REDEVELOPMENT OF BROWNFIELD AREA OF AN INDUSTRIAL CITY, CASE APPLICATION OF ASANSOL

An Urban Design Thesis Report

Submitted in partial fulfilment of the requirements for the Postgraduate degree of

Master of Architecture (Urban Design)

Under the

Faculty of Engineering and Technology

of Jadavpur University, Kolkata

Under the guidance of

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May, 2019

ACKNOWLEDGEMENT

The thesis would not have been possible without the contribution of number of individuals. I take this opportunity to acknowledge all of them who have contributed to the completion of this project. I would like to express my thanks to the Department of Architecture, Jadavpur University including all of my respected faculties, staff members, my friends & last but not the least my family members.

I would like to express my gratitude to the respected thesis Guide Professor Dr. Mainak Ghosh & Asst. Professor Sanghamitra Sarkar for their constant support throughout the curriculum. I would like to express my deepest gratitude towards Head of Department and Thesis Coordinator Professor Dr. Sanjib Nag for his continuous support and guidance to all the students of Final year of Master Degree in Architecture.

I would like to acknowledge Professor Dr. Subhrajit Das, Professor Dr. Jayita Guha Niyogi, Professor Dr. Shivasish Bose, Professor Dr. Tapas Kumar Bhattacharya, Professor Dr. Suchandra Bardhan, Professor Dr. Madhumita Roy and Dr. Debasish Das for their valuable opinions on conducting the thesis work.

An important role has been played by several seniors and professionals in the field of urban design, planning and architecture, who gave their constant support and guidance throughout. I would like to express my deep gratitude to the Head of Department of IIEST, Shibpur, Professor Partha Sarathi Mukhopadhay, Professor Subrata Kumar Paul, Architect & Urban Designer Monika Khoshla, Ar. Chandan Nandi and Professor K.T. Ravindran for their support.

I would like to thanks my friends Amarnath Sharma, Blasius Venance, Teesha Majumdar, Ishita Ghosh, Payel Chakraborty & Avigyan Mitra for their continouse help and support during two years of Post graduate Degree.

Last but not the least, I wish to acknowledge my family members and friends for their continuous support, my parents Benu Kumar Mondal & Deepa Mondal, my sisters, My friends Ar. Soham Chakraborti & Rima Mazumdar for their continious support, love & blessings which helped me to complete the Postgraduate Degree and this Thesis Project.

ABSTRACT

Brownfields are understood as abandoned or underused sites with real or perceived contamination problems that create an obstacle to their development potential. As such, these sites represent both a problem and an opportunity. Brownfield lands or waste lands are, recognized as a problematic element in large number of countries. It is assumed to cause of land decline in terms of environmental, physical, social and economic negative effects. In spite of all problems these urban brownfield sites over the past 30—40 years, Brownfields have been a precious opportunity for urban development in order to bring a new value into a poor- quality lands and regenerate new sets of activities & behaviour in the urban communities.

Consequence of rapid urbanization in cities is facing the problems of abandoned brownfield sites which are occupying attractive plots in the potential locations of cities. The redevelopment and regeneration of brownfield lands can reduce the problems of encroaching greenfield lands and the urban sprawl- the expansion of cities on the edges. And it can help to betterment of access to the urban lands.

The aim of this project is to state the importance of brownfields and their redevelopment process, case application in Asansol, India. How To effectively redevelop and revitalise brown field area of an Indian industrial city to a viable urban place for betterment of community. The project embraces an Introduction and Pre-analysis of the brownfields description followed by the qualitative and quantitative comparison between four cases of different types brownfield redevelopment in London, China, And Mumbai looking for the identification of factors of success in the process of redevelopment of the affected area. After that with these factors analysis has been done on the application area and surroundings. Then Identification of the problems and how the potential findings can influence to make urban design guideline framework has been done. Finally how the guidelines implemented to create future perspective by redeveloping brownfield sites and surroundings.

This process of redevelopment of brownfield can used to plan future programme to regenerate abandoned and unused sites in urban area in Asansol as well as for several Indian industrial cities.

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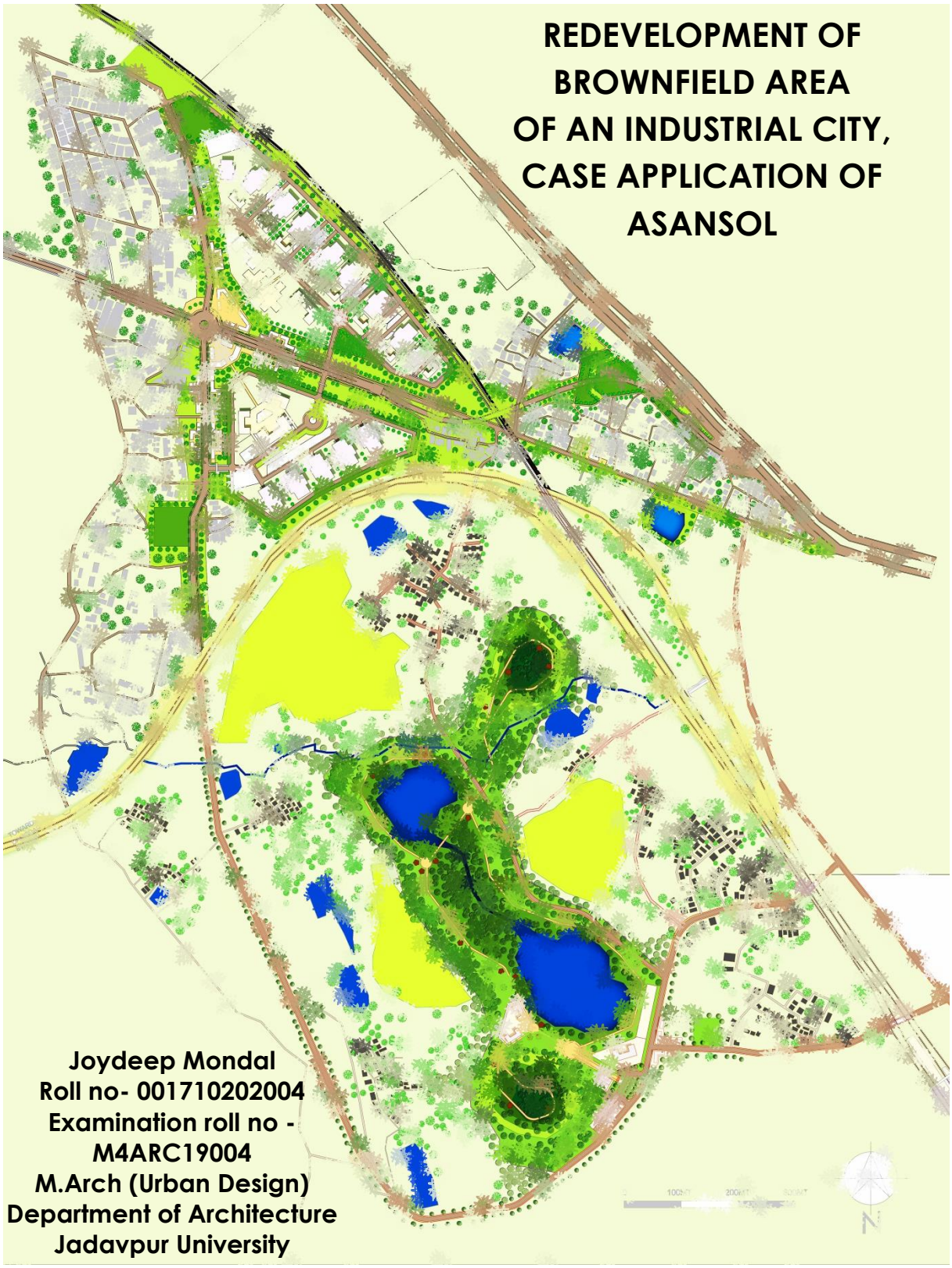
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1.0 INTRODUCTION

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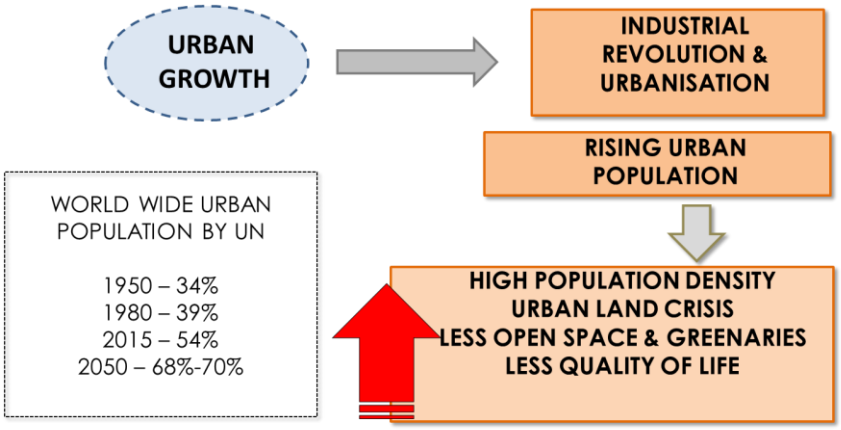
1.1 BACKGROUND

The process of industrial revolution and the massive urbanisation brought problems as population density, transport congestion, pollution and environmental degradation. The time wise change of industrial process and technology remained sites with vacant or underused.

Brownfield lands are, nowadays, recognized as a problematic element. This unused lands in urban area directly creating negative effects in environmental, physical, social and economic images. Brownfields have been regarded as a precious opportunity for urban developers in order to bring a new value into a poor- quality lands and create new sets of behaviour in the declined urban communities.

The aim of this thesis project is to examine how brownfield sites could be transformed and developed in Indian industrial city.



Future urban land expansion, Christopher Bren d'Amoura,b, Femke Reitsma

Figure 1 - Future Land Expansion

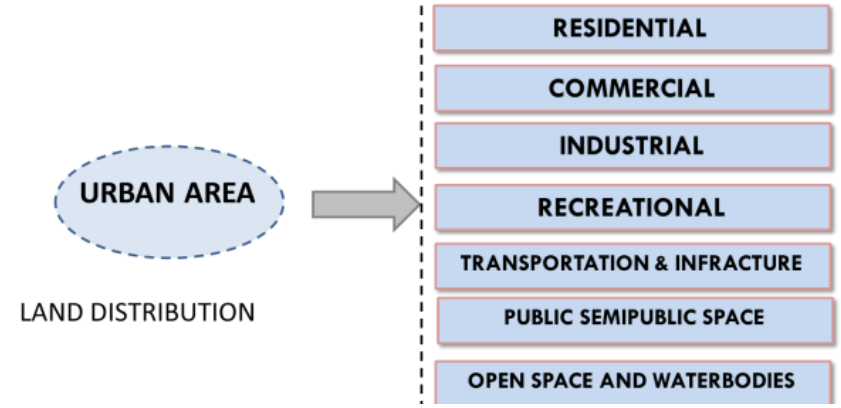


Figure 2 - Urban Area Land distribution

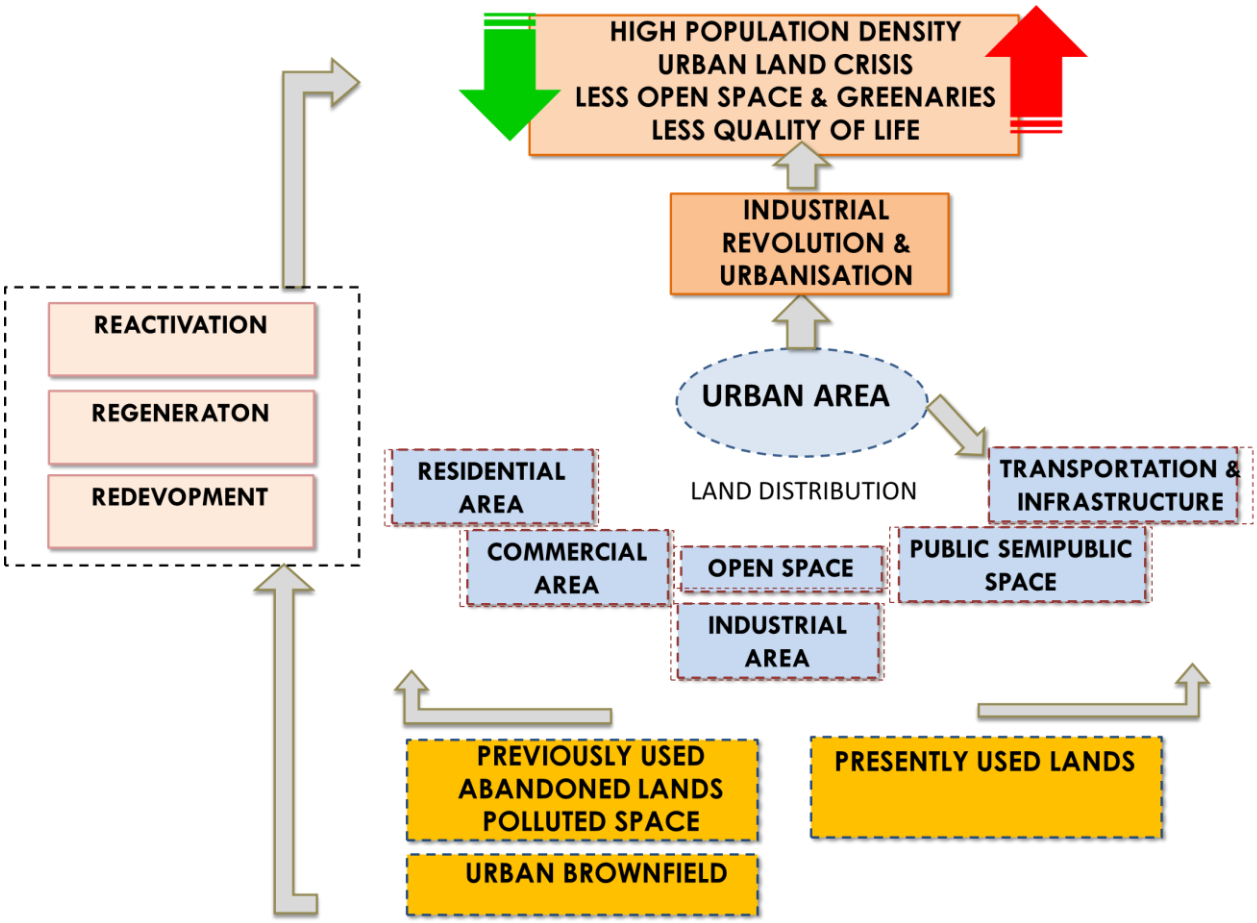


Figure 3 - Brownfield Redevelopment as benifits of rapid urbanization

1.1.1 DEFINATION

1.1.1.1 REDEVELOPMENT

Urban redevelopment is conceptually land readjustment, with the exception that it happens in existing urban areas and often involves a rezoning by the government of a given area from a low-density to higher-density development. It is also accompanied by a provision of infrastructure improvements (mass transit, such as metro lines) that can support such up-zoning.

According to some author
Redevelopment has to be connected with the development of a new elite (Le Gale`s 2002), the implementation of a new decision-taking network and the creation of new urban business committees (which, in many European cities, look at the Chambers of Commerce as subjects which can redesign the city through the "defeat of the participation"); or Redevelopment which as a process leads to new forms of neoliberalism (Jones and Ward 2002
Redevelopment is the entry which leads to the recent phenomenon of Public–Private-Partnership (PPP).

RE + DEVELOPMENT = DEVELOPING AGAIN AND AGAIN

To summarize, (2) Redevelopment deals with a situation in which function
replacement is considered the answer to a process of weakening that makes it
impossible for the area (object of the intervention) to show all its potential.

Figure 4 - Factors of Redevelopment

- Redevelopment deals with a situation in which function replacement is process of transformation of the way in which to use the space.
- Redevelopment produces a new method in using a territory ,urban fabric.
- Redevelopment projects applied to small-sized areas, represent a good level of functional mix with a high economic impact.

Source - Chapter 2,Urban Models, Remo Dalla Longa

BENEFITS OF REDEVELOPMENT

Redevelopment makes communities more sustainable – economically, environmentally, and socially

Social Dimension

•To create a built environment that meets people's needs whatever their circumstances; provide affordable and healthy homes, accessible services and leisure facilities, so that all can enjoy a good quality of life.

Economic Dimension

•To create high quality working environments that contribute to the development of healthy places of employment, increased productivity and competitiveness; that are adaptable to the changing needs of a vibrant economy and linked to sustainable modes of transport.

Environmental Dimension

•To use materials and adopt forms of design and construction that use resources efficiently, minimise waste and pollution, protect and enhance biodiversity and create a healthy environment.

An overarching principle is that local communities, workers, and building users should be involved in the development and post-occupancy feedback processes and given the opportunity to influence the key decisions that will affect their lives by helping to create environments that meet their needs and reflect their visions.

Rokshana Binta Samad, A Report On ***Urban Redevelopment, 2017***

INDICATORS OF REDEVELOPMENT

In order to build a redevelopment plan there are some indicators to be followed. These are-
1.Construction2.Rehabilitation3.Relocation

CONSTRUCTION

- Construction is the process of constructing a building or infrastructure.
- Building construction is usually further divided into residential and non-residential.
- Infrastructure includes large public works, dams, bridges, highways, water/waste water and utility distribution.

REHABILITATION

- Rehabilitation is the process of returning components of built environment through repairing or alteration.
- Rehabilitation means in a word specialized the infrastructure being upgraded.
- Rehabilitation results in the replacement of most or all of the existing infrastructure with new infrastructure.

RELOCATION

- To move or be moved to a new place.
- To become established in a new residence.
- To become established in place of business.

Rokshana Binta Samad, A Report On ***Urban Redevelopment, 2017***

1.1.1.2 BROWNFIELD

Brownfields are rural or urban industrial and commercial sites that are abandoned or underused because of real or perceived contamination.

'Brownfields' refers to sites, or the activity of remediating and developing sites, which are idle, unused, or abandoned after former industrial or commercial use, and which exhibit a legacy of contamination of soil, groundwater, surface water, or streams.
Garry Smith, Brownfields Development, 44th ISOCARP Congress 2008

The United States Environmental Protection Agency (EPA) first came into use of the term —Brownfield‖ in 1992 and thereinafter Cuyahoga County designated as the first brownfield project in 1993 which was assisted by State of Ohio Clean Ohio as well as US EPA Clean-up funds (EPA, 2012).

BROWNFIELDS ARE SITES THAT:

- Have been affected by the Former uses Of the site and surrounding land.
- Brownfields are derelict or under used.
- Have real or perceived contamination problems.
- Are mainly in developed urban areas.
- Require intervention to bring them back to beneficial use.

Figure 6 - Abandoned Factory

Figure 5 - Abondoned Dockyard

Figure 8 - Municipal Dumpyard

Figure 7 - dead mines

TYPES OF BROWNFIELDS REDEVELOPMENT

1. **INFILL DEVELOPMENT** - The River District, Portland, Oregon

Infill development strives to address the needs of community growth by filling available spaces within urban centres before building in the undeveloped countryside . . . The underlying notion is to keep community resources—jobs, churches, schools, shops, restaurants, museums, and parks where citizens are and vice versa.

2. **TRANSPORTATION** - Restoring Railway Stations in Grover Beach, California

Redeveloping brownfields into transportation Facilities. Improving transportation access on or near brownfields sites; and. Adopting transportation policies that encourage brownfields redevelopment.

3. **HOUSING** - American Can, New Orleans, Louisiana

Quality housing is crucial to the well-being of anycommunity, and many brownfields may have the potential to be redeveloped for residential use. Because of the fear of environmental

contaminants, the option to use housing as a redevelopment option is often overlooked at brownfields sites. From affordable housing to high-income housing, residential redevelopment of brownfields can be a success and prove to be a catalyst for community redevelopment.

4. **GREEN SPACE** - Assunpink Greenway, Trenton, New Jersey

Green space is essential for the health of a community and its quality of life. Greenspace may be publicly held parks, forested areas, open ranges, fields, or even an empty lot that is privately owned. Each of those areas benefits the environment and communities in different ways.

5. **RECREATIONAL** - The Larry Johnson Community Recreation Canter, Dallas, Texas

professional sports stadiums can do a great deal to promote a city, to revive a tired citizenry, and to serve as the catalyst to further downtown redevelopment. Some communities have successfully built athletic facilities and used them to revive their downtowns.

6. **HISTORIC PRESERVATION AND BROWNFIELDS** - The Bethlehem Steel Plant, Bethlehem, Pennsylvania

Historic preservation also includes preserving the districts, sites, buildings, structures, and objects that make up the cultural heritage of the communities, states, and regions of the country. Many buildings and sites across the country could be valued as culturally significant. Many brownfields fit into the description of historic buildings or structures.

7. **RURAL BROWNFIELDS** - Mifflin County, Pennsylvania

The nature of rural brownfields contamination is another factor separating those sites from urban counterparts. While many industrial contaminants—petrochemicals, inorganic solvents, and hazardous solid wastes—may appear in both rural and urban brownfields, rural sites are more likely to contain agricultural and mining related pollutants.

8. **WATERFRONT BROWNFIELDS** - Gold Coast: Glen Cove, New York

Waterfront development projects—similar to many water resource management projects—incorporate a complex set of issues, including environmental, political, social, economic, and cultural community standards. Because hydrologic factors supersede established political jurisdictions and boundaries, a project can rarely be reduced to a specific area, such as a tract of coastline or riverfront property.

9. **MILITARY BASE REUSE** - Alameda Naval Air Station, Alameda, California

Military base reuse and conversion are not the same as urban redevelopment. Military base reuse is a unique situation governed by its own set of laws. Communities with abandoned sites find themselves in troubled economic positions and must act quickly if they hope to recover. Communities must balance the need for environmental clean-up with the need for economic renewal.

10. ECO-INDUSTRIAL PARKS - A Green Industry In the Forest: Raymond, Washington

Eco-industry refers to the practice of examining and considering all components—human, natural, and technological—in the industrial process under the rubric of an ecosystem.23 The goal of eco-industry is to maximize efficiency in production while minimizing environmental effects. In addition, material components of the industrial process are produced as efficiently as possible, including: building materials and designs, manufacturing processes,

source- A publication of the superfund brownfield research institute, The International city/county Management Association (ICMA)

NEEDS OF BROWNFIELD REDEVELOPMENT

1. **Brownfield reuse; greenfield protection**

Redevelopment of brownfield sites has recently become an important issue associated with urban regeneration process. In fact, recreation of derelict and underused sites is deemed as a principal way to reduce pressure on undeveloped sites (Greenfields) around cities.

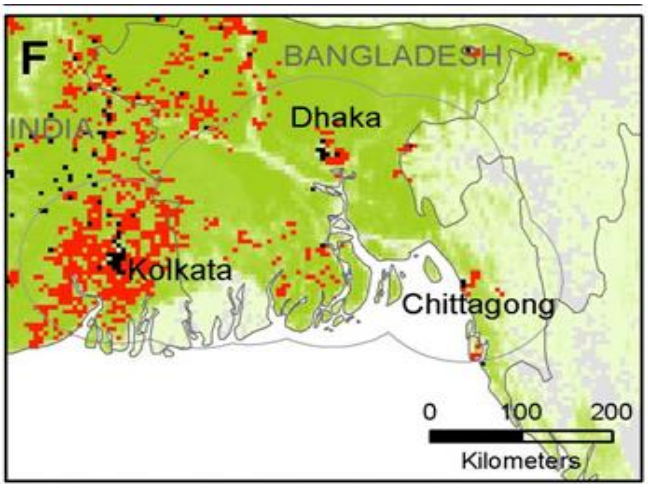


Figure 9 - Projected areas to urbanisation on green field lands

2. Brownfield Redevelopment as a Strategy for Preventing Urban Sprawl

Some countries, including Germany and the UK, have tried to limit the growth of urban areas by encouraging the redevelopment of brownfield sites.

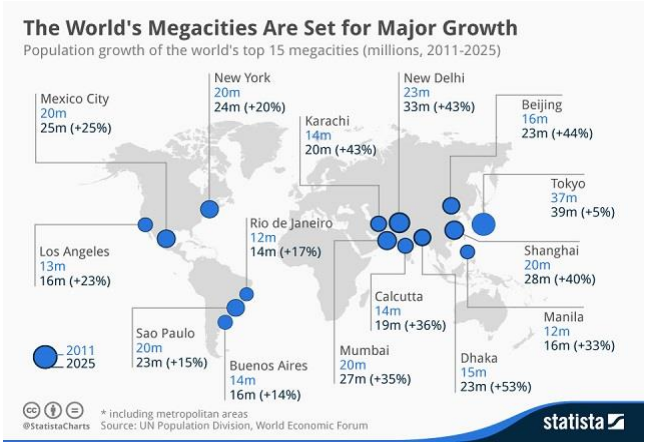
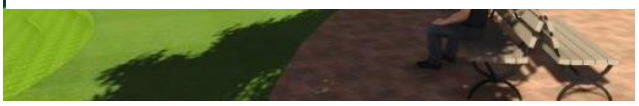


Figure 10 - Map showing Urban Sprawl worldwide

2. **Improving Access to Urban Land**
   Redevelopment of brownfield sites has recently become an important issue associated with urban land access.

Figure 11 - Access to the urban Brownfield Lands



THE MAJOR BENEFITS OF BROWNFIELD REDEVELOPMENT

Regeneration
(Environmental display)

- Protects biodiversity
- Improves air quality
- Minimizes storm water runoff
- Reduces greenhouse gas emissions
- Reduces heat island effects
- Lesser urban sprawl

Reintegration
(Economic display)

- Increases **land value**
- Reduces **energy consumption** cost
- Enlarges **employmen**t & **investment** rate
- Increases the **average income**
- Encourages **regional industries**

Revitalization
(Social display)

- More integrated **Community Involvement**
- Reduce risks to **human health**
- Increases the **quality of life** & Appreciates **local culture** & **heritage**
- Aesthetically more pleasing **urban space**

1.1.1.3 INDUSTRIAL CITY

An industrial city is urban settlement where the economic system is based on the industry, such as a mining town. An area where workers of a monolithic heavy industry live within walking-distance of their places of work.

Industrial towns in India, S.Prabhakar

A CITY WHICH IS ECONOMACALLY DEVELOPED ON INDUSTRIES

Between 1750 and 1850, the industrial revolution created a new kind of city - the industrial city -- first in England, then across continental Europe, North America, and around the world.

The Industrial City Geography 350, September 19, 2012 Elvin Wyly

What is undisputed is that the century between 1750 and 1850 wove the processes of industrialization and urbanization tightly together. “Urbanization increased in almost direct proportion to industrialization....”4 In 1800, fewer than one in twenty people in the world lived in towns and cities; fifty years later, one in six people lived in towns and cities. By 1850, there were more than 900 cities in the world with at least 100,000 people. Industrialization propelled urbanization directly: sites near raw materials or sources of water power became more valuable, and new factories that centralized the previously dispersed, small-scale pattern of cottage industry brought new needs for more and more workers. But many indirect changes were involved as well. Industrialization brought new innovations that gradually mechanized agriculture, and led to dramatic increases in productivity. As a result, it became possible to produce more food to supply growing urban populations, and to do so with less labor; but reduced labor needs in agriculture subsequently forced rural workers off the land and into the cities in search of industrial work.

The Industrial City, Geography 350, *Introduction to Urban Geography*

INDUSTRIAL REGIONS IN INDIA

1. **Mumbai-Pune Industrial Region**
2. **The Hugli Industrial Region**
3. **Bangalore-Tamil Nadu Industrial Region**
4. **Gujarat Industrial Region**
5. **Chotanagpur Industrial Region**
6. **Vishakhapatnam-Guntur Industrial Region**
7. **Gurgaon-Delhi-Meerut Industrial Region**
8. **Kollam-Thiruvananthapuram Industrial Region**

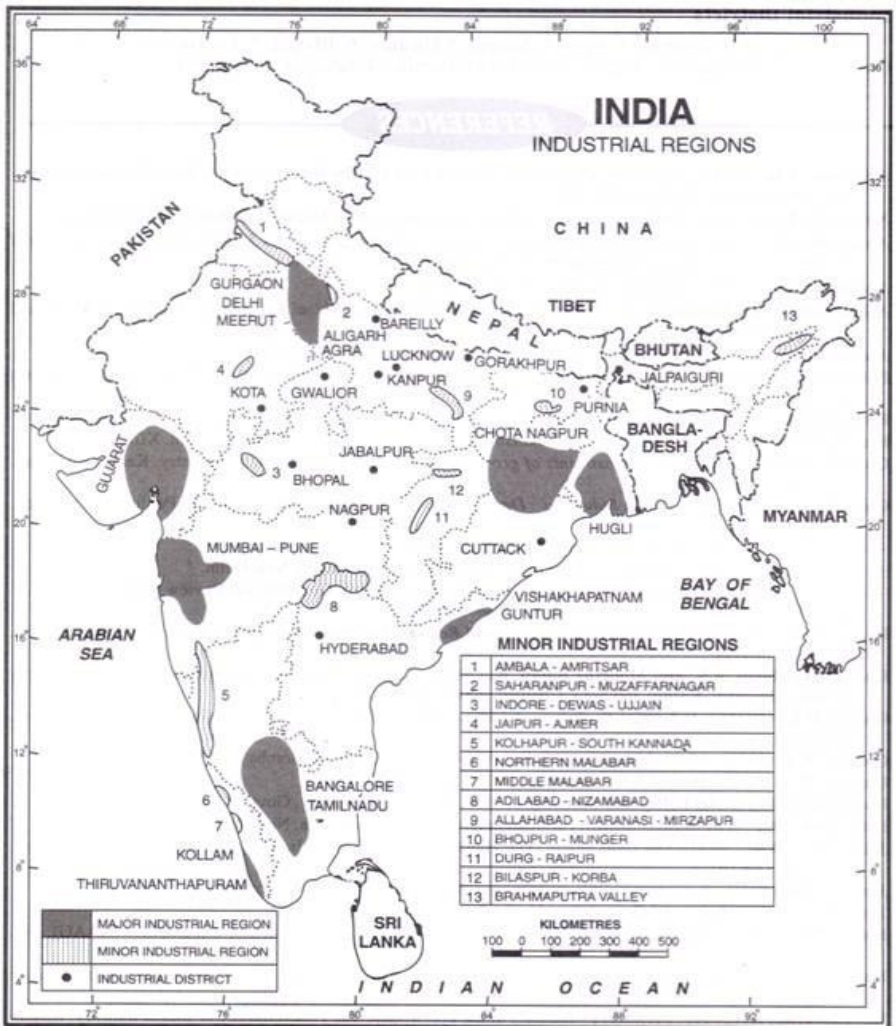


Figure 12 - industrial regions in india

http://www.yourarticlelibrary.com/industries/industrial-regions-8-major-industrial-regions-of-india0

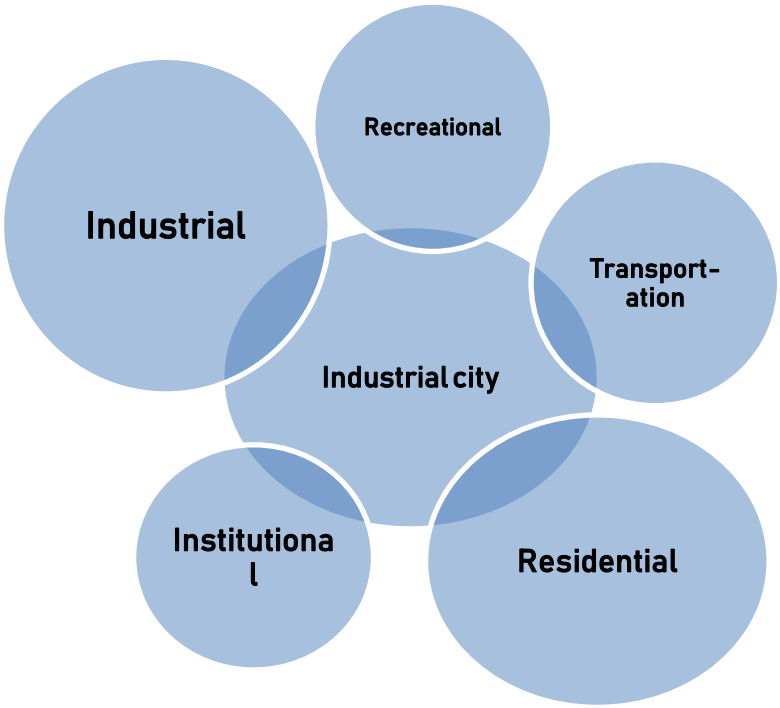


Figure 13 - Land division on Industrial cities

POSITIVE ISSUES

- INDUSTRIAL GROWTH
- PLANNED ENVIRONMENT
- DIVERSITY IN CULTURE
- TRANSPOTATION NETWORK
- STRONG ECONOMY
- OPPERTUNITY

NEGETIVE ISSUES

- POPULATION INCRESE
- UNPLANNED DEVELOPMENT
- UNBALANCE IN BUILTUP & OPEN SPACE
- WASTE DISPOSAL & SANITRY
- POLLUTION

1.1.2 CASE APPLICATION OF ASANSOL

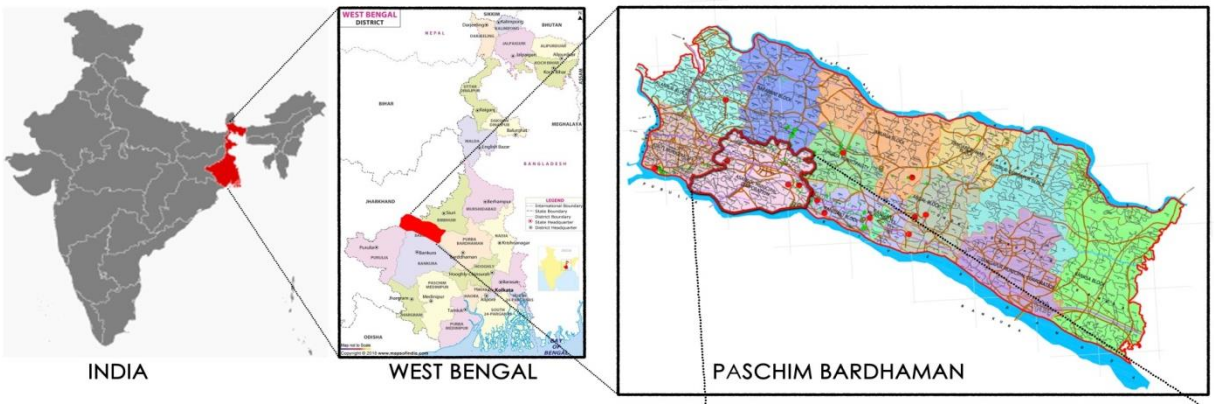


Figure 14 - Map of Asansol on India and West Bengal

Asansol is a metropolitan city in the Indian state of West Bengal. It is the second largest and most populated city in West Bengal after Kolkata. It is the district headquarters of Paschim Bardhaman district.

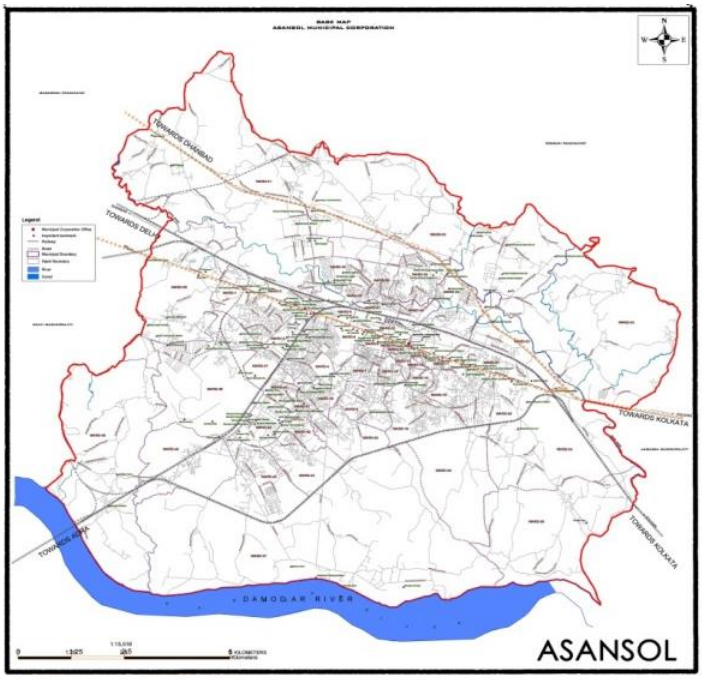


Figure 15 - Map of Asansol Municipal Area

METROPOLITAN CITY - **127.3 KM2 (49.2 SQ MI)**

- THE URBAN AREA **360 SQ KM**
- POPULATION- (2011) - **1,243,008**
- DENSITY- **4,434/KM2 (11,480/SQ MI**

TRANSPORT CONNECTIVITY

- **Road** – GRAND TRUNK ROAD,NH2,kolkata delhi highway corridor.
- **Railway** – Asansol railway junction on kolkata delhi rail network, Burnpur railway station on asansol kharagpur railway network.
- **Airway**- burnpur airport within city and kaji nazrul airport is in 25 km.

BROWN FIELD, INDUSTRIAL CITY & ASANSOL

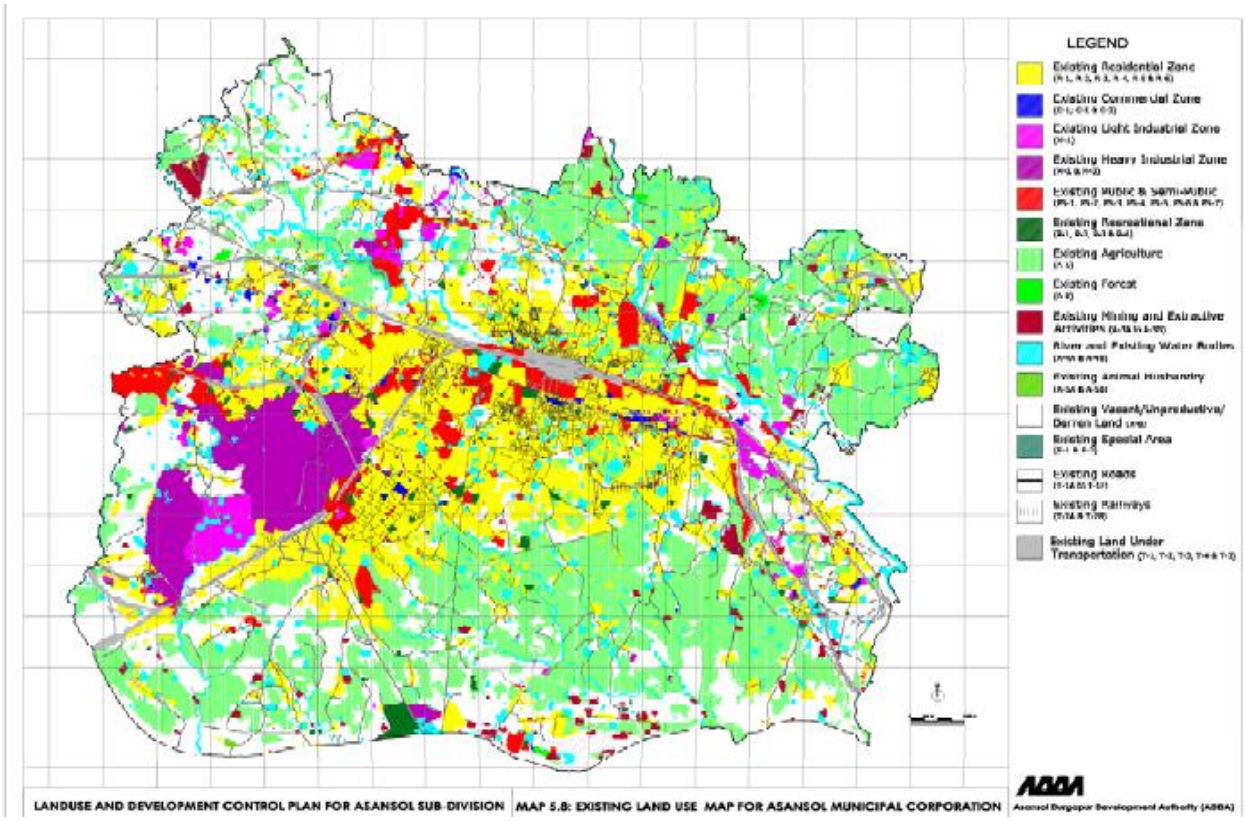


Figure 16 - Land use map of Asansol municipal area

Figure 17 - Brownfields around the asansol municipal area

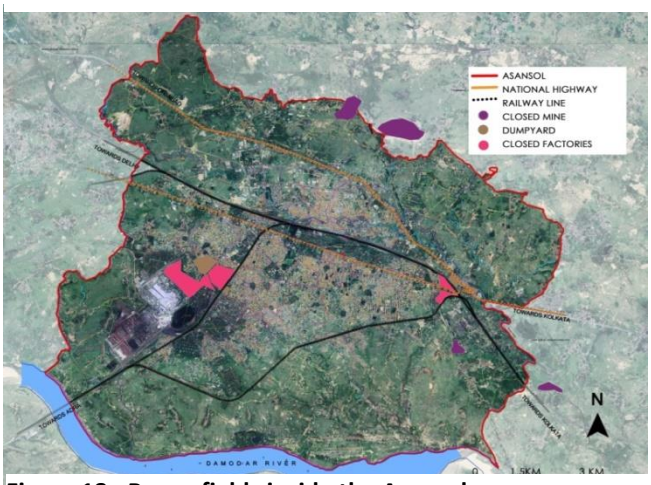


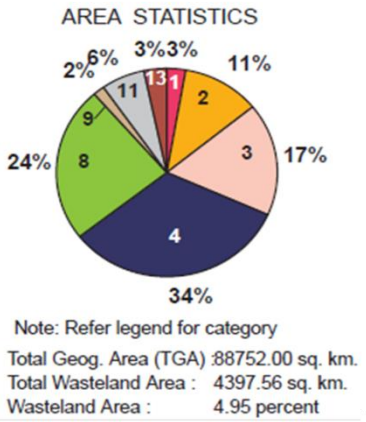
Figure 18 - Brownfields inside the Asansol

FUTURE POSSIBLITIES

- Asansol ranks 42 among the 100 fastest growing cities in the world and one amongst top 11 among indian cities. so it have full of possibilities.
- Asansol is positioned to be the next big city emerging on the retail map of the east zone after kolkata.
- Asansol's credit list includes its large salaried population, high per capita income, steady economic growth.

SCENARIO OF BROWN FIELD IN INDIA

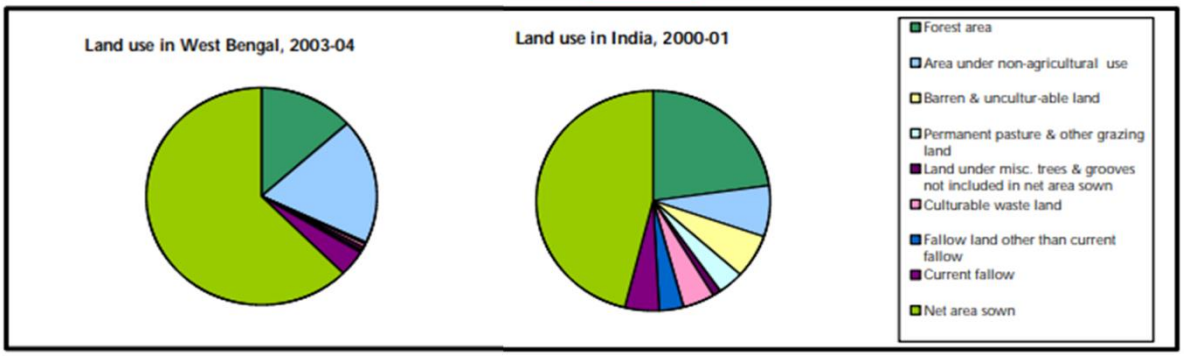
- Total **culturable waste land** in India – **446 Sq km**.
- Total **culturable waste land** in West Bengal – **40 Sq km**.
- Total **mining waste land** in West Bengal – **26.51 Sq km**.
- Total **industrial waste land** in West Bengal – **15.83 Sq km**.



State Remote Sensing Cell, S&T and NES Department, Govt. of W.B

Table 2 *Land use in India, 2000-01 and West Bengal, 2003-04 as percentage of reported area*

	Forest area	Area under non-agricultural use	Barren & uncultur-able land	Permanent pasture & other grazing land	Land under misc. trees & grooves not included in net area sown	Culturable waste land	Fallow land other than current fallow	Current fallow	Net area sown	Reported area (in million hectares)
India	22.66	7.70	6.29	3.56	1.10	4.46	3.33	4.83	46.07	306.26
West Bengal	13.48	18.52	0.31	0.06	0.67	0.40	0.25	3.84	62.89	9.69



INDIAN GOVT. POLICY IN BROWNFIELD

- The 1993 National Mineral Policy addresses the issue of adverse effects of mining on the environment and recycling of metallic scrap and mineral waste land.
- Indian government are allowing 100% foreign direct investment for brownfield redevelopment.
- The Mineral Conservation and Development Rules (1988) in Article 23 has laid down conditions for the abandonment of any mine and has specified the need for providing a plan for dealing with the environment.

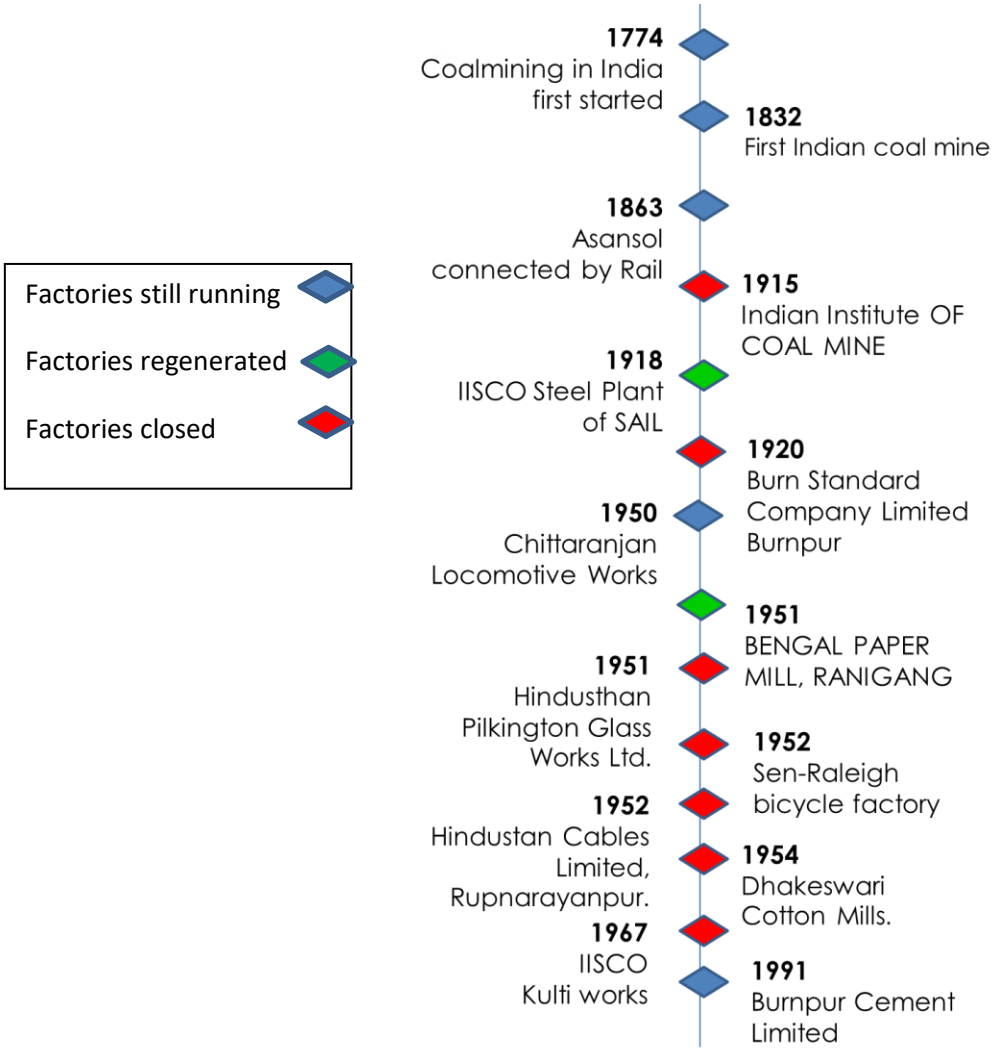


Figure 19 - Time line of Asansol (Industrial Growth)

1.1.4 CASE EXAMPLES

For the purpose of study three numbers of case examples have been taken up. The case examples are form Europe, Asia and India. Criteria of selecting these examples, that all lands are from similar background. Proposals and interventions are almost same in all the three examples.

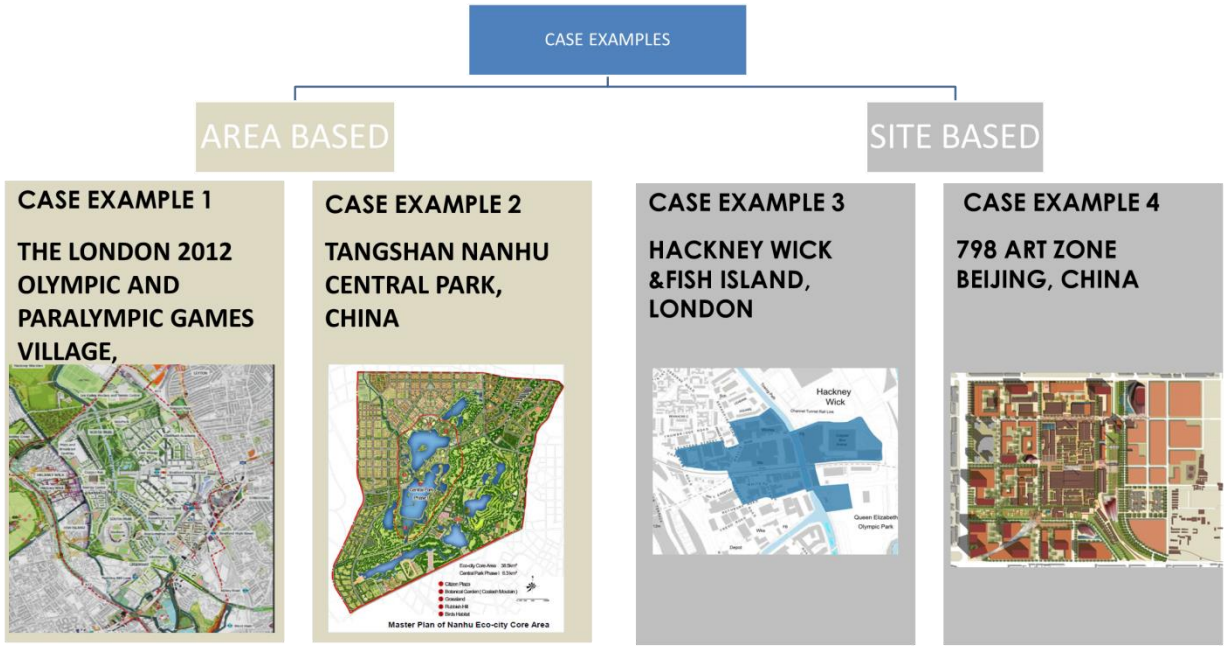


Figure 20 - Case Examples

1.2 AIM & OBJECTIVES

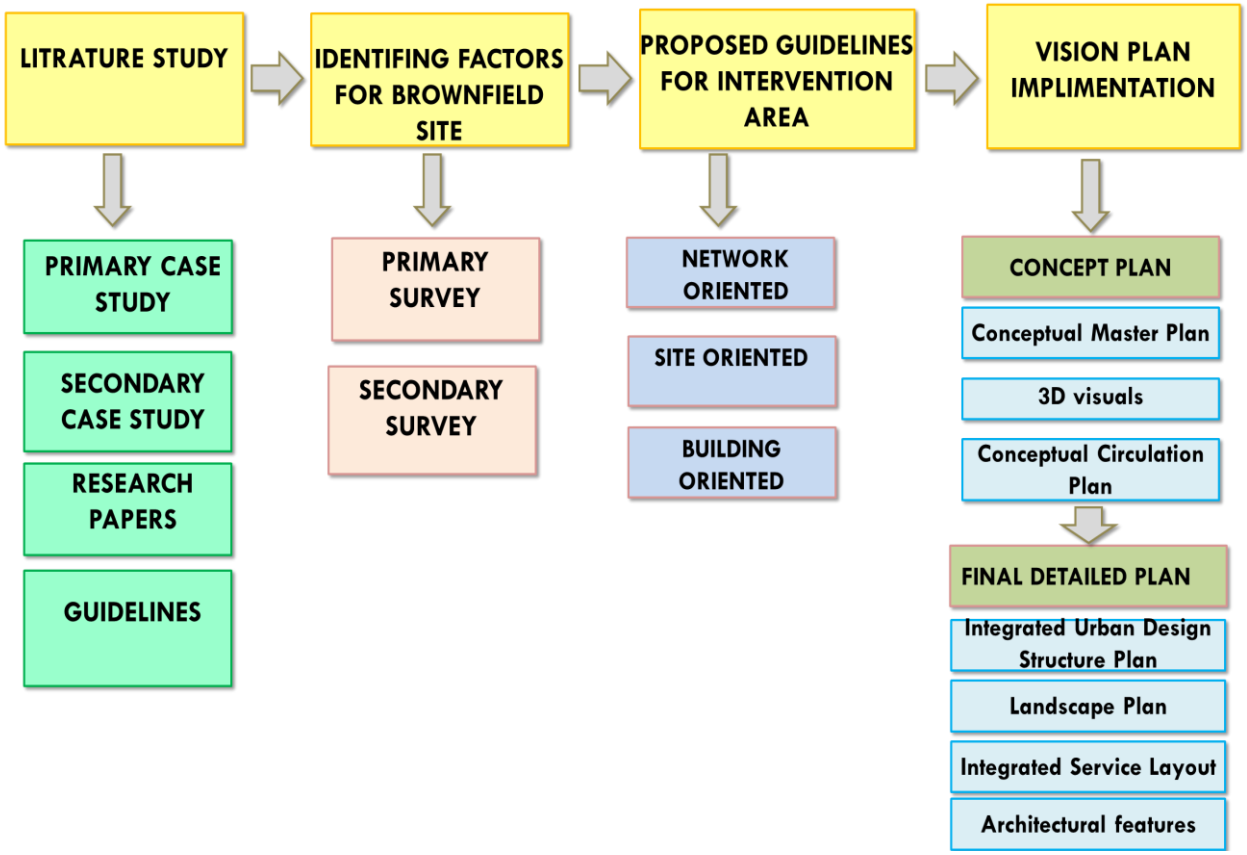
AIM

To effectively redevelop and revitalise brown field area of an Indian industrial city to a viable urban place for betterment of community.

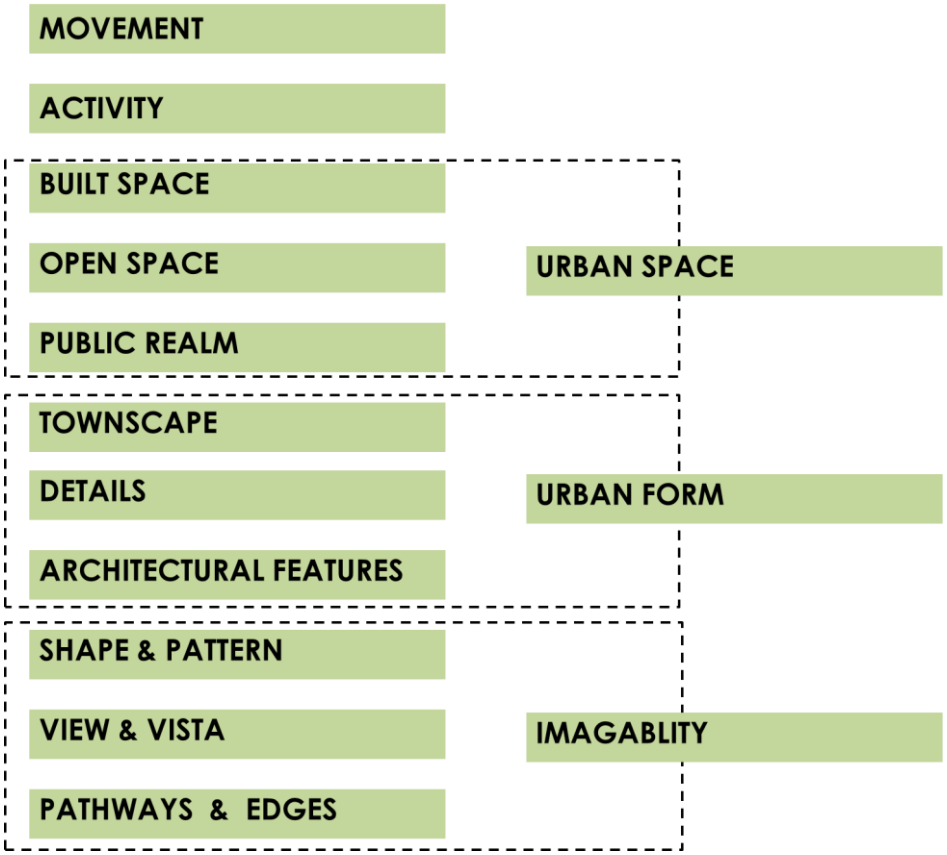
OBJECTIVIES

1. To Identify the potentials of brownfield site/s.
2. To Reorganise or reuse existing built form and open spaces for the similar sites.
3. To provide urban guidelines for similar sites.
4. To design and provide mixed use for inclusive development
5. To provide adequate public facilities and services to support the development.

1.3 METHODOLOGY



1.4 ESSENTIAL PAREMETERS RELEVANT TO THE PROJECT



1.5 SCOPE OF WORK

1. **To Identify the potentials of brownfield site/s**
   - Study and survey of brownfield sites.
   - Identify the problems and solutions for the similar sites.
2. **To Reorganise or reuse existing built form for the similar sites**.
   - Study of existing condition of site and structures if any.
   - Provide activities and redevelop of circulation of the site.
3. **To provide urban guidelines for similar sites.**
   - Providing design guidelines for site and buildings.
   - Providing urban design structure plan for surroundings.

4. **To provide mixed use for inclusive development.**

   - Providing all types of activities such as residential, commercial & institutional to revive the site.
   - Providing adequate open space.

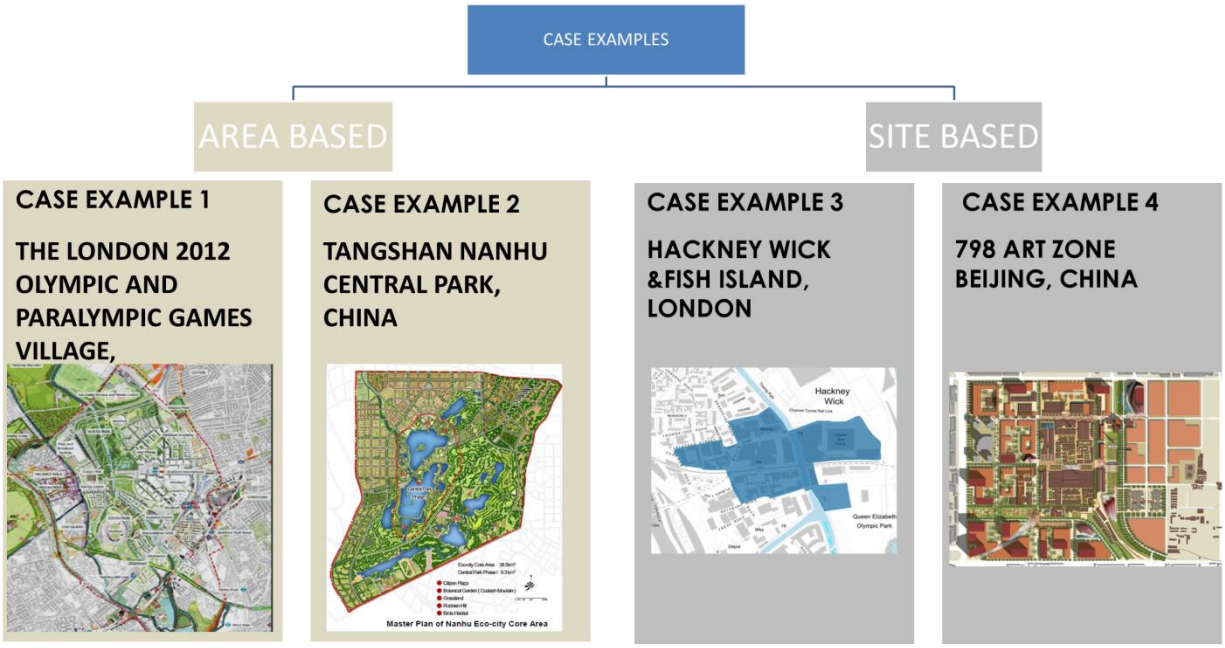
5. **To provide adequate public facilities and services to support the development.**

   - Provide good connectivity and circulation to the site.
   - Providing public Amenities and infrastructure.

1.6 LIMITATIONS

1. **Focus is primarily on selected study area, which is a part of much broader city area.**
2. **The study is based on various assumption as less availability on proper data.**
3. **Broader issues related to management are not identified or taken.**
4. **Scope of design shall be restricted in site level .**
5. **Impact on the physical environment will be studied.**

2.0 CASE EXAMPLES


CASE EXAMPLES
AREA BASED
SITE BASED
CASE EXAMPLE 1
THE LONDON 2012 OLYMPIC AND PARALYMPIC GAMES VILLAGE,
CASE EXAMPLE 2
TANGSHAN NANHU CENTRAL PARK, CHINA
Master Plan of Nanhu Eco-city Core Area
CASE EXAMPLE 3
HACKNEY WICK &FISH ISLAND, LONDON
Hackney Wick
CASE EXAMPLE 4
798 ART ZONE BEIJING, CHINA

2.0 CASE EXAMPLES

2.1 CASE EXAMPLE -1

THE LONDON 2012 OLYMPIC AND PARALYMPIC GAMES VILLAGE

DESCRIPTION

A new urban park – one of Europe's largest – will have replaced a former brownfield site with lush meadows, lawns, wetlands, woodlands and wildlife habitat.

This area aims to become a global centre of international

distinction, a thriving new metropolitan district in London, and an anchor in the social and economic regeneration.

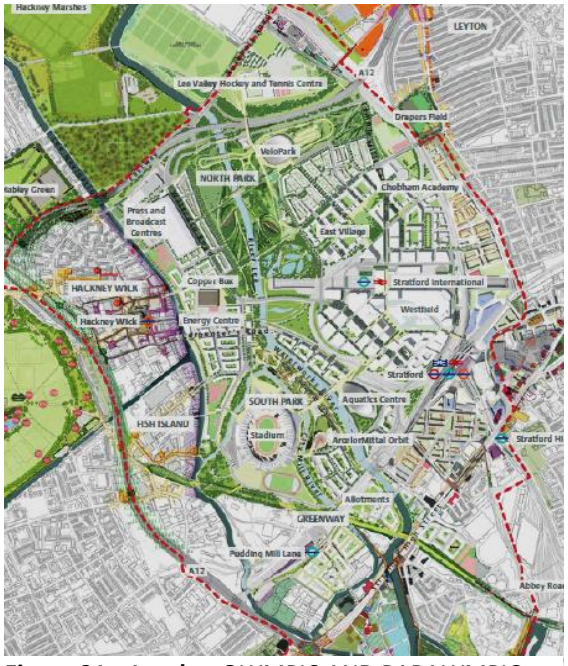


Figure 21 – London OLYMPIC AND PARALYMPIC GAMES VILLAGE

HISTORY

In the early 2000s, the London 2012 Games were still a decade away and the Park was a very different place. What is now the beautiful

Aquatics Centre was a breakers yard and a mountain of broken fridges.

Today's parkland was wasteland. Part of the site was a dumping ground for industrial and domestic waste and much of the land was

polluted with contaminants such as oil, tar, arsenic and lead

Figure 22 - Olympic Village before redevelopment

Figure 23 - Olympic Village after redevelopment

1.1 Hackney Wick Station Area

1.2 Hamlet Industrial Estate

1.3 Hepscott Road

1.4 Bream Street

1.5 415 Wick Lane

1.6 Neptune Wharf

1.7 East Wick and Here East

1.8 Sweetwater

1.9 Bartrip Street South

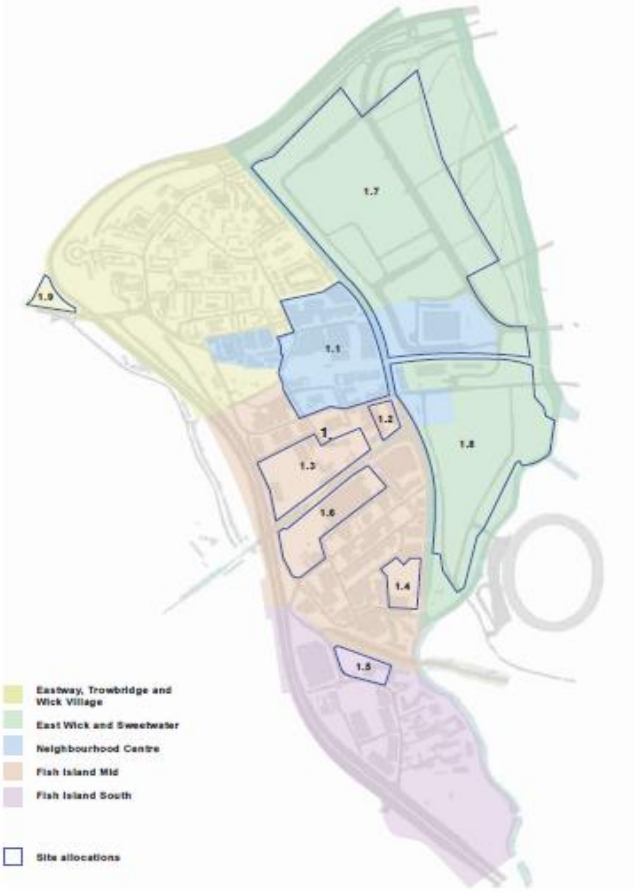


Figure 24 - Olympic Village site before redevelopment

OBJECTIVES

1. Increase the prosperity of east London through growth in business and quality jobs, with an emphasis on cultural and creative sectors.

2. Establish and maintain locally distinctive neighbourhoods which meet housing needs.

3. Create a high-quality built and natural environment that integrates new development with waterways and green space.

4. Secure the infrastructure required to support growth and convergence.

5. Deliver a sustainable and healthy place to live and work.

SURVEY: MOVEMENT (MOTORISED)

- Improves Local Connectivity.
- Minimise the demand for private car use.
- Public transport intervention Hackney Wick Station.
- Connecting Hackney Wick and Fish Island through various routes.
- 20% of car parking spaces to have access to electric charging facilities.

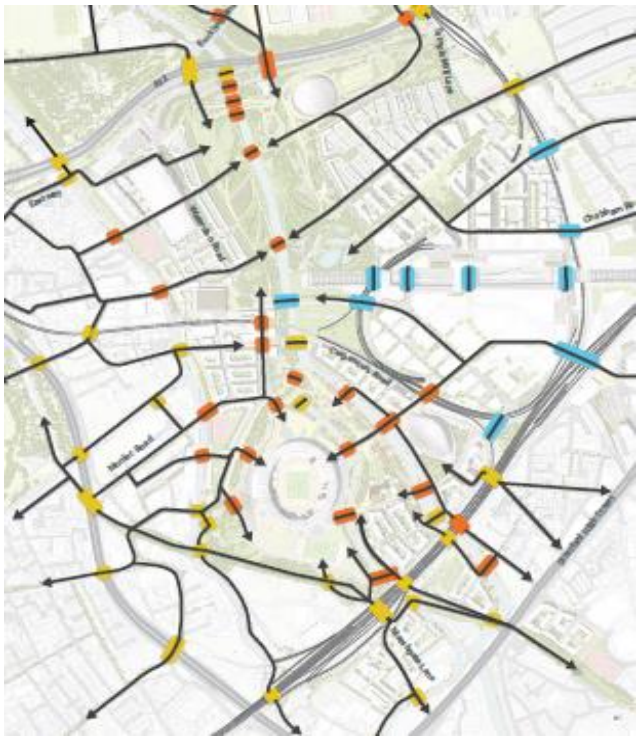


Figure 25 - Map of Motorised Movemet Study

SURVEY: MOVEMENT (NON-MOTORISED)

- Design walk able and cycle-friendly neighbourhoods.
- safe streets and paths, and secure cycle parking in homes, offices, and No home to be more than 350m away from a bus stop.
- Ensure provision of changing facilities in offices to support commutes by cycle.

Figure 26 - Map of non motorised movement study

SURVEY: OPEN SPACE

- Provide 102 hectares Park and its immediate vicinity, 28% of the village.
- Provide 45 hectares of Biodiversity Action Plan habitat and links with existing corridors.
- Ensuring the protection and improvement of habitats.
- Ensure the land and its natural resources are sustained,
- Aim to enhance the ecological value of the site.

Figure 27 - Images & Map of open space study

SURVEY: BUILT SPACE

- High-quality built and natural environment that integrates new development with waterways.
- high-quality outdoor spaces in the areas around Queen Elizabeth Olympic Park.
- Development will incorporate the highest standards of design, architecture and green infrastructure network .

Figure 28 - Images & Map of Built space study

SURVEY: ACTIVITY

- Maximising affordable housing
- Protecting existing residential communities.
- A mix of new homes and business uses in the Neighbourhood Centre.
- Protecting existing and delivering new Gypsy and Traveller accommodation.

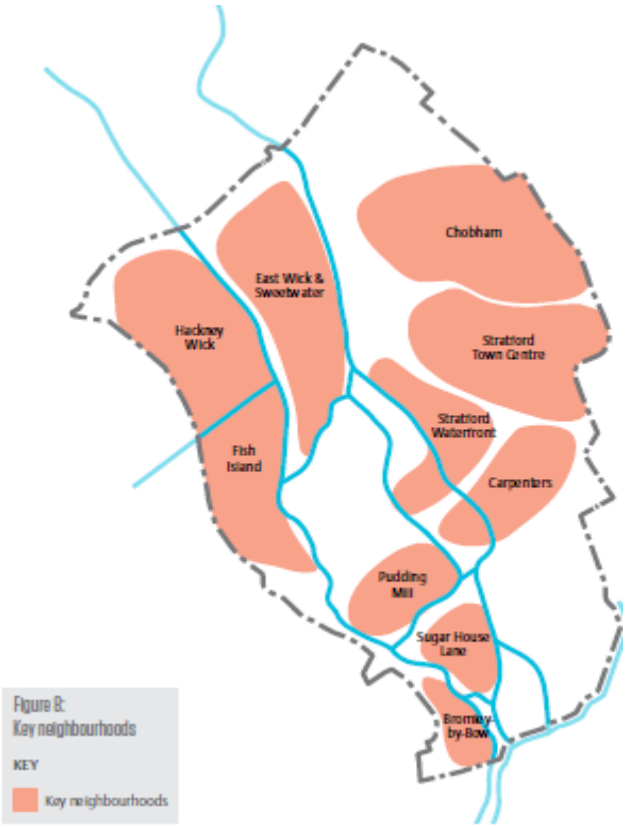


Figure 29 - Images & Map of activity study

SURVEY: PUBLIC REALM

- A new visitor centre and community leisure centre
- Streetscape improvements along Leyton High Road
- creating cultural hub at the White Building.
- Redesign of Meridien Square at Stratford Station to improve accessibility
- Three Mills Green - a new park that connects the Lea Valley.

Figure 30 - Images & Map of public realm study

SURVEY: TOWN SCAPE

- The built form reflects distinct character and urban Grain.
- All buildings should consider orientation, with south facing elevations.
- Designed to create a strong sense of definition.
- Elevation design and layout will need to balance
- Good quality of daylight with appropriate privacy.

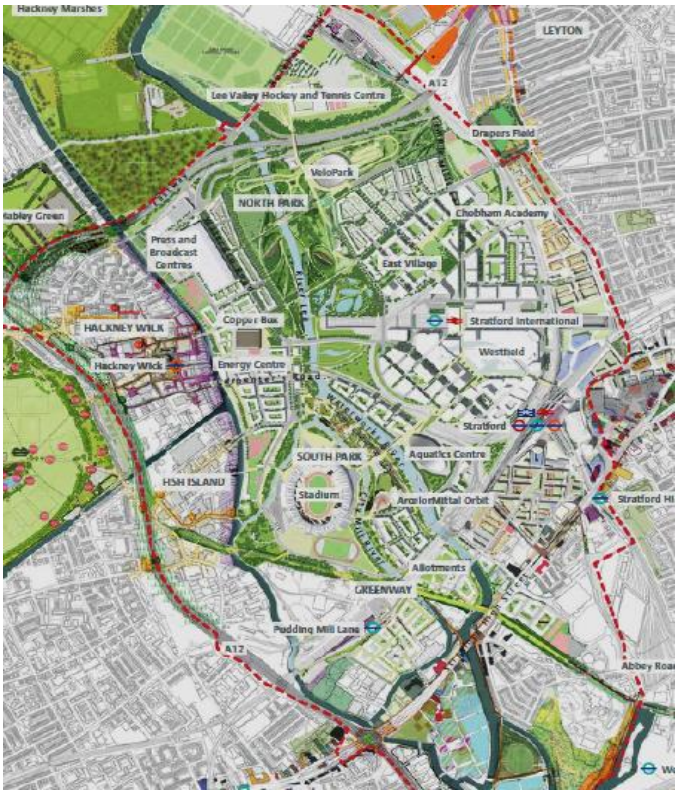


Figure 31 - Images & Map of town scape study

SURVEY: ARCHITECTURAL FEATURES

- The built development reflects adaptation of steel buildings.
- Projected individual balconies are distinctive.
- Elevation design and layout is balanced.
- Use of greeneries in vertical façade is noticeable.

Figure 32 - Images of Architectural features study

2.0 CASE EXAMPLES

2.2 CASE EXAMPLE -2
TANGSHAN NANHU ECO-CITY, CHINA

DESCRIPTION

Tangshan Nanhu Central Park is a mine reclamation project, which is now the largest urban central park in north-eastern China. The former 1,557-acre wasteland is now a dynamic public space, featuring recreational facilities, conservation areas and more than 600,000 trees and shrubs. Tangshan City created a public recreational space.

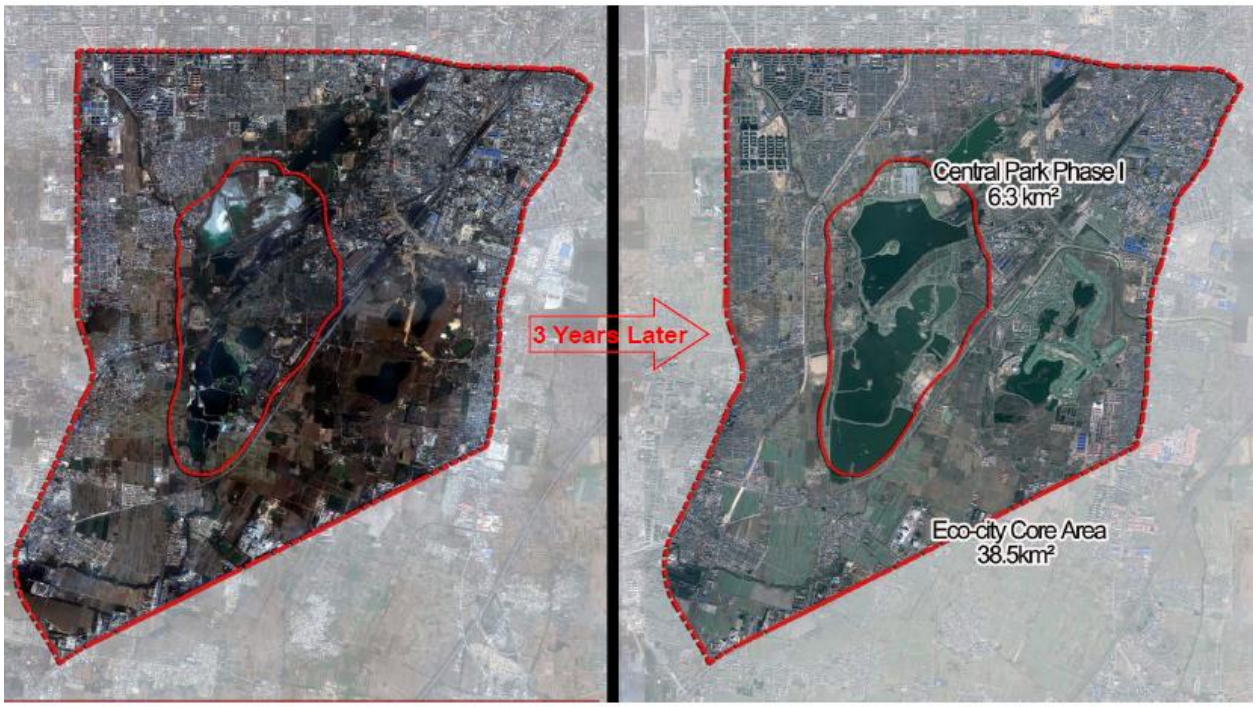
Figure 33 - Map of Nannu eco city

HISTORY

The former coal mining site was heavily polluted and damaged after a massive 1976 earthquake. Parts of the site had collapsed and settled unevenly, creating a patchwork of unstable surfaces which eventually grew to 28 sq km. The site was used largely as a city landfill and a sewage lagoon. In 2008, the reclamation project began. the project has fundamentally improved the environmental quality of the area.

Figure 34 - Eco city before the redevelopment

Figure 35 - Eco city after the redevelopment



Before Construction, 2006

After Construction of Central Park Phase I , 2009

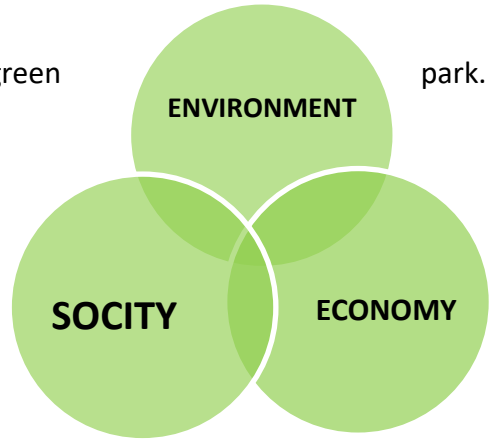
OBJECTIVES

1. The main objective is to transforming old mine as a green park.

2. Create locally distinctive neighbourhoods which meet housing needs.

3. Create natural environment that support the biodiversity and ecological growth..

4. Secure the infrastructure required to support growth and convergence.



5. Present as a natural ecology zone integrated with history, culture and modern development.

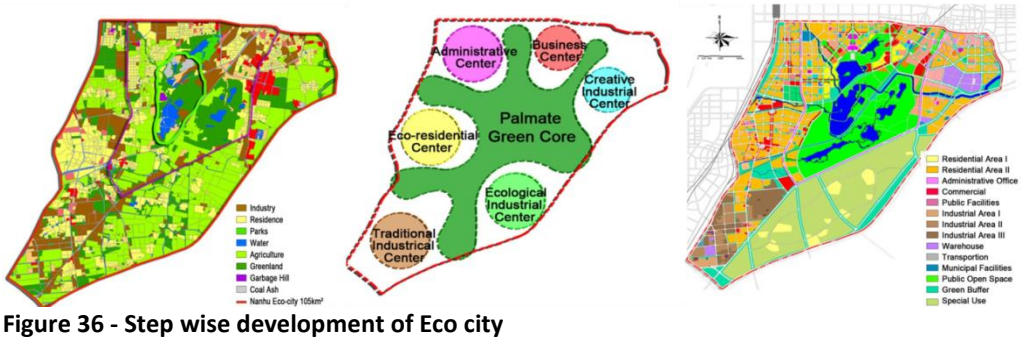


Figure 36 - Step wise development of Eco city

SURVEY: MOVEMENT (MOTORISED)

- Improves Local Connectivity.
- Providing easy movement form old city to new development.
- Providing public transport within the city.
- Connecting all the corners with major roads.

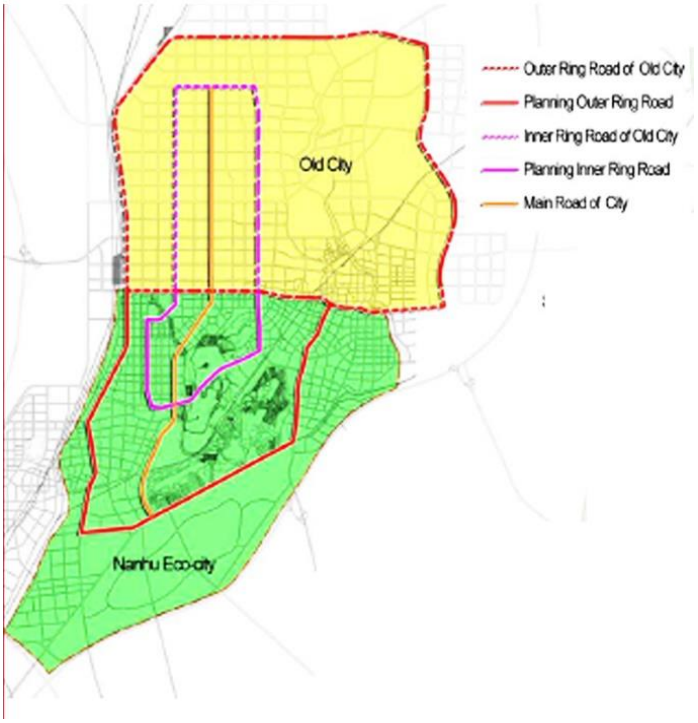


Figure 37 - Images & Map of motorised movement study

SURVEY: MOVEMENT (NON-MOTORISED)

• Constructing slow traffic system to support urban green land.

• Walk able Access to green area are well connecting .

• Urban water system is integrated with movement.

• Encourage public transport, car-sharing, car-clubs, cycling, and walking.

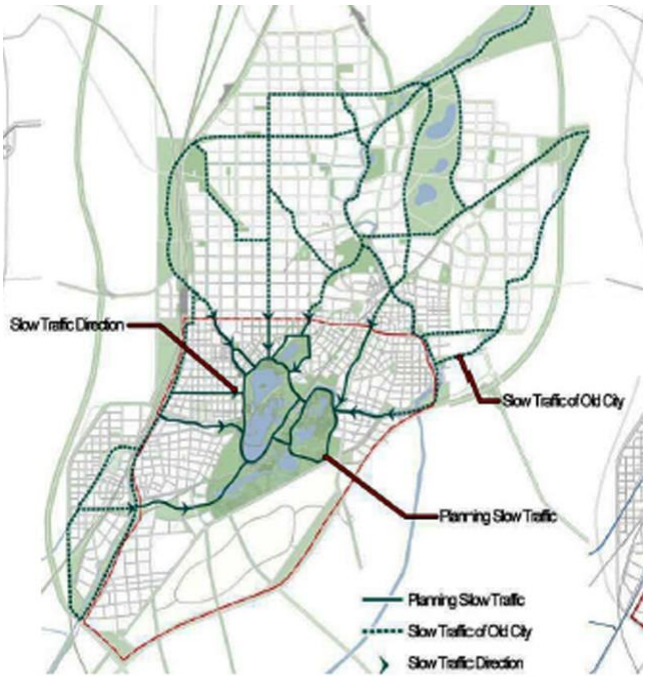


Figure 38 - Images & Map of non motorised movement study

SURVEY: OPEN SPACE

• For the central park main idea to preserve, restore and rebuild.

• provide a 5.91 sq km central park in core area. 22% of the city.

• Water ways and green fringe to the neighbourhood.

• Ensure the growth of natural ecology.

• Aim to enhance the ecological value of the site.

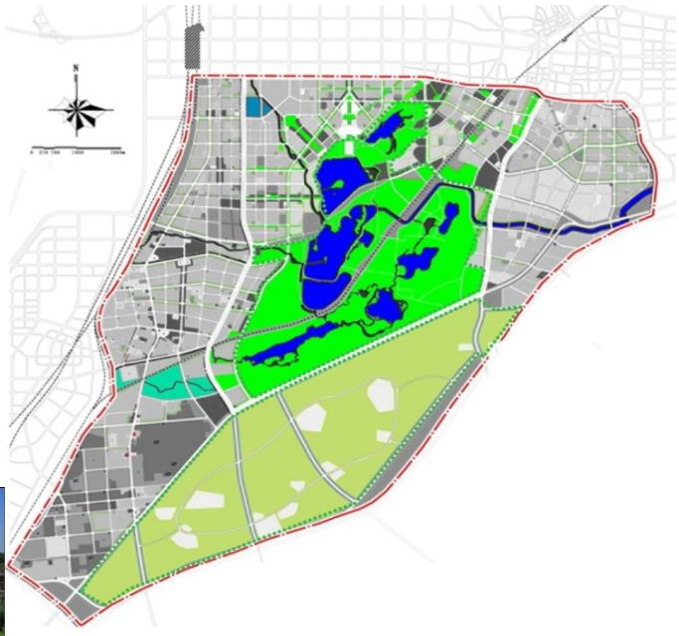


Figure 39 - Images & Map of open space study

SURVEY: BUILT SPACE

- High-quality built and natural environment.
- Site specific buildings and outdoor spaces in the areas around ecological Park.
- Architecture and green infrastructure network .
- Residential zones designed to integrate with the central park.

Figure 40 - Images & Map of Built space study

SURVEY: ACTIVITY

- Ecological Green park is the heart of the city. 22%
- Housing for MIG & LIG group. 54%
- Industrial area for economic development and employment generation. 12%
- Planning of social infrastructure is in ideal locations

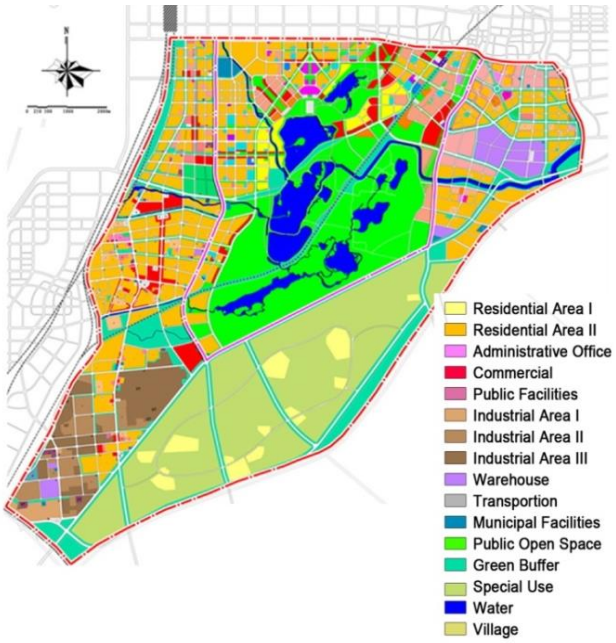


Figure 41 - Images & Map of activity study

SURVEY: PUBLIC REALM

- New visitors place and ecological museum.
- Streetscape improvements along the park enhancing links.
- Leisure and entertainment functions in Nanhu city attracts outsiders.
- Recreational and facility are very good.

- Improves quality of life by the reconstruction

SURVEY: TOWN SCAPE

- 44.7% of built up with character and urban Grain.
- Numbers of residents within I km is 10,000.
- Core Residential zone planned with old city characteristics.

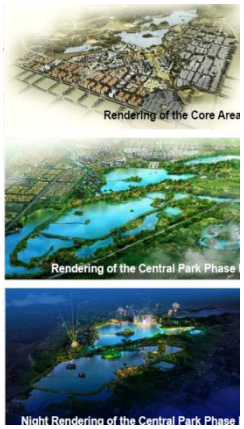


Figure 42 - Images & Map of town scape study

SURVEY: DETAILS & ARCHITECTURAL FEATURES

- Use of Wooden structures to reduce earth quake impact.
- Concrete mixed coal ash for constructing road and pavements.
- Contemporary style is noticeable in new development.

Figure 43 - Images of architectural features study

2.0 CASE EXAMPLES

2.3 CASE EXAMPLE -3

HACKNEY WICK &FISH ISLAND, THE LONDON 2012 OLYMPIC AND PARALYMPIC GAMES VILLAGE,

DESCRIPTION

Hackney Wick and Fish Island became a more vibrant, diverse and well connected series of mixed and balanced neighbourhoods with places of social, cultural and economic activity. Neighbourhood Centre - a mix of employment, retail and community uses along with new residential forming a focus around the Hackney Wick Station area.

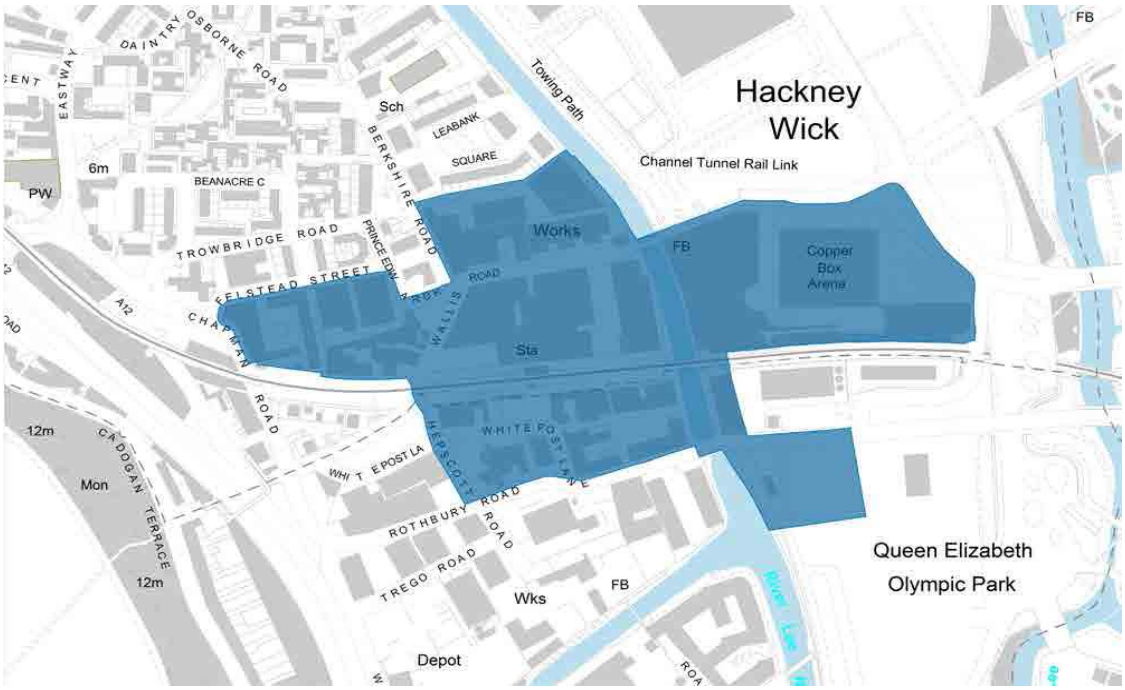


Figure 44 - Map of Hackney Wick & Fish Island

Figure 45 - before redevelopment

Figure 46- after redevelopment

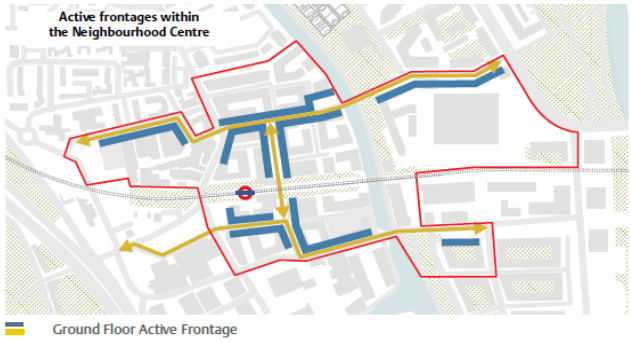
SURVEY: MOVEMENT

- New passages connecting pockets of public space
- Repairing movement networks by creating new streets, better pedestrian and cycle routes .
- Enhancing access to an upgraded Hackney Wick Station

Figure 47 - - Images & Map of movement study

SURVEY: ACTIVITY

- Providing a mix of housing types
- Established residential and mixed use areas
- Protecting creative and cultural industrial uses
- Location and maintenance of employment uses.



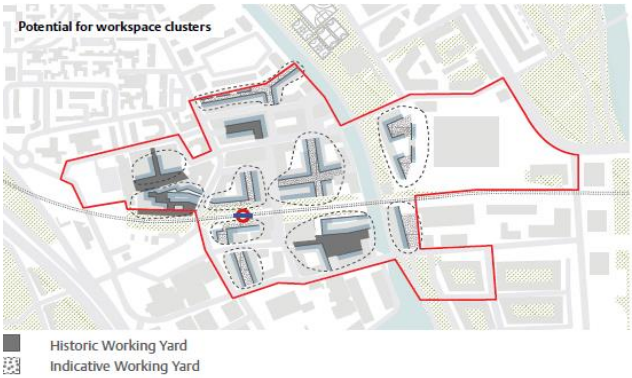


Figure 48 - - Images & Map of activity study

SURVEY: OPEN SPACE

- Enhancing the waterside environment
- provision of publicly accessible open spaces
- provided informal leisure on and along the waterways

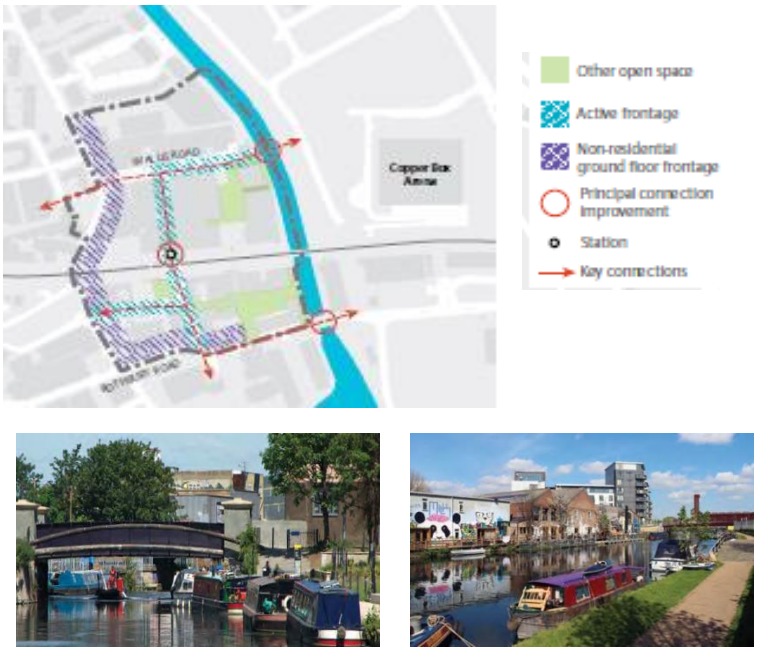


Figure 49 - - Images & Map of open space study

SURVEY: BUILT SPACE

- increase in residential floor space.
- Re-development in the form of cleared sites
- Develop clusters of workspace across the centre

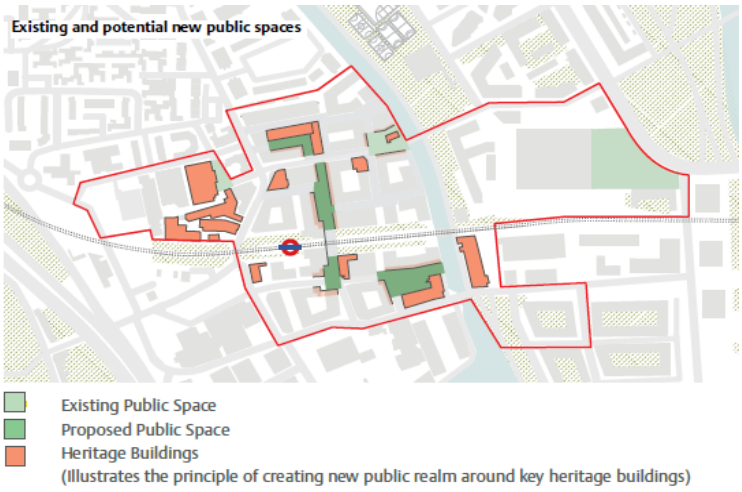


Figure 50 - - Images & Map of built space study

SURVEY: PUBLIC REALM

- New multi-purpose public spaces that help to anchor activity
- Create a public realm that is coherent, robust, simple, accessible and safe.
- Appropriate greening of the public realm and buildings.

Figure 51 - - Images & Map of public realm study

SURVEY: DETAILS & ARCHITECTURAL FEATURES

- Retained heritage assets and historic street pattern.
- Ensuring the character and scale of the neighbourhood centre reflects its past.
- Ensure individual sites deliver a key spaces and connections.

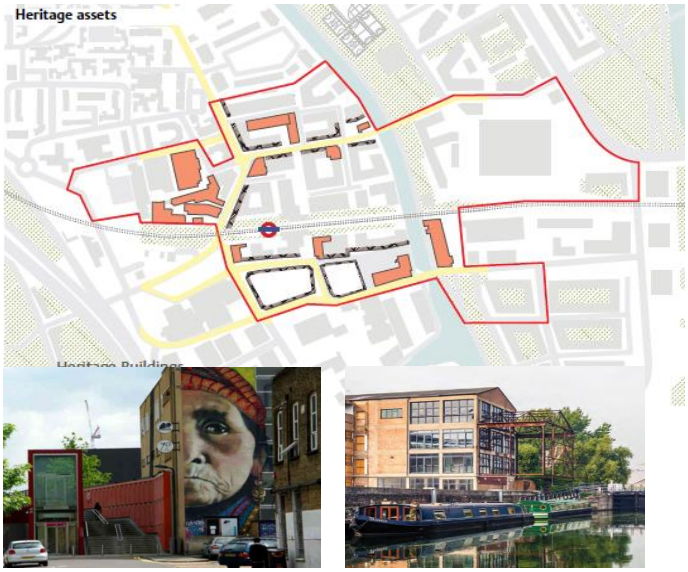


Figure 52 - - Images & Map of architectural features study

2.0 CASE EXAMPLES

2.4 CASE EXAMPLE -4
798 ART ZONE BEIJING, CHINA

DESCRIPTION

798 Art District is located in the Dashanzi area, to the northeast of central Beijing. It is the site of state-owned factories including Factory 798, which originally produced electronics.

HISTORY

798 started as a factory complex that was part of the bigger industrial project called '718 Joint Project'. 718 Joint Project was part of the first Five Year Plan (1953 - 1957) of China.. In the 1980s and 1990s, the factory's economic performance diminished and the factory complex was abandoned.

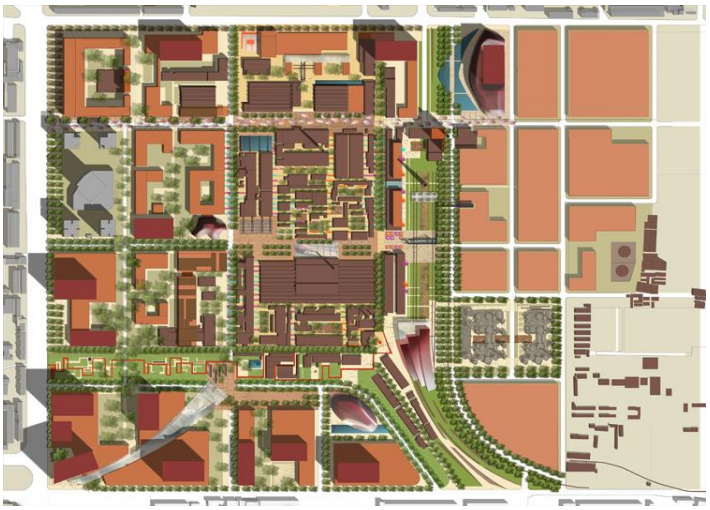


Figure 53 - Map of 798 art zone, Beijing

Figure 55 - before redevelopment

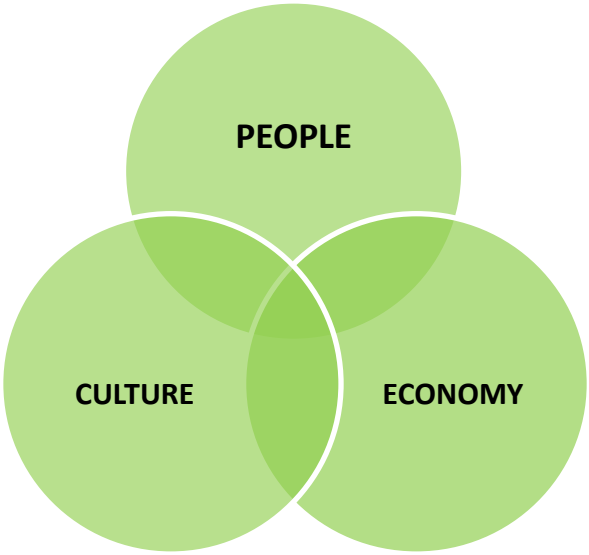
Figure 54 - After redevelopment

Figure 57 - Art zone in 1990

Figure 56 - Art zone in 2015

OBJECTIVES

1. The transformation of a place may generate economic returns.
2. Adaptive reuse of industrial heritage buildings.
3. Creating sense of place to enhance city liveliness.
4. Creating a platform for artists and there families both nationally and internationally.



SURVEY: MOVEMENT

- Provided good local connectivity form city.
- Well designed routes and paths
- Junctions and intersections are well managed.
- Cycle tracks and cycle parking available.

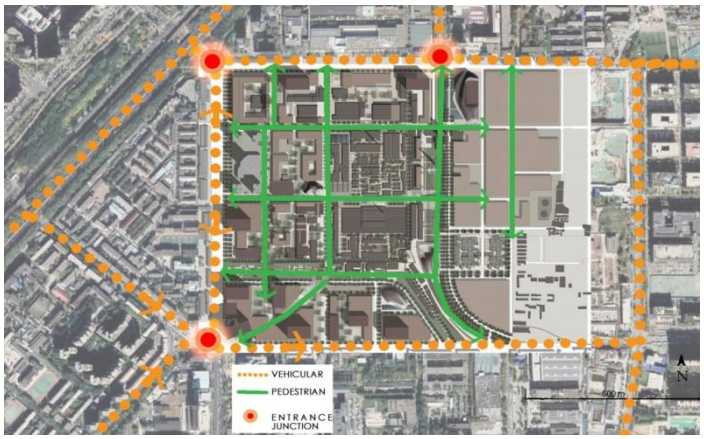


Figure 58 - - Images & Map of movement study

SURVEY: ACTIVITY

- New development supports the old heritage.
- Mixed use development provided along the art centre.
- Tourist development where the term “cultural” is an instrument.

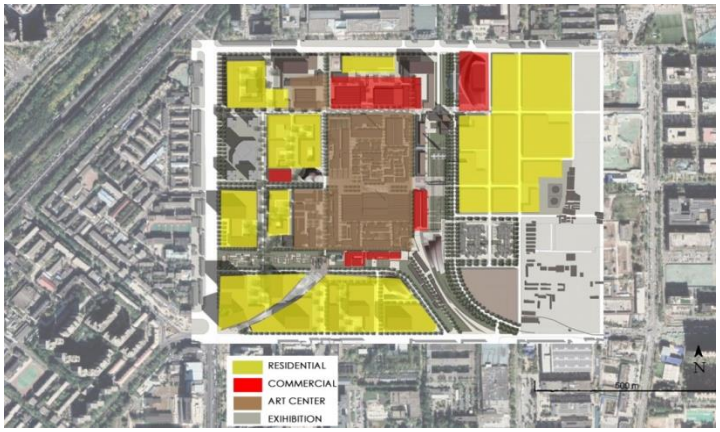


Figure 59 - - Images & Map of activity study

SURVEY: OPEN SPACE

- **Green corridor to move one place to another.**
- **Open courtyard is easily identified.**
- **Mixture of galleries, museums, stalls, and cafes.**
- **Open galleries for different installations.**

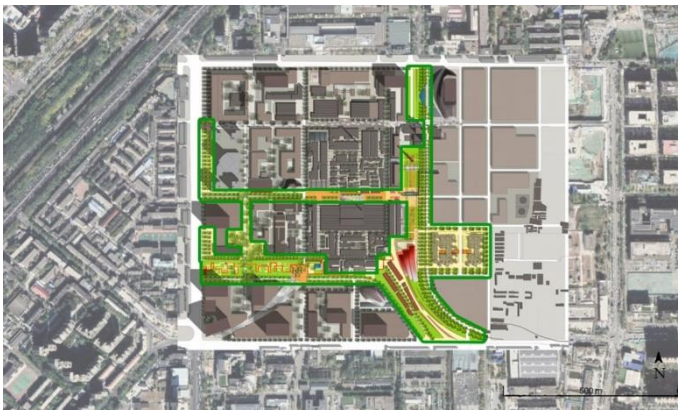


Figure 60 - - Images & Map of open space study

SURVEY: BUILT SPACE

- Mix of low rise and high rise development.
- Open courtyard is easily identified.
- Main corridors became more wider .
- Maintaining the urban grain.

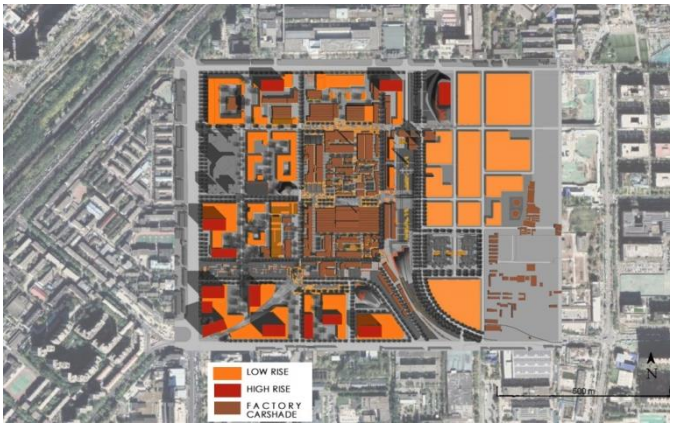


Figure 61 - - Images & Map of built space study

SURVEY: DETAILS

- Creating public space between road and building.
- Building facades are contemporary.
- Junctions have barriers to restricts vehicular movement.

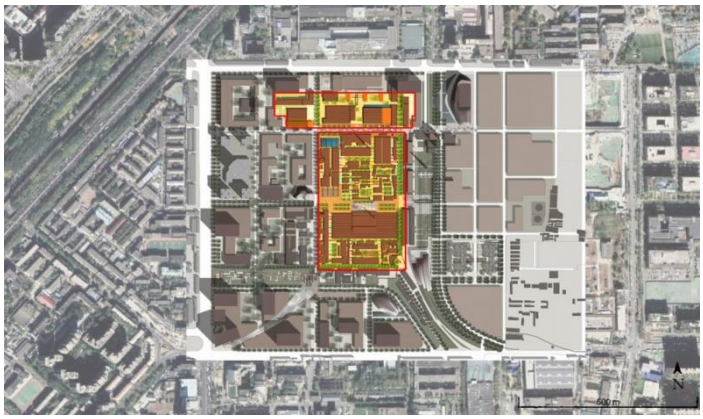


Figure 62 - - Images & Map of town scape study

SURVEY: ARCHITECTURAL FEATURES

- In this case they reuse of old factories.
- Old design is reflecting Bauhaus style.
- Art installations to enhance sense of place.
- landscape to enhance sense of place.
- Street furniture to enhance sense of place.

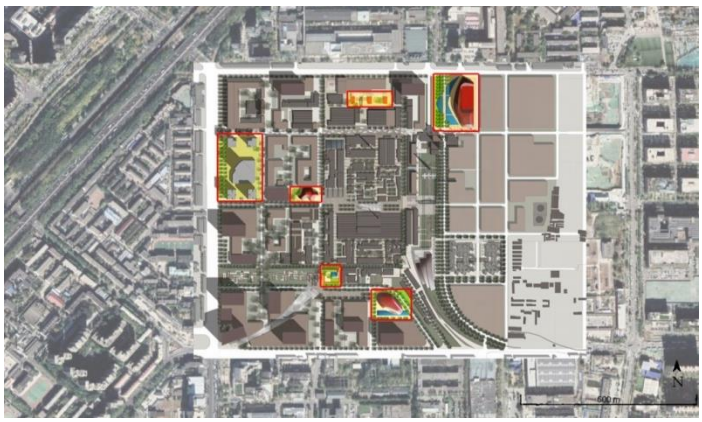


Figure 63 - - Images & Map of architectural features study

2.0 CASE EXAMPLES - REPORT STUDY

CHARLES CORREA REPORT FOR MUMBAI MILLS

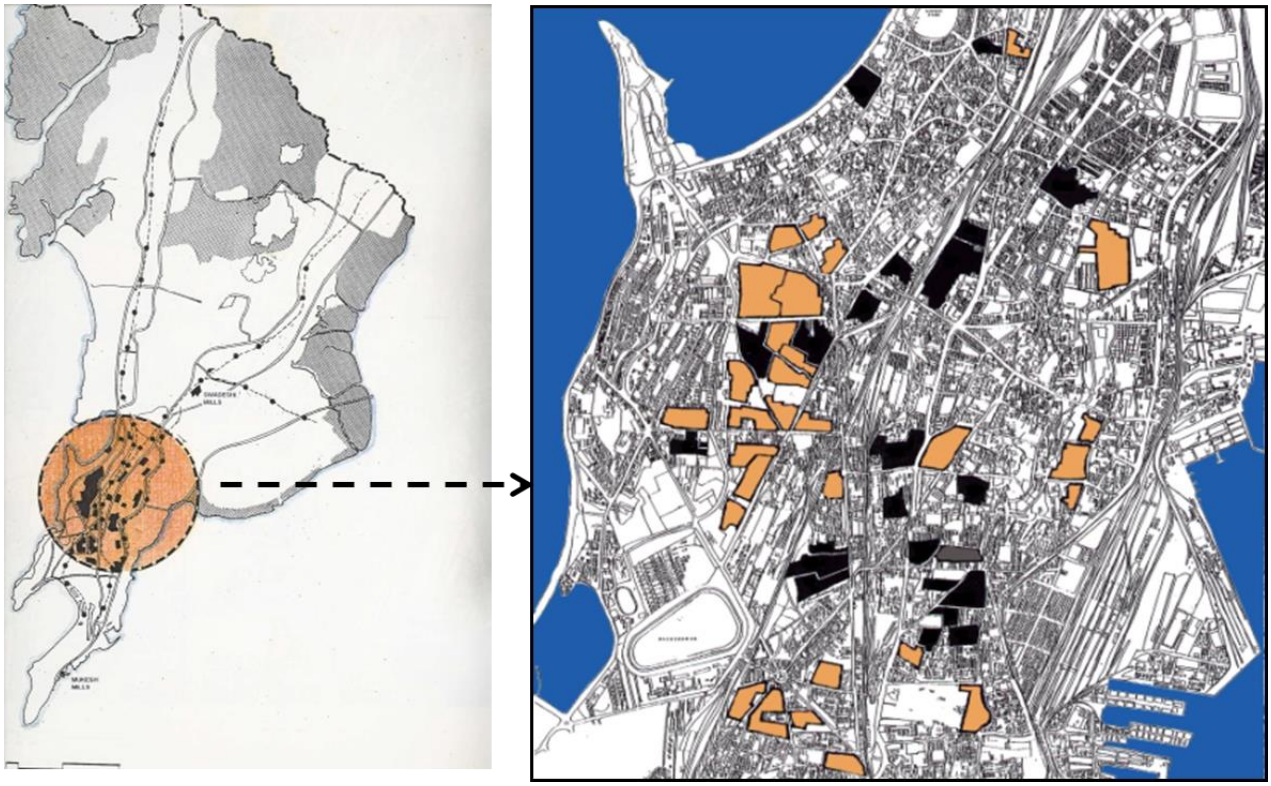


Figure 64 - Map of Girangaon mills area , Mumbai

The study group chaired by architect & urban planner Mr. Charles Correa created a design solution for a comprehensive redevelopment of textile mills in Girangaon..

The report identifies a triangular area between Matulya, Paragon and Mumbai mills and develops an integrated master plan for the same. The strategy for land-use division adopted by the study group supports the DC rule of 1992. It recommends that the division between the City, MHADA and the owner should be fixed at one third each, regardless of the size of the site.

URBAN FORM

- Identify heritage structures on mill sites.
- Preserve and recycle them as studios for artists, workplaces for fashion designers, computer software engineers etc.
- Establish key design guidelines regarding the urban Form.
- Development of larger footprints for economical & energy-efficient construction.
- Use of building facades to help define streetscapes.

TRANSPORT

- Establish important connector roads.
- Widen capacity of the existing road and rail network.
- Improved pedestrian movement.
- Exclusive roads for buses to support heavy traffic of passengers travelling between buses and trains.

OPEN SPACES

- Open spaces of different sizes to allow variety of uses
- Principal roads widened and lined with trees to create leafy boulevards.
- Pedestrian plazas in front of railway stations.
- Covered shopping arcades alongside major roads.
- Land for public open spaces could be used for other social facilities like schools,
- clinics or community centres depending upon the needs of the neighbourhood.

EMPLOYMENT GENERATION

- Generation of semi-skilled employment similar to that provided by existing mills.
- Development of new high-tech, non-polluting industries like computers and garment industry.
- Large number of household jobs would be created with the development of high-end
- residential zones in place of former mills in private sector.

HOUSING

- Land taken over by MHADA could be used to develop low income housing, reconstruction of dilapidated buildings or redevelopment of slums.
- MHADA could hand over some of the construction to other contractors.

PRIVATE MILL DEVELOPMENT

- Prepare an Outline Development Proposal (ODP) for mill sites.
- Include surrounding area with road network.
- Identify and document heritage structures that need to be preserved.
- Provide land allocation for three types of uses & an outline of the built form.

POOLING OF LAND

- Pooling the land for increased FSI of 2.0 (compared to FSI of1.33 in island city)
- Beneficial in creating large new public spaces.
- The cluster of taller buildings generated by the additional FSI would create a visible
- landmark, recognizable across the city's skyline as a symbol of the generation of Parel and with it, the city of Mumbai.

Figure 65 - image of mumbai mill

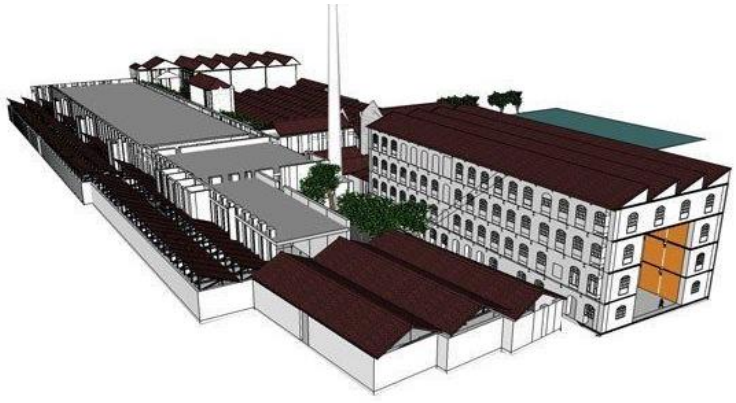


Figure 66 - Proposed image of mill museum

COMPARATIVE ANALYSIS OF CASE STUDIES

	THE LONDON 2012 OLYMPIC AND PARALYMPIC GAMES VILLAGE	**TANGSHAN NANHU CENTRAL PARK, CHINA**	**HACKNEY WICK &FISH ISLAND, LONDON**	**798 ART ZONE BEIJING, CHINA**
MOVEMENT (MOTORISED)	Local Connectivity, Minimise private car use, Public transport intervention, Connecting through various routes.	Local Connectivity, Easy movement, Providing public transport, Major ring roads.	Enhancing access to Hackney Wick Station, New streets	Local connectivity, ,Routes and paths Junctions and intersections are well managed.
MOVEMENT (NON-MOTORISED)	Walk able & cycle-friendly , Safe streets and paths, Easy access to bus stop, changing facilities cycle.	Slow traffic system, Walk able Access, Urban water system Public transport, Car-sharing,	New passages connecting pockets, Better pedestrian, cycle routes .	Pedestian pathway,Cycle tracks,Cycle parking.
ACTIVITY	Affordable housing, residential communities,mixed use development.	Ecological Green park, Affordable Housing, Industrial area, Social infrastructure	Mix of housing types, mixed use, Creative and cultural, , Employment uses.	New development, Old heritage. Mixed use development, Tourist development.
OPEN SPACE	Biodiversity Action Plan, Links with existing corridors., Improvement of habitats, Natural resources, Ecological value of the	preserve, restore and rebuild, 5.91 sq km central park,Water ways, green fringe, natural ecology.	Waterside environment, Open spaces, Informal leisure.	Green corridorOpen courtyardMixture of open galleries,stalls, and cafes, installations. .

BUILT SPACE	High-quality built and natural environment, high-quality outdoor spaces, green infrastructure network .	Built and natural environment, Site specific buildings, Residential zones integrate with central park.	Increase in residential floor space, Re-development in the form,	Mix use development. Open courtyard Main corridors became wider, Urban grain.
PUBLIC REALM	A new visitor centre, community leisure centre, Streetscape, Redesign of Meridien Square	Ecological museum. Streetscape, Entertainment functions Recreational and facility are very good. Improves quality of life by the reconstruction	New multi-purpose public space, Coherent, Robust, Simple, Accessible and safe.	Public places, Art district, Built heritage, "placeness.
TOWN SCAPE	distinct character,urban Grain., South facing elevations. , Strong sense of definition.,Good quality of daylight, appropriate privacy.	44.7% of built up, urban Grain, Planned with old city		High rise, Buildings with different heights, vista and views.
DETAILS		Wooden structures, Concrete mixed coal ash, Contemporary style	Ensure individual sites deliver a key spaces and connections.	Buffer space, Contemporary facades.
ARCHITECTURAL FEATURES	Steel buildings, Individual balconies, Elevation design, Greeneries in vertical façade.		Heritage assets. Historic street pattern. Character and scale.	

3.0 CASE APPLICATION

3.0 CASE APPLICATION

3.1 AREA LEVEL STUDY

3.1.1 SELECTION OF THIS AREA

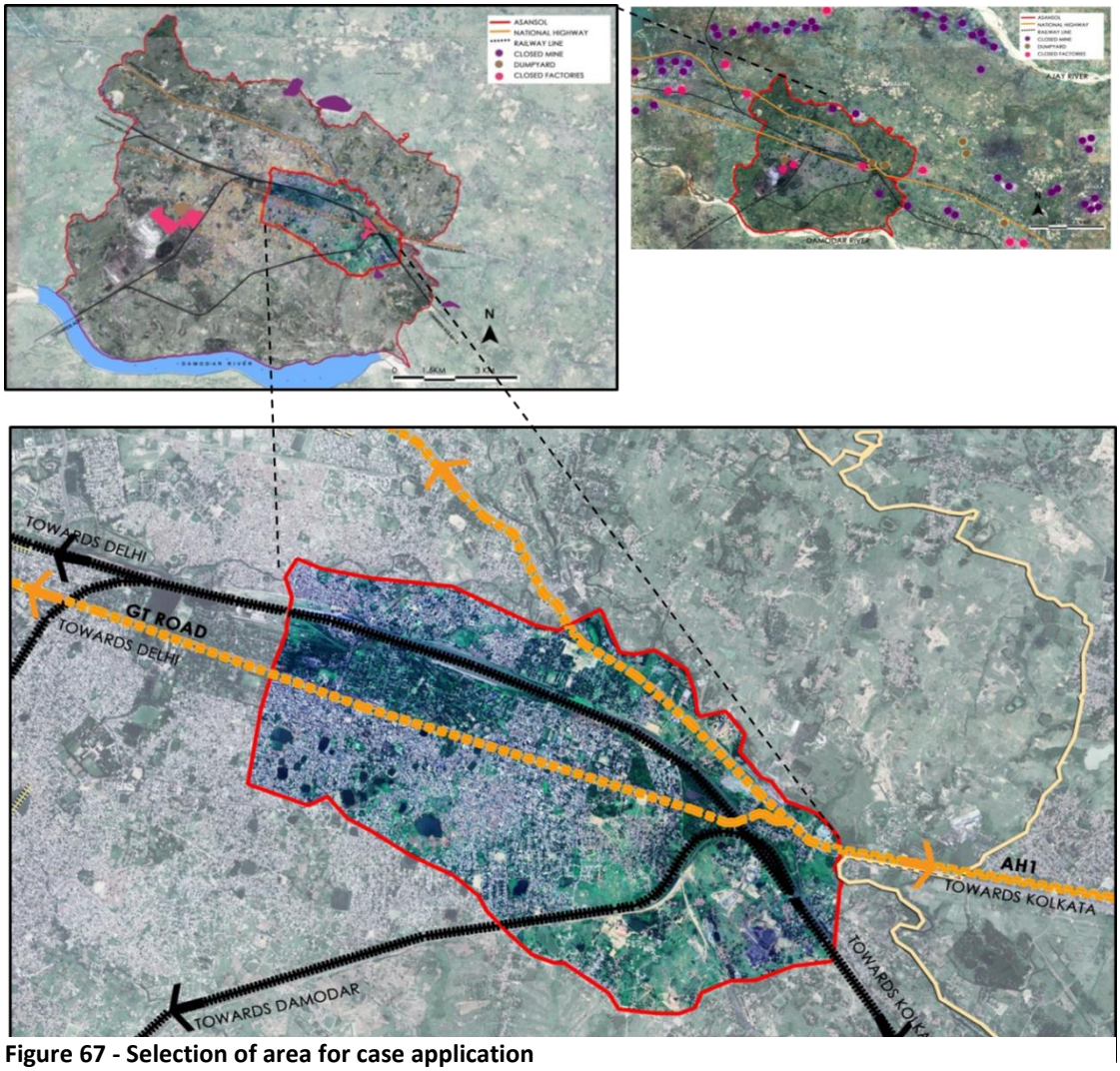


Figure 67 - Selection of area for case application

JUSTIFICATION

- The area has been identified by the concentration of potential brown fields and its special activities.
- The entrance of the city is in the east part of the stretch which has historic value.
- Asansol railway station and city bus stand is situated in the south west in this study area.
- Asansol main bazaar and commercial zone which is the heart of the city is along the GT road covered in this area.
- Residential neighbourhoods , mixed-use, institutions, public offices are located in this stretch.

3.1.2 DESCRIPTION

Figure 68 - Area level map

- This area had mixed-use development .
- The city starts from the very east part of the study area after a railway over bridge.
- Major Industry was WELLWORTH VANIJA PVT. LIMITED known as Asansol glass factory. Closed FROM 1990. Car shed and land are becoming urban wasteland .
- This area has social and economic diversity which is a positive approach to remodelling brown field sites.
- This area is growing faster because the new urbanisation is growing along the AH1 highway corridor.
- The Ushagram is the old settlement in this region.

3.1.3 SURVEY : MOVEMENT

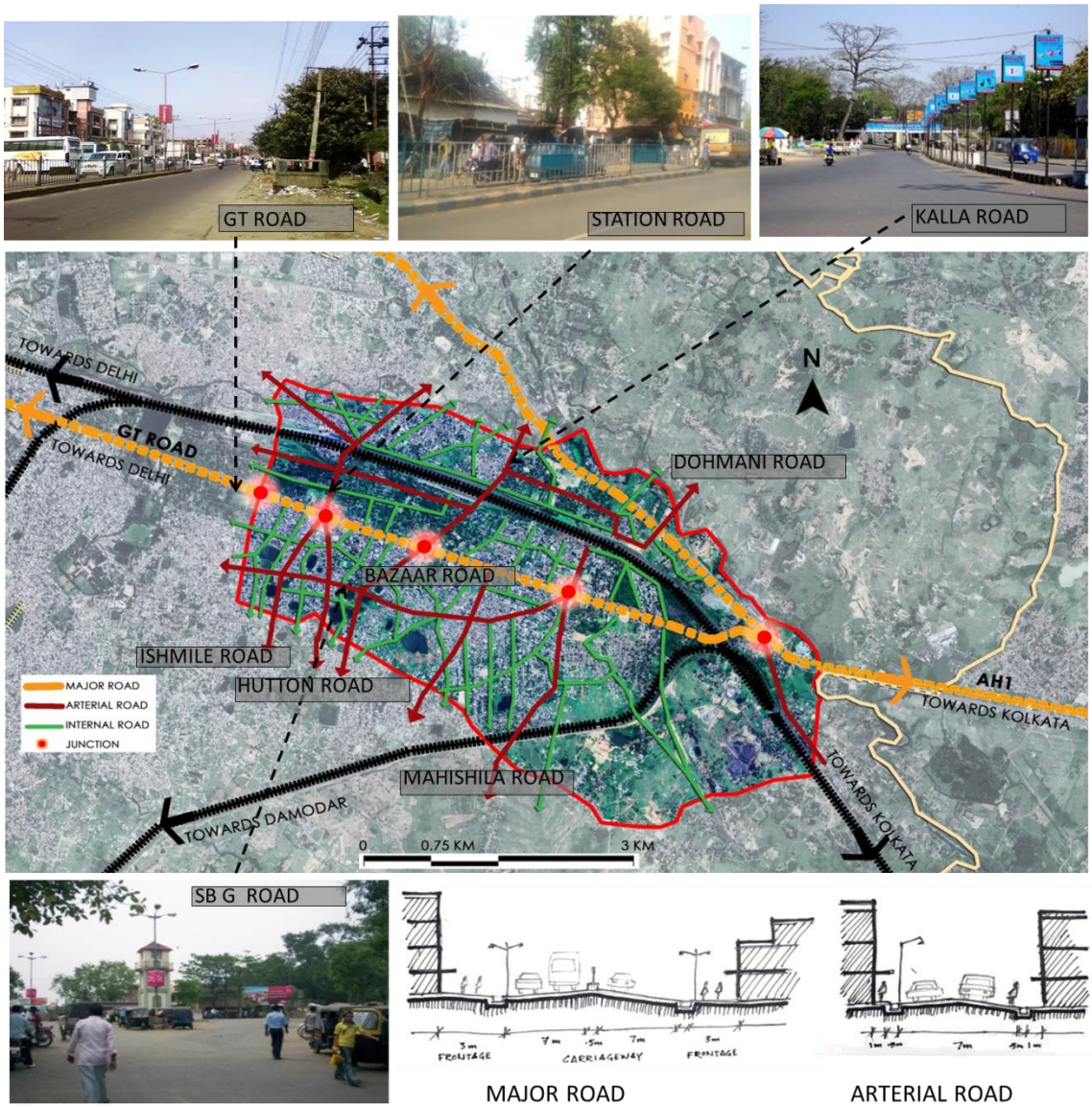


Figure 69 - Images & Map of movement study area level

OBSERVATION

- Asansol is an unplanned city so roads are in organic forms.
- The GT road is bifurcating Asansol, major road is GT Road. And the second major road is Burnpur Road connecting AH1 to Burnpur.
- There are some sub arterial roads having less traffic and.
- Internal roads are mostly for LMV and Pedestrian movement.
- People are using public transport most of the time. Most of the area is connected with public transit and para-transit.

CONCLUSIONS

- Road Hierarchy is mostly present in the city.
- People is dependent on Public transport for daily commute.
- Pedestrian access is not well defined.

SURVEY : ACTIVITY

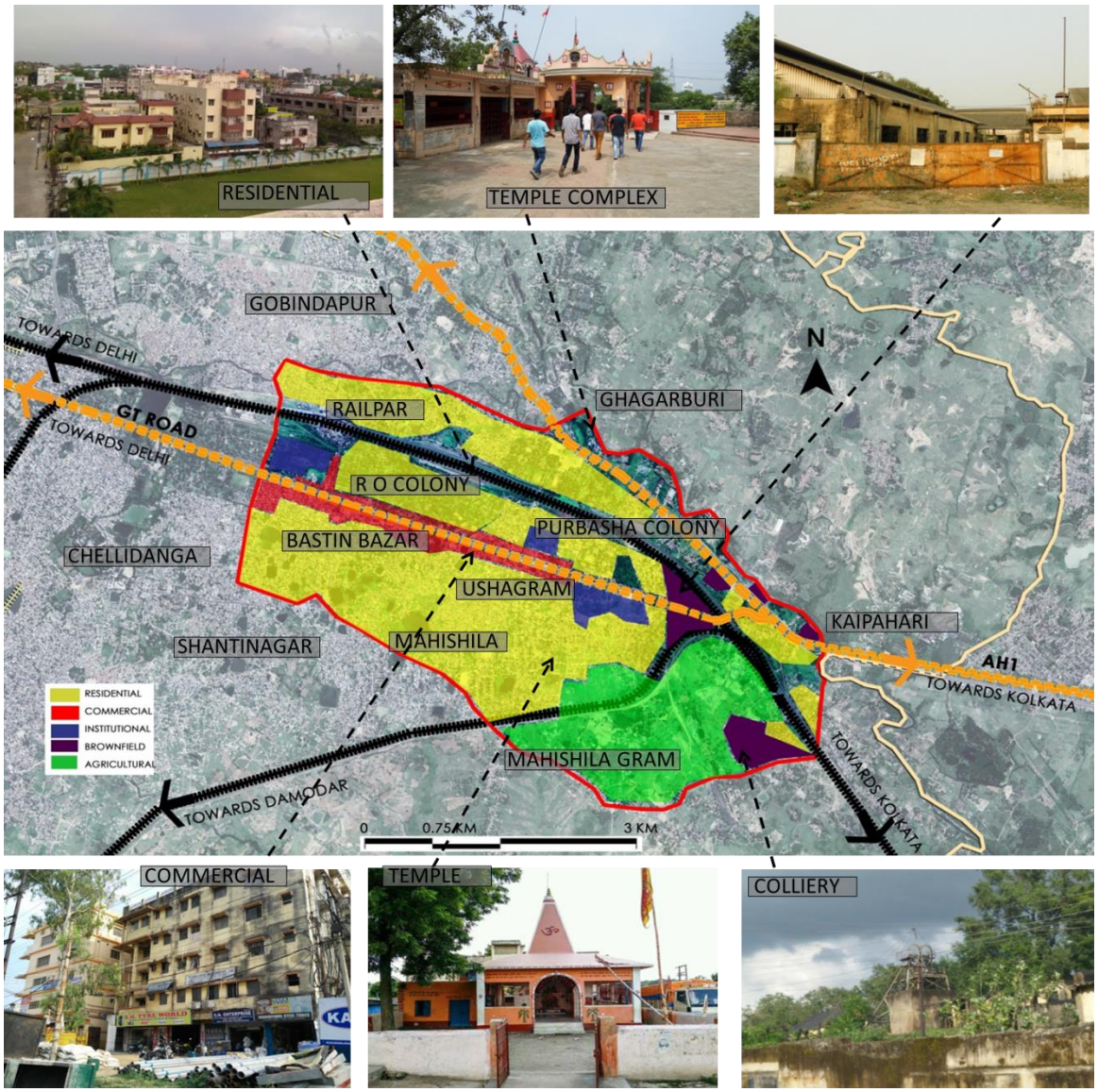


Figure 70 - Images & Map of activity study area level

OBSERVATION

- The delineated area is mostly residential in character . Approx. 56%
- Along the GT road buildings are commercial and mixed-use. 8 %
- Across the railway line in south side agricultural land and village area are present. 20%
- Some institutional zones are present in this area. BB college & Ushagram Boys & girls high school.
- At the eastern side the brownfields are present.

CONCLUSIONS

- This area has mix use activity.
- Commercial activity is not well distributed respect to residential area.
- Institutional zones are within the neighbourhood.

SURVEY : OPEN SPACE

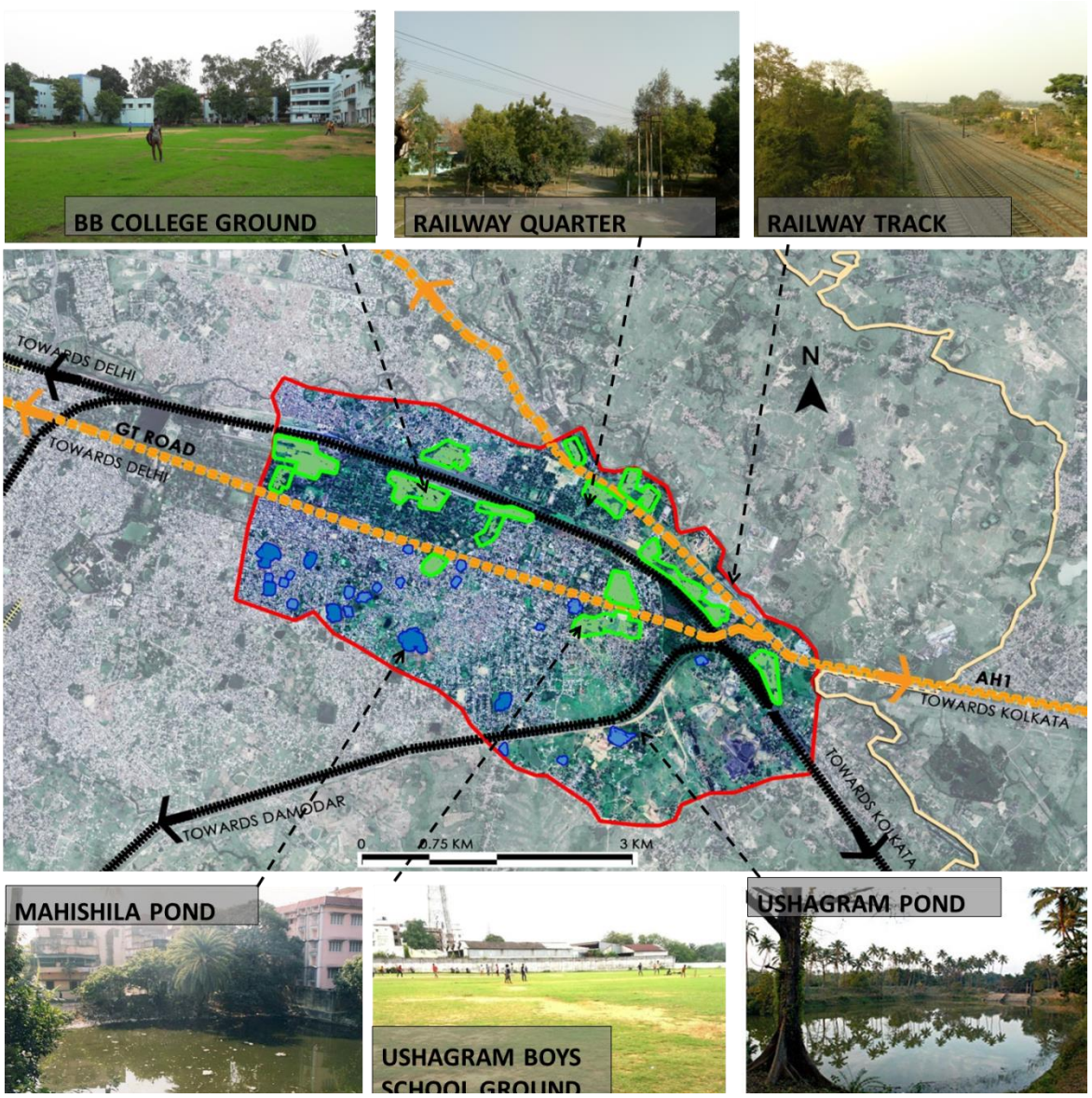


Figure 71 - Images & Map of open space study area level

OBSERVATION

- There are some little open space with in the neighbourhood areas.
- Institutional zones have proper ground and open spaces.
- Along the main railway line the railway quarters zones have good open spaces and good vegetation.
- Both side of he railway line is covered by green space.
- In the south west part of this area have some small ponds in between residential zone.
- Village area have bigger water bodies and good vegetation.

CONCLUSIONS

- Open space is available but they are not well distributed.
- Institutional zones have good open space.
- There are many undefined open space in this area.

SURVEY : BUILT SPACE

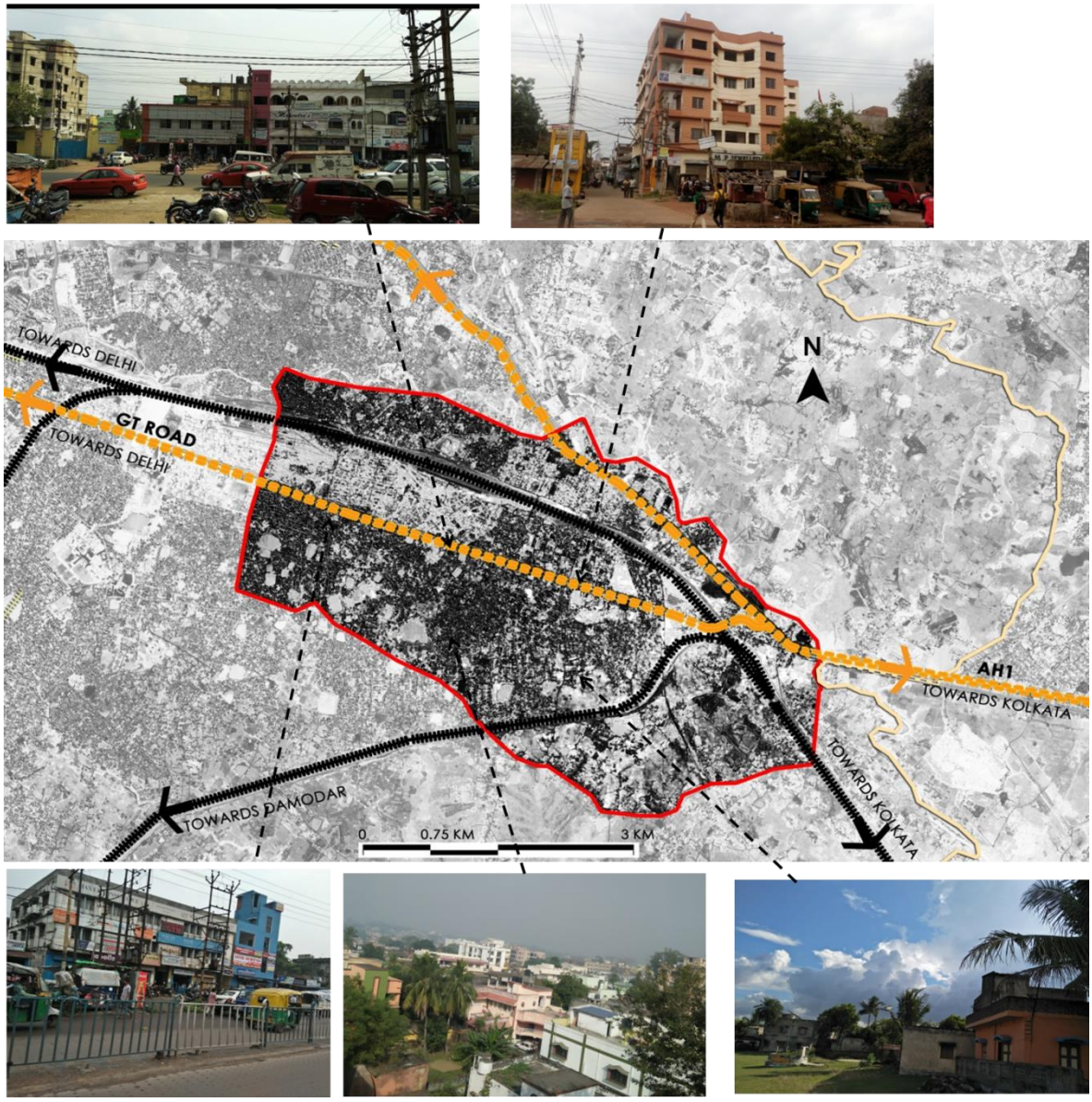


Figure 72 - Images & Map of built space study area level

OBSERVATION

- Along the GT road most of the buildings are with bigger footprint and height comparatively inner neighbourhood .
- In residential areas urban grain is not related in two side of GT road.
- In railway quarters area most buildings are vacant.
- There are some slum area in between residential zone and south end of railway track.
- Newly developed some high-rise residential complex is coming along the road.

CONCLUSIONS

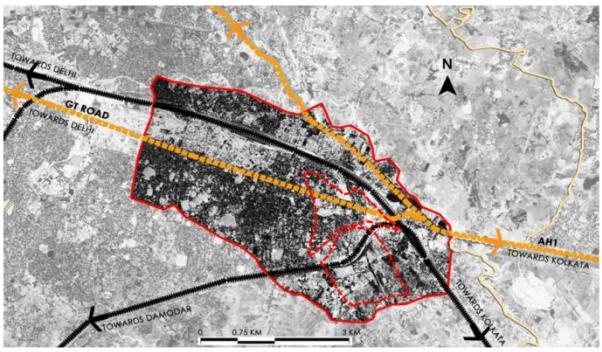
- This less dense grain zones have great potential act as active as public realm.
- The city scape and orientation is not so well managed, having scope of improvement.

3.2 ZONAL LEVEL STUDY

IDENTIFICATION OF STUDY ZONE

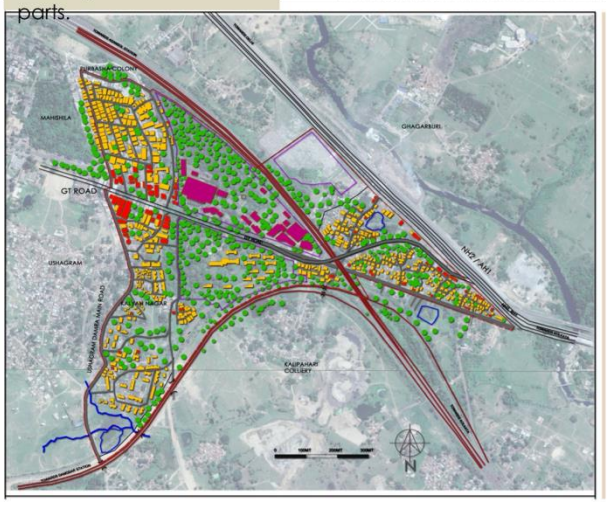
ZONE 1

the WELLWORTH VANIJA PVT. LIMITED (ASANSOL GLASS FACTORY centrally located in the zone .
the major road old GT road is the main spine of the zone. the road is dividing the zone in two parts.



ZONE 2

This zone has dead open cast coal mines. this is a peri-urban area strongly separated from the Asansol urban area by the elevated railway line in the east, north and north west side.



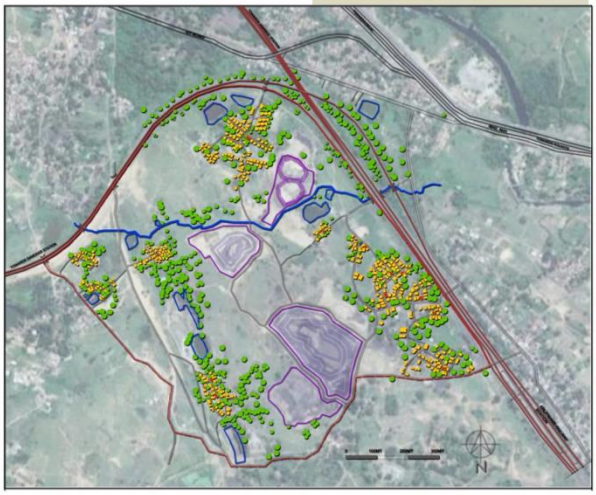


Figure 73 - Identification of study zones

3.2 ZONAL LEVEL STUDY

3.2.1 ZONE 1

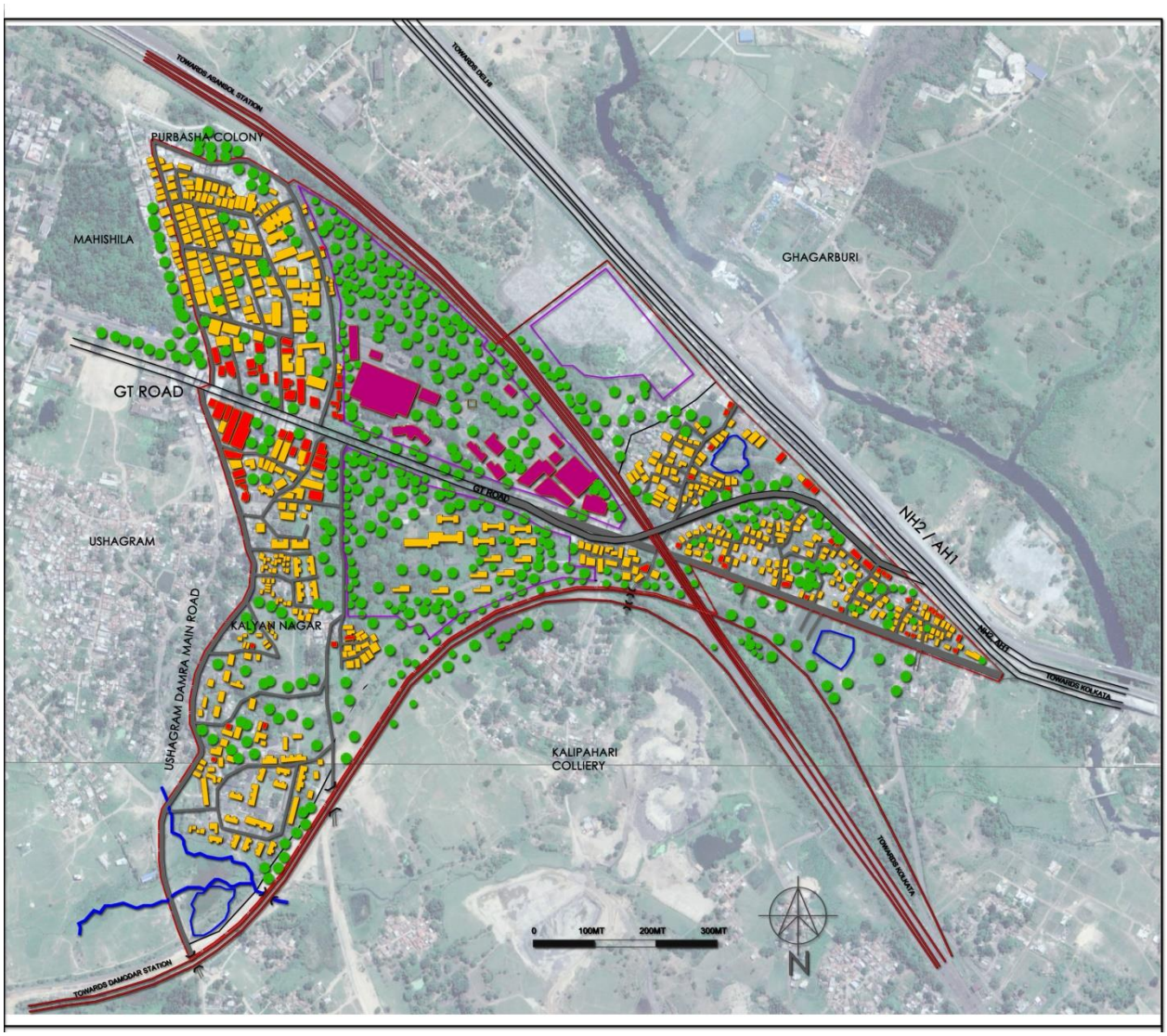


Figure 74 - Map of Zone 1

DELIEANITION

1. Delineation of the zone is defined by strong edge through railway lines and ward boundary .
2. In the east side the highway nh2 / ah1 of Kolkata Delhi corridor is separating the zone.
3. In the north side the railway line from Kolkata to Delhi is defined the edge.
4. In the west side the internal road of Purbasha colony is defining the edge.
5. The major road old GT road is the main spine of the zone. the road is dividing the zone in two parts.
6. In the very east side of this zone entry of the Asansol from nh2 through old gt road .
7. The zone have distinctive change of character beyond the delineation.

Figure 75 - Images of zone 1. Entry of Asansol, GT road, abandoned factory

DESCRIPTATION

1. The zone is the entry of Asansol form the highway.
2. The major road old GT road is the main spine of the zone. the road is dividing the zone in two parts.
3. The WELLWORTH VANIJA PVT. LIMITED (ASANSOL GLASS FACTORY centrally located in the zone .
4. In the south side there is employee quarters for glass factory and eastern coalfields limited.
5. There are some commercial activities along the road which are mainly automobile showrooms.
6. North side of the GT road which is Purbahsa colony is developed recently is more dance and planned.
7. East side beyond the railway line is included in this zone because it is the adjacent area of the entry road of Asansol.

SURVEY: MOVEMENT

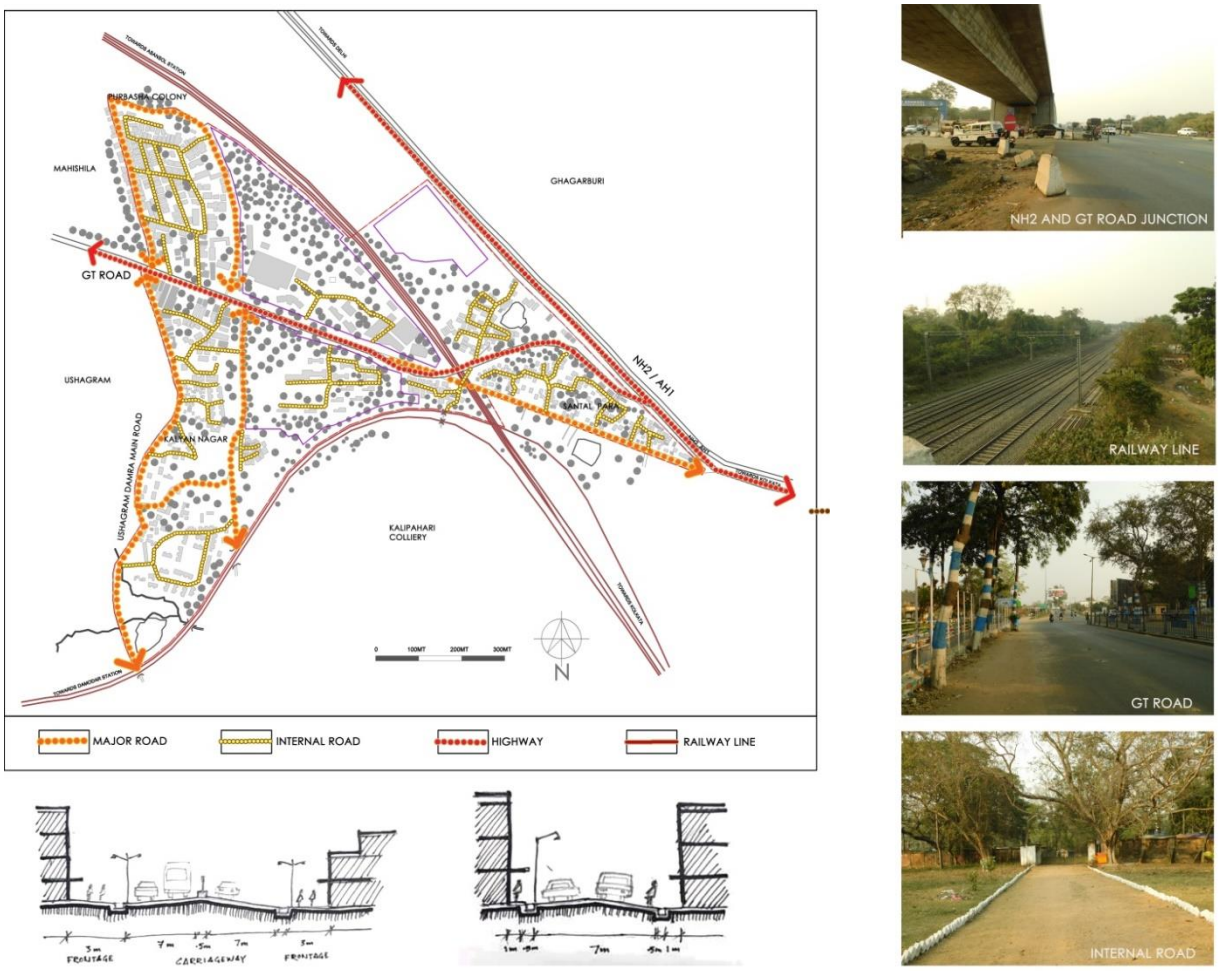


Figure 76 - Images & Map of movement study zone 1

OBSERVATION

1. The major road is GT road in the central spine of the zone. dividing the zone into two parts.
2. All the internal roads are narrow and cement concrete road.
3. The entry point from nh2 is not well defined and creating traffic congestion.
4. Pedestrian movement is not well defined along the major road.
5. Internal road inside the slum area is very narrow.
6. Heavy cycle movement noticed.

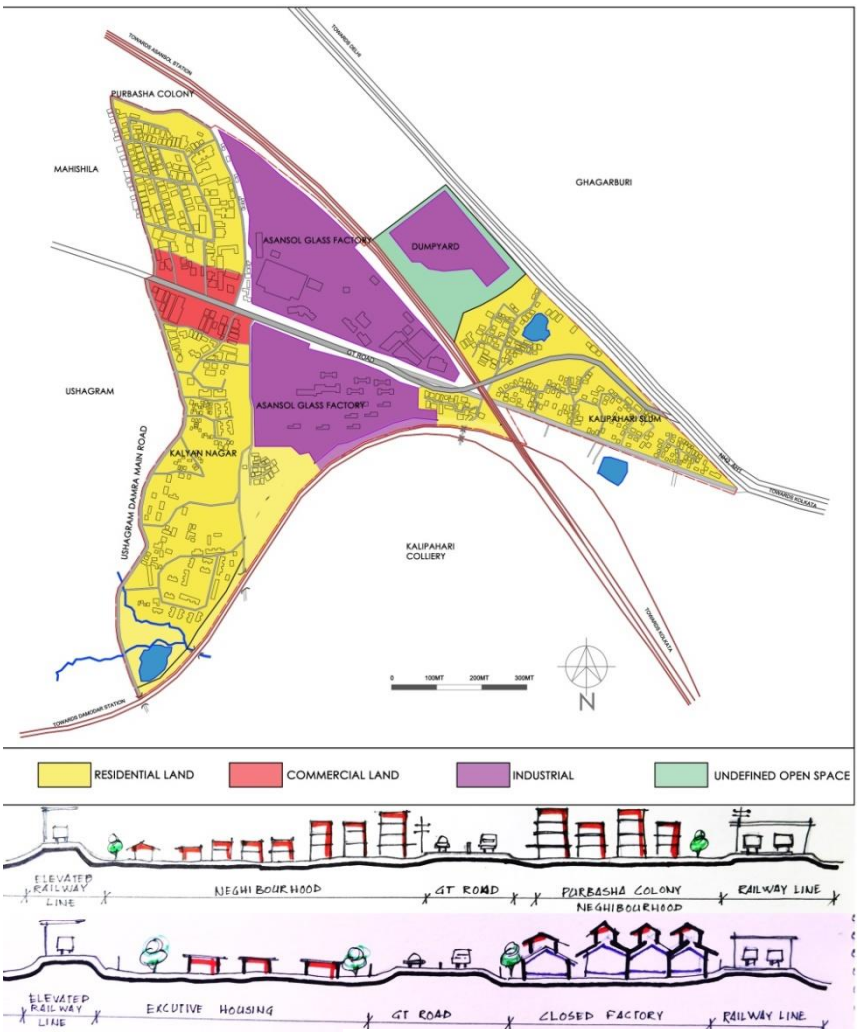
ANALYSIS

1. Congestion happens due to heavy traffic movement in the entry point junction.
2. Internal roads are not well distinctive.
3. Accidents happens for pedestrian and cycle movement along the road.
4. The major road towards Kalipahari railway station is being active during morning and evening for daily passengers.

CONCLUSIONS

1. Entry of the Asansol should be redefined.
2. Pedestrian and cycle movement should be incorporated along the major road.
3. Junctions / nodes to be defined.

SURVEY: ACTIVITY



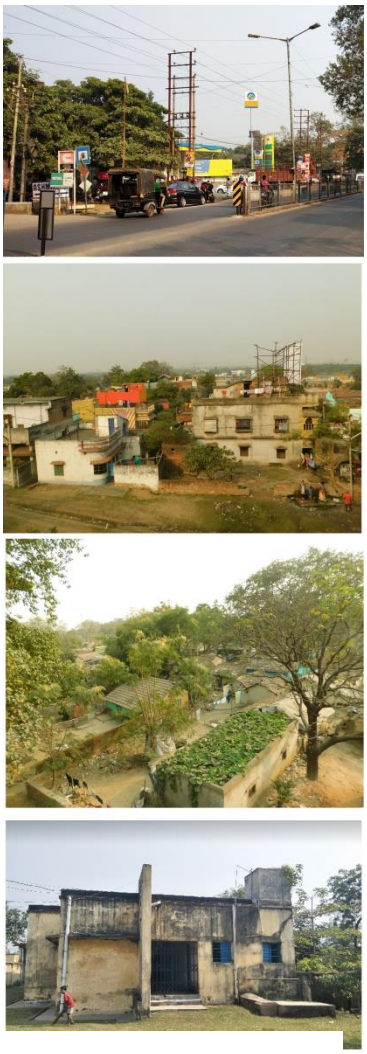


Figure 77 - Images & Map of activity study zone 1

OBSERVATION

1. Mainly residential activity is present in this zone.
2. Along the main road some commercial activity is present , which is very less in percentage .
3. There are two slums in this zone. left side of the entry road having a Kalipahari slum.
4. Closed factory, executive residential complex and municipal dump area is in the zone .

ANALYSIS

1. Proper connections are missing in two residential in the north part and down south side which is divided by the GT road.
2. Various types of commercial stores are not available due to less activity along the road.
3. Two slums in this zone developed by migrated people for the closed factory.
4. Closed factory is creating the barrier in the zone .

CONCLUSION

1. Should provide more commercial activities
2. Slum area should be redeveloped functionally .3. for the closed factory buildings regeneration should be done.

SURVEY: OPEN SPACE

Figure 78 - Images & Map of open space study zone 1

OBSERVATION

1. In the zone the undefined open space is available.
2. Along the railway line some govt owned open space available .
3. South side of the road, in between the residential sprawls small pockets of private land is vacant and used as open space.
4. There are stretch of undefined open space in between space of residential and closed factory.
5. Defined open space is available along the major road and within the residential sprawl.

ANALYSIS

1. Undefined open spaces are mostly in side south part of the zone the unorganised residential area.
2. Private open spaces owned by the residents of the neighbourhood are not restricted.
3. Biodiversity with water is not well identified because very less water bodies in this zone .
4. Privately owned open spaces under the glass factory is restricted to use.

CONCLUSION

1. Open space along the GT road are should be designed.
2. Organised open spaces should be provided for residential area.
3. Undefined open space should be merged and developed.

SURVEY: BUILT SPACE

Figure 79 - Images & Map of built space study zone 1

OBSERVATION

1. In the zone different types of buildings are available.
2. In the Purbasha colony all the buildings are above 12 mt in height .
3. South side of the road, in the residential sprawls small buildings and high rise buildings.
4. In Kalyan nagar there are ECL staff quarters and glass factory workers quarters are available.
5. Kalipahari slum is all single floor kuccha buildings along the major road .

ANALYSIS

1. Undefined open spaces are mostly in side south psrt of the zone the unorganised residential area.
2. Private open spaces owned by the residents of the neighbourhood are not restricted.
3. Biodiversity with water is not well identified because very less water bodies in this zone .
4. Privately owned open spaces under the glass factory is restricted to use.

CONCLUSION

1. Should be more density of built-up space in the brownfield area and south part of the zone.
2. Redevelopment needed in the Kalipahari slum and old quarters.
3. Reconstruction is recommended for those buildings which are in bad condition.

SURVEY: PUBLIC REALM

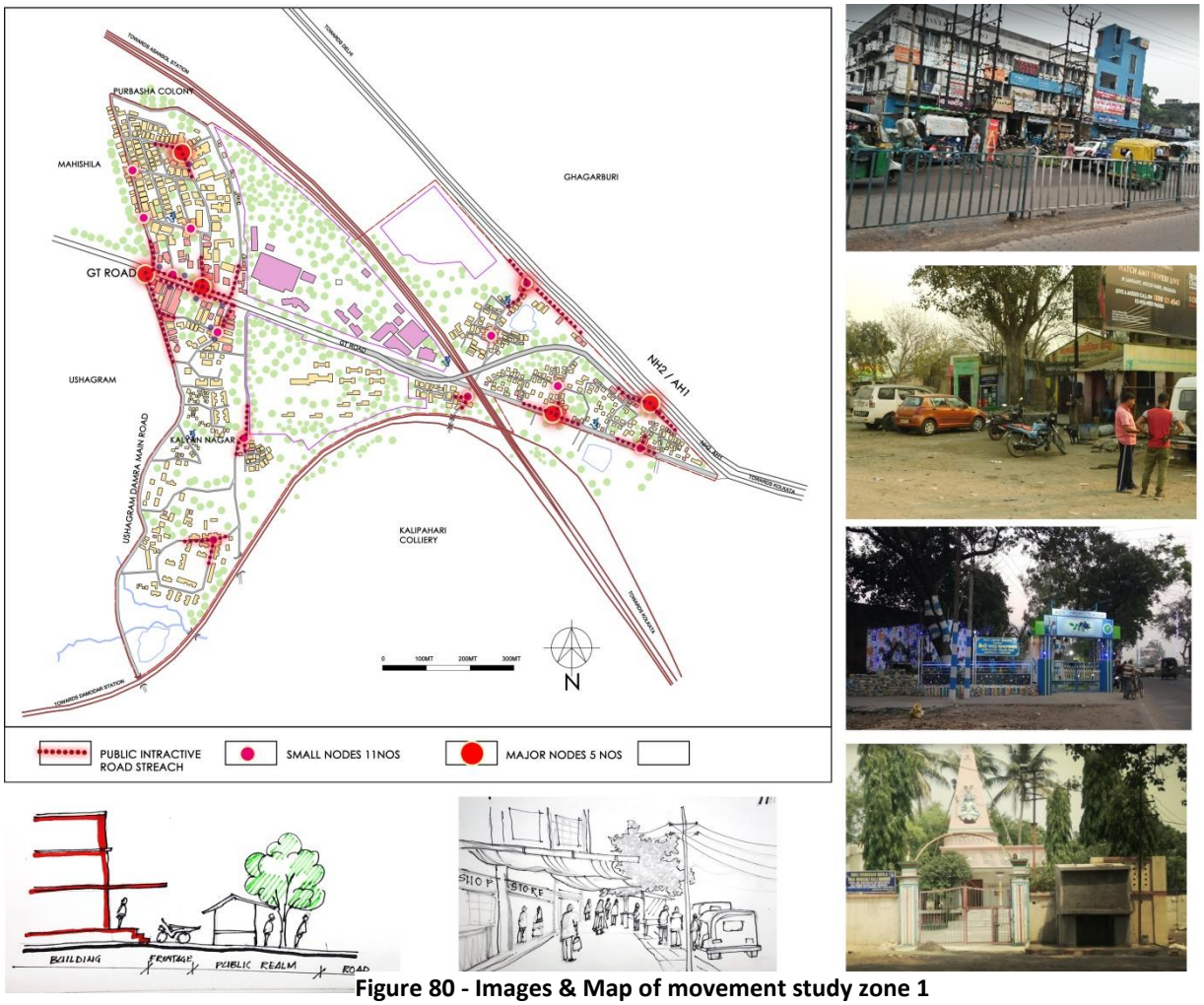


Figure 80 - Images & Map of movement study zone 1

OBSERVATION

1. Nodes are in different in scale.
2. There are 5 major nodes and others are small nodes with public activities.
3. Five temples are in the zone, which are defined as community gathering space.
4. During peak hours public activities is linier in nature in GT road,
5. Magnets and generators are majorly in the GT road.

ANALYSIS

1. Nodes are not well defined because of unorganised activities around the nodes.
2. People are more interested to interact between close and similar kind of families.
3. The public real are very less due to less open space activities .
4. Magnets and generators are very small and unorganised.

CONCLUSION

1. Need to add more magnets and generators.
2. Continuous linier public activities need to cater along the road.
3. Activity should be generated in the nodes to upgrade the residential area.

3.2 ZONAL LEVEL STUDY

3.2.2 ZONE 2

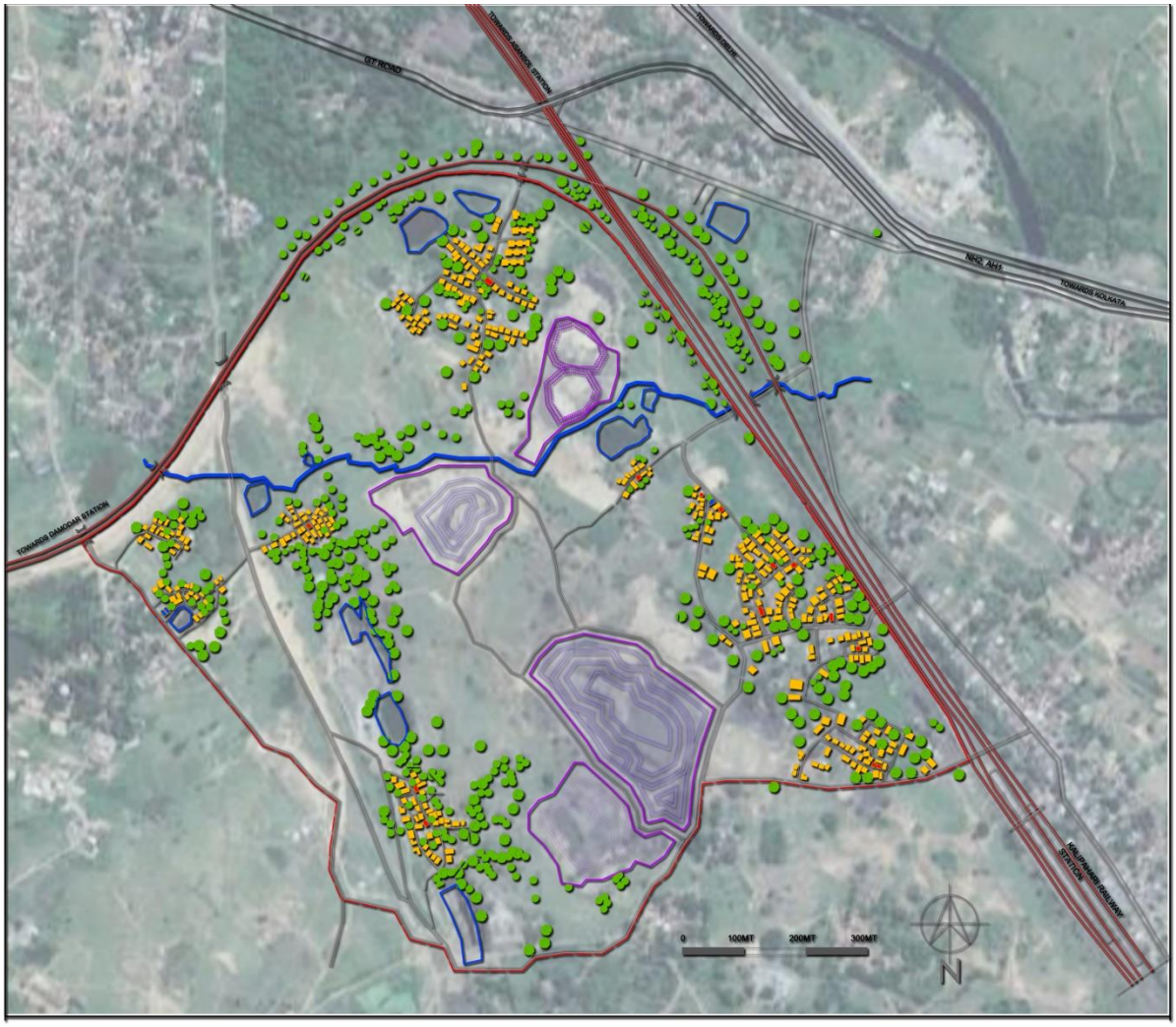


Figure 81 - Map of Zone 2

DELIEANITION

1. Delineation of the zone is defined by strong edge through elevated railway lines.
2. In the east side the main railway line of Kolkata Delhi corridor is separating the zone.
3. In the north side the sub lane railway line towards Damodar station is defined the edge.
4. In the north west side is continuing the elevated railway line.
5. West side is covered by the major road of this zone Kalipahari road.
6. In the south side and the south side is defined by the Kalipahari road towards Kalipahari station.
7. The zone have distinctive change of character beyond the delineation.

Figure 82 - Images of zone 2

DESCRIPTATION

1. The zone is in the 34 no. ward of Asansol municipal area.
2. Eastern coalfields limited owned the mine area in this zone. one coal mine is running and one is dead .
3. This is a peri-urban area strongly separated from the Asansol urban area by the elevated railway line in the east, north and north west side.
4. The peoples in residential are mostly farmers previously but now maximum people are employed locally or in coal mines.
5. There are tow primary schools in this zones located in tow different village.
6. Colliery area is the centrally located in the zone. which is the main activity in the zone.
7. In the municipal ludcp 2015 area was agricultural village.

SURVEY: MOVEMENT

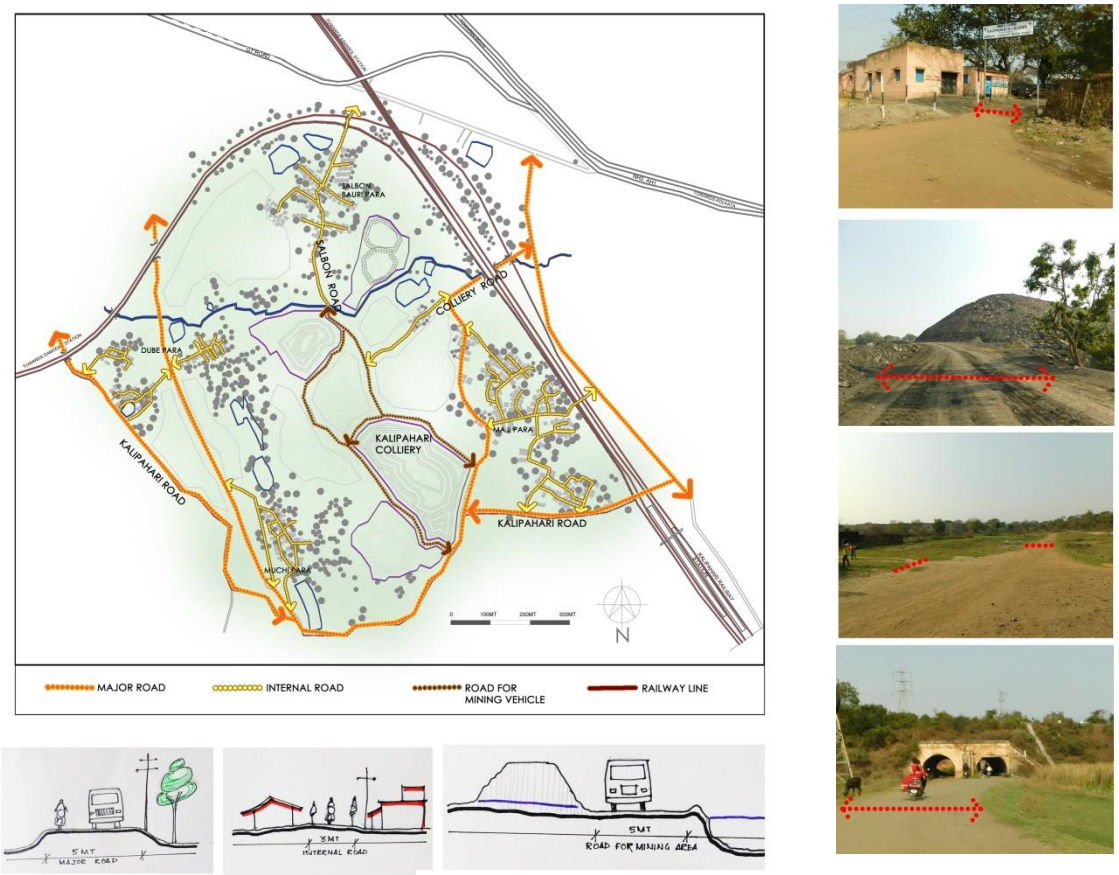


Figure 83 - **Images & Map of movement study zone 2**

OBSERVATION

1. The major road is Kalipahari road around the zone which is partially bituminous and partially kuccha.
2. All the internal roads are very narrow and kuccha road.
3. Inside the mining area there is restricted road only for mining vehicles. those are kuccha but wider to cross two trucks at a time.
4. For the mining activity labors and engineers are coming from outside the zone, so movement from outside i s present.
5. Internal roads are mostly non vehicular. only for pedestrian, cycle & motor cycle.

ANALYSIS

1. Major road is not well developed and in very bad condition due to mining vehicles.
2. Internal roads are not well distinctive.
3. For the outsider movement some vehicular movement hapening in the major road.
4. The major road towards kalipahari railway station is being active during morning and evening for daily passengers.

CONCLUSION

1. Proper road network need to create.
2. Vehicular movement in internal roads should be incorporated.
3. Connectivity should be designed in different communities.
4. The road for mining should be the main spine in the zone for good movement.

SURVEY: ACTIVITY

Figure 84 - Images & Map of activity study zone 2

OBSERVATION

1. There are 4 village sprawl in this zone. And the maximum land is covered by coal mine and agricultural land.
2. In the village are where residential activity is maximum but commercial activity is very less.
3. There are 2 major sites of open cast coal mine in this zone. One is dead and one is running coal mine.
4. All the open space and coal mine are was agricultural land previously.
5. The peoples in residential are mostly farmers previously but now maximum people are employed locally or in coal mines.

ANALYSIS

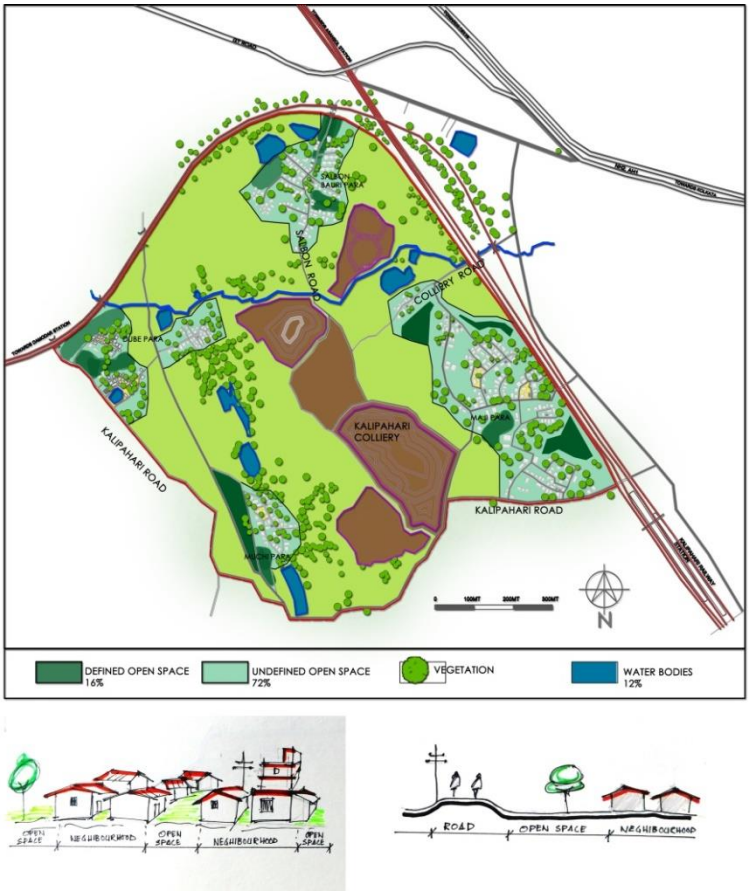
1. The village are is being a ward in Asansol municipal area so it is now a periurban area.
2. In comparison to residential activity commercial activity is not available in this zone.
3. For the mining activity labours and engineers are coming from outside the zone, so outsider influence is available.
4. The present agricultural land is loosing its potential due to mining and should be transformed in open space or in residential.

CONCLUSION

1. Residential sprawl is unorganised is should be organised and more functional.
2. Less commercial activity. should provide more commercial spaces.3. for the dead mine we can

regenerate the space by transforming the mine area.

SURVEY: OPEN SPACE



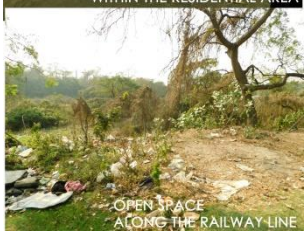


Figure 85 - Images & Map of open space study zone 2

OBSERVATION

1. In the peri urban area the undefined open space is available.
2. Along the railway line some govt owned open space available .
3. In between the residential sprawls pockets of private land is vacant and used as open space.
4. There are stretch of undefined open space in between space of residential and agricultural land.
5. Private open space is available along the major road and within the residential sprawl.

ANALYSIS

1. Undefined open spaces are mostly in side the residential area.
2. Private open spaces owned by the residents of the neighbourhood are not restricted.
3. Unusable open spaces are along the roads creating the distance from residential density.
4. Privately owned open spaces are transformed from agricultural land.

CONCLUSION

1. Open space along the residential are should be well defined.
2. Open spaces should be provided for buffer between brownfield and residential area.
3. Undefined open space should be merged and developed.

SURVEY: BUILT SPACE

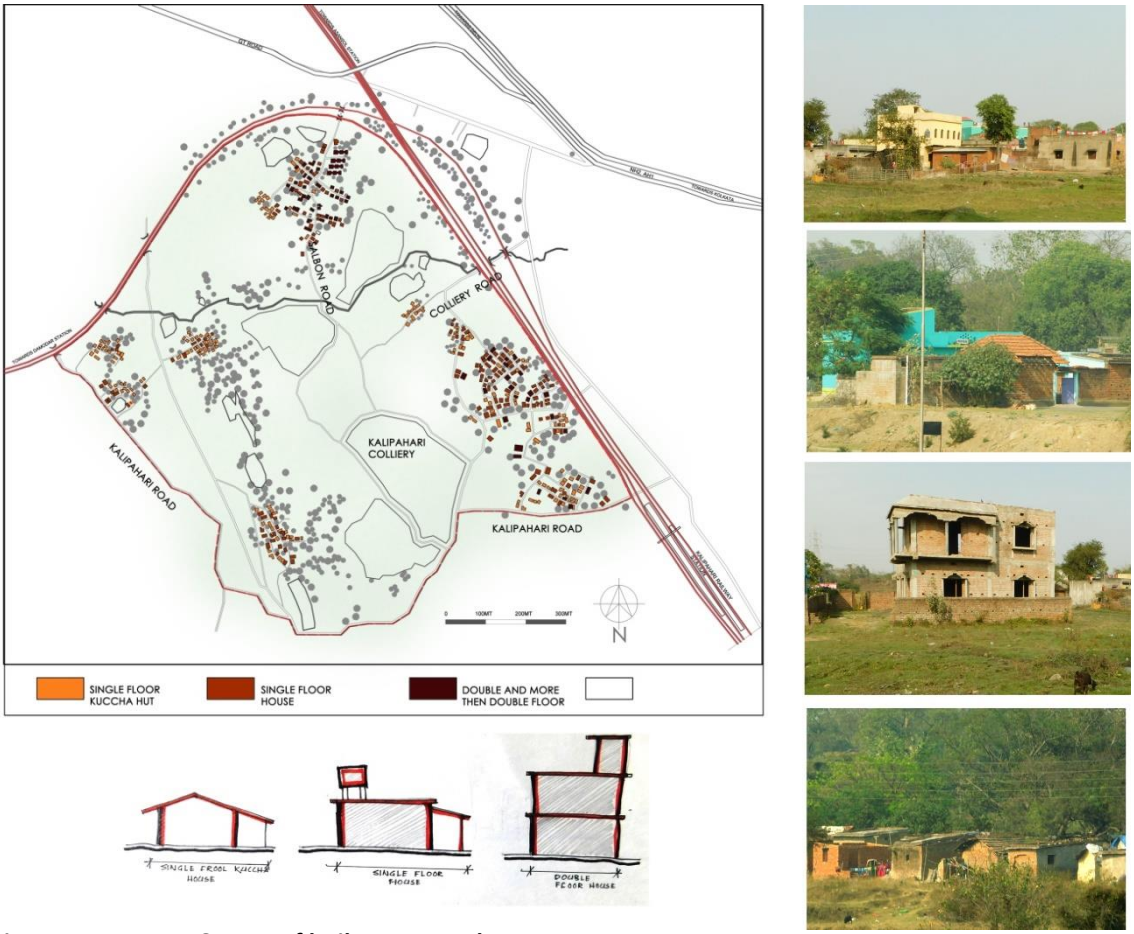


Figure 86 - Images & Map of built space study zone 2

OBSERVATION

1. This zone is periurban area so built-up is very less.
2. The residential fringe are having the built-up .
3. There are single floor kuccha, single floor & double floor is available in this zone.
4. In the north side of this zone four ecl quarters building are organised built-up .
5. All the built spaces are grown beside the railway line and major road.

ANALYSIS

1. Built-up are very not very big in mass deu to economic standard of the peri-urban area.
2. Buildings are mostly in kuccha and single floor do not having proper orientation.
3. Small small fringe of buildings developed according to their profession.
4. New development is not distinctive in his zone.

CONCLUSION

1. Proposed built-up spaces should be along the major road.
2. Built spaces has to be organised and redevelop .
3. Density of built-up should be uniformly designed in context to existing neighbourhoods.

SURVEY: PUBLIC REALM

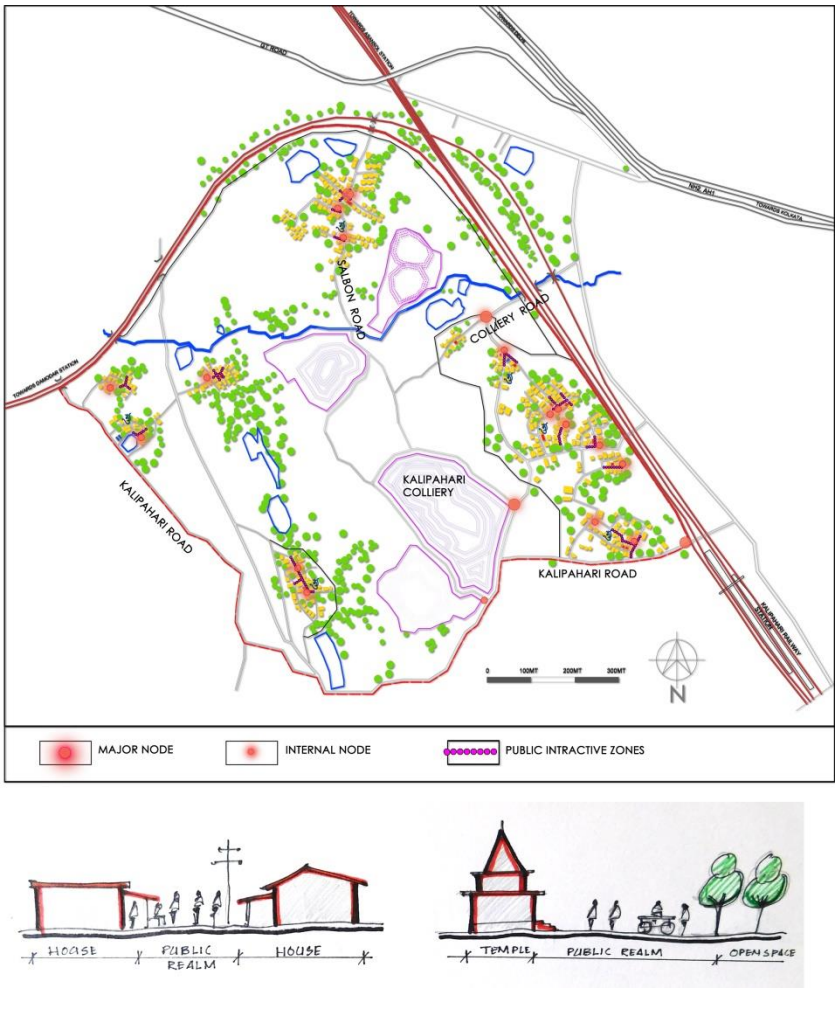


Figure 87 - Images & Map of public realm study zone 2

OBSERVATION

1. Nodes are very small and
activities around the node is available in the adjacent two to three buildings.
2. People are less interactive, so have public places in very small in size and more in numbers .
3. Six temples are in the zone, which are well defined community centers.
4. Two primary schools are in this zone.
5. Private clubs are used as interaction space for men.

ANALYSIS

1. Nodes are not well defined because of less activities around the nodes.
2. People are more interested to interact between close and similar kind of families .
3. The public activities are very less due to diversity of employment and economy .
4. Temples & private clubs are defined public space because they have regular activities.

CONCLUSION

1. Need to add more public realm.
2. Schools should be developed as a community space.
3. Activity should be generated in the nodes to upgrade the residential area.

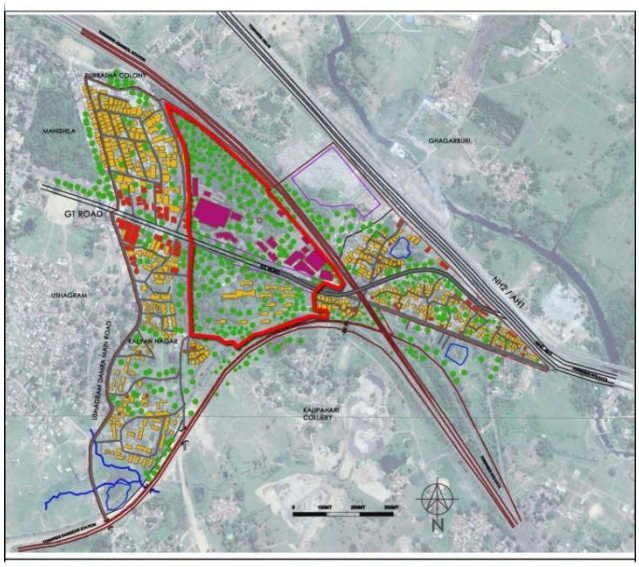
4. Connectivity should be designed in between nodes.

3.3 SITE LEVEL STUDY

3.3 SITE LEVEL STUDY

3.3.1 SITE 1

DESCRIPTATION



1. The site is Willsworth Vanija pvt. limited factory and their executive residential area.
2. The factory site is 24 acres and residential has 17 acre of land.
3. This two site is bifurcating by the gt road. which is 18 mt wide.
4. The north side is covered by Kolkata Asansol railway line. and the south side is defined by Damodar connecting railway line.
5. There are no commercial activities along the road in the stretch of the site.
6. North side of the gt road which is the factory space has large scale buildings with slopped roof.
7. South side of the GT road which is the residential space has small scale single floor buildings with flat roof.

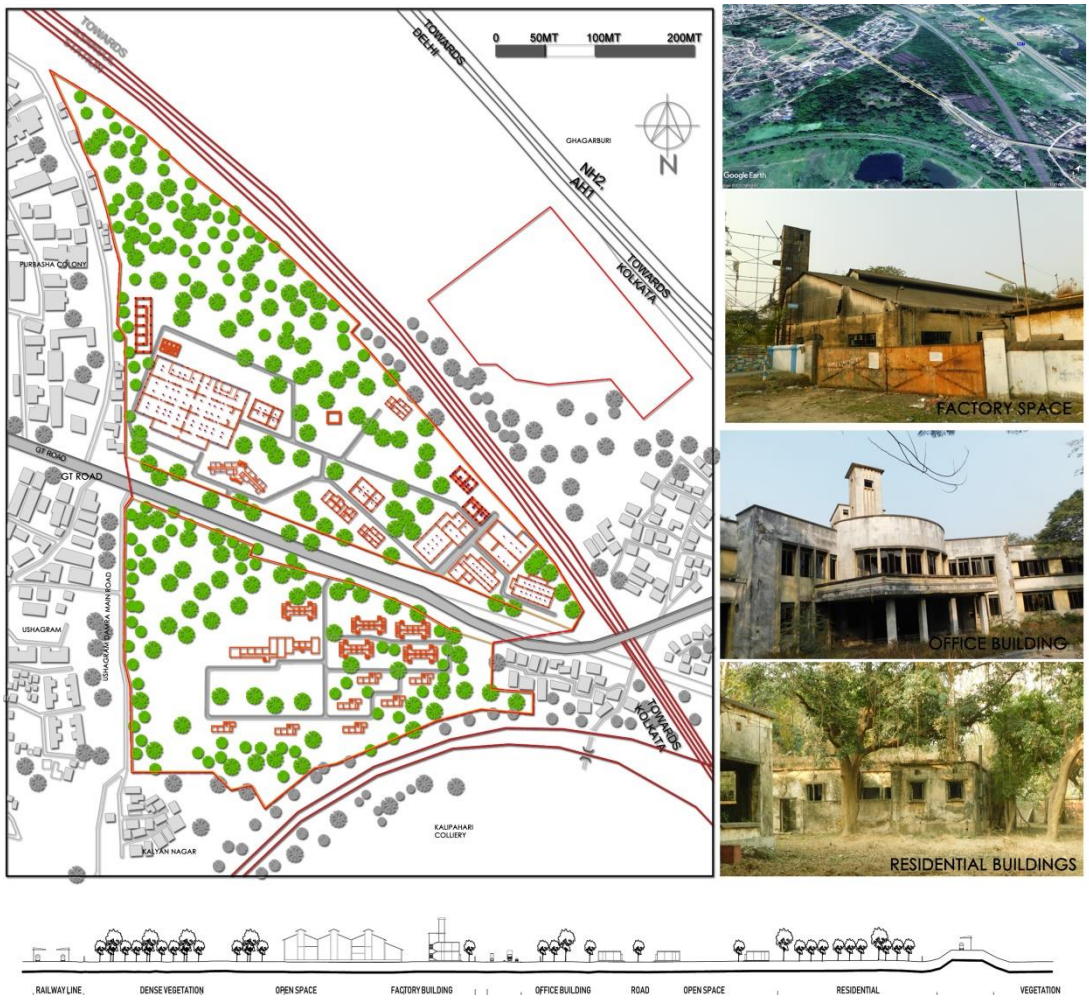
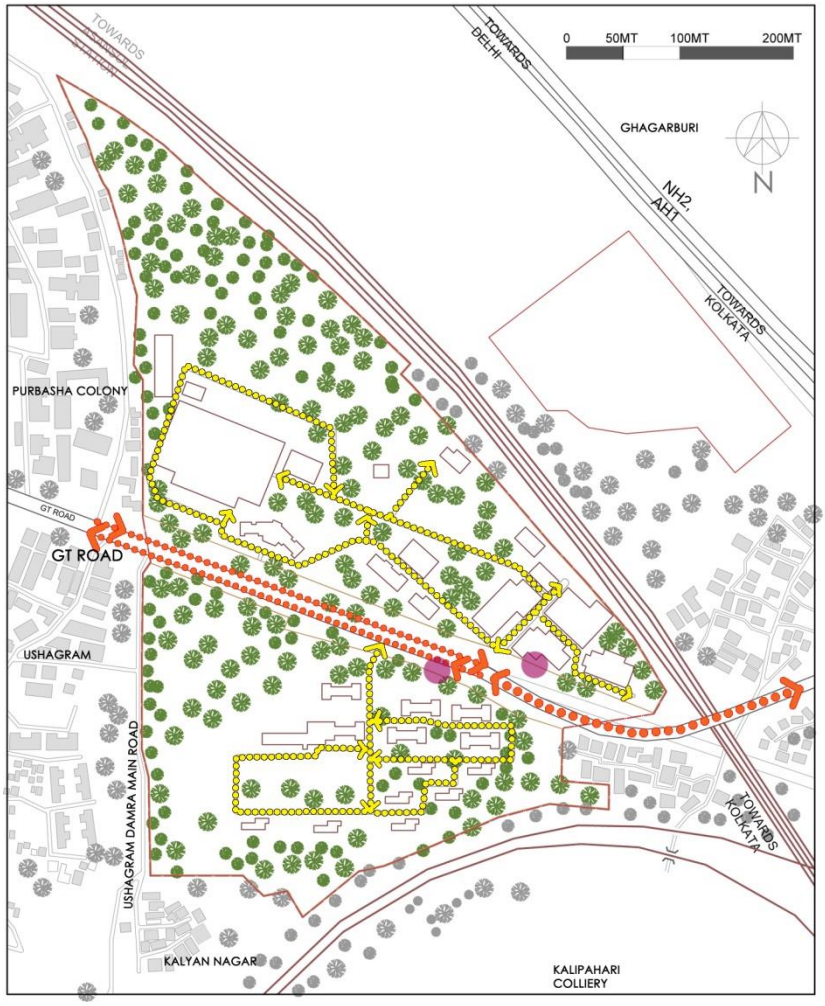
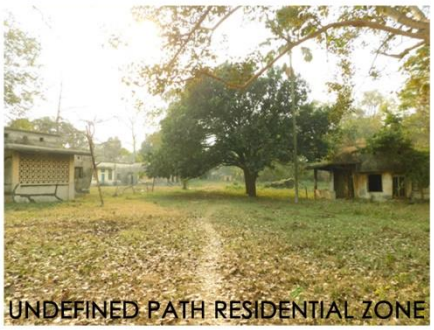
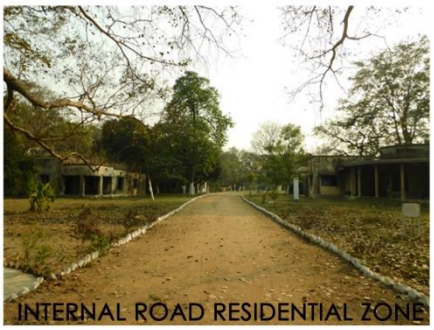


Figure 88 - Images & Map of site1

SURVEY: MOVEMENT







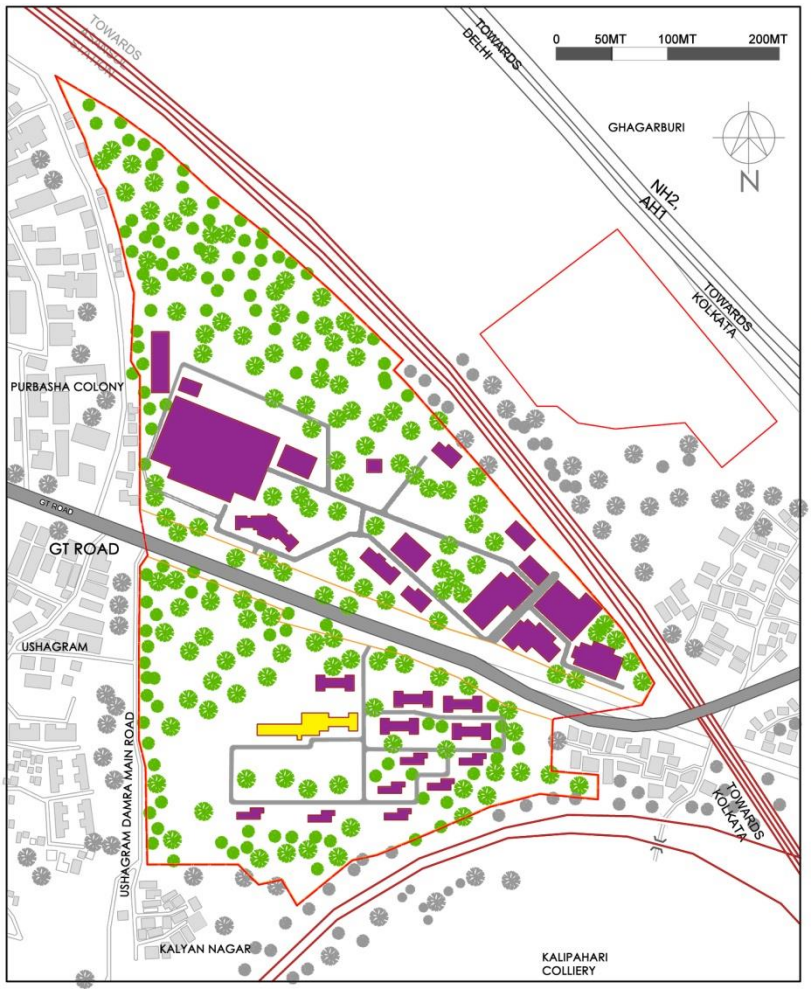
OBSERVATION

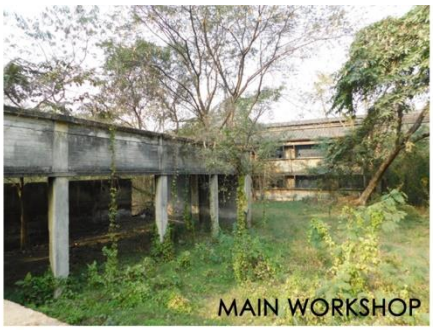
1. The major road is GT road in the central spine of the site. dividing the site into two parts.
2. All the internal roads are narrow and mud path way.
3. The entry point from GT road is not well defined.
4. Pedestrian movement is not well defined along the major road.
5. There is no bus stop or auto stop for public transportation.

CONCLUSION

1. Internal movement within the site and connections between two brownfield site should be generated.
2. Pedestrian and cycle track should be incorporated along the major road.
3. Should provide bus stop and auto stop.

SURVEY: ACTIVITY





OBSERVATION

1. Mainly all the buildings are abandoned in the site.
2. In the residential site only one building is used for estate manager's room and cake taker's quarter.
3. The factory site is not access able and very bad in condition.
4. There is no public activities and commercial activities in the site .

CONCLUSION

1. Abandoned buildings should be regenerated with activities.
2. Should provide more commercial activities.
3. Along the road public spaces should be incorporated.

SURVEY: OPEN SPACE

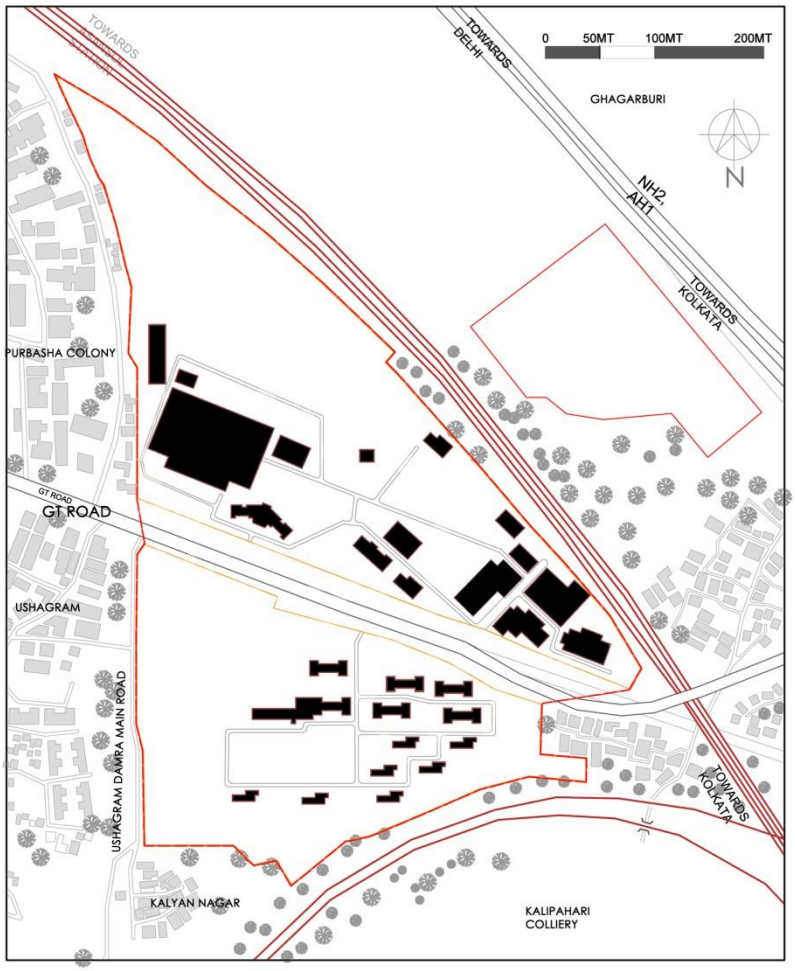
OBSERVATION

1. In the site the undefined open space is available which is 64% of total open space.
2. In the site the defined open space is available which is 36% of total open space.
3. South side of the road, in between the residential sprawls small pockets of open space is more organized .
4. There are stretch of undefined open space in between space of residential and closed factory along the road.
5. In extreme north part of the site is covered with dense vegetation.

CONCLUSION

1. Open space along the gt road are should be designed.
2. Organized open spaces should be provided for residential area.
3. Undefined open space should be merged and developed as green zone.

SURVEY: BUILT SPACE



OBSERVATION

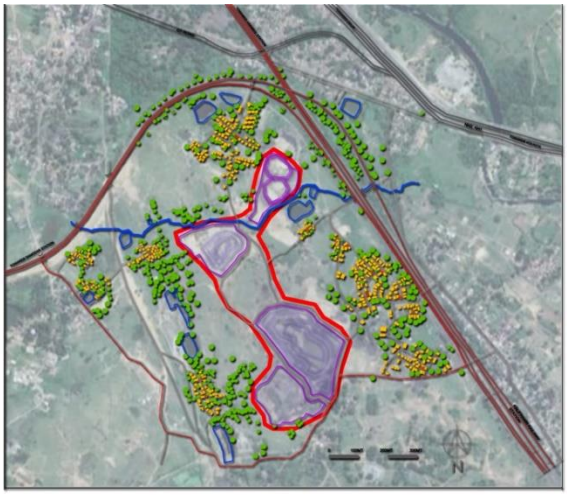
1. IN THE site built-up space is very less. only 20000 sqmt in the 188000 sqmt site area. only 10.6 %.
2. On the factory side there are bigger built-up space and on the other side the buildings are small in size.
3. Orientation of the built ups are different in the two other part of the side.
4. The residential buildings are all single floor and factory buildings are 2 floor of 3 floor in height.

CONCLUSION

1. There should be more built-up space.
2. Renovation and extension should be done in existing buildups.
3. Reconstruction is recommended for those buildings which are in bad condition.

3.3 SITE LEVEL STUDY

3.3.2 SITE 2



DESCRIPTATION

1. The site is open cast coal mining site owned by eastern coalfield limited.
2. There are 2 mining location and 2 topsoil dump yards in the site.
3. The total area of the site is 213900 sqmt. and mines have approx. 75000 sqmt of area.
4. The site was agricultural land previously.
5. There are agricultural lands and residential sprawls around the site.
6. West side is covered by the major road of this zone kalipahari road.
7. The south side and the south side is defined by the kalipahari road towards kalipahari station.

SURVEY: MOVEMENT

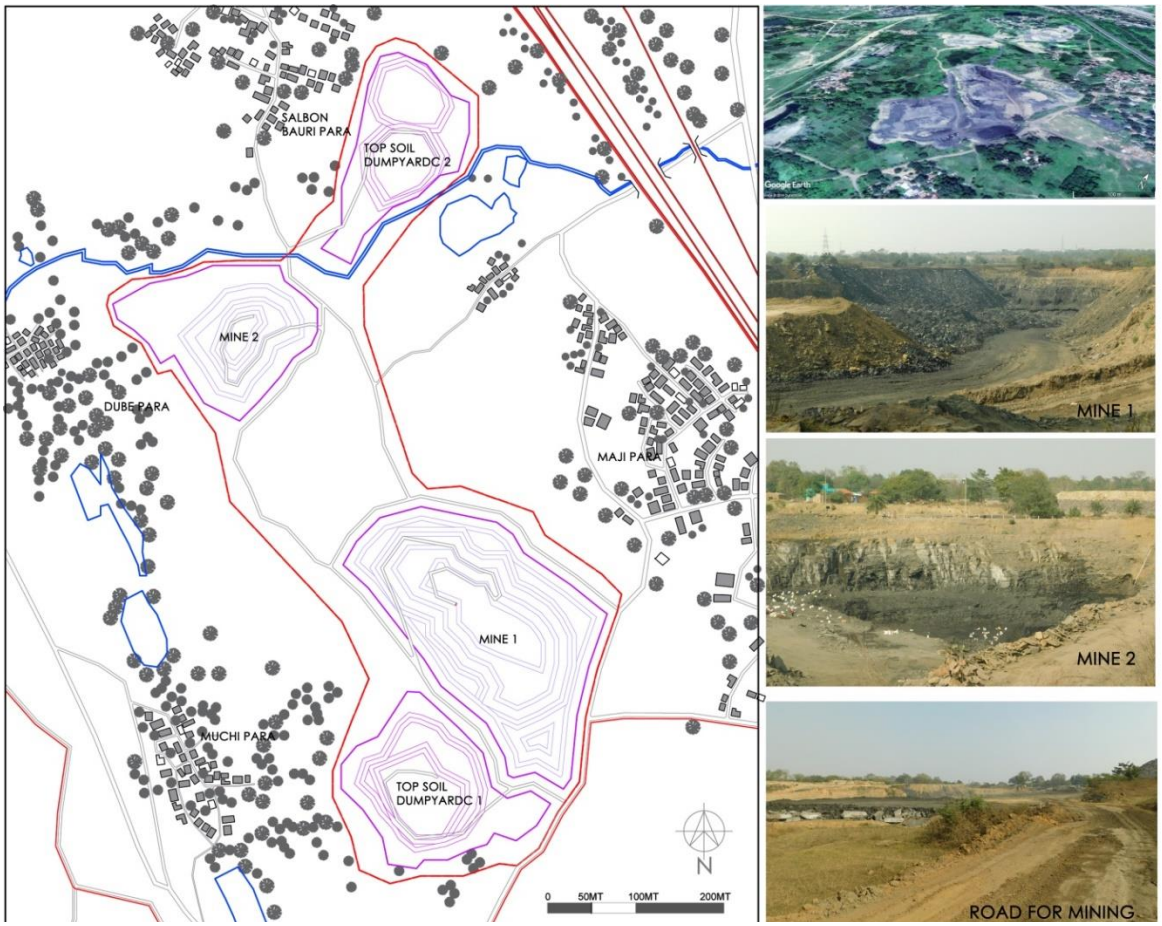
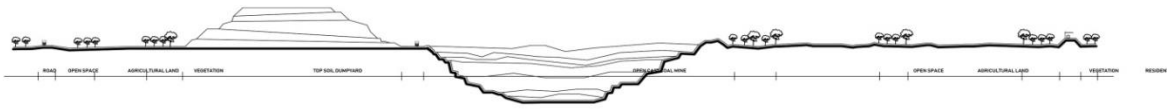
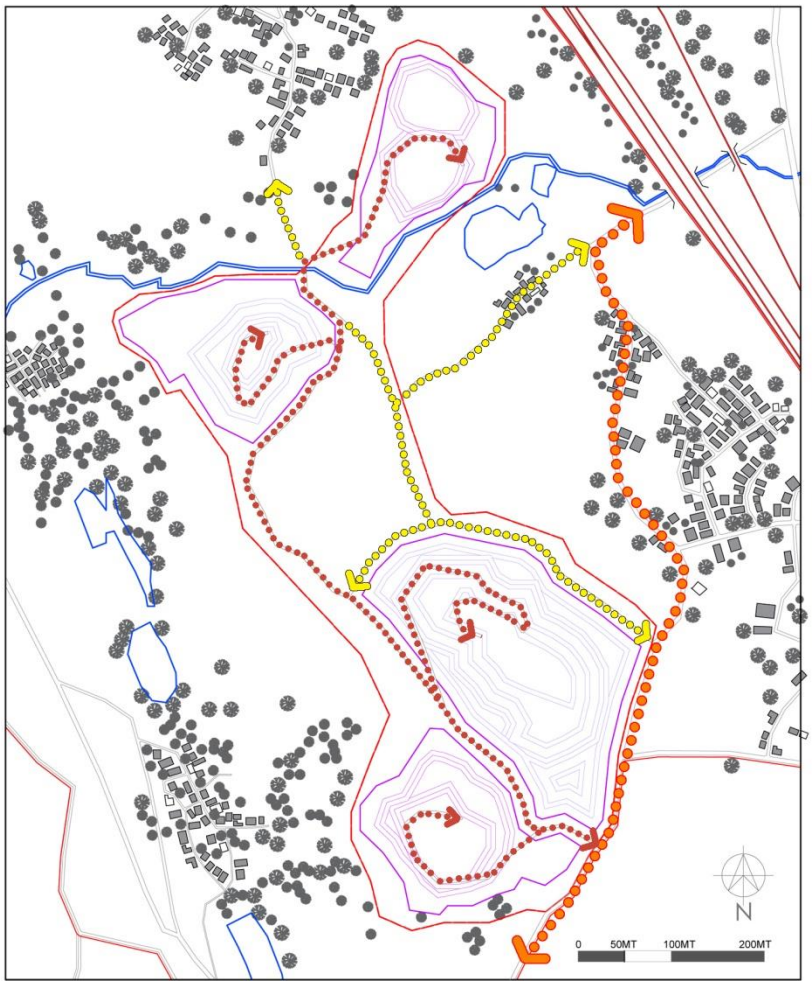


Figure 89 - Images & Map of site 2



OBSERVATION

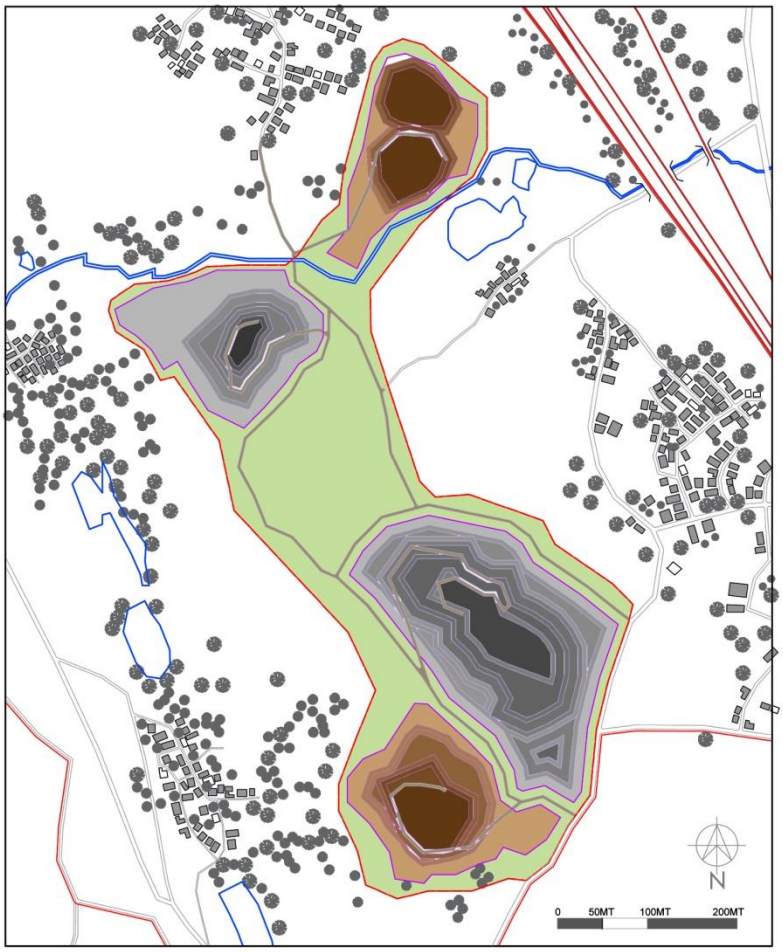


1. The major road is kalipahari road around the zone which is partially bituminious and partially kuccha.
2. All the internal roads are very narrow and kuccha road.
3. Inside the mining area there is restricted road only for mining vehicles. those are kuccha but wider to cross two trucks at a time.
4. For the mining activity labors and engineers are coming from outside the zone, so movement from outside i s present.

CONCLUSION

1. Proper road network need to create.
2. Vehicular movement in internal roads should be incorporated.
3. Connectivity should be designed to all the residential areas.
4. The road for mining should be the main spine in the zone for good movement.

SURVEY: ACTIVITY



OBSERVATION

1. Two coal mine in this zone. One is dead and one is running coal mine.
2. All the open space and coal mine are was agricultural land previously.
3. The peoples in residential are mostly farmers previously but now maximum people are employed in main city.
4. There are some commercial activities along the road which are mainly tea stalls and kirana shops.

CONCLUSION

1. The mines should be regenerated as eco parks.
2. More activities should be incorporated to make this place viable.
3. Public engagement should be considered to design of this site .
4. Around the site the agricultural land should be preserved as buffer from residential growth .

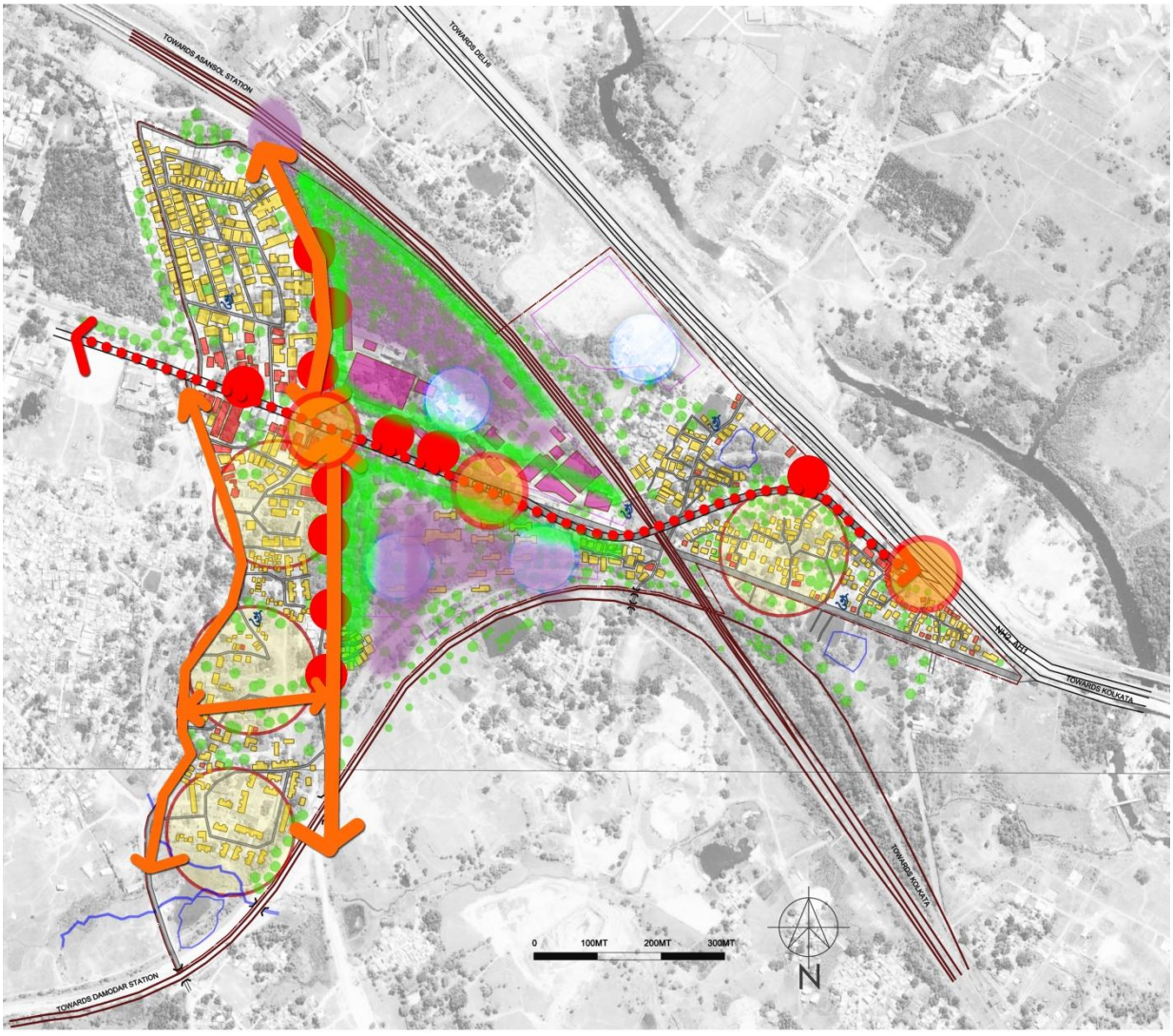
4.0 PROPOSALS AND DESIGN IMPLEMENTATION

4.0 PROPOSALS AND DESIGN IMPLIMENTATION

4.1 ZONE 1 DESIGN GUIDE LINE

- Entrance to asansol to be strengthen by gate complex, bus stop , public amenities and open space development.
- Light weight industries to be proposed in the abandoned factory site.
- Proper pedestrian pathway and cycling track should be proposed.
- Commercial stretch along the linear stretch to be proposed.
  proposal of a commercial node.
- Green buffer should be proposed to make separate industrial and residential zone.
- Community spaces and recreational spaces to uplift the surrounding neighborhoods.
- Linier open space with continuous public realm containing strip commercials, parking spaces and pedestrian pathways.

Figure 90 - Urban design guidelines for zone 1



4.2 ZONE 2 DESIGN GUIDE LINE

- Strengthening the major road kalipahari road. and creating a straight connection from railway bridge to the kalipahari road.
- Creating nodes on the main spine. the nodes will defined the different junctions on this peri-urban zone.
- Creating public activities along the major road. incorporating pedestrian walk way with some commercial zones.
- Developing residential neighborhood along the main road. projecting the small neighborhood to the upcoming urban area.
- Regenerating the mine area as eco park. incorporating public activities within the eco park to create public realm and recreational space.
- Creating buffer zone between brownfield and residential sprawl with the urban farming.

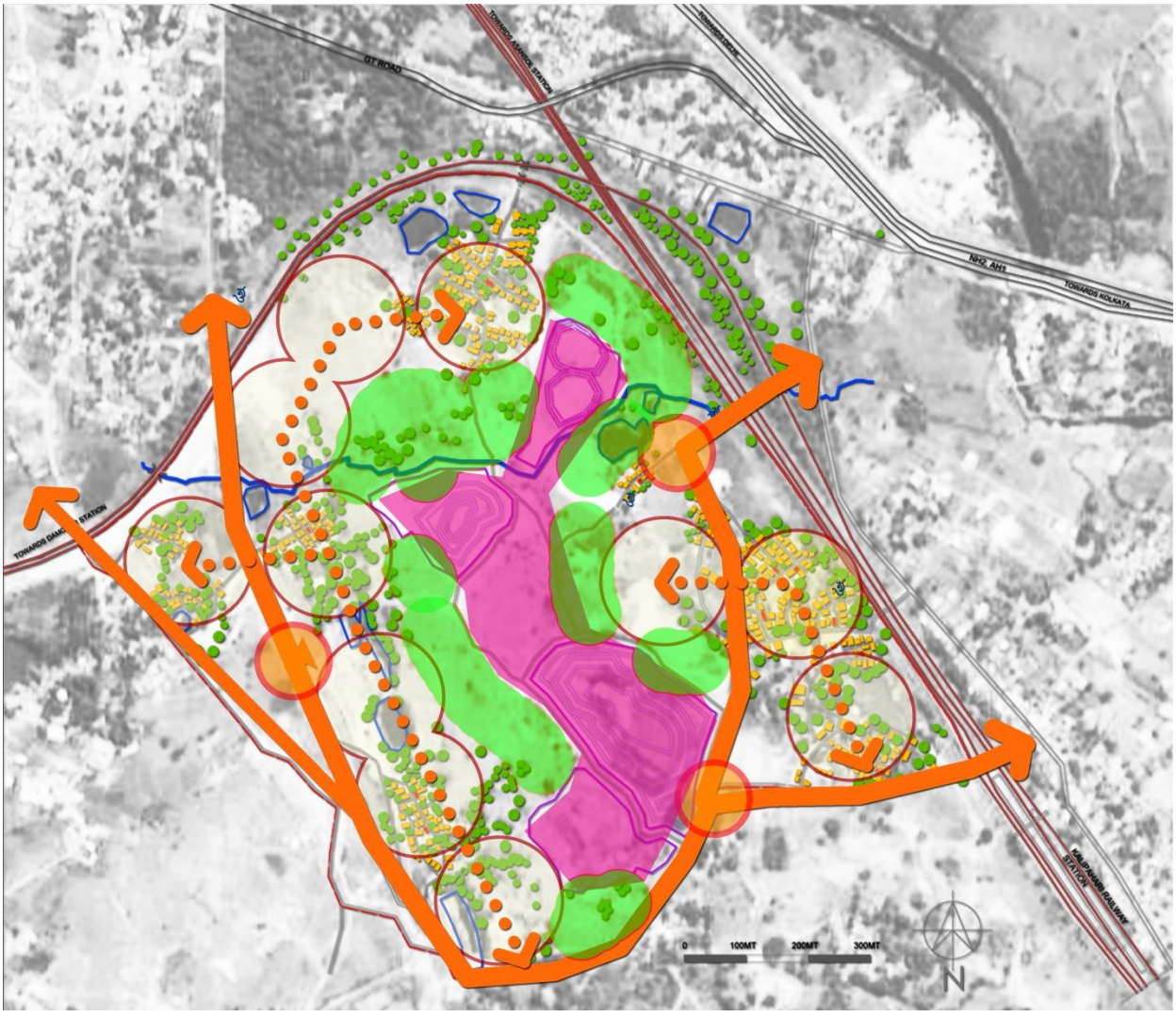


Figure 91 - Urban design guidelines for zone 2

4.3 SITE 1 DESIGN GUIDE LINE

EDGE

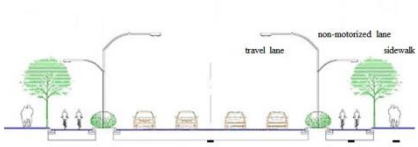
TO CONNECT EDGES, RESIDENTIAL TO THE BROWNFIELD ZONES THROUGH THE PUBLIC ACCESS AND PUBLIC ACTIVITIES.

ORINTATION

TO INRODUCE MORE LANDSCAPE & ORGANISED OPEN SPACE IN THE RESIDENTIAL SITE AND ALONG THE MAIN ROAD.

ROADS AND NETWORK

TO DEVELOP GT ROAD AS GRADE SEPARATED PEOPLE FRIENDLY & COMFORTABLE USE.



TO DEVELOP WALKABLE PEDESTERIAN NETWORK TO CONNECT DIFFRENT SITES WITH RESIDENTIAL AREAS.

TO DESIGN ADEQUATE SUPPORT FACILITIES LIKE BUS STOPS, PARKING, ON ROAD VENDORS AND STREET FURNITURE.

NODES

TO DEVELOP THE NODES WITH REQUIRED SPACES AND ACTIVITIES TO MAKE VIBRANT AND COMFORTABLE FOR ALL USERS.

BUILDING USE

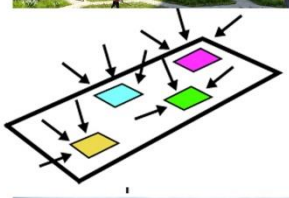
TO REGENERATE THE ABANDONED FACTORY BUILDINGS AND RESIDENTIAL BUILDINGS. INRODUCE ACTIVITIES IN THIS BUILDINGS.

TO INCORPORATE ACTIVITTIES WHICH WILL HELP EMPLOYMENT GENERATION AND REVENUE GENERATION.

TO INTRODUCE SOME MIXUSE ACTIVITIES FOR ALL GROUP OF PEOPLE WHICH WILL MAKE THIS PLACE VIBRANT FOR WHOLE DAY.

MAGNETS

TO CREATE MORE MAGNETS TO ATTRACT OUT SIDER PEOPLES TO VISIT THIS PLACE.



OPEN SPACE

TO DESIGN ALL THE UNUSED OPEN SPACES & REDEVELOP THEM AS PUBLIC PLACES.

ARCHITECTURAL FEATURES

TO FORMULATE GUIDELINES FOR FEATURES AND MATERIALS TO CREATE SENCE OF PLACE OF THIS ZONE.

4.4 SITE 1 PROPOSALS

- LIGHT ENGINEERING INDUSTRIAL PARK, 15 ACRE
- RESERCH AND TRAINING INSTITUTE
- EXHIBITION AND PROMOTIONAL GROUND
- PUBLIC PLAZA
- OFFICE SPACES
- PUBLIC SQUARE
- STRIP COMMERCIALS
- BUS STOPS AND PUBLIC AMINITIES
- PARKING SPACE
- CONNECTING RESIDENTIAL AREA WITH THE COMMERCIALS
- ENTRANCE GATEWAY OF ASANSOL
- USING OPEN SPACES AS COMMUNITY DEVELOPMENT
- LANDSCAPE

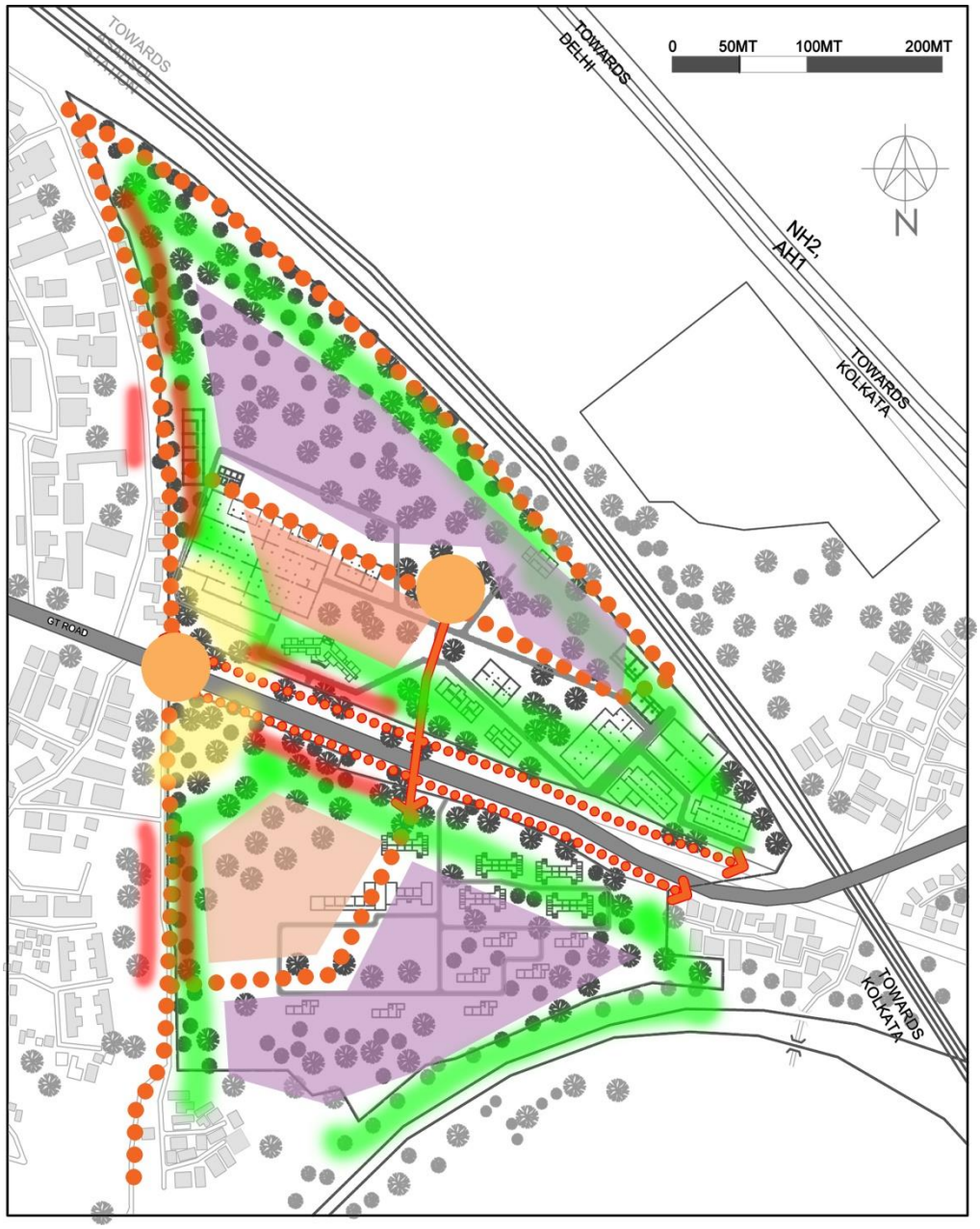
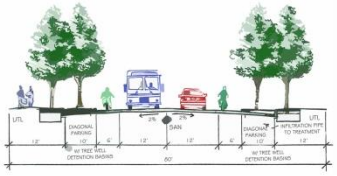
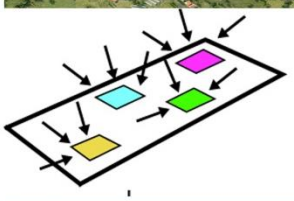


Figure 92 - Design Proposals for zone 1

4.5 SITE 2 DESIGN GUIDE LINE

EDGE	TO CONNECT EDGES, RESIDENTIAL TO THE BROWNFIELD ZONES THROUGH THE PUBLIC ACCESS AND PUBLIC ACTIVITIES.	
ORINTATION	TO INRODUCE MORE LANDSCAPE & ORGANISED OPEN SPACE IN THE CLOSED MINES AND ALONG THE MAIN ROAD AND THE .	
ROADS AND NETWORK	TO DEVELOP KALIPAHARI ROAD AS GRADE SEPARATED PEOPLE FRIENDLY FOR COMFORTABLE USE.	
	TO INTRODUCE SOME NEW ROADS WITH WALKABLE PEDESTERIAN NETWORK TO CONNECT RESIDENTIAL AREAS.	
	TO DESIGN ADEQUATE SUPPORT FACILITIES LIKE BUS STOPS, PARKING, ON ROAD VENDORS AND STREET FURNITURE.	
NODES	TO DEVELOP THE NODES WITH REQUIRED SPACES AND ACTIVITIES TO MAKE VIBRANT AND COMFORTABLE FOR ALL USERS.	
BROWNFIELD	TO REGENERATE THE BROWN FIELD MINES AS A ECOPARK. WHICH WILL HELP TO SUSTAIN THE BIODIVERSITY AS WELL AS RECREATIONAL SPACE FOR THE ZONE.	
	TO INCORPORATE ACTIVITTIES WHICH WILL HELP EMPLOYMENT GENERATION AND REVENUE GENERATION IN THE REGENERATED MINE AREA.	
	TO FORMULATE GUIDELINES FOR THE UPCOMING RESIDENTIAL BUILDINGS FOR THE PERIURBAN AREA.	
MAGNETS	TO CREATE MORE MAGNETS TO ATTRACT OUT SIDER PEOPLES TO VISIT THIS PLACE..	
OPEN SPACE	TO DESIGN ALL THE UNUSED OPEN SPACES & REDEVELOP THEM AS PUBLIC PLACES.	
ARCHITECTURAL FEATURES	TO FORMULATE GUIDELINES FOR FEATURES AND MATERIALS TO CEMOFLAGE WITH THE BROWNFIELD DEVELOPMENT.	

4.4 SITE 2 PROPOSALS

- ECO PARK AND WATER BODIES
- FOOD PLAZA
- FLOWER AND PLANTS EXIBITION AREA
- PEDESTRIAN PATHWAY
- TOURIST SHELTER AND FACILITIES
- PARKING SPACE
- OFFICE SPACES
- COMMUNITY SPACE
- PUBLIC SQUARE
- COMMERCIAL SPACES
- URBAN FARMING

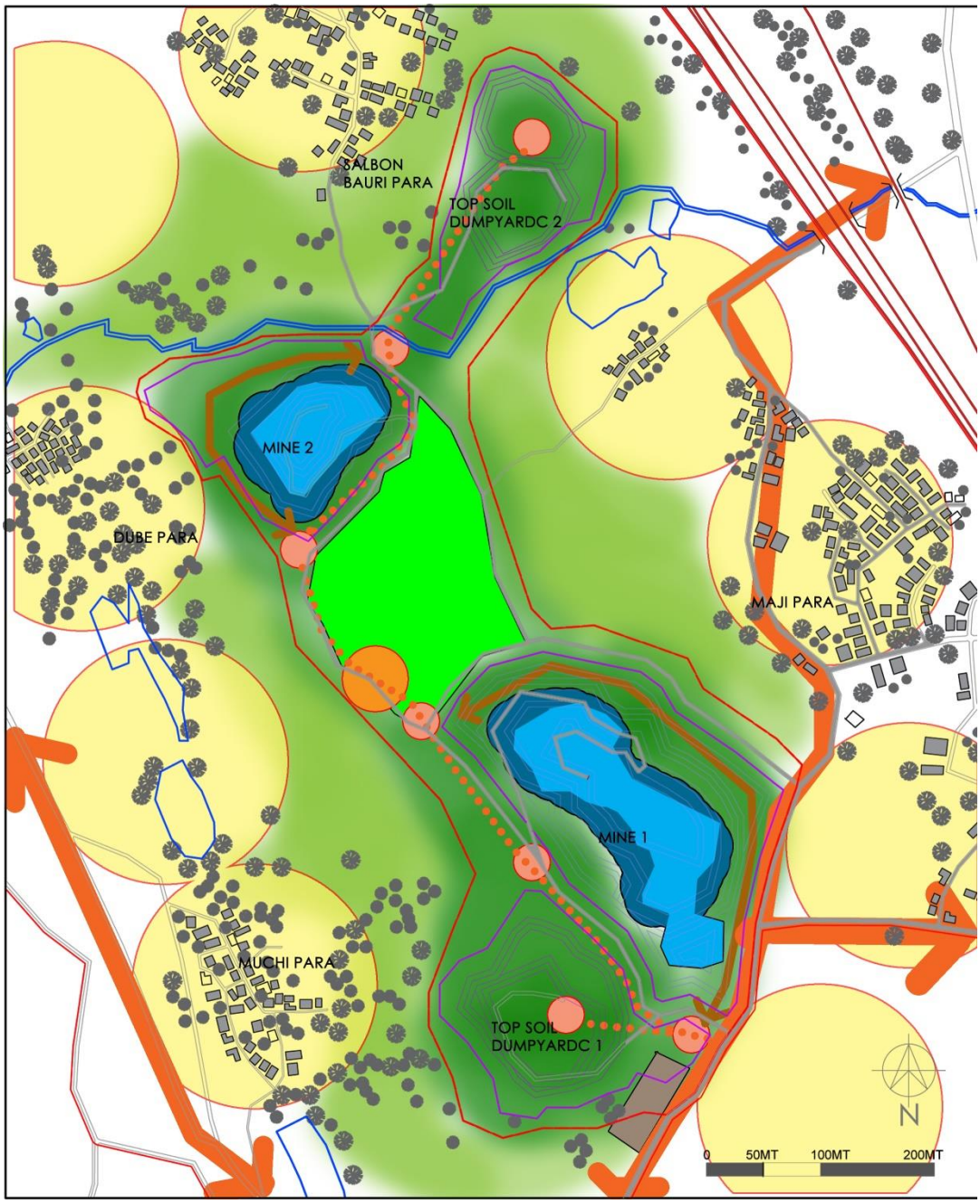


Figure 93 - Design Proposals for zone 2

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