



Planning and Estimation of an ITPARK

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ABSTRACT:

Kadapa is the developing city day by day but many people are going for software jobs to cities all over India. So we are planning for this IT Park so that we can improve the IT sector in Kadapa. Kadapa city is connected with Airport, railway station, bus stations and Kadapa is also having well connected road networks. Kadapa is also having outer ring road connecting all the important junctions outside the city. So the Government needs to establish a well-planned IT Park near the ring road in this city. So we are planning a proposed IT PARK NEAR Rayachoti – Pulivendula ring road near Sakshi Paper Office. This place is free from all the pollutions and has a pleasant climate and all the facilities will be very near to the proposed site. This site is 5 km away from the airport, 5 km away from the Railway Station, 6 km distance from the bus stand. We are planning the park in 11.19 acres of land in this proposed site. We are having plenty of government land. So it is better to plan this IT Park in this place.

1. INTRODUCTION:

Kadapa city is growing day by day in our Andhra Pradesh. As it is rapidly developing, the industries in the city are very important. From an economic point of view, if a factory is constructed at a far distance from the city, it will be cheaper and residents can live peacefully without any external polluted sources. Having peaceful surroundings is the main point of view of most of the people in today's lifestyle. So we are going to plan and estimate for the proposed IT PARK near Rayachoti-Pulivendula ring road by providing infrastructure development, i.e. roads, compound wall, drains, electricity, bore well facility etc., which are basic needs

for industrialists who are planning to run an industry in a long term without affecting the surrounding city. We will plan, estimate, and determine the basic requirements needed for the IT Park. We will check the pollution aspects and design this IT Park far away from the city. We will prepare a layout for 52.76 acres, and we will provide roads up to 16.24% of the total land, open spaces up to 10%. We also provide 5 roads according to the plan and estimate for roads and drains. We will provide culverts required for the required road junctions, provide dividers for main roads as per plan, provide electricity.

1.1 DETAILS OF IT PARK

Facilities

With its own sewage treatment facility, water reservoir, deep wells, and an adequate drainage system

- Open spaces dedicated to greenery
- Fully landscaped green strips
- Time to travel is cut short via its access to north and south roads. Cross roads also connect to major road networks that allow access to the airport in 20 minutes and the railway station in 10 minutes
- A 15-minute drive from numerous residential subdivisions, academies and golf courses
- Underground telecommunications system with multi-server duct lines and fiber optic capability
- Underground power cables, high voltage switch gears and transformers using 33 kV lines connected to 2 main power grids
- 33 kV, 3-phase power supply
- Pad-mounted switch gears and a substation
- Main Roads - 30 m road right of way
- Secondary Roads - 30 m road right of way
- Fully secured area perimeter



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- Uniformed security guards 24x7
- Police support from the City (Ckdinne station at moolavanka)

Spaces:

I.T. Park is awake 24 hours, bustling with people enjoying breaks from work and bracing walks through the park.

Drainage:

Drainage is the process of interception and removal of water from over, and under the vicinity of the road surface. Drainage can be surface (where water is conveyed on the road surface and drainage channels), or subsurface (water flows underneath the pavement structure).

1.2 SIGNIFICANCE OF THE PROJECT:

The outcome of this project shall help to propose the lay out for the new side drainage in order to fulfill its requirements as a drainage, such as to drain off excess water on shoulder and pavement edge which cause considerable damage and improve pedestrian safety using side walk ways near side drainage.

Methodology:

- Site visiting
- Visiting web sites and Internet
- Literature review
- Questionnaire method
- Photographing
- Leveling

Approach of the Project work:

Kadapa is the developing city day by day but many people are going for software jobs to cities all over India. So we are planning for this IT Park so that we can improve IT sector in Kadapa. Kadapa city is connected with Airport, railway station, bus stations and Kadapa is also having well connected road networks. Kadapa is also having outer ring road connecting all the important junctions outside city.

So Government need to establish well planned IT Park near ring road in this city. So we are planning proposed IT PARK NEAR Rayachoti – puivendula ring road near Jaya Raj garden, this place is free from all the pollutions and pleasant climate and all the facilities will be very near to the proposed site. This site is 5 km away from airport, 5 km away from Railway station, 6 km distance from bus stand. We are planning it Park in 52.76 acres of land in this proposed site we are having plenty of government land. So it is better to plan this IT Park in this place.

2. LITERATURE REVIEW

Shobha, m. N.; krishne gowda and mahendra b. Infrastructure for information technology Industry in bangalore city information technology (IT) industry is playing a pivotal role in the making of Indian Cities. Infrastructure facilities are needed in the rapidly growing IT industry. The city of Bangalore is also getting to be considered as a one-stop-solution for all corporate IT needs. As Bangalore is an internationally recognized destination for technology-related investment, properly planned IT parks should be present for the investors to plug, play, live and learn. Necessary infrastructure facilities should be provided for the efficient operation of the industry. The present major IT hubs are facing problems of crumbling infrastructure, environmental pollution, traffic congestion, increasing cost of living and a tired workforce. The main theme of this paper is to discuss the physical and social infrastructure facilities present in Bangalore and in the present IT hubs.

Meenakshi Rajeev 1 B. P. Vani Direct and Indirect Benefits of Business Process Outsourcing on Indian Economy With the development of information technology (IT), computers and telecom networks based services are playing a significant role in many developing economies. Business process outsourcing (BPO) industry is a product of this revolution. Growth of the BPO industry has helped the economies of many developing countries, especially in Asia, and India is

prominent amongst them. Unlike the software industry, BPOs (though are export oriented) do not demand highly skilled labor. Therefore, the industry has played a major role.

3. IT PARK REQUIREMENTS

3.1 TYPES OF DRAINAGE

SUBSURFACE DRAINAGE

Subsurface drainage is concerned with the interception and removal of water from within the pavement. Some of the sources of subsurface water include; infiltration through surface cracks, capillary rise from lower layers, seepage from the sides of the pavement to mention but a few.

SURFACE DRAINAGE:

Surface drainage deals with arrangements for quickly and effectively leading away the water that collects on the surface of the pavement, shoulders, slopes of embankments, cuts and the land adjoining the highway.

MEASURES ADOPTED FOR SURFACE DRAINAGE:

- The proper cross slope should be provided for both to pavement and shoulders
- The subgrade should be sufficiently above the highest level of ground water table or the natural ground level
- Side drainage should have to be provided at edges of right-of-way where the road is in embankment and the edge of the roadway in cutting
- On hill roads, water may flow towards the road depending on the slope and rainfall
- Catch water drains should be provided to intercept the flow down.

COLLECTION OF SURFACE WATER:

The water collected is lead into natural channels or artificial channels so that it does not interfere with the proper functioning of any part of the highway.

Surface drainage must be provided to drain the precipitation away from the pavement structure.

DESIGN OF SURFACE DRAINAGE:

- Hydrological analysis
- Hydraulic analysis

Hydrological analysis:

This deals mainly with precipitation and runoff in the area of interest. When rainfall, which is the main source of water, falls onto an area some of the water infiltrates into the soil while the remaining portion either evaporates or runs off. The portion that remains as runoff is the one of major importance in the design of surface drainage facilities.

Determination of runoff:

Runoff at a particular point is determined with respect to a given catchment area and depends on a number of factors such; type and condition of the soil in the catchment, kind and extent of vegetation or cultivation, length and steepness of the slopes and the developments on the area among others. The following formula known as the rational formula is used for calculation of runoff water for highway drainage.

$$Q = 0.028CIA$$

Where: Q is maximum runoff in m³ per sec

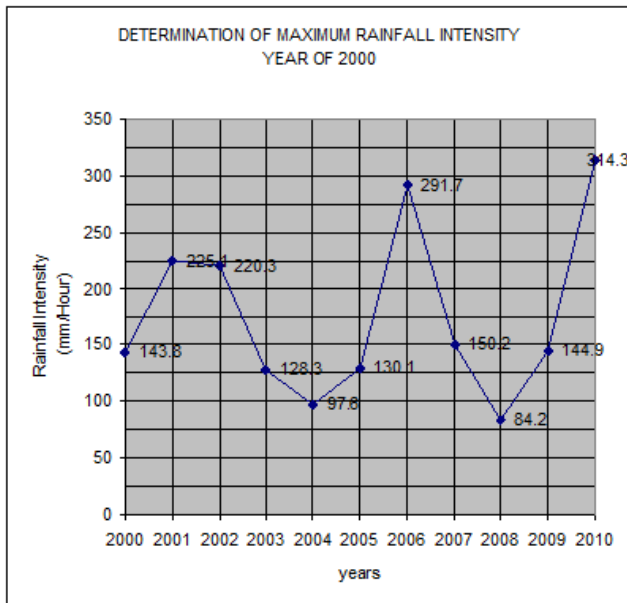
C is a constant depending upon the nature of the surface

I is the critical intensity of storm in mm per hour occurring during the time of concentration.

A is the catchment area in km²

Note; - From the rainfall intensity –duration-frequency curves the rainfall I is found in mm/sec. Corresponding to duration T and frequency of return period The required depth of flow in the drain is calculated for convenient bottom width and side slope of drain. The actual depth of the open channel drain may be increased slightly to give a free body.

The hydraulic mean radius of flow R is determined. The required longitudinal slope S of the drain is calculated using Manning formula adopting suitable value of roughness coefficient.



3.2 STREET LIGHT:

A street light, lamppost, street lamp, light standard, or lamp standard is a raised source of light on the edge of a road or walkway, which is turned on or lit at a certain time every night. Modern lamps may also have light-sensitive photocells to turn them on at dusk, off at dawn, or activate automatically in dark weather. In older lighting this function would have been performed with the aid of a solar dial. It is not uncommon for street lights to be on poles which have wires strung between them, or mounted on utility poles.

3.3 ROADS:

A **road** is a thoroughfare, route, or way on land between two places, which has been paved or otherwise improved to allow travel by some conveyance, including a horse, cart, or motor vehicle. Roads consist of one, or sometimes two, roadways (British English: carriageways) each with one or more lanes and also any associated sidewalks (British English: pavement) and road verges.

Roads that are available for use by the public may be referred to as public roads or highways. **Concrete** surfaces (specifically, Portland cement concrete) are created using a concrete mix of Portland cement, coarse aggregate, sand and water. In virtually all modern mixes there will also be various admixtures added to increase workability, reduce the required amount of water, mitigate harmful chemical reactions and for other beneficial purposes. In many cases there will also be Portland cement substitutes added, such as fly ash. This can reduce the cost of the concrete and improve its physical properties. The material is applied in a freshly mixed slurry, and worked mechanically to compact the interior and force some of the cement slurry to the surface to produce a smoother, denser surface free from honeycombing. The water allows the mix to combine molecularly in a chemical reaction called hydration.

CEMENT CONCRETE ROADS:

For minor roads, width of the road 3.0 Mts may be adopted so as to cover more length. The minimum mix required for cement concrete road is M30. However approximate Mix proportion (By weight) 1:1.5:3 (cement : sand : coarse aggregate) with water cement ratio 0.38. The exact mix proportion shall be taken only after testing the materials In the laboratory. The workability should be adequate for placing the concrete. The slump recommended is 10mm. If necessary, plasticizers and patented fibers may also be added to concrete mix as per the requirement.

SUB GRADE:

Soils such as clay, silt and silty clay with CBR value 4.0 may be used as sub grade.

PAVEMENT:

Minimum grade of concrete for Cement concrete roads. For pavements construction in roads, M30 design mix shall be used. Minimum thickness of village CC roads:

Concrete slab of 170mm thick with M30 design mix shall be provided over the sub-base of 150mm thick for Concrete surfaces have been refined into three common types: jointed plain (JPCP), jointed reinforced (JRCP) and continuously reinforced (CRCP). The one item that distinguishes each type is the jointing system used to control crack development.

Sequence of works:

Prior to the commencement of the site clearance, the following shall be carried out either independently or jointly with the Engineer's Representative.

I. The right of ways (R.O.W) shall be surveyed and set out according to the data stated in the drawings.

II. Photographs shall be taken of structures, landscaping trees and shrubs, fences, telephone and electrical poles and other if they are payable under individual measured item apart from the general site clearance in the bill of quantities.

Excavation for cutting:

Construction method:

The excavation of cutting shall be carried out in accordance with the drawings and to the slopes, levels, depths, widths and heights shown on the drawings. Prior to commencement of works, surveyor will use the survey data of road alignment and TBM provided by the engineer for setting out the extent of cutting in accordance with the cross sections and put in such pegs, bars, sight rails and reference markers necessary to control the works.

Machinery used:

- i. Excavator – J.C.B. or Hitachi EX 100 for bulk excavation, loading on trucks and slope trimming.
- ii. Dump truck – For transporting cut materials from the cut area.
- iii. Bulldozer – ripping & loosening of earth and rock mixed soil etc.
- iv. Grader for trimming to final level and maintaining the surface parallel to the finished grade line.

4. SPECIFICATIONS OF MATERIALS:

1. Water:

Water shall not be salty brackish and shall be clean, reasonably clear and free objectionable quantities of silt and traces of oil and injurious alkalis, salts, organic matter and other deleterious material which will either weaken the mortar of concrete or cause efflorescence or attack the steel in R.C.C. Container for transport, storage and handling of water shall be clean.

Water shall conform to the standard specified in I.S. 456-1978.

2. Cement:

- Cement shall be ordinary Portland slag cement as per I.S.269-1976 or Portland slag cement as per I.S. 455-1976.

3. White Cement:

- The white cement shall conform to I S. 8042-E-1978.

4. Coloured Cement:

- Coloured cement shall be with white or grey Portland cement as specified in the item of the work.
- The pigments used for coloured cement shall be of approved quality and shall not exceed 10% of cement used in the mix. The mixture of pigment add cement shall be properly ground to have a uniform colour and shade. The pigments shall have such properties to provide for durability underexposure to sunlight and weather.

5. Sand:

Sand shall be natural sand, clean, well graded hard strong, durable and gritty particles free from injurious amounts of dust, clay kankar nodules, soft or flaky particles shale, alkali salts organic matter, loam, mica or other deleterious substances and shall be got approved from the Engineer-in-Charge. The sand shall not contain more than 8 percent of silt as

determined by field test, if necessary the sand shall be washed to make it clean.

6. Stone Dust:

This shall be obtained from crushing hard black trap or equivalent. It shall not contain more than 8% of silt as determined by field test will measuring cylinder. The height of silt, visible as settled layer above the stone dust shall be expressed as percentage of the height of the stone dust below The stone dust containing more than 8% silt shall be washed so as to bring the content within The fineness modules of stone dust shall not be less than 1.80

7. Stone Grit:

Grit shall consist of crushed or broken stone and be hard, strong, dense, durable, clean of proper gradation and free from skin or coating likely to prevent proper adhesion of mortar Grit shall generally be cubical in shape and as far as possible flakey elongated pieces shall be avoided. It shall generally comply with the provisions of I.S. 383-1970.

8. Cement Mortar:

Water shall conform to specification M-1, Cement : Cement shall conform to specifications M-3 and Sand : Sand shall conform to M-6

9. Stone Coarse Aggregate For Nominal Mix Concrete:

- coarse aggregate shall be of machine crushed stone of black trap or equivalent and be hard strong, dense, durable, clean and free from skin and coating likely to prevent proper adhesion of mortar.
- The aggregate shall generally be cubical in shape Unless special stones of particular quarries are mentioned aggregates shall be machine crushed from the best black trap or equivalent hard stone as approved Aggregate shall have no deleterious reaction with cement.

10. Brick Bats Aggregate:

- Brick bat aggregate shall be broken from well burnt or slightly over burnt and dense bricks. It shall be homogeneous in texture, roughly cubical in shape, clean and free from dirt of any other foreign material. The brick bats shall be of 40 mm - 50 mm. size unless otherwise specified in the item The under burnt or over burnt brick bats shall not be allowed.
- The brick bats shall be measured by suitable boxes or as directed.

5. CONCLUSION:

It is concluded to construct IT park in our kadapa district. It is very important to construct in our district because all the educated people are going for software jobs in Chennai, Bangalore, Hyderabad. There is lot of scope to develop IT industry in future also it is necessary to construct as early as possible. Total cost for this project is **43,45,7,239** Crores.

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