LONMIN

VISION

Lonmin and communities uniting to liberate the potential of current and future generations to experience quality of life.

POVERTY

Alleviating hunger and poverty in the Greate by improving nutriti and creating ecol incentives for the disadvantaged.

ECONOMY

Empowering a flo supports the attraction and retention of

HOUSING Creating flexible housing and a sense of place for li employees and their

ENVIRONMENT

inique areas and el

management of our

natural resources.

the sustainable use and

employees, their families,

WELLNESS

and the community by developing health and wellness systems that support employee and community wellness objectives.

Improving the wellness of

CULTURE Supporting the

development of art and culture centres to create a sense of identity, place and vision for a sustainable future.

| EDUCATION | |
|--|-------------|
| Building an education system that inspires sustainable living, facilitates the fulfilm of dreams and supp Lonmin's future skill requirement. | ent orts |

SELF -

GOVERNANCE Empowering a to solve their own problems through self-governance, skills multiculturalism, building a sense of social cohesion.

ty - meeting the needs of current and future generations through the integration of ental protection, social achievement and economic prosperit

People

Design Challenges

- Limited understanding of sustainable design criteria by the client stakeholder group • Limited understanding of sustainable design criteria amongst professionals within the client entity and the
- architectural project team. • Very poor understanding of sustainable design criteria by the public stakeholders.
- No understanding of sustainable design criteria amongst the housing beneficiaries.

Town Planning

- Poorly orientated grid town plan layout for Phase 1.
- Poorly orientated grid town plan layout for the balance of the development.
- Lack of public transport routes.
- Poor integration of housing within public realm and socio-economic facilities.

Housing

- Provision of affordable, durable and stylish homes that enhance modernity.
- Design of energy efficient homes with a low operating cost.
- Design of homes with a low maintenance cost.
- Construction of homes with a low emergy in order to reduce the ecological footprint.

Maximise opportunities for house extensions and socio-economic initiatives within the house site layout.

Physical

- Unsightly line of sight views of mining facilities and mine dumps.
- Flat uninteresting topographical layout.
- Existing waste water discharge dams from mines that compromises holistic town planning.
- Lack of safety and security boundaries.
- Steep seasonal climatic variances, such as, cold and dry winters, and, wet and hot summers.

Drainage

- Disturbed natural water flows.
- Poor site drainage.

• Marshy land as building site.

Pollution

- Mining industry is producing potentially hazardous pollutants.
- Poor air quality.

• Noise from mining vents and operations.

Socio-Economic Opportunities

- Lack of sustainable business opportunities identified on the existing town plan layout.
- Insufficient provision of social recreational and community facilities on the existing town plan layout.
- Insufficient allowance for passive open spaces and green belts on the existing town plan layout.
- No allowance for agricultural activities on the existing town plan layout.

Utilities

- Lack of alternative energy and/or systems to reduce ESKOM based power consumption.
- Poor waste management systems.

Linkages

• Blending in with and adding sustainability values to adjacent "soulless" RDP housing development. • Providing socio-economic opportunities to residents arising from the potential economic growth of the general area.

Summary of Design Challenges

An extremely multi-challenging project within a fragmented and monocultural environment with a tall order to satisfy Lonmin's vision for sustainable development.

MARIKANA HOUSING PROJECT – PHASE 1 PROJECT SCOPING



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| | | People |
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| | | Sensitize the client sta |
| Contraction in the | SOF F | Undertake empowerm |
| | | ecovillages, for the ho |
| | The second se | • Extend the above train |
| | | • Orientate houses to m |
| | | Delineate public trans |
| | | Redesign town plan la realm, socio-economi |
| | | Housing Construct homes with |
| | | Provide houses with s |
| | | Promote the design of |
| | | Provide rainwater tank |
| | | Provide grey water red |
| | | Provide homestead ga |
| | | • Establish large earth r |
| | | against unsightly view |
| | | Re-establish small da |
| | | Establish a diverse va enhance micro-climate |
| | | Drainage Establish stormwater |
| THE RE-DESIGN | | earth mound along the |
| | | Integrate stormwater of housing areas. |
| | | Establish biomass thre rate of evapotranspira |
| | 3.10 m Vide Servituak | Establish permeable r required. |
| IN RE-DESIGN | | Pollution |
| | | Establish large earth r noise and wind pollution |
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| | | Socio-Economic Oppo Provide a node / corride |
| | | Provide a node / corrice Provide a node / corrice |
| | | plan layout. |
| | | Provide a green belt a |
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| | | • Design houses and ot |
| States - | | Design houses to recy |
| | | Make proposals for ac Linkages |
| E. I.I. | | Integrate the redesign transport route and put |
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| Contraction in the local division in the loc | | • Identify entrepreneuria |
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| | and the second sec | A holistic and int |
| | | environment that appreciation of th |
| | | |
| | C. C. | 00 |

Design Solutions

akeholder group and professionals about sustainable design criteria at every available opportunity.

nent type training courses in sustainable design, such as, permaculture, natural building systems and busing beneficiary group, and also, extend this training to the existing adjacent community.

ning to public officials and professionals where appropriate.

naximise benefits from passive and active solar energy systems.

sport routes suitable for IPOD system, and/or, limited public and commercial vehicles.

ayout for balance of development and integrate with Phase 1 to allow for a holistic integration of housing, public c and public transport routes.

natural building materials in order to reduce building costs, the ecological footprint, maintenance costs, and,

olar energy.

semi-detached and series of row houses with a narrow road frontage and more functionally usable plot depth.

iks for on-site irrigation of homestead gardens.

cycling systems that can irrigate homestead gardens.

arden starter packs of fruit and indigenous trees, seeds, and, other plant material.

unds along southern and western boundary and populate with indigenous trees and vegetation to mitigate and, provide a safety and security barrier.

ms and integrate within public realm and open space facilities.

ty of biomass through urban greening tree plantings in both proposed and existing developments in order to and mitigate against seasonal weather extremities.

chment swales to drain the central area of excess water and channel towards natural water courses and the outhern and western boundary.

atchment swales with rainwater harvesting systems for agricultural allotments within and along the edges of

gh urban greening tree plantings in both proposed and existing developments as a means to improve the

d paving systems to enhance the flow of stormwater drainage and the retention of the water table where

mounds along southern and western boundary and populate with indigenous trees and vegetation to deflect

ough urban greening tree plantings as a means to improve the rate of carbon uptake and oxygen generation. unities

idor of facilities at an entrance to the development for small micro enterprises within the redesigned town plan

idor of facilities for social recreational and community facilities within the heart centre of the redesigned town

along the southern and western boundary and integrate within areas designated for passive open space.

otments along stormwater catchment swales and integrate with rainwater harvesting systems.

ther facilities to take advantage of passive and fixed solar energy.

cycle grey water into homestead gardens.

dopting zero waste management initiatives.

ned town plan layout with the existing adjacent housing development with special attention to the public blic and community facilities

ening tree planting initiative to the existing adjacent housing development.

al opportunities arising from the greater Marikana area that can be accommodated within the development.

al opportunities for extending sustainable development initiatives outwards to the surrounding Marikana area.

n Solutions

tegrated sustainable design approach to create a vibrant, diverse and safe built t promotes a sense of community, socio-economic opportunities, and, an he natural environment.