TATA CONSULTING ENGINEERS LIMITED

LODHA DWELLERS PRIVATE LIMITED



PLANNING AND DETAIL ENGINEERING OF INFRASTRUCTURE FOR DEVELOPMENT OF 590 ACRES OF LAND UNDER DEVELOPMENT AT PALAVA NEAR DOMBIVALI

SITE SELECTION NOTE FOR SOLID WASTE PROCESSING FACILITY

MAY 2013

REVISION STATUS SHEET

Issue	Date	Title	Prepared By (TCE)	Checked By (TCE)	Approval By (LODHA Dwellers)
R0	16-05-2013	Site selection note for solid waste processing facility	VRP, DDG	AK	

Revision Notes:-

R0- Preliminary Site Selection Note on solid waste processing facility

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ABBREVIATIONS

MOEF	-	Ministry of Environment & Forest
SEAC	-	State Environment Appraisal Committee
T	-	Tonnes
TCE	-	Tata Consulting Engineers

PRELIMINARY NOTE – SITE SELECTION PROCESS FOR SOLID WASTE PROCESSING FACILITY

1 INTRODUCTION

Lodha Dwellers Private Limited (Lodha) has appointed Tata Consulting Engineers Limited (TCE) to provide consulting engineering services for the "Planning and Detail Engineering of Infrastructure for development of 590 acres of land development".
In addition to above project, Lodha has also requested for TCE's services for the planning and detail engineering of a common solid waste processing plant for the Phase 1 (250 acres of 1A - Casa Bella and 1B - Casa Rio) and Phase 2 (590 acres Palava).

1.1 Background

The proposed solid waste management scheme for Palava includes primary source segregation at apartment level, building-wise collection and transport to secondary storage in community bins (590 acres site), collection and transport to designated common off-site processing plant for Phase 1 (250 acres) and Phase 2 (590 acres). This processing plant will include a transfer station for disposal of inerts to the nearest municipal regional landfill. This scheme is subject to availability of Kalyan-Dombivali landfill in initial phases and Taloja landfill facility by ultimate phase.

1.2 Solid Waste Generation

The Palava solid waste processing plant is planned for Phase 1 (Casa Bella and Casa Rio) as well Phase 2 (Palava 590 acres). The phasing of solid waste generation to be processed by this facility in provided in **Table 1-1**.

Table 1-1: Solid waste generation at Palava Phase 1 & 2

Year	2013	2014	2015	2016	2017	2018	2023	2029
Palava (T/day)								
Bio-degradable Waste (T/day)	0.00	0.00	0.00	4.45	11.11	22.63	63.72	110.29
Recyclable (T/day)	0.00	0.00	0.00	3.19	7.98	16.04	42.09	79.17
Landfill (T/day)	0.00	0.00	0.00	1.07	2.68	5.45	15.04	26.58
Palava (T/day)	0.00	0.00	0.00	8.75	21.87	44.32	121.39	217.00
Phase 1A T/day								
Bio-degradable Waste (T/day)	2.16	4.99	7.44	8.35	8.35	8.35	8.35	8.35
Recyclable (T/day)	1.73	4.00	5.97	6.70	6.70	6.70	6.70	6.70
Landfill (T/day)	0.64	1.47	2.19	2.45	2.45	2.45	2.45	2.45
Phase 1A T/day	4.55	10.51	15.67	17.58	17.58	17.58	17.58	17.58
Phase 1B T/day								

Year	2013	2014	2015	2016	2017	2018	2023	2029
Bio-degradable Waste (T/day)	0.93	4.00	8.06	10.80	11.04	11.04	11.04	11.04
Recyclable (T/day)	0.75	3.21	6.47	8.67	8.86	8.86	8.86	8.86
Landfill (T/day)	0.27	1.18	2.37	3.18	3.25	3.25	3.25	3.25
Phase 1B T/day	1.96	8.43	16.98	22.75	23.26	23.26	23.26	23.26
GRAND TOTAL (T/day)	**6.52**	**18.93**	**32.65**	**49.08**	**62.71**	**85.16**	**162.23**	**257.84**

1.3 Space Requirement of Palava Processing Plant

The approximate space requirement for the processing plant is about 15 acres. A maximum layout of 20 acres may be required based on site specifics.

2 GENERAL SITE SELECTION GUIDELINES

The general guidelines to be followed are listed below:

(i) Flat or mild slope
(ii) In higher elevation with respect to surrounding catchment – should not be prone to flooding.
(iii) Approach road of minimum 18 m ROW or two lane carriage way so that traffic is not obstructed in the event of breakdown of incoming compacters.
(iv) Convenient location between Palava and Taloja Landfill site (for disposal of inerts only).
(v) Space for green belt of trees planted all along the periphery of the site to be considered to serve as barrier for noise, odour, wind, dust and pollutants.

3 LOCATION CRITERIA

It is expected that certain location criteria may be specified by the SEAC committee during EIA clearance of the township which will need full compliance. In the absence of specific requirements, the following criteria are proposed. This is summarized in **Appendix 1**.

3.1 Unstable Zone

Location should not be in potentially unstable zones such as landslide prone areas, fault zone.

3.2 Critical Habitat Area

Location should not be constructed within critical habitat areas. A critical habitat area is defined as the area in which one or more endangered species live. The regulatory agency needs to be contacted if this needs to be verified.

3.3 Coastal Regulation Zone

Location should not be sited in a coastal regulation zone.

3.4 Wetlands

Location should not be constructed within designated wetlands.

3.5 Ground Water Table & Potable well

3.5.1 Location should not be constructed in areas where water table is less than 2 m below ground surface. Special design measures are to be adopted, if this cannot be adhered to.

3.5.2 Location should not be constructed within 500 m of any down gradient potable water supply well.

3.6 Flood Plain

Location should be above the 100 year flood plain (above high flood level). Location may be within the flood plains of secondary streams if an embankment is built along the stream side to avoid flooding of the area.

3.7 Natural Lake or Pond

150 m clearance is preferable from any natural water body such as lake or pond.

3.8 River or Stream

200 m clearance is preferable from a navigable river or stream (natural). The distance may be reduced in some instances for non meandering rivers but a minimum of 30 m should be maintained in all cases.

3.9 Highway

Location should preferably not be within 200 m of the right of way of any state or national highway for aesthetic reasons only. If adequate green belt, tree cover and landscaped berms are provided, 50 m clearance is considered adequate.

3.10 Habitation

Location should preferably be at least 500 m from a notified habitated area. Minimum of 200 m clearance from no development buffer zone may be considered adequate.

3.11 Public parks

Location should preferably not be within 250 m of a public park. Screening, high security fence and a secured gate will be required if within this zone.

4 WORK PLAN FOR SITE SELECTION

4.1 Search Area

A ‘search radius’ of 5 km all around the Palava boundary is advisable. Proximity to Taloja facility should be given priority.

4.2 Potential Sites

After demarcating the search area, sites having space availability and fulfilling the general guidelines are to be identified and screened for the location criteria. A road map may be prepared to show the potential sites that satisfy the location criteria.

Preliminary data collection should be undertaken where required information may not be available. In areas where land availability is scarce, degraded sites such as abandoned quarry sites or old waste dump sites can be considered. Special design measures are required for such sites.

4.3 Data Collection

General data required for screening of potential sites is indicated below:

4.3.1 Toposheets

The topography of the area will indicate the depressions, natural surface water drainage pattern, streams, and rivers. Toposheets may be procured from Survey of India.

4.3.2 Land Use Plans

These plans are to be procured from respective municipality/ town planning division for verification of restrictions on the use of agricultural land or on the use of forest land.

4.3.3 District ground water profile

To be procured from local CGWB.

4.3.4 Rainfall Data

The rainfall data for the region should be collected from Indian Meteorological Department.

4.3.5 Wind Map

The predominant wind direction and velocities should be collected from the Indian Meteorological Department.

4.3.6 Seismic Data

Seismic zone of sites to be identified.

4.4 Site Walk-Over and Establishment of Ground Truths

A site reconnaissance is to be conducted by a site walk-over as a part of the preliminary data collection. Features observed in available data will be confirmed. Additional information pertaining to the following will be ascertained from nearby inhabitants:
(a) flooding during monsoons (b) soil type (c) depth to G.W.T. (as observed in open wells or tube wells) (d) quality of groundwater and (e) Depth to bedrock.

4.5 Preliminary Field Investigation

At selected site, geo-technical investigation for verification of following information will be obtained: (i) soil type and stratification; (ii) permeability of each strata (iv) ground water level and quality and (v) depth to bedrock.

In addition to preliminary boreholes, geophysical investigations (electrical resistivity / others) may be undertaken to assess the quality of bedrock at different sites.

4.6 Final Site Selection

The final selection of the site will be based on:

- Environmental impact;
- Social acceptance
- Transportation cost & site specific mitigation costs

Transportation costs may be compared on the basis of average hauling distance from the centre of the waste generating unit (city or part thereof) and disposal to municipal landfill. Site specific costs are uncertain in site selection stage. Requirement of liner system, leachate collection system, ground monitoring will need to be flagged as added costs.

Appendix 1: Site Suitability Criteria for Solid waste processing facility

Criteria	Suitability Classes		
	Highly Suitable	**Moderately Suitable**	**Less Suitable**
Water Bodies	200 m distance	150 m distance	100 m distance
Natural Drainage	300 m distance	200 m distance	100 m distance
Socio-Cultural Institutions Community Centre, Club etc.	250 m distance	150 m distance	100 m distance
Educational Institutions	1 km distance	750 m distance	500 m distance
Healthcare Facilities	1 km distance	750 m distance	500 m distance
Land Use: Settlement Area	1 km distance	750 m distance	500 m distance
Land Use: Commercial Area	1 km distance	750 m distance	500 m distance
Land Use: Agricultural Land	500 m distance	300 m distance	100 m distance