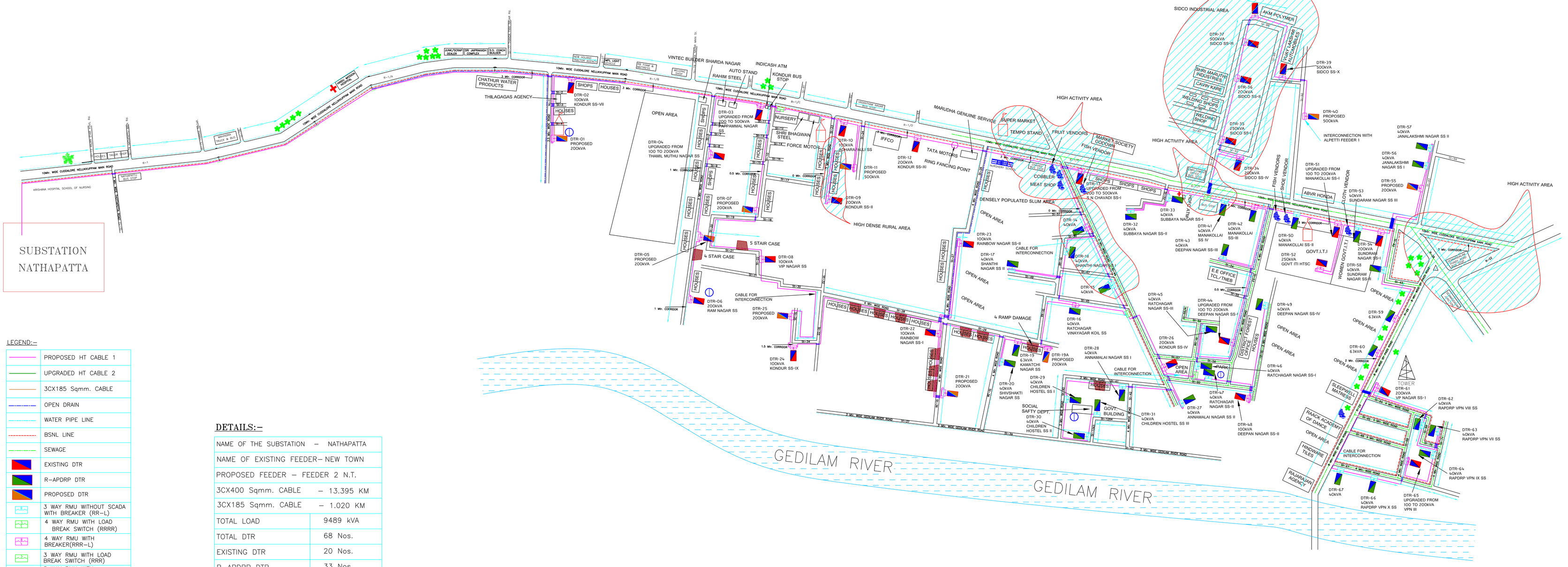
00	FIRST ISSUE		03.10.15
	DESCRIPTION	APP.	DATE

WORK ORDER DETAILS:	Lr.No.CE/PLG&RC/SC/RE&I(D)/EE/PC-I/A1/F.CDRRP/D 58/2015,dt.16.2.2015			
CLIENT:	TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LTD.(TANGEDCO),EASTERN WING, ANNA Salai,-600002			
CONSULTANT	N_ARC CONSULTING NEW DELHI			
NAME OF PROJECT:	COASTAL DISASTER RISK REDUCTION PROJECT (CDRRP)-CONVERSION OF EXISTING OVERHEAD LINES INTO UNDERGROUND CABLES FOR CUDDALORE ,NAGAPATTINAM AND VELANKANNI COASTAL TOWNS IN CUDDALORE AND NAGAPATTINAM DISTRICTS.			Scale 1:2
TITLE:	PROPOSED NETWORK HT LINE MANJAKUPPAM FEEDER-7 SWITCHING STATION: NEAR ANNA STADIUM			TotalSh. 1/1
DRAWN	CHECKED	APPROVED	DATE	Sheets 1
DEVI SINGH	TARUN	NITIN	03.10.15	
DRG. NO.	TANGEDCO/NARC/CDL/MKM/HT/PKG1/003			REV. 0

PROPOSED HT UG CABLE LAYOUT PLAN FOR FEEDER-2 NEW TOWN, SUBSTATION : NATHAPATTA

WORKING NORTH

NT 2 P-02
HT



LEGEND:–

	PROPOSED HT CABLE 1
	UPGRADED HT CABLE 2
	3CX185 Sqmm. CABLE
	OPEN DRAIN
	WATER PIPE LINE
	BSNL LINE
	SEWAGE
	EXISTING DTR
	R-APDRP DTR
	PROPOSED DTR
	3 WAY RMU WITHOUT SCADA WITH BREAKER (RR-L)
	4 WAY RMU WITH LOAD BREAK SWITCH (RRRR)
	4 WAY RMU WITH BREAKER(RRR-L)
	3 WAY RMU WITH LOAD BREAK SWITCH (RRR)
	3 WAY RMU WITH BREAKER (RR-L)
	TRENCHLESS CROSSING
	PIPE CROSSING
	ROAD CROSSING
	TEMPLE/CHURCH/MOSQUE
	WATER WORKS
	HOUSE/SHOP/COMPANY
	TREE
	CANAL
	SCHOOL/COLLAGE/ITI
	VENDOR
	PETROL PUMP
	STAIRS/ RAMP
	HOSPITAL/CLINIC
	RAILWAY CROSSING

DETAILS:–

NAME OF THE SUBSTATION – NATHAPATTA	
NAME OF EXISTING FEEDER– NEW TOWN	
PROPOSED FEEDER – FEEDER 2 N.T.	
3CX400 Sqmm. CABLE	– 13.395 KM
3CX185 Sqmm. CABLE	– 1.020 KM
TOTAL LOAD	9489 kVA
TOTAL DTR	68 Nos.
EXISTING DTR	20 Nos.
R-APDRP DTR	33 Nos.
UPGRADED DTR	06 Nos.
PROPOSED DTR	09 Nos.
3 WAY RMU WITHOUT SCADA WITH BREAKER	27 Nos.
3 WAY RMU WITH LOAD BREAK SWITCH	04 Nos.
4 WAY RMU WITH LOAD BREAK SWITCH	00 Nos.
3 WAY RMU WITH BREAKER	34 Nos.
4 WAY RMU WITH BREAKER	07 Nos.
TOTAL TRENCHLESS	03 Nos.
TOTAL PIPE CROSSING	59 Nos.
BRIDGE CROSSING	00 Nos.

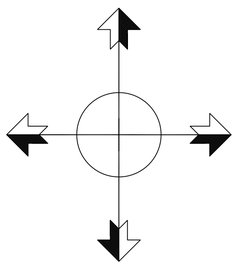
	UPGRADED NETWORK HT LINE		19.10.2015
	DESCRIPTION		DATE REV.

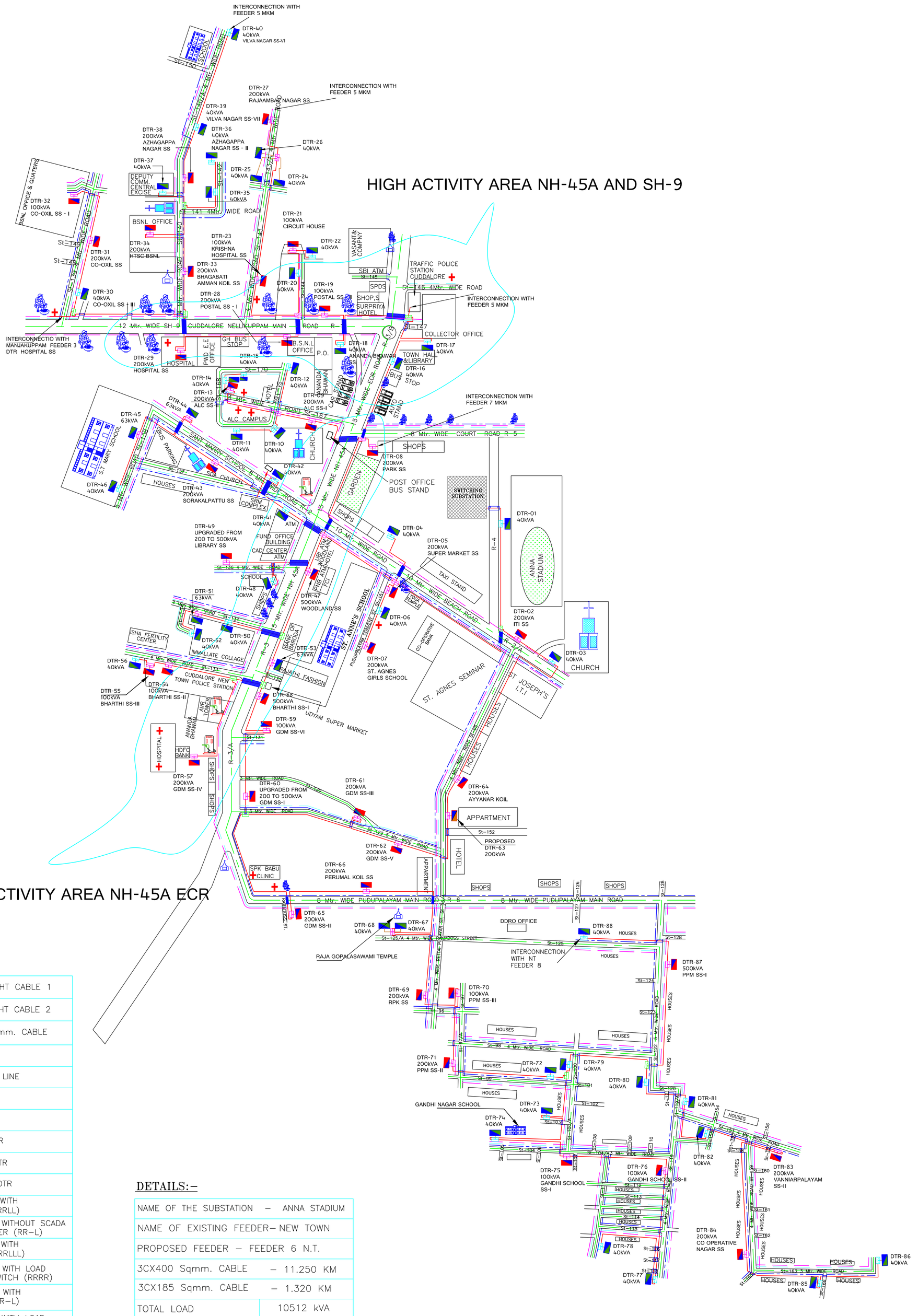
WORK ORDER DETAILS:	Lr.No.CE/PLG&RC/SC/RE&I(D)/EE/PC-I/A1/F.CDRRP/D 58/2015,dt.16.2.2015			
CLIENT:	TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LTD.(TANGEDCO),EASTERN WING,			
CONSULTANT	N_ARC CONSULTING NEW DELHI			
NAME OF PROJECT	COASTAL DISASTER RISK REDUCTION PROJECT (CDRRP)–CONVERSION OF EXISTING OVERHEAD LINES INTO UNDERGROUND CABLES FOR CUDDALORE ,NAGAPATTINAM AND VELANKANNI COASTAL TOWNS IN CUDDALORE AND NAGAPATTINAM DISTRICTS.			SCALE 1:1
TITLE:	PROPOSED HT UG CABLE LAYOUT PLAN FOR FEEDER 2 NEW TOWN SUBSTATION : NATHAPATTA			TotalSh. 1/1
DRAWN	CHECKED	APPROVED	DATE	Sheets 1
DEVI SINGH	NAVEEN	NITIN	19.10.2015	
DRG. NO.	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT			REV. 1

PROPOSED HT DISTRIBUTION LAYOUT PLAN
FEEDER : NO.–6, SUBSTATION : NATHAPATA

NT 6 P–02
HT

WORKING NORTH





LEGEND:–

	PROPOSED HT CABLE 1
	UPGRADED HT CABLE 2
	3CX185 Sqmm. CABLE
	OPEN DRAIN
	WATER PIPE LINE
	BSNL LINE
	SEWAGE
	EXISTING DTR
	R–APDRP DTR
	PROPOSED DTR
	4 WAY RMU WITH BREAKER (RRLL)
	3 WAY RMU WITHOUT SCADA WITH BREAKER (RR–L)
	5 WAY RMU WITH BREAKER (RRLLL)
	4 WAY RMU WITH LOAD BREAK SWITCH (RRRR)
	4 WAY RMU WITH BREAKER(RRR–L)
	3 WAY RMU WITH LOAD BREAK SWITCH (RRR)
	3 WAY RMU WITH BREAKER (RR–L)
	TRENCHLESS CROSSING
	PIPE CROSSING
	ROAD CROSSING
	TEMPLE/CHURCH/MOSQUE
	WATER WORKS
	HOUSE/SHOP/COMPANY
	TREE
	CANAL
	SCHOOL/COLLAGE/ITI
	VENDOR
	PETROL PUMP
	STAIRS/ RAMP
	HOSPITAL/CLINIC
	RAILWAY CROSSING

DETAILS:–

NAME OF THE SUBSTATION – ANNA STADIUM	
NAME OF EXISTING FEEDER– NEW TOWN	
PROPOSED FEEDER – FEEDER 6 N.T.	
3CX400 Sqmm. CABLE – 11.250 KM	
3CX185 Sqmm. CABLE – 1.320 KM	
TOTAL LOAD	10512 kVA
TOTAL DTR	88 Nos.
EXISTING DTR	37 Nos.
R–APDRP DTR	48 Nos.
UPGRADED DTR	02 Nos.
PROPOSED DTR	01 Nos.
3 WAY RMU WITHOUT SCADA WITH BREAKER	39 Nos.
3 WAY RMU WITH LOAD BREAK SWITCH	11 Nos.
4 WAY RMU WITH LOAD BREAK SWITCH	05 Nos.
3 WAY RMU WITH BREAKER	43 Nos.
4 WAY RMU WITH BREAKER RRR–L	01 Nos.
4 WAY RMU WITH BREAKER RR–LL	01 Nos.
5 WAY RMU WITH BREAKER RRLLL	01 Nos.
TOTAL TRENCHLESS	17 Nos.
TOTAL PIPE CROSSING	60 Nos.
BRIDGE CROSSING	00 Nos.

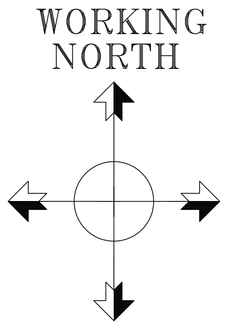
			14.01.2016
	DESCRIPTION	APP.	DATE

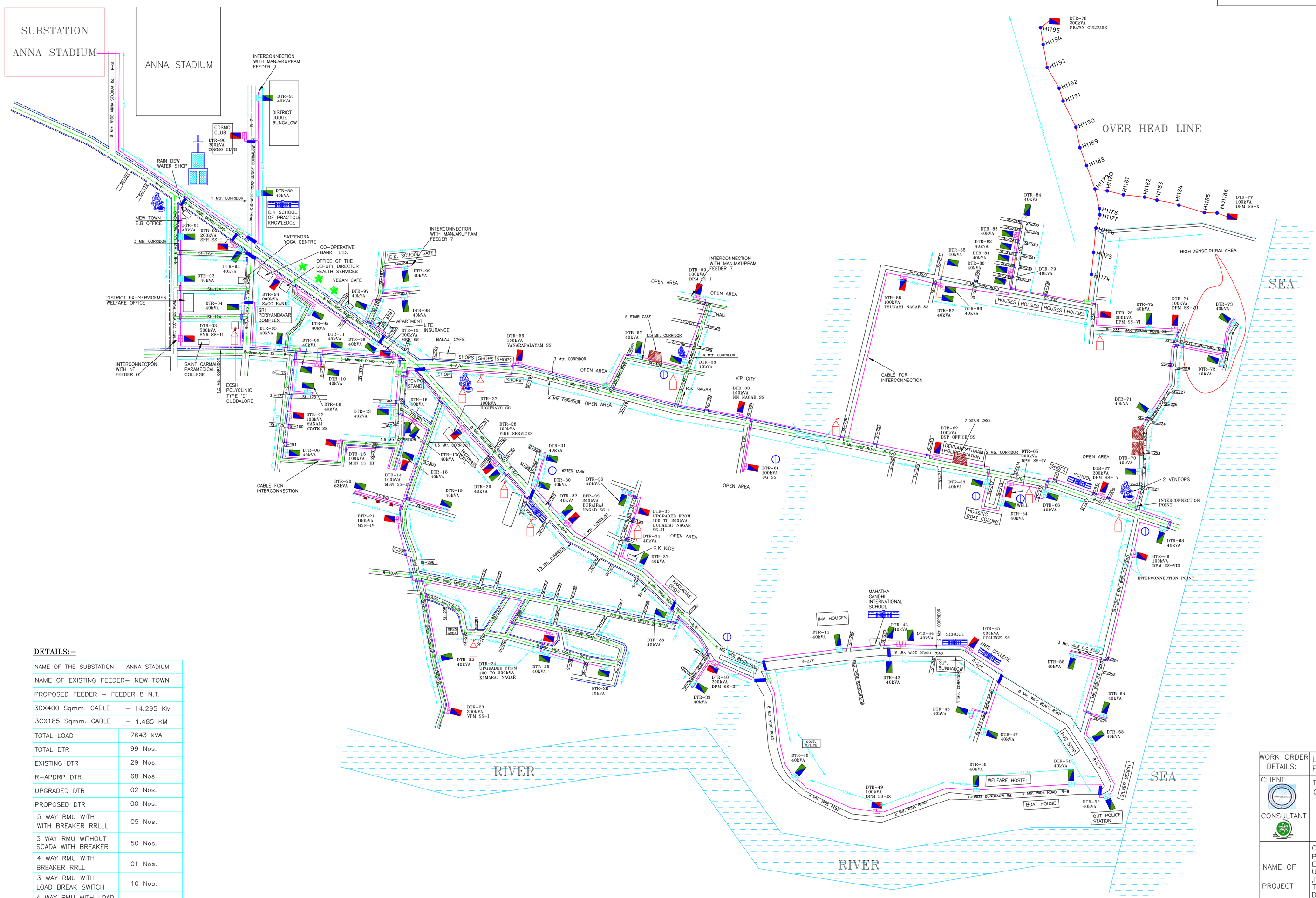
WORK ORDER DETAILS:	Lr.No.CE/PLG&RC/SC/RE&I(D)/EE/PC–I/A1/ F.CDRRP/D 58/2015,dt.16.2.2015		
CLIENT:	TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LTD.(TANGEDCO),EASTERN WING, ANNA Salai,–600002		
CONSULTANT	N_ARC CONSULTING NEW DELHI		
PROJECT TITLE:	COASTAL DISASTER RISK REDUCTION PROJECT (CDRRP)–CONVERSION OF EXISTING OVERHEAD LINES INTO UNDERGROUND CABLES FOR CUDDALORE ,NAGAPATTINAM AND VELANKANNI COASTAL TOWNS IN CUDDALORE AND NAGAPATTINAM DISTRICTS.		Scale 1:1
TITLE:	PROPOSED HT DISTRIBUTION LAYOUT PLAN 6 NO. FEEDER FOR UNDER GROUND CABLING		TotalSh. 1/1
DRAWN	CHECKED	APPROVED	DATE
GAURAV	TARUN	NITIN	14.06.2016
DRG. NO.	TANGEDCO/NARC/CUD/F6/NT/PKG2/HT		REV. 1

PROPOSED HT UG CABLE LAYOUT PLAN FOR FEEDER-8 NEW TOWN, SUBSTATION : ANNA STADIUM

NT 8 P-02
HT

WORKING NORTH





LEGEND:–

	PROPOSED HT CABLE 1
	UPGRADED HT CABLE 2
	3CX185 Sqmm. CABLE
	OPEN DRAIN
	WATER PIPE LINE
	BSNL LINE
	SEWAGE
	EXISTING DTR
	R-APDRP DTR
	PROPOSED DTR
	3 WAY RMU WITHOUT SCADA WITH BREAKER
	4 WAY RMU WITH BREAKER (RRLL)
	5 WAY RMU WITH BREAKER (RRLLLL)
	4 WAY RMU WITH LOAD BREAK SWITCH (RRRR)
	4 WAY RMU WITH BREAKER(RRR–L)
	3 WAY RMU WITH LOAD BREAK SWITCH (RRR)
	3 WAY RMU WITH BREAKER (RR–L)
	TRENCHLESS CROSSING
	PIPE CROSSING
	ROAD CROSSING
	TEMPLE/CHURCH/MOSQUE
	WATER WORKS
	HOUSE/SHOP/COMPANY
	TREE
	CANAL
	SCHOOL/COLLAGE/ITI
	VENDOR
	PETROL PUMP
	STAIRS/ RAMP
	HOSPITAL/CLINIC
	RAILWAY CROSSING

DETAILS:–

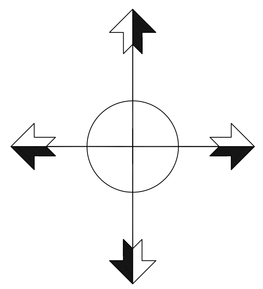
NAME OF THE SUBSTATION – ANNA STADIUM	
NAME OF EXISTING FEEDER– NEW TOWN	
PROPOSED FEEDER – FEEDER 8 N.T.	
3CX400 Sqmm. CABLE	– 14.295 KM
3CX185 Sqmm. CABLE	– 1.485 KM
TOTAL LOAD	7643 kVA
TOTAL DTR	99 Nos.
EXISTING DTR	29 Nos.
R–APDRP DTR	68 Nos.
UPGRADED DTR	02 Nos.
PROPOSED DTR	00 Nos.
5 WAY RMU WITH WITH BREAKER RRLLLL	05 Nos.
3 WAY RMU WITHOUT SCADA WITH BREAKER	50 Nos.
4 WAY RMU WITH BREAKER RRLL	01 Nos.
3 WAY RMU WITH LOAD BREAK SWITCH	10 Nos.
4 WAY RMU WITH LOAD BREAK SWITCH (RRRR)	01 Nos.
3 WAY RMU WITH BREAKER	29 Nos.
4 WAY RMU WITH BREAKER	01 Nos.
TOTAL TRENCHLESS	15 Nos.
TOTAL PIPE CROSSING	87 Nos.
RIVER CROSSING	02 Nos.

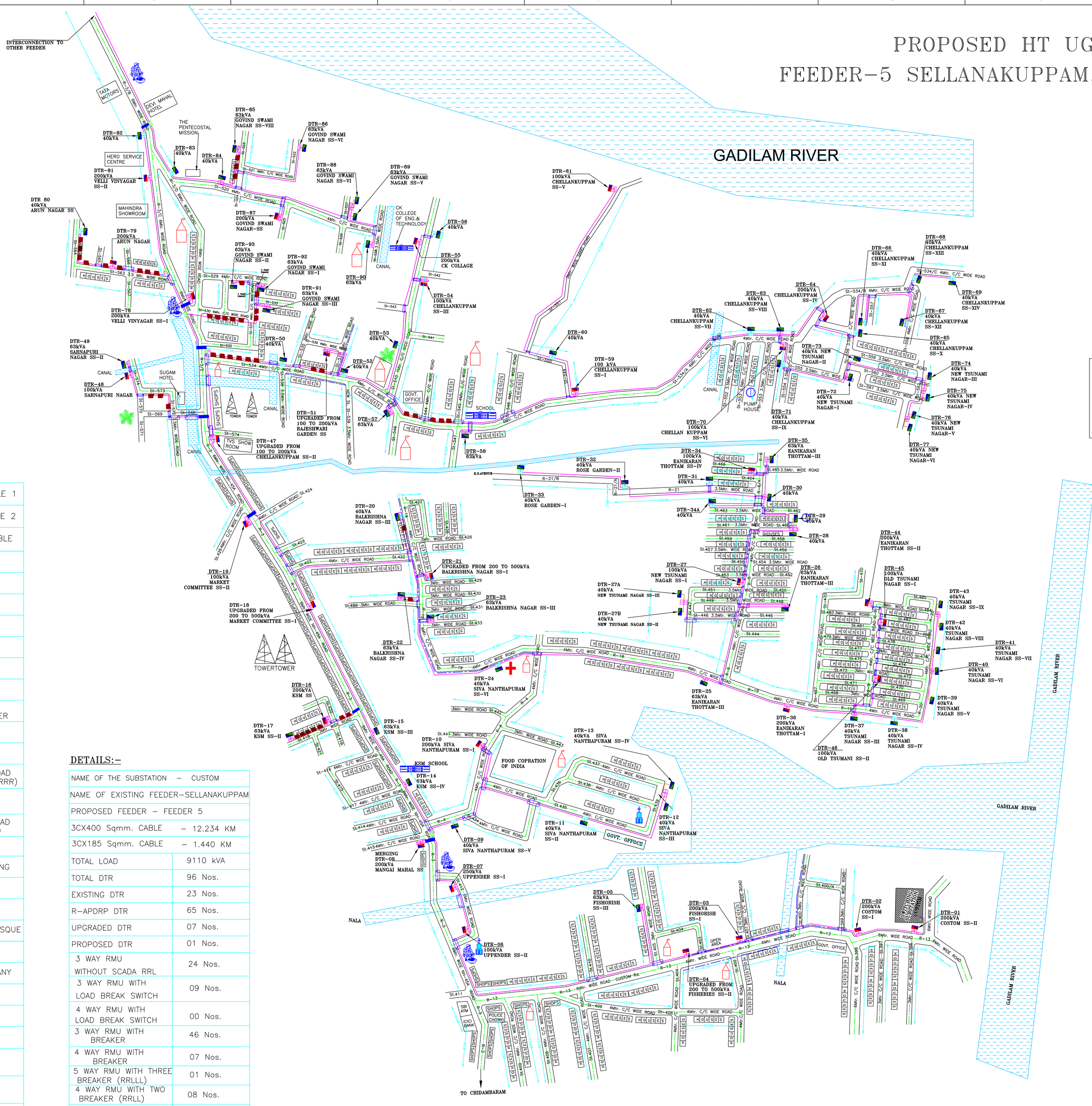
	UPGRADED NETWORK HT LINE		19.10.2015
	DESCRIPTION		DATE REV.

WORK ORDER DETAILS:	Lr.No.CE/PLG&RC/SC/RE&I(D)/EE/PC–I/A1/ F.CDRRP/D 58/2015,dt.16.2.2015			
CLIENT:	TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LTD.(TANGEDCO),EASTERN WING,			
CONSULTANT	N_ARC CONSULTING NEW DELHI			
NAME OF PROJECT	COASTAL DISASTER RISK REDUCTION PROJECT (CDRRP)–CONVERSION OF EXISTING OVERHEAD LINES INTO UNDERGROUND CABLES FOR CUDDALORE ,NAGAPATTINAM AND VELANKANNI COASTAL TOWNS IN CUDDALORE AND NAGAPATTINAM DISTRICTS.			SCALE 1:1
TITLE:	PROPOSED HT UG CABLE LAYOUT PLAN FOR FEEDER 8 NEW TOWN SUBSTATION : ANNA STADIUM			TotalSh. 1/1
DRAWN	CHECKED	APPROVED	DATE	Sheets 1
DEVI SINGH	NAVEEN	NITIN	19.10.2015	
DRG. NO.	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT			REV. 1

PROPOSED HT UG CABLE LAYOUT PLAN FOR FEEDER-5 SELLANAKUPPAM, SWITCHING SUBSTATION CUSTOM

WORKING NORTH





SEL 5 P-02
HT

LEGEND:-

	PROPOSED HT CABLE 1
	UPGRADED HT CABLE 2
	3CX185 Sqmm. CABLE
	OPEN DRAIN
	WATER PIPE LINE
	BSNL LINE
	SEWAGE
	EXISTING DTR
	R-APDRP DTR
	PROPOSED DTR
	3 WAY RMU WITHOUT SCADA WITH BREAKER
	4 WAY RMU WITH BREAKER (RRLL)
	5 WAY RMU WITH BREAKER (RRLLL)
	4 WAY RMU WITH LOAD BREAK SWITCH (RRRR)
	4 WAY RMU WITH BREAKER(RRR-L)
	3 WAY RMU WITH LOAD BREAK SWITCH (RRR)
	3 WAY RMU WITH BREAKER (RR-L)
	TRENCHLESS CROSSING
	PIPE CROSSING
	ROAD CROSSING
	TEMPLE/CHURCH/MOSQUE
	WATER WORKS
	HOUSE/SHOP/COMPANY
	TREE
	CANAL
	SCHOOL/COLLAGE/ITI
	VENDOR
	PETROL PUMP
	STAIRS/ RAMP
	HOSPITAL/CLINIC
	RAILWAY CROSSING

DETAILS:-

NAME OF THE SUBSTATION - CUSTOM	
NAME OF EXISTING FEEDER-SELLANAKUPPAM	
PROPOSED FEEDER - FEEDER 5	
3CX400 Sqmm. CABLE	- 12.234 KM
3CX185 Sqmm. CABLE	- 1.440 KM
TOTAL LOAD	9110 kVA
TOTAL DTR	96 Nos.
EXISTING DTR	23 Nos.
R-APDRP DTR	65 Nos.
UPGRADED DTR	07 Nos.
PROPOSED DTR	01 Nos.
3 WAY RMU WITHOUT SCADA RRL	24 Nos.
3 WAY RMU WITH LOAD BREAK SWITCH	09 Nos.
4 WAY RMU WITH LOAD BREAK SWITCH	00 Nos.
3 WAY RMU WITH BREAKER	46 Nos.
4 WAY RMU WITH BREAKER	07 Nos.
5 WAY RMU WITH THREE BREAKER (RRLLL)	01 Nos.
4 WAY RMU WITH TWO BREAKER (RRLL)	08 Nos.
TOTAL TRENCHLESS	07 Nos.
TOTAL PIPE CROSSING	94 Nos.
RIVER/NALA CROSSING	03 Nos.

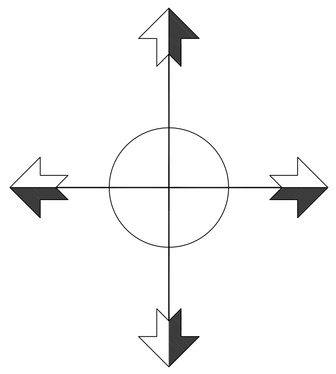
00	FIRST ISSUE		03.03.17
	DESCRIPTION	APP.	DATE

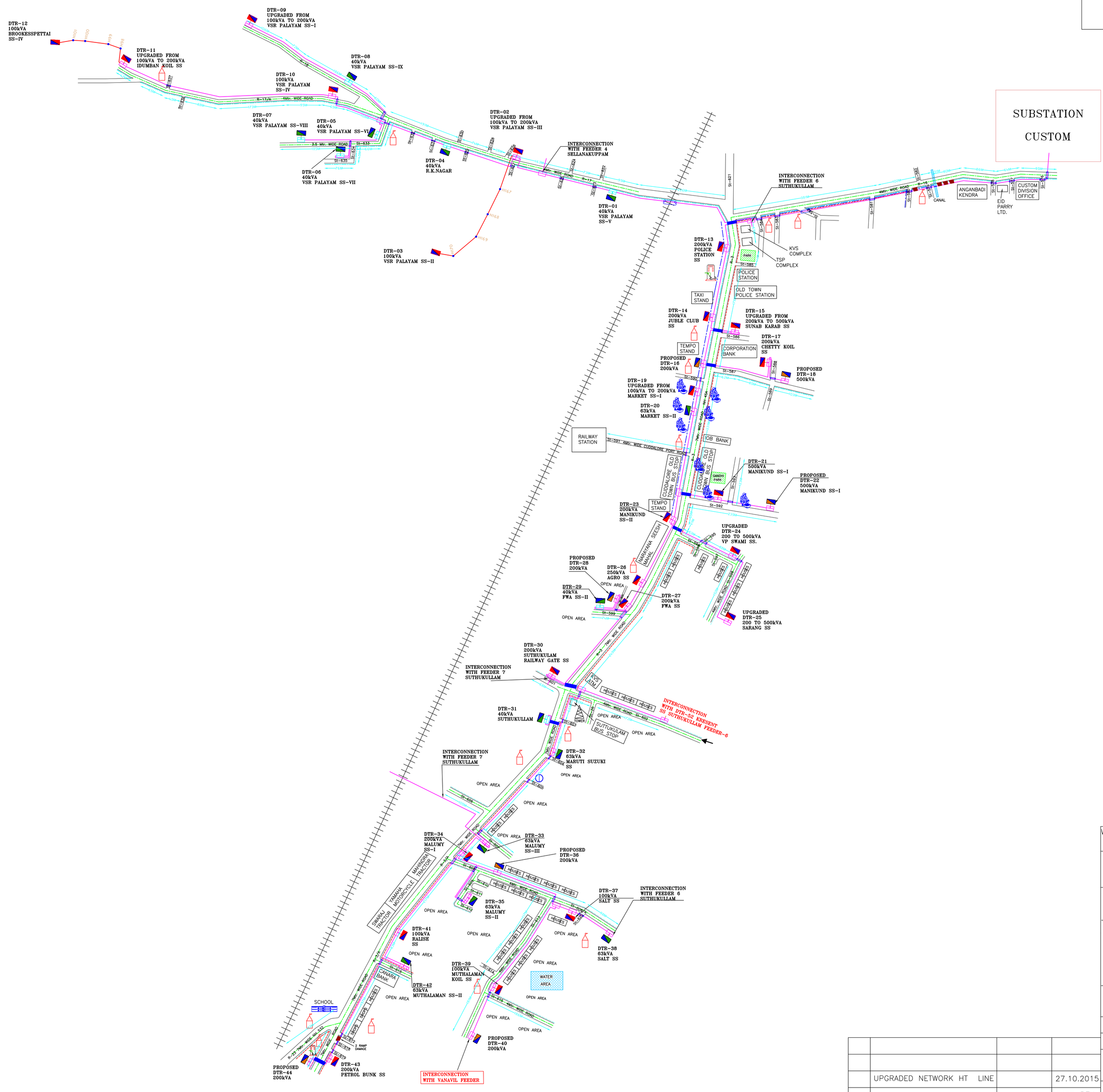
WORK ORDER DETAILS:	Lr.No.CE/PLG&RC/SC/RE&I(D)/EE/PC-I/A1/ F.CDRRP/D 58/2015,dt.16.2.2015			
CLIENT:	TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LTD.(TANGEDCO),EASTERN WING, ANNA Salai,-600002			
CONSULTANT	N_ARC CONSULTING NEW DELHI			
NAME OF PROJECT:	COASTAL DISASTER RISK REDUCTION PROJECT (CDRRP)-CONVERSION OF EXISTING OVERHEAD LINES INTO UNDERGROUND CABLES FOR CUDDALORE ,NAGAPATTINAM AND VELANKANNI COASTAL TOWNS IN CUDDALORE AND NAGAPATTINAM DISTRICTS.			Scale 1:1
TITLE:	PROPOSED HT UG CABLE LAYOUT PLAN FOR FEEDER-5 SWITCHING SUBSTATION CUSTOM			TotalSh. 1/1
DRAWN	CHECKED	APPROVED	DATE	Sheets 1
SUKHVINDER	NAVEEN	NITIN	03.03.17	
DRG. NO.	TANGEDCO/NARC/CUD/SELF-5/PKG2/HT			REV. 01

PROPOSED HT UG CABLE LAYOUT PLAN FOR FEEDER-9 SELLANKUPPAM, SUBSTATION : CUSTOM

SEL 9 P-02
HT

WORKING NORTH





LEGEND:-

	PROPOSED HT CABLE 1
	UPGRADED HT CABLE 2
	3CX185 Sqmm. CABLE
	OPEN DRAIN
	WATER PIPE LINE
	BSNL LINE
	SEWAGE
	EXISTING DTR
	R-APDRP DTR
	PROPOSED DTR
	3 WAY RMU WITHOUT SCADA WITH BREAKER (RR-L)
	4 WAY RMU WITH LOAD BREAK SWITCH (RRRR)
	4 WAY RMU WITH BREAKER(RRR-L)
	3 WAY RMU WITH LOAD BREAK SWITCH (RRR)
	3 WAY RMU WITH BREAKER (RR-L)
	TRENCHLESS CROSSING
	PIPE CROSSING
	ROAD CROSSING
	TEMPLE/CHURCH/MOSQUE
	WATER WORKS
	HOUSE/SHOP/COMPANY
	TREE
	CANAL
	SCHOOL/COLLAGE/ITI
	VENDOR
	PETROL PUMP
	STAIRS/ RAMP
	HOSPITAL/CLINIC
	RAILWAY CROSSING

DETAILS:-

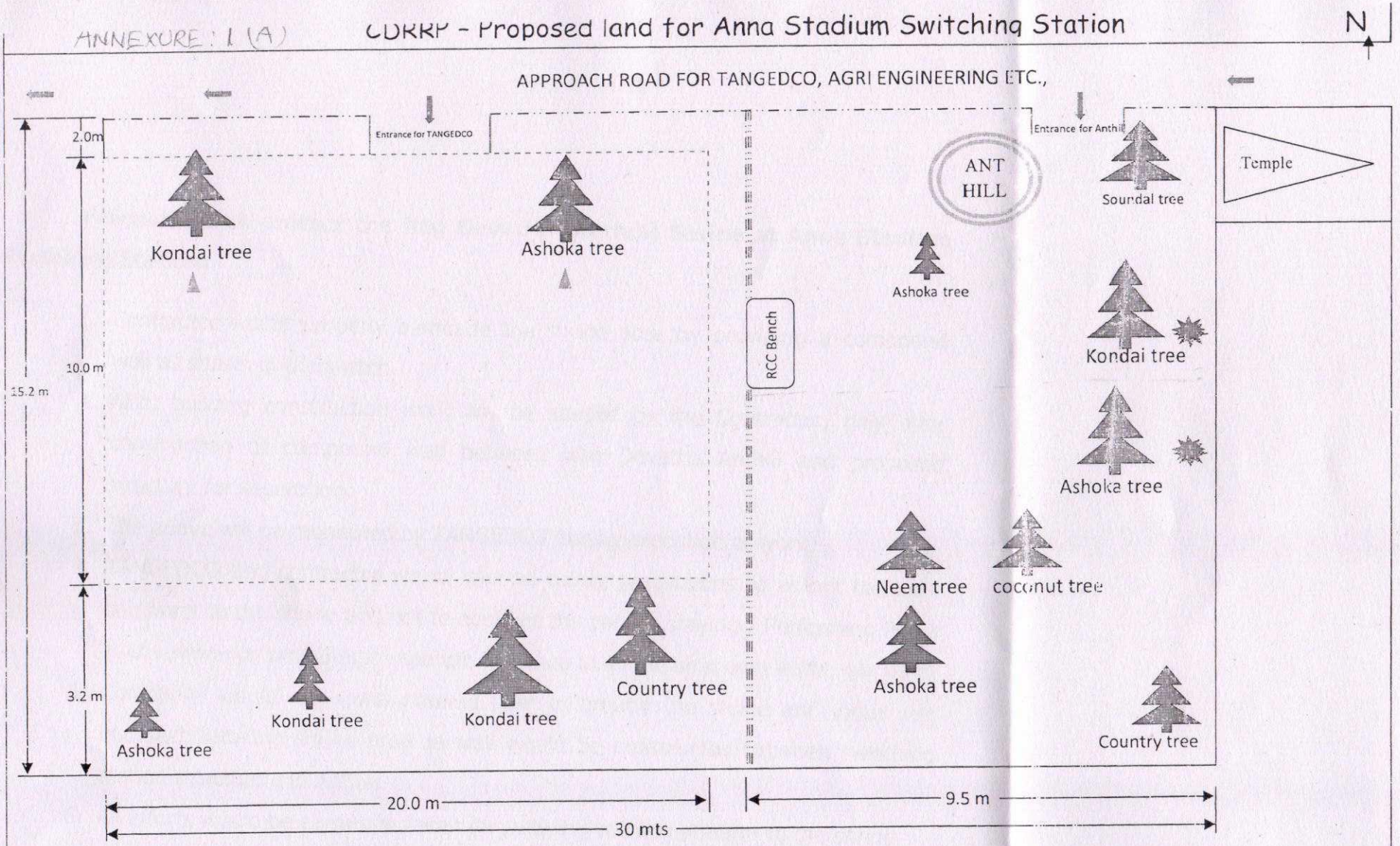
NAME OF THE SUBSTATION – CUSTOM	
NAME OF EXISTING FEEDER–SELLANKUPPAM	
PROPOSED FEEDER – FEEDER 9	
3CX400 Sqmm. CABLE	– 9.236 KM
3CX185 Sqmm. CABLE	– 0.630 KM
TOTAL LOAD	7948 kVA
TOTAL DTR	44 Nos.
EXISTING DTR	16 Nos.
R-APDRP DTR	14 Nos.
UPGRADED DTR	07 Nos.
PROPOSED DTR	07 Nos.
3 WAY RMU WITHOUT SCADA WITH BREAKER	08 Nos.
3 WAY RMU WITH LOAD BREAK SWITCH	04 Nos.
4 WAY RMU WITH LOAD BREAK SWITCH	02 Nos.
3 WAY RMU WITH BREAKER	28 Nos.
4 WAY RMU WITH BREAKER	06 Nos.
TOTAL TRENCHLESS	08 Nos.
TOTAL PIPE CROSSING	46 Nos.
RAILWAY CROSSING	02 Nos.

	UPGRADED NETWORK HT LINE		27.10.2015
	DESCRIPTION		DATE REV.

WORK ORDER DETAILS:	Lr.No.CE/PLG&RC/SC/RE&I(D)/EE/PC-I/A1/F.CDRRP/D 58/2015,dt.16.2.2015			
CLIENT:	TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LTD.(TANGEDCO),EASTERN WING,			
CONSULTANT	N_ARC CONSULTING NEW DELHI			
NAME OF PROJECT	COASTAL DISASTER RISK REDUCTION PROJECT (CDRRP)-CONVERSION OF EXISTING OVERHEAD LINES INTO UNDERGROUND CABLES FOR CUDDALORE ,NAGAPATTINAM AND VELANKANNI COASTAL TOWNS IN CUDDALORE AND NAGAPATTINAM DISTRICTS.			SCALE 1:1
TITLE:	PROPOSED HT UG CABLE LAYOUT PLAN FOR FEEDER 9 SELLANKUPPAM SUBSTATION : CUSTOM			TotalSh. 1/1
DRAWN	CHECKED	APPROVED	DATE	Sheets 1
DEVI SINGH	NAVEEN	NITIN	27.10.2015	
DRG. NO.	TANGEDCO/NARC/CUD/SELF-9/PKG2/HT			REV. 0

ANNEXURE : I (A)

CORRP - Proposed land for Anna Stadium Switching Station



▲ Exg place of 2 Nos tree to be transplanted

✸ Proposed place of above 2 Nos tree to be transplanted

▭ Proposed building area

Compound wall to be constructed by the contractor

EXECUTIVE ENGINEER / CORRP SC/PC&T(D)
O/o SUPERINTENDING ENGINEER/PC&T(D)
144, ANNASALAI, CHENNAI - 600 002.

Std

Annexure : 1 B

Precautions to protect the Nag Devatha (Anthill) Shrine at Anna Stadium Switching Station:

1. Contractor would properly barricade the shrine area by providing a compound wall as shown in the sketch.
2. Also, building construction work will be started by the Contractor, only after construction of compound wall between Nag Devatha Anthill and proposed structure for separation.
3. The above will be monitored by TANGEDCO during execution of work.
4. TANGEDCO and contractor would take all safety precautions so as not to cause any harm to the shrine and not to obstruct the people praying / Performing Pooja at the shrine by providing a separate entrance to shrine as shown in the site plan.
5. Contractor would not store material near or around the shrine and would not encroach into the shrine area as wall would be constructed between switching station structure and Anthill.
6. All efforts would be earnestly taken for avoiding causing of harm to the shrine

Annexure 2 - Roads and Street wise location and numbers of the sensitive sites, vendors, ramps, nearby trees, road crossings, river crossings, railway crossings, nearby open drains, dense settlements, High activity area (markets, bus stops) etc.

ENVIRONMENTAL & SOCIAL DETAILS																								
PACKAGE NO.2					PACKAGE-2																			
S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
												L	R											
	Sellankuppam Feeder 5																							
1	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	R-13	4								Yes	Yes					1			11		Right/Left	
2	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-399									No	No								1			
3	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-400									Yes	No								1			
4	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-401									No	No								1			
5	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-403									No	Yes								2		Right/Left	
6	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-405									No	Yes								4		Right/Left	
7	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-410									No	No								2			
8	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	NH 45A (R-3)		1		1		2			Yes	Yes					2		9			Right/Left	Towards St-425
9	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	R-4	2								Yes	No								9		Right/Left	Towards DTR-130,Towards St-434
10	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-412		1							No	No					2			2		Right/Left	
11	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-435		1							No	Yes								1		Right	Towards DTR-13, towards St-439
12	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-434									No	No								3		Right	Away from R-4
13	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-436	2								Yes	No											
14	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-418								7	No	No								5		Right/Left	Towards DTR-17
15	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-420									No	No								1		Right/Left	
16	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-422									No	Yes								4		Right/Left	Towards R-19
17	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	R-19	1			1	2			1	Yes	Yes								10		Right/Left	Towards R-20, towards R-4
18	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-486								1	No	No								2		Right/Left	Towards DTR-22
19	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	R-20									No	No								9		Right/Left	Towards DTR-43
20	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	R-9									No	No								4		Right/Left	Towards DTR-44
21	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-468									No	No								1			
22	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-470	1								No	No								1		Right	Towards St-470/A
23	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-472									No	No								2		Right/Left	
24	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-474									No	No								1			
25	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-476									No	No								1		Left	Towards R-20
26	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-478									No	No								1		Right/Left	
27	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-480									No	No								1			
28	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-482									No	No								3		Right/Left	
29	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	R-6									No	No								10		Left	Towards St-460
30	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	R-6/A																		1		Right/Left	Towards DTR-35
31	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-446									No	No								1		Left	Towards St-447. towards St-445
32	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-449									No	No								1			
33	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-451									No	No								1		Right	Towards St-450
34	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-453									No	No								1			
35	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-455									No	No								1			
36	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-457									No	No								1			
37	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-459									No	No								1		Left	Away from R-6
38	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-462									No	No								1		Right	Towards DTR-29
39	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-465									No	No								2		Right/Left	
40	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	R-21									No	No								2		Left	Towards R-21/A
41	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	R-21/A									No	No										Right	Towards R-21/B
42	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	R-21/B									No	No								2		Right/Left	Towards DTR-33
43	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-447									No	No								2		Left	Towards DTR-27A
44	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-448									No	No										Right	Towards DTR-26
45	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-460									No	No										Right	Towards DTR-28
46	TANGEDCO/CDL/FEDDER-5/HT-000	SEL5 P-02/HT	St-463									No	No								2		Right	Towards DTR-34A
47																								
48	LT																							
49		SEL5 P-02/1	St-705																					
50			St-397																		1			
51			St-397/A																				Right/Left	
52			St-707																		3		Right/Left	

S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
53			St-398									Yes	No								1		Right/Left	
54			St-706																		1		Right/Left	
55			St-710									Yes	No								1		Right	Away from St-398
56			St-708									Yes	No											
57			St-709									Yes	No								1			
58		SEL5 P-02/3	St-712																		1		Right/Left	
59			St-713																		1			
60			St-715																				Right/Left	
61			St-401																		1		Right	Away from R-13
62			St-402									No	Yes										Right/Left	
63			St-406									No	Yes								3		Right/Left	
64			St-712	1																			Right	Away from St-402
65			St-719	1																				
66		SEL5 P-02/4	St-721									No	Yes								1		Right/Left	
67			St-722																		1			
68			St-723									Yes	No										Right/Left	
69			St-404									No	Yes								1		Right/Left	
70			St-725									Yes	No										Right/Left	
71			St-726									Yes	No										Right/Left	
72			St-724																					
73		SEL5 P-02/5	St-729									No	Yes								2		Right/Left	
74			St-731																		1		Left	Away from St-729
75			St-728																		1		Left	Away from St-729
76		SEL5 P-02/7	St-413									No	Yes										Right/Left	
77			St-733																		1			
78		SEL5 P-02/9	St-441																		1		Right	
79			St-442																		1		Right/Left	
80			St-734																		1		Right/Left	
81			St-735																		1			
82			St-736																		1			
83			St-737																		1			
84		SEL5 P-02/10	St-439																		2		Left	Towards DTR-13
85			St-437		1							No	Yes										Right	Away from St-439
86			St-438									Yes	No										Right/left	
87			St-434/A																		1		Left	Away from St-435
88			St-740																				Left	Away from St-435
89		SEL5 P-02/11	St-417										Yes										Right	Towards St-415
90			St-416									Yes	No								1		Left	Away from R-3
91		SEL5 P-02/12	St-419																		1		Right/Left	
92			St-743																				Right	Away from St-420
93			St-744																		1		Right/Left	
94			St-746																				Right	Away from St-744
95			St-747																				Right	Away from St-746
96			St-421																				Right/Left	
97		SEL5 P-02/13	St-750																		2		Right/Left	
98			St-751																				Left	Towards St752
99			St-748																		1		Right/Left	
100			St-749	1																			Right	Away from St-748
101			St-754																		1		Right/Left	
102			St-755																				Right/Left	
103			St-756																				Right	Away from St-755
104			St-757																		1		Right	Away from St-422
105			St-758																		1			
106			St-424																		2		Right/Left	
107			St-761																		1			

S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
108		SEL5 P-02/14	St-763																				Right	Away from St-424
109			St-759																				Left	Away from St-424
110			St-760																		1		Right	Away from St-424
111		SEL5 P-02/15	St-433									No	Yes								1		Right/Left	
112			St-431									Yes	No								1		Right/Left	
113			St-430									Yes	No										Right/Left	
114			St-429									Yes	No								1		Right/Left	
115			St-765									No	Yes										Right/Left	
116			St-769									No	Yes										Left	Away from St-422
117			St-766									No	Yes								1		Right/Left	
118			St-426									Yes	No										Right/Left	
119			St-764									Yes	No										Right	Away from R-19
120		SEL5 P-02/17	St-775																		1			
121			St-771	1																				
122		SEL5 P-02/18	St-444																				Left	Towards St-788
123			St-450																				Left	Towards St-787
124			St-452																		1		Left	Towards St-786
125			St-454																		2		Right/Left	
126			St-456																				Left	Towards St-784
127			St-461																		1			
128			St-795																				Right/Left	
129			St-777																				Right	Away from St-795
130			R-12																				Right	Away from R-6
131			St-464																		1		Right	Away from R-6
132			St-466																				Right/Left	
133			St-778																		1			
134			St-779																		1			
135			St-789																		3		Right/Left	
136			St-788																				Right	Towarsd St-488
137		SEL5 P-02/19	St-792																				Left	Towards St-791
138			St-793																		1		Right	Towards St-794
139		SEL5 P-02/20	St-469																				Right	Towards St-468
140			St-471																		1		Right/Left	
141			St-475																		1		Right/Left	
142			St-477																				Right	Towards St-470
143			St-479																		1			
144			St-481																				Right	Towards St-470
145			St-483																		1			
146			St-484																		1		Left	Toward R-20
	Sellankuppam Feeder 9																							
1	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	R-16	3							4	Yes	No					1			1		Left	Towards R-3
2	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-576									No	No								1			
3	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-577									No	No								1			
4	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-578									No	No								1			
5	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-579									No	No								1			
6	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-580									No	No								1			
7	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-581									No	No								1			
8	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-582									No	No								1			
9	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-583									No	No								1			
10	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-584									No	No								1			
11	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	R-3	7					16		2	Yes	Yes			2 Petrol Pump				20	2		Right/Left	Towards R-3/A
12	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	R-3/A	4			1				2	No	No										Left	Towards DTR-44
13	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-586									Yes	No								3		Right/Left	Towards DTR-15
14	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-587									Yes	No								3		Right/Left	Towards DTR-18
15	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-588	1								Yes	Yes			1					2		Right/Left	Towards DTR--17
16	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	Cuddlore Port Rd. (St-591)									No	No								1			

S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
17	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-592									Yes	Yes			1		1		2	5		Right/Left	Towards DTR-22
18	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-593									Yes	Yes								2		Right/Left	
19	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-594									No	No										Left	Towards DTR-24
20	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-595									No	No								1			
21	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-598									Yes	Yes										Right/Left	Towards DTR-25
22	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-599	1								No	No								2		Right/Left	Towards DTR-29
23	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-599/A									No	No								1		Left	Towards DTR-28
24	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-601									No	No					1					Right	Towards DTR-30, away from R-3
25	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-602									No	No								1		Right	Towards R-3
26	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-604									No	No								1			
27	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-605									No	No								1			
28	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-607								1	No	No								1		Right	Towards DTR-33, away from R-3
29	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-608									No	No								3		Left	Towards St-613, towards St-1080
30	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-608/A	1								No	No								4		Right/Left	Towards DTR-38
31	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-620									No	No								2		Right/Left	
32	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-613	1							3	No	No										Right/Left	Towards DTR-40
33	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-615									No	No								1			
34	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-616									No	No								1		Left	Towards DTR-42
35	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	R-17	1							5	No	No						1		8		Right/Left	Towards R-17/A
36	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	R-17/A	2								No	No								3		Right/Left	Towards DTR-11
37	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	R-18	1								No	No								3		Right/Left	Towards DTR-09
38	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-633	1							3	No	No								2		Right/Left	Towards DTR-11
39	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-634									No	No										RightLeft	Towards DTR-06
40	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-623									No	No								1			
41	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-625									No	No								1			
42	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-627									No	No								1			
43	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-629									No	No								1			
44	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-631									No	No								2			
45	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-632																		1			
46	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	NH 532 (R-23)	1																				
47	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	SEL09 P-2/HT	St-637																		1			
48																								
49	LT																							
50		SEL09 P-2/2	St-985								2												Right/Left	
51			St-986																		1		Right/Left	
52			St-987																		2		Right	Towards St-987/A
53			St-988								2										1		Right/Left	
54			St-992																		1		Left	Towrads St-992/A
55			St-994																				Right	Towards St-994/A
56			St-989																		1		Right/Left	
57			St-990																				Right	Towards St-991
58			St-993	1																				
59		SEL09 P-2/3	St-995																		1			
60		SEL09 P-2/4	St-998																		1		Right	Away from St-633
61			St-1000																				Left	Towards St-635
62			St-635																		1		Right/Left	
63			St-997	1																				
64		SEL09 P-2/5	St-1002																		1		Right/Left	
65			St-1003																				Left	Away fom St-1005
66			St-1005																		1		Right/Left	
67			St-1004																		1		Right/Left	
68			St-1004/A																				Left	Away from St-1004
69			St-1006								2										1		Right/Left	
70			St-1009																				Left	Away from St-1008
71		SEL09 P-2/6	St-1011	1																	1		Left	Away from R-17/A
72			St-1013																		1		Right	Away from R-17/A

S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
73		SEL09 P-2/7	St-1016	1																	1		Right/Left	
74			St-1017																				Left	Away from St-1016
75			St-1024																		1		Right/Left	
76			St-1023																				Right/Left	
77			St-1021/A																				Right	Towards St-1021
78			St-1022																				Left	Towards St-1022/A
79			St-1015																		1		Right/Left	
80			St-1014																		1		Right/Left	
81		SEL09 P-2/9	St-1029									No	Yes								3		Right/Left	
82			St-1030									No	Yes								2		Right/Left	
83		SEL09 P-2/10	St-1106									Yes	Yes								1		Right/Left	
84			St-1107									Yes	Yes								1		Right/Left	
85			St-1108	1								Yes	No								1			
86		SEL09 P-2/11	St-1031	1								No	Yes								1		Right	Toward St-1032
87			St-1032									Yes	Yes								1		Right/Left	
88			St-1034									Yes	Yes								2		Right/Left	
89			St-1033									Yes	Yes			1					2		Right/Left	
90			St-588/A									Yes	Yes			1					1		Right/Left	
91			St-1035																		1			
92			St-1036									Yes	Yes										Left	Away from St-588/A
93			St-1037									Yes	Yes										Left	Away from St-588/A
94		SEL09 P-2/13	St-1047																		1			
95			St-1039						12												3		Right/Left	
96			St-1040																		1		Right/Left	
97			St-1042																		1		Right/Left	
98			St-1043																		1		Right/Left	
99			St-1038						32			Yes	No			1					1			
100			St-1046																		1		Right/Left	
101			St-1105									Yes	Yes								1		Right/Left	
102			St-1044																		1		Right/Left	
103			St-1045																				Right/Left	
104			St-1041																				Left	Away from St-1039
105		SEL09 P-2/14	St-1048																		1		Left	Away from R-3
106			St-1050									No	Yes										Right/Left	
107			St-1051																				Left	Towards St-1053
108			St-1052									Yes	No								1			
109			St-1053																		1		Left	Towads St-593
110		SEL09 P-2/15	St-1059									Yes	No										Right/Left	
111			St-1061`									Yes	Yes								1		Right/Left	
112			St-1062									Yes	Yes										Left	Towards St-1063
113			St-1057									Yes	No								1		Right/Left	
114			St-1058									Yes	No								1		Right/Left	
115			St-1056																		1		Right/Left	
116		SEL09 P-2/17	St-600								2	No	Yes								2		Right/Left	
117			St-1065								4	No	Yes										Right/Left	
118			St-1064	1							2												Right	Away from St-599
119		SEL09 P-2/18	St-1066																				Right	Towards St-599
120			St-1067									No	Yes										Right	Towards St-1068
121		SEL09 P-2/19	St-1069																		1		Right/Left	
122			St-1070								5										1		Right/Left	
123			St-1071																				Left	Away from St-1071/A
124			St-1071/A																				Right	Away from St-1071
125		SEL09 P-2/20	St-603																				Left	Away from R-3
126																								
127		SEL09 P-2/21	St-1072																				Right	Away from R-3
128			St-1074																		1			

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129		SEL09 P-2/22	St-1075																		1		Right	Towards St-1073
130			St-1073																		1			
131		SEL09 P-2/23	St-1077																		1			
132			St-1078																		2		Right/Left	
133			St-1079/A																		1		Right/Left	
134		SEL09 P-2/24	St-609								2										2		Right/Left	
135			St-610																		1			
136			St-612								1										2		Right/Left	
137		SEL09 P-2/25	St-1085									Yes	Yes								1			
138			St-1082																				Right/Left	
139			St-1083								3												Right/Left	
140			St-1084																		1		Right/Left	
141		SEL09 P-2/26	St-1086																				Right	Away from St-608
142		SEL09 P-2/27	St-1089																		3		Right	Away from St-1088
143			St-1090																				Right	Away from St-1089
144			St-1091																				Right	Away from St-1091
145			St-1088																		1		Right/Left	
146			St-1088/A																		1		Right/Left	
147			St-1092																				Left	Away from St-1088
148			St-1093				1														1		Right	Towards St-1094
149			St-1094																		1		Right/Left	
150			St-613/A	1																	4		Right/Left	
151		SEL09 P-2/28	R-23									Yes	Yes								2		Right/Left	
152			St-1098	1																			Right	Away from St-1100/A
153			St-1100																					
154			St-1100/A																				Left	Towards R-3
155			St-1096																		1		Right	Away from R-3
156			St-1097																		1		Right/Left	
157		SEL09 P-2/29	St-1101								2												Right	Toward St-1101/A
158		SEL09 P-2/30	St-619								2										1		Right/Left	
159			St-618								2										1		Right/Left	
160			St-1103/A																		1		Left	Towards St-1103/B
161																								
New Town Feeder 2																								
1	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	Cuddalore Nellikuppam Rd. (R-1)					2				No	Yes	6		Bus Stop				9			Right/Left	Towards R-1/A
2	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	R-4									No	No								1			
3	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	R-1/A									No	Yes	5									Right	Towards R-1/B
4	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	R-1/B									No	No										Right	Towards R-1/C
5	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	R-1/C	1								No	No	3		Bus Stop							Right	Towards R-1/D
6	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	R-1/D									No	No										Right	Towards R-1/E
7	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	R-1/E	1			1					No	No			1							Right	Towards R-1/F
8	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	R-1/F									No	No			1				1			Right	Towards R-1/G
9	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	R-1/G	1				7				No	No							1			Right	
10	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-1	1								No	No								3		Right/Left	Towards DTR-02
11	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-2									No	No								2		Left	Away from St-1
12	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-3									No	No								1			
13	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-4									No	Yes								1		Right	Away fom St-1
14	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-5								1	No	No								9		Right/Left	Towards DTR-06
15	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-6									No	No								3		Right/Left	
16	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-7									No	No								1		Right/Left	
17	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-8									No	No								2		Left	Towards St-1135
18	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-9									No	No								2		Right/Left	
19	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-10									No	No								3		Right/Left	Towards St-19
20	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-11									No	No								1			
21	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-13									No	No								1			
22	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-15									No	No								1			

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23	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-19									No	No								2		Right/Left	Towards St-20
24	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-20									No	No										Left	Towards St-21, towards St-1157
25	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-21								1	No	No										Left	Towards St-22, towards St-1156
26	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-23									No	No		1						1		Right/Left	Towards DTR-09
27	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-24									No	No								1		Right/Left	Towards DTR-11
28	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-26									Yes	No								1			
29	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-27									Yes	Yes								1		Right/Left	Towards St-36
30	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-36								3	No	Yes								2		Right/Left	Towards DTR-21
31	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-28								3	No	No								3		Right/Left	Towards St-33
32	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-33									No	No								1		Left	Towards St-34
33	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-34									No	No										Right/Left	Towards St-35
34	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-35									No	No								1		Right/Left	Towards DTR-25
35	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-29								2	No	No								5		Right/Left	Towards St-46
36	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-38									No	No								1	YES	Right/Left	Towards DTR-20, towards St-1220
37	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-46									No	No										Right	Towards St-45
38	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-45	1								No	No								2		Right/Left	Towards St-44
39	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-49									No	No								1		Right/Left	Towards DTR-23, towards St-1213
40	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-48									No	No								2		Right/Left	Towards St-50
41	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-44						6			No	No		1	1					7	YES	Right,Left	Right towards St-45, Left towards DTR-27
42	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-51									No	No								1			
43	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-50									No	No								2			
44	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-47									No	No								1			
45	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-41								1	No	No								1		Right/Left	Towards St-40
46	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-40									No	No								1		Left	Towards St-39, towards St-41
47	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-52									No	No								1		Right/Left	Towards DTR-32, towards R-1
48	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-53									No	Yes								1	YES	Right	Towards St-56
49	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-56									No	No								2	YES	Right/Left	Towards St-58, towards St-1292
50	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-58									No	No								1	YES	Right	Towards St-59
51	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-59									No	No										Right,Left	Righttowards DTR-45, Left towards ST-60
52	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-60									No	No								4		Left	Towards St-61
53	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-61									No	No								4		Right/Left	Towards DTR-49
54	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-62									No	No										Right/Left	Towards St-63, towards St-1311
55	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-63									No	No										Right/Left	Towards R-21, towards St-62
56	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	R-21									No	No							1			Right	Towards St-64
57	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-64									No	No								2		Right/Left	Towards St-69
58	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-67									No	No		s								Right	Towards St-68
59	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-71									No	Yes								1	YES	Right/Left	Towards DTR-62, towards St-71/A
60	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-69									No	No								1	YES	Right/Left	Towards St-70
61	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-70									No	No								1	YES	Right/left	Towards St-71.
62	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-84									No	Yes							3			Right/lLeft	Towards St-88
63	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-88									No	No								1		Left	Towards St-89
64	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-89									Yes	Yes										Right/Left	Towards St-90
65	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-90									Yes	No										Right/Left	Towards DTR-40
66	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-92				1					Yes	No								1		Right/Left	Towards St-84
67	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-93									No	No								5		Right/Left	Towards St-94
68	TANGEDCO/NARC/CUD/F2/NT/PKG2/HT	NT2 P-02/HT	St-94									No	No								1		Right/Left	Towards DTR-56
69																								
70	LT																							
71	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		R-27																				Left	Away from R-1
72	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1109																		1			
73	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1110																		1		Left	Towards St-1111
74	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1111																				Left	Away from St-1110
75	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1112																		1		Right/Left	
76	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1113																				Left	Away from St-1
77	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1116																				Left	Away from St-1
78	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1117																				Right	Away from St-1

S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
79	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01	NT2 P-02/1	St-1118																		1		Right/Left	
80	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1332																		1		Right	Away from St-1
81	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1119																		1		Right	Towards St-1120
82	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1122																		1		Right/Left	
83	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1123																		1		Right/Left	
84	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1124																				Left	Away from St-1123
85	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1121																				Right	Away from St-1
86	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1115																		1		Right/Left	
87	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT01		St-1115/A																				Left	Away from St-1115
88	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT02	NT2 P-02/2	St-1128																		1	Yes	Right/Left	
89	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT02		St-1129																		1	Yes	Right/Left	
90	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT02		St-1126																		1	Yes	Left	Towards R-1
91	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT02		St-1127																		3	Yes	Right/Left	
92	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT02		St-1130																		2	Yes	Right/Left	
93	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT02		St-1131																			Yes	Right/Left	
94	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT02		St-1130/A																			Yes	Left	Towareds St-1133/A
95	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT02		St-1133/A																		1	Yes		
96	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT03	NT2 P-02/3	St-7/A																		1		Right/Left	
97	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT03		St-8/A																		1		Right/Left	
98	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT03		St-9/A																				Right/Left	
99	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT03		St-1134																		1		Left	Away from St-9
100	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT03		St-1137																		1		Right/Left	
101	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT03		St-1135																				Left	Towards St-8
102	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT03		St-1135/A																				Right	Towards St-1136
103	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04	NT2 P-02/4	St-1147																		1		Right/Left	
104	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1146																		1		Right/Left	
105	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1148																		2		Right	Towards St-1149
106	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1149																				Right	Away from St-1148
107	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1145																		1		Right/Left	
108	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1144																		1		Right/Left	
109	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1150																				Right/Left	
110	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1333																		1		Left	Away from St-5
111	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1139																		1		Right	Away from St-5
112	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1140																				Left	away from St-1140/A
113	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1140/A																		1		Right	away from St-1140/A
114	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1141/A																		1		Left	Away from St-1141
115	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1142																		1		Right/Left	
116	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1143																				Left	Away from St-5
117	TANGEDCO/NARC/CDL/PKG-2/F2/NT/LT/04		St-1141																		1			
118	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07	NT2 P-02/5	St-12																				Right	Away from St-10
119	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-14																		1		Right	Away from St-10
120	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-16																				Right/Left	
121	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-17																				Left	Away from St-10
122	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1168																				Right	Towards St-1169
123	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1167																				Right	Towards St-12/A
124	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-12/A																				Right	Towards St-12
125	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1157																				Left	Towards St-20
126	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-20/A																		1		Left	Towards St-1163
127	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1159																		1			
128	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1158																				Left	Towards St-1160
129	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1160																				Left	Towards St-1162
130	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1161																		1			
131	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1164																				Right	Towards St-1176
132	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1165																				Left	Away from St-1164
133	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1176																				Right	Towards St-1177
134	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1177																				Right	Away from St-1176

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135	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1170/A																		1	Yes	Right/Left	
136	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1173												1						3	Yes	Right/Left	
137	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1212												1							Yes	Right	Towards St-1176
138	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1171																				Right	Towards St-1170/A
139	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1151												1							Yes		
140	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1152												1						2	Yes	Right/Left	
141	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1153												1							Yes	Left	Away from St-25
142	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1154	1											1						1	Yes	Right/Left	
143	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-25												1						1	Yes	Right/Left	
144	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1174												1						2		Right/Left	
145	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1175												1								Left	Towards St-1175/A
146	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1175/A												1								Left	Away from St-1175
147	TANGEDCO/NARC/CDL/PKG-2/F-2/NT/LT/07		St-1155																		1			
148		NT2 P-02/6	St-1335/B																		1		Right/Left	
149			St-1335/A																		1		Left	Towards St-1179
150			St-1180				1																Right/Left	
151			St-1180/A																				Right	Towards St-1182
152			St-1187																		1		Right/Left	
153			St-1182																		1		Right/Left	
154			St-24/A																				Left	Towards St-1186
155			St-1183																		1		Right/Left	
156			St-1184																				Right	Away from St-1186
157			St-1185																				Left	Away from St-1186
158			St-1186																				Left	Towards St-1185
159			St-1335																		1			
160		NT2 P-02/7	St-1188																		1		Left	Away from R-1
161			St-83																		1			
162		NT2 P-02/8	St-1204																				Right	Away from R-1
163			St-1202																				Right	Towards St-1201
164			St-1203																		1		Left	Away from St-1202
165			St-1201																		1		Right	Towards R-1
166			St-1200																		1			
167			St-1199																		1			
168		NT2 P-02/9	St-45/A																				Left	Towards St-45/A
169			St-1210																				Right	Towards St-1210/A
170			St-1211																		1			
171		NT2 P-02/10	St-1213																		1		Right	Away from St-49
172			St-1214			1															1			
173		NT2 P-02/12	St-1217																		1		Right	Away from St-29
174			St-1218																		1		Right/Left	
175			St-1219																				Right	Away from St-1218
176			St-46/A																		1		Right	Towards St-46
177			St-1216																		1		Right	Away from St-1216/A
178			St-1216/A																		1		Left	Away from St-1216
179		NT2 P-02/13	St-1220																		1			
180			St-1221																		1			
181		NT2 P-02/14	St-1224																		1			
182			St-1223																		1		Right	Away from St-28
183			St-1227																		1		Left	Towards St-1228
184			St-1228																				Left	Away from St-1227
185			St-1229																				Right/left	
186			St-1230																		1		Right/left	
187			St-1231																		1		Right/left	
188			St-1232																		1		Left	Towards St-1234
189			St-1233																		1		Right/left	
190			St-1240																				Right	Towards St-1242

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191			St-1236/A																		1		Right/left	
192			St-1236																				Left	Away from St-1236/A
193			St-1235																				Right	Away from St-1236
194			St-1234																		1			
195			St-1234/A																				Right	Towards St-1237/A
196			St-1237/A																				Right	Towards St-1237
197			St-1242																		1		Left	Towards St-38
198		NT2 P-02/15	St-1248																				Right	Away from St-27
199			St-1246																				Right	Towards St-1246/A
200			St-1245																				Left	Away from St-27
201		NT2 P-02/16	St-1257																				Right	Away from St-35
202			St-1256																		2		Left	Away from St-35
203			St-1250																		1		Right/Left	
204			St-1251																		1		Left	Away from St-1250
205			St-1252																		1		Right	Away from St-1250
206			St-1253																		1			
207			St-1258																				Left	Towards St-1260
208			St-1260																				Left	Towards St-1261
209			St-1261																				Left	Away from St-1260
210		NT2 P-02/17	St-1269																		1		Right	Away from St-44
211			St-1268																				Right	Away from St-44
212			St-57																		3		Right	Away from St-44
213			St-42																		5		Right/Left	
214			St-1267																				Right	Away from St-1267/A
215			St-1267/A																		1		Right	Towards St-44
216			St-1336																		1		Left	Away from St-44
217			St-1264																				Right	Towards St-1263
218			St-1264/A																		1		Left	Away from St-42
219			St-43																				Right	Towards St-1263
220			St-43/A																		1		Left	Away from St-43
221			St-1265																				Right	Away from St-1265/A
222			St-1265/A																		1		Right/Left	
223			St-1266																		1		Right	Away from St-1265/A
224			St-1263/A																				Right	Towards St-1263/B
225			St-39																				Right	Away from St-43
226			St-1262																				Right	Away from St-40
227		NT2 P-02/18	St-1270																		1		Right/Left	
228		NT2 P-02/19	St-1271																				Left	Away from St-1271/A
229			St-1272/A																		1		Right	Towards St-1272
230		NT2 P-02/20	St-1337																				Left	Away from St-1337/A
231			St-1337/A																		1		Right	Away from St-1337
232		NT2 P-02/22	St-1280																				Left	Towards St-1281
233			St-1279									Yes	No								1		Right	Towards St-1281
234			St-1338																		1		Left	Away from St-1279
235			St-1278									Yes	No								1		Right/Left	
236			St-1277									No	Yes								1		Right	Away from St-92
237			St-1275																		1		Right	Away from St-92
238			St-1276																				Left	Towards St-1276/A
239			St-1276/A									Yes	No										Right	Away from St-1276
240			St-1274																				Left	Away from St-92
241			St-1285																		2			
242			St-1283																		1		Left	Away from St-92
243			St-1284									No	Yes										Right	Away from St-92
244			St-1282									Yes	Yes								1		Right	Away from St-92
245		NT2 P-02/24	St-54																		1	Yes	Right/Left	
246			St-53									Yes	No								5		Right/Left	

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247		NT2 P-02/25	St-1287																		3		Left	Away from St-53
248			St-1288																		2		Right	Away from St-1287
249			St-1286																				Right	Away from St-60
250		NT2 P-02/26	St-1290																		1		Right/Left	
251			St-59/A																		1		Right/Left	
252			St-1291																		1			
253			St-1290/A																				Right	Towards St-1290/B
254			St-1290/B																				Right	Towards St-1290/A
255		NT2 P-02/27	St-1292																				Left	Away from St-56
256		NT2 P-02/28	St-1339																				Right	Towards St-1294
257			St-1293																		1		Right	Away from St-1339
258		NT2 P-02/29	St-1295																				Left	Away from St-61
259			St-1298																				Right	Away from St-61
260			St-1297																				Left	Away from St-61
261			St-1296																		1			
262		NT2 P-02/30	St-1301																				Right	Towards St-1302
263			St-1302																		1		Left	Away from St-1301
264			St-1300																		1			
265		NT2 P-02/31	St-1303																		1		Right	Away from R-1
266		NT2 P-02/32	St-1305																		1		Left	Away from St-1305/A
267			St-1305/A																				Right	Away from St-1305
268			St-1304																		2		Left	Towards R-1
269		NT2 P-02/33	St-1310																		1			
270			R-28																	1			Right/Left	
271			St-1306/A																		1			
272			St-1306																		1		Left	Away from R-1
273			St-1307																		1		Right/Left	
274			St-1308																		1		Right/Left	
275			St-1309																		1		Right	Away from St-1308
276		NT2 P-02/35	R-29																				Right	Towards St-1314
277			St-1314																		1		Right	Away from R-29
278			St-1313																		1		Right/Left	
279		NT2 P-02/36	St-68																		3		Right/Left	Towards St-1319
280			St-1319																				Left	Towards St-1318
281		NT2 P-02/38	St-71/A									No	Yes										Right	Away from St-71
282		NT2 P-02/39	St-65																		1		Right/Left	
283			St-66																		2		Right/Left	
284			St-1324																		1		Right/Left	
285			St-1325																				Left	Towards St-64
286			St-1326																		1		Right/Left	
287			St-1327									No	Yes								1		Right/Left	
288			St-1328									Yes	Yes								1		Right/Left	
289		NT2 P-02/40	St-1330									No	Yes								2		Left	Towards St-1329
290			St-1331									Yes	Yes										Right/Left	
New Town Feeder 6																								
1	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	R-4									No	No								2		Right/Left	Towards R-2
2	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	R-2	1	1							No	No			1				5		Yes	Right/Left	Towards St-136
3	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	R-2/A		1				1			No	No			1				3			Right/Left	Towards St-195
4	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-151				2	1				No	No								3		Right/Left	Towards DTR-07
5	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-95									No	Yes								2		Right/Left	Towards St-129
6	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-129									Yes	Yes								5		Right/Left	Towards R-3/A
7	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	R-6	1				1	1			No	No							4			Right	Towards R-3/A
8	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-95/A									No	Yes								1		Right	Towards St-96
9	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-125/A									No	No										Right	Towards DTR-74
10	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-96									Yes	No								1		Left	Towards St-97
11	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-97									No	No										Left	Towards DTR-76

S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
12	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-97/A									Yes	No										Right	Towards St-99
13	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-99									Yes	No										Left	Towards St-100
14	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-100									No	No										Left	Towards St-98
15	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-100/A									No	No										Right	Towards St-104
16	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-104				1					No	Yes								1		Right	Towards DTR-80
17	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-107									No	No								1			
18	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-104/A									No	No										Right	Towards St-119
19	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-119									Yes	No										Right	Towards DTR-83
20	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-115									Yes	No										Left	Towards DTR-84
21	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-119/A									Yes	No										Left	Towards DTR-88
22	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-153									No	Yes										Right	Towards DTR-89
23	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-159									No	Yes										Right	Towards St-163
24	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-163									No	Yes										Right	Towards DTR-92
25	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-166									No	No								1		Right	Towards DTR-91
26	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-122									No	No										Right	Towards St-125
27	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-125									No	No										Right	Towards DTR-94
28	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	R-3/A				1					No	No							1			Right,Left	
29	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-133	1								No	Yes			1					2		Right/Left	Towards DTR-63
30	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	R-3	1	1				3			Yes	Yes							11			Right/Left	Towards R-5
31	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	R-3/B	1					2			No	No							1			Right	Towards St-146
32	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	R-5						5			Yes	No							1			Right/Left	Towards DTR-10
33	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-167					3				Yes	No								2		Right/Left	Towards St-168
34	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-168									No	No								1		Left	Towards DTR-17
35	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-169									Yes	No										Left	Towards DTR-13
36	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	R-1					3				No	Yes							4			Right,Left	
37	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-146					1				No	No			1					1	Yes		
38	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-139									Yes	No								2	Yes	Right/Left	Towards DTR-47
39	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-140	1	1							Yes	Yes								5	Yes	Right/Left	Towards St-141
40	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-141									Yes	Yes										Left	Towards DTR-40
41	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-143					1				Yes	Yes								1	Yes	Right/Left	Towarfds St-33/A
42	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-143/A									Yes	Yes								1		Right/Left	Towards DTR-34
43	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-144									No	No									Yes	Left	Towards DTR-28
44	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-136				1					Yes	No										Right/Left	Towards DTR-53
45	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-138									No	No								2	Yes	Right/Left	Towards R-2
46	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-52									No	No								1			
47	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-103									No	No								1		Right	Towards DTR-79
48	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St116									No	No								1			
49	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-117									No	No								1			
50	TNEB/NARC/CDL/NP/HT	NT2 F-6/HT	St-118									No	No								1			
51																								
52	LT																							
53		NT2 F-6/3	St-812																		1		Right/Left	
54		NT2 F-6/4	St-813																		1		Left	Away from St-813
55			St-814																				Left	Away from St-151
56		NT2 F-6/5	St-169/A	1								Yes	No								1		Right/Left	
57			St-170																				Left	Away from St
58			St-169/B									Yes	No										Right/Left	
59		NT2 F-6/8	St-815																				Right	Away from St-143
60		NT2 F-6/9	St-820									Yes	No										Right/Left	
61			St-822									No	Yes										Right	Towards St-823
62			St-821/A																		1		Right/Left	
63			St-821									Yes	No										Right/Left	
64			St-824									No	Yes										Right	St-821/A
65			St-816									Yes	Yes										Right/Left	
66			St-817	1								Yes	Yes										Right/Left	
67			St-818																				Right/Left	

S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
68			St-818/A									Yes	No										Left	Away from St-818
69		NT2 F-6/11	St-827									Yes	No										Left	Away from St-140
70			St-826									No	Yes								1		Right/Left	
71			St-828																		1		Right/Left	
72		NT2 F-6/12	St-142									No	Yes								2		Right/Left	
73			St-832																		1			
74			St-830																				Left	Aw ay from St-142
75		NT2 F-6/13	St-834																		1		Right/Left	
76			St-835																		1			
77		NT2 F-6/14	St-836																		1		Right/Left	
78			St-140/A									Yes	Yes										Right/Left	
79			St-839																		1		Right/Left	
80			St-840									Yes	Yes								1			
81			St-837									No	Yes										Left	Away from St-838
82			St-838									No	Yes										Right	Away from St-837
83		NT2 F-6/15	St-845									No	Yes								1		Right/Left	
84			St-846																		1			
85			St-848																				Right	Away from St-845
86			St-150				1					Yes	No											
87		NT2 F-6/16	St-853																		1		Right/Left	
88			St-854																		1		Right/Left	
89			St-850																		1		Right/Left	
90			St-851																				Right	Away from St-850
91			St-149				1																Right/Left	
92		NT2 F-6/17	St-857																				Left	Towards St-857/A
93			St-858																		1		Right	Away from St-857
94		NT2 F-6/18	St-137																		1		Right/Left	
95		NT2 F-6/19	St-134																		3		Right	Away from R-3
96			St-861																				Right/Left	
97			St-863																				Right/Left	
98			St-865				1																	
99		NT2 F-6/20	St-866																		1		Right/Left	
100			St-868																		1		Right	Away from St-136
101			St-869																		1		Right/Left	
102			St-867									Yes	No								1			
103		NT2 F-6/21	St-871																				Right/Left	
104			St-873																				Right/Left	
105			St-872	1																			Right/Left	
106			St-889																		1			
107		NT2 F-6/22	St-132																		1			
108			St-874																				Right	Away from R-3
109		NT2 F-6/23	St-875																		1		Right/Left	
110			St-876																		1			
111		NT2 F-6/24	St-878																				Left	Towards St-879
112			St-879																				Left	Away from St-878
113			St-880																		1			
114		NT2 F-6/25	St-131																		1		Right/Left	
115		NT2 F-6/27	St-884									Yes	Yes								1		Right/Left	
116			St-883									Yes	Yes								1		Right/Left	
117			St-881																		1			
118			St-882	1																			Right/Left	
119		NT2 F-6/28	St-885																		1		Right/Left	
120			St-888	1																			Right	Away from St-95
	New Town Feeder 8																							
1	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	Anna Stadium Rd. (R-8)																				Left	Towardsa R-2
2	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	Judge Bungalow Rd. (R-7)				1													1			Right	Towards DTR-91

S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
3	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	Beach Rd. R-2)		1				1			Yes	Yes							2			Left	Towards R-7
4	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	Beach Rd. R-2/B)									Yes	Yes	3						1			Right	Towards St-191
5	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-187									No	Yes								1	YES	Left	Towards St-188
6	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-188																			YES	Right,Left	
7	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-187/A									No	Yes									YES	Right	Towards St-189
8	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-189																				Right	Towards DTR-99
9	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-186																		1			
10	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-2/C	2																			Right	Towards R-2/D
11	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-2/D	1			1													1			Left	Towards R-2/E
12	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-2/E														1			2			Right	Towards R-2/F
13	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-2/F																	2			Right,Left	
14	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-2/G				2													2			Left	Towards R-2/G
15	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-2/H																	1			Left	Towards R-9
16	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-9																				Right	Towards R-2/E
17	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-257																		1		Left	Towards DTR-47
18	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-10									No	Yes								2		Right/Left	Towards St-309
19	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-288									Yes	Yes								1		Right/Left	Towards R-12
20	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-12									Yes	No								2		Right/Left	Towards R-11
21	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-11	2								Yes	No								4		Right/Left	Towards R-12/A
22	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-307																		1			
23	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-308																		2		Right/Left	
24	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-12/A									Yes	No										Right	Away from R-11
25	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-309									No	Yes								2		Right	Towards St-309/A
26	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-309/A																				Left	Towards DTR-23
27	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-301									No	Yes										Left	Towards St-302
28	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-298																		1	YES	Right	Towards DTR-20
29	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-299																			YES	Left	Towards DTR-20
30	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-302									Yes	No										Right	Towards DTR-14
31	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-303									Yes	No										Right	Towards DTR-13
32	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-305																				Left	Towards DTR-08
33	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-306																		1			
34	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-304																		1			
35	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-6	2																	2		Right,Left	
36	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-6/A																		1		Left	Towards R-6/B
37	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-6/B	1					1												1		Right	Towards R-6/C
38	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-6/C	1							7	Yes	No										Left	Towards R-6/D
39	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-6/D														1						Left	Towards R-6/E
40	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-6/E				1														1		Right	Towards R-6/F
41	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-6/F	1																	1		Left	Towards DTR-68
42	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-182																		1			
43	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-195																		2		Left	Towards St-196
44	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-196								5												Left	Towards St-197
45	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-197	1																			Left	Towards St-202
46	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-198																		1			
47	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-200																		1			
48	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-202																		1			
49	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-203																		1			
50	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-204																		1			
51	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-206																		1			
52	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-207																		1			
53	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-210																		1			
54	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-212																				Right	Towards St-44
55	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-213																				Right	Towards R-6/E
56	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-215	1																	1			
57	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-216																		1			
58	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-218																		1			

S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
59	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-219																		1			
60	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-220						1		2												Left	Towards St-64
61	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-222																		1			
62	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-225																		1			
63	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-229																		1			
64	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-230																		1	YES		
65	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-231												1							YES	Right	Towards DTR-63
66	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-232												1							YES	Left	Towards DTR-73
67	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-232/A												1							YES	Right	Towards DTR-72
68	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-233	1																			Right	Towards St-65
69	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-234																				Right	Towards St-66
70	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-235																		1		Right	Towards St-78
71	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-310																		1	YES	Left	Towards DTR-84
72	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-237																		1			
73	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-239																		1			
74	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-241																		1			
75	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-243																		1			
76	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-245																		1			
77	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-247																		1			
78	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-248																		1			
79	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-250																				Left	Towards DTR-87
80	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-251																				Right	Towards DTR-85
81	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-235/A																				Left	Towards DTR-88
82	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-7				1													3			Right/Left	Towards DTR-91
83	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-7/A									No	Yes									YES	Right,Left	
84	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-8									No	Yes										Left	Towards R-6
85	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-173																		1			
86	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-174																		1			
87	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	St-175																		1			
88	TANGEDCO/NARC/CUD/F8/NT/PKG2/HT	NT2 F-8/HT	R-2		1							Yes	Yes							2			Right	Towards R-2/B
89																								
90	LT																							
91		NT2 F-8/1	St-798																		1		Right/Left	
92			St-289/A																		1			
93			St-289																		1		Right/Left	
94			St-797																		1			
95			St-287																		1		Right/Left	
96			St-293									Yes	No											
97			St-294																				Left	Away from R-11
98			St-796									Yes	Yes										Right	Away from St-307
99			St-802																		1			
100			St-801																		1		Right/Lerft	
101			St-793																				Left	Towards St-800
102		NT2 F-8/2	St-120																				Left	Away from St--119
103			St-119																		1		Right/Lerft	
104			St-275	1																	1		Right/Lerft	
105			St-806																				Right/Lerft	
106			St-120/A																				Right/Lerft	
107			St-804																		1		Right/Lerft	
108			St-805																		2		Right/Lerft	
109			St-119/A																				Left	Away from St--119/B
110		NT2 F-8/3	St-810																				Left	Towards St-811
111			St-811																		1		Right	Towards St-812
112			St-812																				Right	Away from St-811
113			St-808																				Right	Towards St-809
114			St-809																				Right	Away from St-808

S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
115			R-2/A																				Left	Away from R-2
Manjakuppam Feeder 7																								
1	MKM5 P-01/HT,MKM7 P-01/HT,MKM7 P-01/1	MKM7 P-01/HT	ST-360				1		4		6			7							6		RIGHT/LEFT	Towards ST-351
2		MKM7 P-01/HT	R-25																	1			RIGHT	Towards R-26
3		MKM7 P-01/HT	R-26						2											2			RIGHT/LEFT	Towards ST-360
4		MKM7 P-01/HT	R-29						2		6										1		RIGHT/LEFT	Towards ST-390
5		MKM7 P-01/HT	ST-390																		1		LEFT	Towards ST-391
6		MKM7 P-01/HT	ST-391																				LEFT	
7		MKM7 P-01/HT	ST-392																				RIGHT	
8		MKM7 P-01/HT,MKM7 P-01/4	ST-394																		4		RIGHT/LEFT	Towards ST-395
9		MKM7 P-01/HT,MKM7 P-01/4	ST-395								3		YES								1		RIGHT	
10		MKM7 P-01/HT,MKM7 P-01/4	ST-397																		1		RIGHT/LEFT	Towards ST-398
11		MKM7 P-01/HT	ST-398																				RIGHT	Towards ST-399
12		MKM7 P-01/HT	ST-399																				LEFT	Towards ST-404
13		MKM7 P-01/HT	ST-404																		2		RIGHT/LEFT	Towards ST-403
14		MKM7 P-01/HT	ST-403																				RIGHT	Towards ST-402
15		MKM7 P-01/HT	ST-402																				RIGHT	
16		MKM7 P-01/HT,MKM7 P-01/4	ST-396										YES								2		RIGHT/LEFT	Towards ST-407
17		MKM7 P-01/HT,MKM7 P-01/4	ST-407																		4		RIGHT/LEFT	Towards ST-409
18		MKM7 P-01/HT	ST-409																				LEFT	Towards ST-410
19		MKM7 P-01/HT	ST-410																				RIGHT	
20		MKM7 P-01/HT	ST-411																				LEFT	Towards ST-412
21		MKM7 P-01/HT	ST-412																		1		RIGHT	
22		MKM7 P-01/HT,MKM7 P-01/4	R-29/A						1		5		YES							2	2		RIGHT	Towards ST-415
23		MKM7 P-01/HT,MKM7 P-01/4	ST-415																		2		RIGHT	
24		MKM7 P-01/HT	ST-389				1		1												1			Towards ST-387
25		MKM7 P-01/HT	R-28						2											1			RIGHT/LEFT	Towards ST-408
26		MKM7 P-01/HT	ST-408/A						4												5		RIGHT/LEFT	Towards ST-442/A
27		MKM7 P-01/HT	ST-442/A																		1		RIGHT/LEFT	Towards ST-437
28		MKM7 P-01/HT	ST-437																		1		RIGHT/LEFT	
29		MKM7 P-01/HT	ST-442																		1		LEFT	Towards ST-443
30		MKM7 P-01/HT	ST-410/A																				RIGHT	
31		MKM7 P-01/HT	ST-412/A																		1		RIGHT	
32		MKM7 P-01/HT	ST-416/A																		3		RIGHT/LEFT	
33		MKM7 P-01/HT	ST-418																				LEFT	
34		MKM7 P-01/HT	ST-422																		2		RIGHT/LEFT	
35		MKM7 P-01/HT	ST-423																		1			
36		MKM7 P-01/HT	ST-426																		1		LEFT	Towards ST-429
37		MKM7 P-01/HT	ST-429																		1		RIGHT	Towards ST-424
38		MKM7 P-01/HT	R-27																	1			RIGHT/LEFT	Towards ST-444
39		MKM7 P-01/HT	ST-444																		1		RIGHT	Towards ST-445
40		MKM7 P-01/HT	ST-445																				LEFT	Towards ST-446
41		MKM7 P-01/HT	ST-446																		2		RIGHT	Towards ST-450
42		MKM7 P-01/HT	ST-450																				LEFT	Towards ST-452
43		MKM7 P-01/HT	ST-452								3												RIGHT/LEFT	Towards ST-453
44		MKM7 P-01/HT	ST-453																				RIGHT	
45		MKM7 P-01/HT	ST-447																		2		RIGHT/LEFT	Towards ST-448
46		MKM7 P-01/HT	ST-448				1		1												1		LEFT	Towards ST-449
47		MKM7 P-01/HT	ST-454/A																		1		RIGHT	Towards ST-464
48		MKM7 P-01/HT	ST-464																		1		RIGHT	Towards ST-465
49		MKM7 P-01/HT	ST-465																		1		RIGHT	Towards ST-468
50		MKM7 P-01/HT	ST-468						1		2												LEFT	Towards ST-469
51		MKM7 P-01/HT	ST-469																				RIGHT	Towards ST-470
52		MKM7 P-01/HT	ST-470																				LEFT	Towards ST-472
53		MKM7 P-01/HT	ST-472																				LEFT	Towards ST-475
54		MKM7 P-01/HT	ST-475																		1		RIGHT	

S.NO	DRAWING NO.	MAP SHEET NO.	STREET NO.&Name	TEMPLE	CHURCH	MOSQUE	SCHOOL	HOSPITAL	VENDORS	VENDORS NAME	RAMPS	DRAINS		TREES	DENSE AREA	HIGH ACTIVITY AREA	MAJOR RIVER CROSSING	RIVER/CANAL CROSSING	RAILWAY CROSSING	MAJOR ROAD CROSSING	MINOR ROAD/STREET CROSSING	ROAD CUTTING (YES/NO)	CABLE TRENCH (LEFT SIDE, RIGHT SIDE)	ROAD REFERENCE
55		MKM7 P-01/HT	ST-476																				LEFT	Towards ST-480
56		MKM7 P-01/HT	ST-480																				LEFT	Towards ST-481
57		MKM7 P-01/HT	ST-481																				LEFT	
58		MKM7 P-01/HT,MKM7 P-01/3	ST-466																		2		RIGHT/LEFT	Towards ST-467
59		MKM7 P-01/HT,MKM7 P-01/3	ST-467																		2		RIGHT/LEFT	
60		MKM7 P-01/HT,MKM7 P-01/2	ST-454						1		2		YES								6		RIGHT/LEFT	Towards ST-456
61		MKM7 P-01/HT,MKM7 P-01/2	ST-456								6										4		RIGHT/LEFT	Towards ST-456/A
62		MKM7 P-01/HT	ST-456/A																		1		RIGHT/LEFT	Towards ST-463
63		MKM7 P-01/HT	ST-462																		1		RIGHT	
64		MKM7 P-01/HT	ST-463																				RIGHT	Towards ST-460
65		MKM7 P-01/HT	ST-460																		1		RIGHT	Towards ST-452
66		MKM7 P-01/HT	ST-452/A						2												2		RIGHT	Towards ST-433
67		MKM7 P-01/HT	ST-433																				RIGHT	
68		MKM7 P-01/HT	ST-483																		2		LEFT	Towards ST-486
69		MKM7 P-01/HT	ST-486																				RIGHT	
70		MKM5 P-01/1	ST-355										YES								2		RIGHT/LEFT	
71		MKM5 P-01/1	ST-572	1							3		YES								1		RIGHT/LEFT	
72		MKM5 P-01/1	ST-573								2		YES								2		RIGHT/LEFT	
73		MKM7 P-01/1	ST-574						1				YES										LEFT	
74		MKM7 P-01/1	ST-575				1														1			
75		MKM7 P-01/1	ST-388				1						YES										LEFT	Towards ST-576
76		MKM7 P-01/1	ST-576						1														RIGHT	
77		MKM7 P-01/1	ST-578										YES			YES					2		RIGHT/LEFT	
78		MKM7 P-01/2	ST-580																		1		RIGHT/LEFT	
79		MKM7 P-01/2	ST-581																		1		RIGHT/LEFT	
80		MKM7 P-01/4	ST-583										YES											
81		MKM7 P-01/4	ST-408								3												RIGHT/LEFT	Towards ST-417
82		MKM7 P-01/4	ST-417																		1		RIGHT/LEFT	
83		MKM7 P-01/4	ST-586																				LEFT	
84		MKM7 P-01/4	ST-588																				RIGHT	
85		MKM7 P-01/4	ST-414										YES										RIGHT/LEFT	
86		MKM7 P-01/4	ST-413																				LEFT	

Annexure 3 - Public Consultation Meeting at Cuddalore

Enclosure 1
Minutes of Meeting

Minutes of Public Hearing Meeting held on 30.09.2015 @ 10.30Hrs. in "Vanniyar Thirumana Mandapam" Cuddalore regarding CDRRP.

The public hearing meeting was conducted by N-Arc, under the presidency of the District collector Thiru. S. Sureshkumar, IAS., on 30.09.2015.

The Superintending Engineer, Cuddalore Electricity Distribution Circle/Cuddalore welcomed all the participants. Superintending Engineer gave a brief speech about the CDRRP scheme.

A slide show was arranged to show the extent of damages occurred due to Thane Cyclone on 30.12.2011 & how it was restructured by mobilizing the TANGEDCO staff from all over the state.

Further, the benefits of conversion of the OH lines to UG cables were

explained

1) How the damages can be avoided during natural disaster.
2) How accidents can be avoided.
3) How the narrow street will appear after laying UG cables.
4) Traffic hindrances will be avoided due to erection of UG cable.
5) Interruption of supply will be reduced can considerably.
6) How environment is safeguarded, by chance of growing more trees, which has to be cleared if OH line exists.

Revenue District Officer

Gave a speech on how the CDRRP scheme is more important and by implementing the scheme, electrical accidents, interruption can be avoided and requested that the public should Co-operate for the implementation of the scheme.

Cuddalore, Municipal Chairman

He requested to implement the project area by area (i.e) to complete the work fully in one area and then to go for the other to avoid hindrance to public.

N-Arc consulting: Team leader Mr.Tikko expressed that the survey process was done for 7 months. By implementing the conversion of OH lines to UG cables, the supply would be more reliable and people would not be affected by the disaster if any in future.

Also the town would become more beautiful, secure and safe. The project is implemented by the financial support of World Bank, so as to reduce the risk during the disaster.

Further, explained the RMS ring main system, by which if supply interruption occurs in one DT it would be given by alternative routes.

By implementing the project OH line cut can be avoided, so that accident can be avoided.

Also, theft of energy will be avoided.

Line loss in OH line transmission will be avoided and also reduced.

Also, safety & reliable power supply is possible.

The proposed UG line will be designed after considering the existing TWAD, PWD, highways BSNL & other private communication networks.

By the implementation of the scheme indirect employment is also possible. He requested the public to Co-operate while implementation of project.

He requested the public organization to raise their doubts.

1) Thiru. M. Nizamudeen, General Secretary Tamil Nadu Consumer Federation (GSTFET)

    a) What is the impact of project on environment.

    b) What safety aspect is provided when water logs occurs during rainy season.

    c) How far it would create hindrance to the public while implementation.

    d) The project may be handed over to some NGO's, so that the fault in the scheme may be rectified.

2) Thiru. Balasubramaniyan, District Co-Ordinator Federation Consumer Organization, Nellikuppam

He emphasized that the red paint may be laid on the places where the UG cable runs so as to alert the public on safety aspect.

3) Thiru. Raj Mohan, FEDCOT

He raised the doubt about the area of implementation of project. Whether the project is implemented in whole district or in coastal area of Cuddalore or Cuddalore Town. The scheme should have been implemented earlier. Since, Thane has taken place nearly 4 years ago.

NGOS may be included in the scheme.

4) Thiru. Arulselvam, Tamil Nadu Consumer Education and Development Foundation (TAMCED-Foundation)

Raised a doubt whether the technical feasibility report has been given on social environment assessment.

5) Thiru. Manokaran, Manjakuppam

1) How the damages like road cuts, done during the implementation will be restored.
2) How other networks line, breakage water lines, communication lines damages will be avoided.

6) Thiru. Venkatramakrishnan, Fed cot- Joint Secretary

Whether the encroachment will be cleared and the cables will be laid or the cables will be laid in the middle of the road.

7) Thiru. Ganesan, Koothapakkam Angeragan Consumer Saftey Organisation

Whether the cables used for laying in underground would resist the natural calamities, disaster (or) it would create accidents.

8) Thiru. Harikrishnan

UG sewage system not yet completed in Cuddalore and public are facing hindrances. Hence the hindrance to public should be reduced.

9) Thiru. Globe: CPI

The detailed project should be given to the political parties, public organization etc.,. It should be clear.

10Thiru. Kumaran: CONFET

The cable used should be of all the international standards. So that it public will not be affected by electricity.

11) Thiru. Sadupalli:

The trenches may be dug manually and not using machineries and the work should be completed within 4 years.

12) Thiru. R.Elangovan: MSSRF

Standards of laying cables should be followed. Concrete structures should be used.

SPEECH GIVEN BY DISTRICT COLLECTOR

Cuddalore District is more affected by the natural disasters. Whenever the natural calamities occurs, in our state Cuddalore is more affected. So, as a precautionary measure in order to reduce the damages, the CDRRP project is implemented in Cuddalore.

Electricity has become a part of people if there is no electricity, people is affected immediately as water supply is affected. Cuddalore people have realized more during “Thane” how electricity is more important & how employees of TANGEDCO all over Tamilnadu came over to Cuddalore to restructure the network.

So, in order to avoid the above situation, with the help of World Bank Fund of Rs.218 crores, over head lines are converted to underground cables. This is done in Cuddalore Town and Cuddalore coastal areas.

The survey of network has been completed.

In this project, 7 feeders in Cuddalore town emanating from Semmankuppam SS, Capper Hills SS and Nathapattu SS are to be converted into UG cables.

This project will be implemented at time of less public movement and during night hours. Also, in the places of schools, colleges & worship places, safety measures would be considered. Environment will not be affected.

During the implementation of project the public will be informed through press news, about the project. Hence public may render their co-operation during the implementation of the project.

Explanation given by TANGEDCO Officials:

The CDRRP project is implemented in Cuddalore coastal areas and Cuddalore Town.

This project is implemented in 7Nos 22 KV feeders with 33Kms of HT line and 1300Km LT lines.

The project is implemented in 3 phases in the following feeders.

1) Pentesia 22KV
2) Vandipalayam 22KV
3) Suthukulam 22KV
4) Cuddalore-NT 22 KV
5) Manjakuppam 22KV
6) Alpettai 22KV
7) Suthukulam 22KV

This project is implemented to avoid damages during natural disaster, to avoid interruption, to avoid electrical accidents and to avoid human loss.

While implementation the area where project work is done will be informed to public through newspapers.

Road cut, water line damages occurs if any the rectification works will be carried out by TANGEDCO or its contractor.

Other Department help are required during implementation of project. OH lines will be removed only after confirmation of successful project completion.

Explanation given by N-Arc about the project:

1) Survey work has been done completely and report to be submitted for review of TANGEDCO.

2) The proposed network has been framed after considering the existing networks of water works, communication sewage system and highways so as to avoid hindrances during implementation.

3) The UG cable will be laid 1.2 meters below the ground in trenches.

4) RMS Ring Main System would be provided so as to provide alternate supply in interruption period.

5) Barriers would be provided in the places of work.

6) Cleanliness would be maintained.

7) Safety precautions will be educated to people under work.

8) Environmental social management plan will be framed.

9) Damages like road cut, water line breakages will be rectified by contractor.

10) Insulation level will be more. UPC duct will be provided in road crossing.

List of participants:

1. Thiru. S.Sureshkumar I.A.S,District Collector, Cuddalore District, Cuddalore
2. Tmt. Umamageshwari, R.D.O., Cuddalore
3. Thiru. Kumar, Municipal Chairman, Cuddalore
4. Er. N.Sivanandam Superintending Engineer /CEDC/Cuddalore
5. Er.G.Kamaraj, Executive Engineer/O&M/Cuddalore

All AEEs/O&M of Cuddalore Division
All AEs, JEs/O&M of Cuddalore Division
Representatives of Consumer Organisation
Stake holders and Public.

Superintending Engineer
CEDC/Cuddalore

Annex 4
Enclosure 2

Public notice for public Awareness programme invitation by TANGECO Cuddalore

தமிழ்நாடு மின் உற்பத்தி மற்றும் பகிர்மான கழகம்
கடலூர்

M/s. N Arc - New Delhi

விழிப்புணர்வு கூட்ட அழைப்பிதழ்

நாள்: **30-09-2015 புதன்கிழமை** காலை 10.30 மணியளவில்
இடம்: **வன்னியர் திருமண மண்டபம்,** போடிச்செட்டித் தெரு, திருப்பாதிரிபுலியூர், கடலூர்-2.

அன்புடையீர்! வணக்கம்.

"தானே புயல் பாதிப்பினை கருத்தில் கொண்டு தமிழக அரசின் உத்திரவின் அடிப்படையில் தமிழ்நாடு மின் உற்பத்தி மற்றும் பகிர்மான கழகத்தால் கடலூர் நகரப்பகுதிகளுக்கு தற்போது மேல்நிலை மின்பாதைகள் மூலம் வழங்கப்படும் மின் விநியோகத்தை புதைவட மின்பாதைகளாக **(Under Ground Cable)** மாற்றி அமைத்து மின்விநியோகம் வழங்க அனுமதிக்கப் பட்டுள்ளது.

இது குறித்து சுற்றுச்சூழல் மற்றும் சமூக விழிப்புணர்வு கூட்டம் வரும் **30-09-2015** அன்று காலை 10.30 மணிக்கு கடலூர், திருப்பாதிரிப்புலியூர், போடிச்செட்டித் தெரு, **வன்னியர் திருமண மண்டபத்தில்** மதிப்பிற்குரிய திரு. **சீ.சுரேஷ்குமார்** கடலூர் மாவட்ட ஆட்சித்தலைவர் அவர்கள் தலைமையில் புதைவட அளவைப்பணி மேற்கொண்டு வரும் புதுடெல்லியை சேர்ந்த **"என் ஆர்க் நிறுவனம்"** மூலம் விழிப்புணர்வு கூட்டம் நடத்தப்பட உள்ளது.

இந்த விழிப்புணர்வு கூட்டத்தில் ஆர்வமுடன் கலந்து கொண்டு தங்களின் மேலான கருத்துக்களை தெரிவிக்குமாறு அன்புடன் கேட்டுக்கொள்கிறோம்.

இங்ஙனம்,
பொறிஞர். **ந.சிவானந்தம்,** M.E.,MBA.,M.I.E.,
மேற்பார்வை பொறியாளர்
கடலூர் மின் பகிர்மான வட்டம்,
கடலூர்.

குணா கார்ட்ஸ், கடலூர்-1. போன்: 04142-232632.

Annex: 4
Enclosure: 3

Appreciation & Suggestion letter from Cuddalore district consumer & environment welfare protection sangam.

மரம் நடுவோம் !

சுற் று சுழலை பாதுகாப்போம் !

கடலூர் மாவட்ட நுகர்வோர் மற்றும் சுற்றுச் சூழல் நல பாதுகாப்பு சங்கம்

CUDDALORE DISTRICT CONSUMER & ENVIRONMENT WELFARE AND PROTECTION SANGAM

பதிவு எண் : 30/2006/Cud. (அரசியல் சார்பற்றது)

மாவட்ட அலுவலகம் :15,T.N.C.S.C.நகர், கோண்டூர் அஞ்சல், கடலூர்-607 006. போன்: 04142-225564

மாவட்ட தலைவர்	மாவட்ட செயலாளர்	மாவட்ட பொருளாளர்
திரு.கே.எஸ்.ஜக்கரியாஸ்	திரு.இரா.சாரங்கபாணி, பி.ஏ.	திரு.கோ.சாயிராம், பி.ஏ.

மாவட்ட துணைத்தலைவர்கள்
எம்.கே.பாண்டித்துரை
வி.திருஞானசேகர்
வி.சந்திரசேகரன்

மாவட்ட இணைச்செயலாளர்கள்
ஜி.ரவிச்சந்திரன்
இரா.இராதாகிருஷ்ணன்
கே.நாராயணன்

சங்க ஆலோசகர்
கோ.சேகர்

நிகழ்ச்சி ஒருங்கிணைப்பாளர்
இரா.சுந்தரமூர்த்தி

செயற்குழு உறுப்பினர்கள்
வா.சா.திலகம், எம்.பி.ஏ
பி.எத்திராஜலு
கே.இராதாகிருஷ்ணன்
கே.இராஜேந்திரன்
எஸ்.ஞானசேகரன்
எஸ்.பாபு
டி.தமிழ்ச்செல்வன், பி.ஏ
கே.கோபாலகிருஷ்ணன்

தேதி 30-9-2015

பெறுநர்

மாவட்ட ஆட்சித்தலைவர் அவர்கள்,
கடலூர் மாவட்டம்,
கடலூர் - 607001.

அன்புடையீர் வணக்கம் !

பொருள் : கடலூர் வட்டம் - மின்பகிர்மான கழகம் - மேல் நிலை மின்பாதை - புதைவடமாக மாற்றி அமைத்தல் சம்பந்தமக.

பார்வை : கடலூர் மின்பகிர்மானக்கழக கடித எண் ஆ.எண் 613 / 15 நாள் 23-9-2015.

கடலூர் நகர்ப்பகுதிகளுக்கு **UNDER GROUND CABLE** வழியாக மின்விநியோகம் செய்யப்படுவது வரவேற்க வேண்டிய நிகழ்வாகும். இதன்மூலம் ஏற்கெனவே வீசிய தானே புயல்,மற்றும்சுனாமி போன்று பிற்காலங்களில் பாதிப்பு ஏற்படுமாயின் அதன்மூலம் பாதிக்கப்படுவது தடுக்கப்பட்டு, பாதுகாக்கப்படுவார்கள், என்பது எல்லோரும் ஏற்கும் உண்மையாகும். மின்விநியோகத்தில் வழித்தட இழப்பு தற்பொழுது இந்தியாவில் 30 விழுக்காடாக உள்ளது, அது தவிர்க்கப்பட்டாலே, மின் அதிகரிப்பு விழுக்காட்டை சமாளித்து மின்தட்டுப்பாடு இல்லாத நாடாகமாறிவிடும். எனவே கடலூரில் மேற்படி மின்வழித்தடங்களில் ஏற்படும் இழப்புகள் இந்த முறை மூலம் நிவர்த்தி செய்யப்படுமானால் அதன் மூலம், மின் தடைகள் நேரம் குறைய வாய்ப்புகள் உள்ளது.

-2

Annex: 4
Enclosure: 3

மேலும் மேற்படி மின்விநியோக முறையில் பழுது ஏற்படுமாயின், தற்பொழுதுள்ள முறையில் உடனுக்குடன் மின்பகிர்மானக் கழகம் சரி செய்வது போல, தரைக்கு கீழ் செல்லும் மின் விநியோகத்தின் மூலமும் மின்சாரப் பழுதுகள் சரி செய்வதற்கு உரிய நவீனமுறைகளை கையாண்டு, நிர்வாகம் நடவடிக்கை மேற்கொண்டு பொதுமக்களிடையே தொடர்ந்து நன்மதிப்பை பெறவேண்டும், என எங்களது சங்கத்தின் சார்பாக அன்புடன் கேட்டுக்கொள்கிறேன்.

இடம் : கடலூர்,

நாள் : 30-9-2015.

இவண்,
மாவட்ட சங்க நிர்வாகிகள் சார்பாக,

30/9/15

இரா.சாரங்கபாணி, M.E.
செயலாளர்
கடலூர் மாவட்ட நுகர்வோர் மற்றும்
சுற்றுச்சூழல் நல பாதுகாப்பு சங்கம்,
பிரதிநிதி : கடலூர் மாவட்ட நுகர்வோர் குறைதீர் நீதிமன்றம்
Email : sarangapanik@yahoo.com
No.15, T.N.C.S.C. நகர்,
கோண்டூர் அஞ்சல், கடலூர்-607 002, தமிழ்நாடு.

Annex 4 . A. Excerpts of the consultation meeting Cuddalare			
PLACE - CUDDALORE			DATE: 01/10/2015
S.No	Name	Suggestion / Question	TANGEDCO / NARC Reply
1	Mr.Nizamudhien	Describe about the safety measures and enviromental effect while executing the project. Public having problem while executing the drainage work so take necessary action to avoid such impacts in this project. Explain about the cable route identification and safety measures. Only 30% of people called for this fuction, invite more people for awareness program. Already underground system available in chennai and take the survey of difficultities in this system and avoid the such items here.	We had collected information and safety measures in this first stage of scheme and ensuring the execcute the project without public disturbance. We had distribute the our Environmental and Social highlighted points for your ready reference, every 100mtr. cable mark identification shall be available and trench depth is maximum 1.2mtr. and underground cabling is safety and same system available in chennai. Environmental and Social experts are collected the details and this will incorporate in their report and also PMU consultant also ensure the same.
2	Mr.Bala Subramanian	Cuddlore is cyclone affected area and we are welcoming this project for our area. Execute the project without public disturbance and after installing the cable mark the identification marl in that route and explain about the	Thanks for your appreciation and support. We shall provide cabke route marker in complete cable route with 100mtr. Interval and we had considered the public saftey and minimize the disturbance.

Annex 4 . A. Excerpts of the consultation meeting Cuddalare			
PLACE - CUDDALORE			DATE: 01/10/2015
S.No	Name	Suggestion / Question	TANGEDCO / NARC Reply
3	Mr.Maruthavaanan	There will be the chance to increase the sea level upto 2 feet and chance to sea water will reach upto 1/4kM fro the present level. Provide concrete / GI pipe while cable depth more than 3 1/2 feet. Consider all this in this scheme.	Thanks for your suggestion and we will incorporate the same in our report. We shall consider concrete / GI / DI pipe for road crossing and railway crossing with spare. Our cable trench is maximum 1.2 Mtr and buried cable trench.

Annex 4 . A. Excerpts of the consultation meeting Cuddalare

PLACE - CUDDALORE DATE: 01/10/2015

S.No	Name	Suggestion / Question	TANGEDCO / NARC Reply
4	Mr.Ramkumar	We are expecting this project from the Tamilnadu Honourable Chief Minister announced in assembly. As per your statement survey works completed in 6 months and work will be start on after 6 months. Cyclone may come any time so we request you to execute the scheme as much possible. In cuddlore, monsoon period will start this month and you consider all those thinks and execute the work. Explain the area covered in this scheme. In last SE meeting, TANGEDCO told survey works not completed but now you are telling work completed. Provide the correct information. Endowment committee cost to be added in your report.	Thanks for your suggestion. We initimated the field workshad completed and draft report submitted to TANGEDCO for comments. We shall speedup the work as much possible. This scheme covers cuddlore town and coastal area with seven areas electrical line. It covers 333kM HT line and 1300 LT line. Presently we designed the cable route without distrubting the other public services by the coordination with other departments and damages will be immediately recovered by TANGEDCO / Contractor.We had consider the Endowment committee cost also.

Annex 4 . A. Excerpts of the consultation meeting Cuddalare			
PLACE - CUDDALORE			DATE: 01/10/2015
S.No	Name	Suggestion / Question	TANGEDCO / NARC Reply
5	Mr.Kannan	Prepare environmental and social plan for analysing the public affects. In the time of execution, display the Engineer / Incharge contact number and details then public sahll be contact them if there is inconvenience.	Thanks for your suggestion. We had prepared the Enviromental & Social report by our experts and we shall submit the same. We shall incorportare your suggestion in our report and in the time of execution, contractor shall display the company and work incharge details in working place.
6	Mr.Manimaran	We are welcoming this project. We have to consider the reduce the he social cost and it is less than project cost. Provide the escape plan from the time of cyclone and describe action to be taken by the officers and public.	Thanks for your suggestion and support. Now only survey works are completed and necessary arrangement to be taken in the next stages. We shall incorporate your suggestion in our report.

Annex 4 . A. Excerpts of the consultation meeting Cuddalare			
PLACE - CUDDALORE			DATE: 01/10/2015
S.No	Name	Suggestion / Question	TANGEDCO / NARC Reply
7	Mr.Thirumalavanan	We have bad experience in the other public service trenches. Due to improper backfilling, public have disturbance while travelling and explain about the project execution by area wise or complete cuddlore in the same time.	Thanks for your suggestion. Contractor shall execute the project package wise also area wise and backfilling shall be done properly after cable laying with considering avoid public day to day activities. Already telephone, water and drainage lines are going underground and this is challenge to do our execution wiithout disturbing the other public service and we request your support while execute the project.

Annex 4 . A. Excerpts of the consultation meeting Cuddalare			
PLACE - CUDDALORE			DATE: 01/10/2015
S.No	Name	Suggestion / Question	TANGEDCO / NARC Reply
8	Mr.Ganesan	We are welcoming this project. we have doubt on the saftey of the underground cabling system while road crossing, bridge crossing and feasibility of the cable in cyclone.	Thanks for your suggestion and support. Underground cabling is more safer compared to Overhead, we had proposed pipes for road crossing ,railway crossing and bridge crossing. We had proposed our cable trench depth is 1.2Mtr and consider the safety measures in this system.
9	Mr.Baskar	Execute the work as much possible, consider the raining sesason and backfilling s to be done without delay.	Thanks for your suggestion and we shall consider the same.
10	Mr.Rajan	We are welcoming this project and circulate the plan details to welfare organization for execute project in proper manner and in time.	Thanks for your suggestion. In this first stage we had completed survey works and we shall execute the project with considering technical experts and welfare organization ideas and completing the project as much earlier.

Annex 4 . A. Excerpts of the consultation meeting Cuddalare			
PLACE - CUDDALORE			DATE: 01/10/2015
S.No	Name	Suggestion / Question	TANGEDCO / NARC Reply
11	Mr.Periyasamy	We are welcoming this project and execute the project with fully transperant and international standards.	Thanks for your suggestion. We had consider the international standards and client specification.
12	Mr.Ramanujam	Maximum consider the manual excavation and backfilling to be completed as much possible.	Thanks for your suggestion. We had consider the same.
13	Mr.Maruthamuthu	In chennai and pondichery, no electrical line in the raining season and town has neat look. In the same reason we are welcoming the project here.	Thanks for your suggestion and supoort.

Enclosure 5

Lists of participants attended

"மக்கள் விழிப்புணர்வு கூட்டம்"
கடலோர பேரழிவு இடர்புகள் குறைப்பு திட்டம்.
Coastal Disaster Risk Reduction Project (CDRRP)
இடம்: வன்னியர் திருமண மண்டபம், கடலூர்
நாள்: 30.09.2015 நுகர்வோர் வருகைப்பதிவேடு.
நேரம்: காலை 10.30 மணி

வ.எண்	பெயர்	நுகர்வோர் அமைப்பின் பெயர்	கையொப்பம்
1.	ராமலிங்கம். செயலாளர். 9843884867	நுகர்வோர் சட்ட விழிப்புணர்வு பெருக்கம் ... பாதுகாப்பு ...	R. Ra[illegible]
2.	R. ஆரோக்கியசாமி மாநில தலைவர் 9442274892	கடலூர் நுகர்வோர் ... சங்கம் 15, TNCSC ரோடு, கோண்டூர் கடலூர் - 607006	[illegible]
3.	T. Sambandam SRS, Cuddalore.		T. Sambandam
4.	S. RAMESH BABU MA MEd MPhil FEDCOT–Director Education.	Fedcot Education Director.	[signature] 30/9/15
5.	M. Vengadalakshmi[illegible]	Fedcot Joint Secretary	M.V[illegible]
6.	M. Muthukrishnan	No.70, Muthusamy nagar Kondur	M. Murug[illegible]
7.	S. Elangovan MSSRF Cell: 94865 15790	DATA Community Hall Salangaikarar Street Parangipettai Cuddalore Dist– PIN – 608 502	[signature]
8.	தி. திலகமோகன் FEDCOT cell: 93456 44052	FEDCOT	தி.[illegible]

வ.எண்.	பெயர்	நுகர்வோர் அமைப்பின் பெயர்	கையொப்பம்.
9.	R. சுரேந்திரன் நுகர்வோர் உரிமைகள் வார்டு - 29. N.K. ராஜா	நுகர்வோர் உரிமைகள் E.B. wiring Contractor.	R Suri N.K. Raj
10.	P. வடிவேல் தலைவர் வார்டு. 9.	திருமலை நகர் [illegible]	P. Vadivel
11	[illegible] [illegible] தலைவர் நகர் வார்டு - 28	[illegible], கடலூர்.2	[illegible]
12.	[illegible] [illegible] நுகர்வோர் பாதுகாப்பு சங்கம்	[illegible] நுகர்வோர் பாதுகாப்பு சங்கம்	S. Ra[illegible]
13.	K [illegible]	" [illegible] நுகர்வோர் பாதுகாப்பு சங்கம்	K[illegible]
14.	C. Krishnan Asst. Manager Maintenance Kaniman Pharma SIPCOT, Cud.	C. K.rishnan	C. Krishnan
15.	M. NIZAMUDEEN Genl Secy Tamilnadu Consumer Federation (CONFED) No. 72. [illegible] Nagar [illegible]	Consumer Federation Tamilnadu (CONFED)	[illegible]

வ.எண்	பெயர்	நுகர்வோர் அமைப்பின் பெயர்	கையொப்பம்
16.	T. AROLSELVAM. 9443737134	Tamilnadu Consumer Education & Development Foundation (TAMCEDO-FOUNDATION)	[signature]
17.	Dr. R. Karthik General Secretary 7667667600	Tamilnadu Consumer protection & human rights organization Cuddalore.	[signature]
18.	J. Santhakumar 9786453111 HT.SC.NO: 65	Loyal Super Fabrics, C-7/1 Sipcot Complex Kudikadu Cuddalore-5	[signature]
19.	R. Velayudham 9566317866 HT.SC.NO. 77	Pomer's Juillie Semman Kuppam Cuddalore-5.	[signature]
20	P. Govindasamy 9345451139	[illegible]	[signature] "
21	R. Ganesan	[illegible]	[signature]
22.	G. [illegible]	"	[signature]
23	R. Balasubramani	District Co-ordinator Fed Cons Orgn. Nellikuppam 9952597471.	
24	S. Thirunavukkarasu.	Consumer Organisation. Nellikuppam. 7639352842	S. Thirunavukkarasu

வ.எண்:	பெயர்	நுகர்வோர் அமைப்பின் பெயர்	கையொப்பம்.
25.	R. SIVAKUMAR All Consumer and Environ. Organisation Thiruppapuliyur - 9994049170	ACAEO.	R. [signature]
26.	N. CHANDHARSEKAR	ACAEO	N. [signature]
27.	P. [illegible] 9789751433.	[illegible]	P. [signature]
28	S.D. POONGUNDRAN SUDHAN POWER TECH 9842352095	SUDHAN POWERTECH	[signature]
29	M. Murugan DEE_TNPCB	—	[signature]
30.	S. RAMDOSS	[illegible]	[signature]
31	M. Arjunan Electrical Superintendent Cuddalore Municipality		[signature]
32.	V. [illegible] CPI [illegible]	[illegible] (CPI.)	V. [signature]
33	[illegible]		[signature]

வ.எண்	பெயர்	நிறுவனம் அலுவலின் பெயர்	கையொப்பம்
34.	[illegible]		
35	R. [illegible]	[illegible]	[illegible]
36	S. Chandra Sekaran	[illegible]	[illegible]
37	V.S. Kumaran.	CONFET.	V.S. Kumaran
38	D. Arulperumjothi	Fire Service	[illegible]
39.	[illegible]	[illegible]	[illegible]
40	[illegible]	[illegible]	[illegible]
41.	D [illegible]	[illegible]	[illegible]
42	K. [illegible]	[illegible]	[illegible]
43	G. T. [illegible]	DINAMALAR (CNS)	[illegible]
44	[illegible]	[illegible]	[illegible]
45	[illegible]	[illegible]	[illegible]
46.	B. Vijayakumar	AEE / TWAD Bd	[illegible]
47	S. [illegible]	AE / [illegible]	

Annex 4
Enclosure 6

Constructing Underground cable with safety.
Requested in awareness meeting

2 தினமணி விழுப்புரம் கடலூர்

புதைவட மின் பாதைகளை பாதுகாப்புடன் அமைக்க வேண்டும்

கருத்துக்கேட்பு கூட்டத்தில் வலியுறுத்தல்

கடலூர் திருப்பாதிரிப்புலியூரில் நடைபெற்ற புதைவட மின்பாதை அமைக்கும் பணி குறித்த விழிப்புணர்வுக் கூட்டத்தில் பேசுகிறார் ஆட்சியர் எஸ்.சுரேஷ்குமார்.

மதுக்கடையால் மோதல்

மாணவர்களிடமிருந்து சட்ட விழிப்புணர்வு தொடங்கப்பட வேண்டும்

In Cuddalore underground electrical cable: Public consultation programme

1,10,420 ஆண் வாக்காளர்கள் சிதம்பரம் சட்டசபை தொகுதியில் உள்ளனர்.

1,11,192 பெண் வாக்காளர்கள் சிதம்பரம் சட்டசபை தொகுதியில் உள்ளனர்.

2 திருநங்கைகள் புவனகிரி சட்டசபை தொகுதியில் உள்ளனர்.

கடலூரில் பூமிக்கடியில் மின் கேபிள்: பொதுமக்களிடம் கருத்து கேட்பு கூட்டம்