



Safety: Guideline on Bund and Fencing

1. Objective:

Objective of this guideline is to establish a Safe benchmarking practices for bund and fencing to ensure restricted access to various storage facilities, to minimize MMI, HEMM equipment fall, prevent drowning hazard, injury to men and equipment damages during operation and maintenance.

2. Reference document:

- The Mines Act 1952
- The Metalliferous Mines Regulations 1961 & 2019 (Draft)
- DGMS Circulars
- Factories Act 1948 & Rajasthan Factories Rules 1951
- Explosives Act 1884 & Explosive Rules 2008
- Petroleum Act 1934 & Petroleum Rules 2002
- Other Requirements

3. Scope:

To provide a guideline for bund and fencing for safe operation of operation & maintenance and other storage places. The guideline will help to provide a new impetus towards achieving the best in class safety standards. This guideline is formulated based on regulatory requirements and best practices.

4. Definition:

- **Access Control:**
The practice of restricting entrance to a property, a building or a room to authorized persons.
- **Pedestrian Walkway:**
A surfaced walkway, separated from the roadway to eliminate Man-Machine interaction and traffic.
- **Bund Wall:**
A constructed retaining wall "where potentially substances are handled, processed or stored, for the purposes of containing any unintended escape of material from that area and to prevent any unwanted entry of men and machinery."
- **Fencing:**
A fence is a barrier between two areas of land or any, made of wood or steel wire supported by posts or masonry work.
- **Sump:**
A sump is a low space (partially underground/ underground) that collects often liquids such as water or chemicals. A sump can also be an infiltration basin used to manage runoff water/ process water / seepage water.
- **Abandoned Working:**
Mean such working as have been abandoned with no intention of working in future

- **Reservoir:**
A non-natural reservoir (Industrial purpose) shall be created in above ground or below ground by

excavation with earthen bund, where fresh water/ process water is collected and stored for use.

- **Berm:**
A berm refers to muck, dirt and rock piled alongside a haulage road or along the edge of a dump point. Intended as a safety measure.
- **Mine Stoping:**
Stoping is practiced in underground mineral mining when the surrounding rock is strong enough to permit the drilling, blasting, and removal of ore without caving.
- **Face:**
Means the moving front of any working place or the inbye end of any drive, level, crosscut, raise or winze.

5. Requirement:

Guideline broadly cover:

- Access control of buildings
- Pedestrians safety
- Surface and underground workings
- Mining haul road

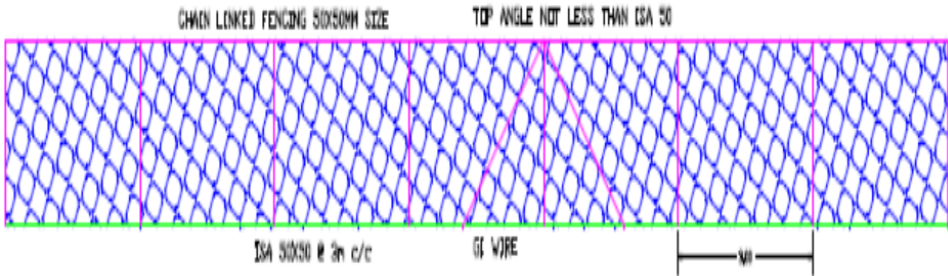
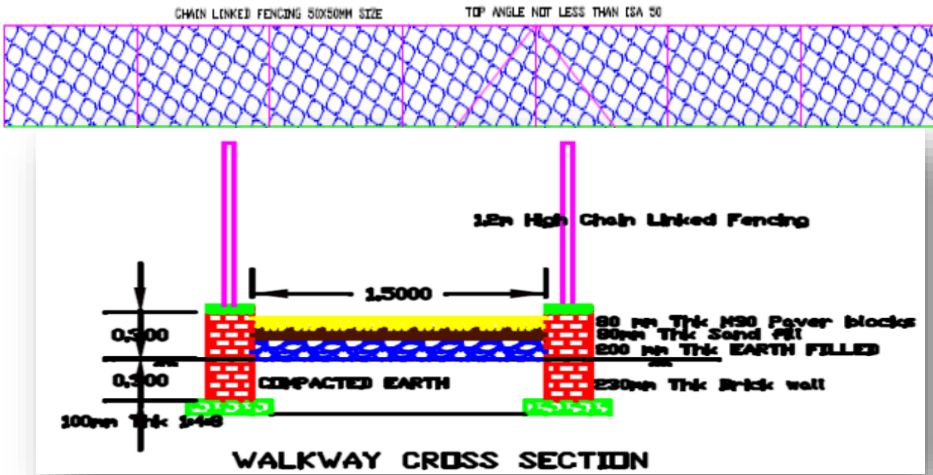
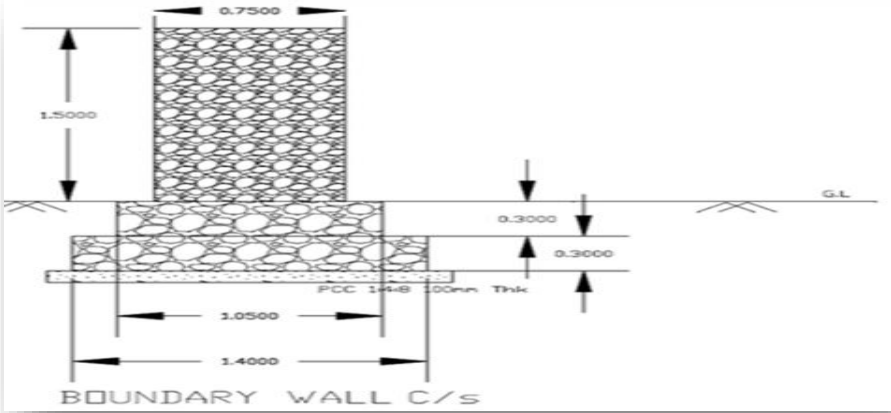
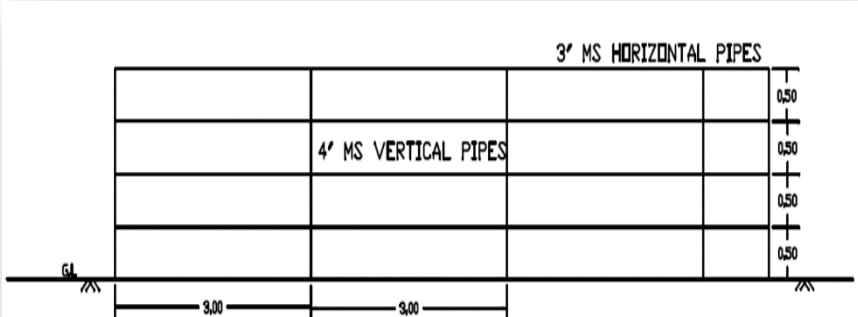
Note: - Machine Guarding and Conveyor Safety standard of HZL and Vedanta to be followed for Moving shafts, couplings, gears of machinery and dangerous parts of machineries.

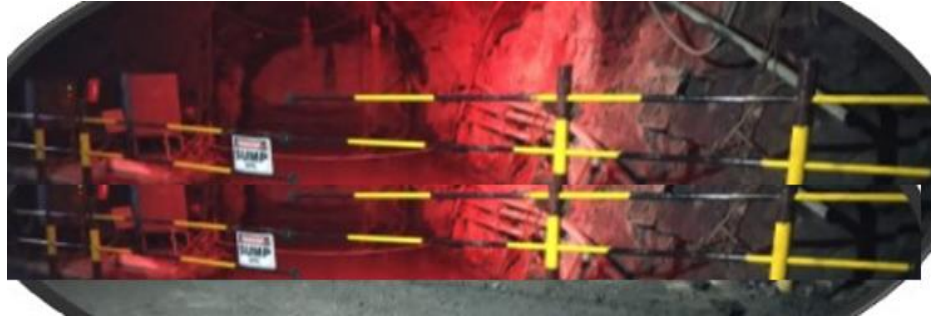
5.1 Responsibility:

- ❖ Unit Head/Location Head
- ❖ Site in charge/ Line Manager
- ❖ Project Head

5.2 Guideline:

WORK METHODS

Sr. No	Process	Steps
1.	Factory/ Mine premises inside: Building / Plant periphery – Fencing	<div style="text-align: center;">  <p style="text-align: center;">Chain link fencing with a height not less than 1.8 Meters</p> </div>
2.	Pedestrian Walkway	<div style="text-align: center;">  <p style="text-align: center;">Chain link fencing with a height not less than 1.2 Meters</p> </div>
3.	Top of abandoned shafts or inclines	<div style="text-align: center;">  <p style="text-align: center;">0.75 meter thick stone wall in not less than 1.50 meters high.</p> </div>
4.	UG Sump Fencing: Main / Level Access / Decline Level – UG	<div style="text-align: center;">  </div>



Hard Barricade with minimum 3 Inch MS pipe in four rows (pipes not more than 0.5 meter apart) bottom most pipe not more than 0.15 meter from ground level with a Signage Board + Red Light

5. Reservoir Area,
Sump / Storm water
pond Area Fencing
– Surface



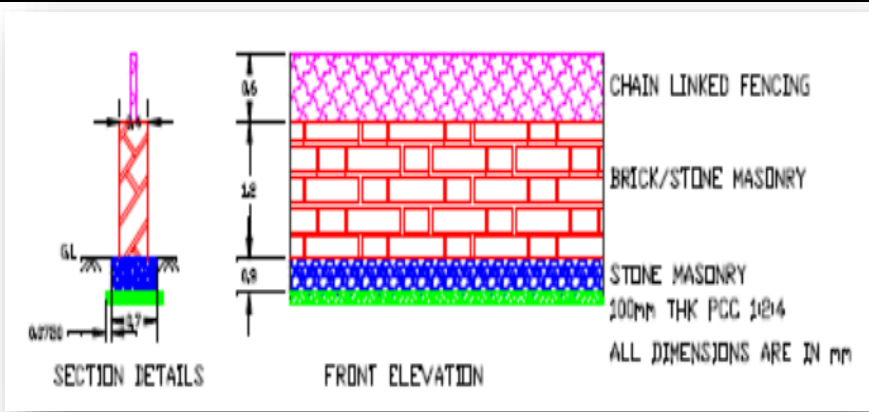
0.40 meter thick brick wall not less than 1.2 meters high with a chain link fencing not less than 0.6 meters high on top. **Fix lifebuoy and warning caution board. (Refer Annexure 1)**

6. UG Workings:
Drilling, Charging
and Shotcrete Area
Fencing



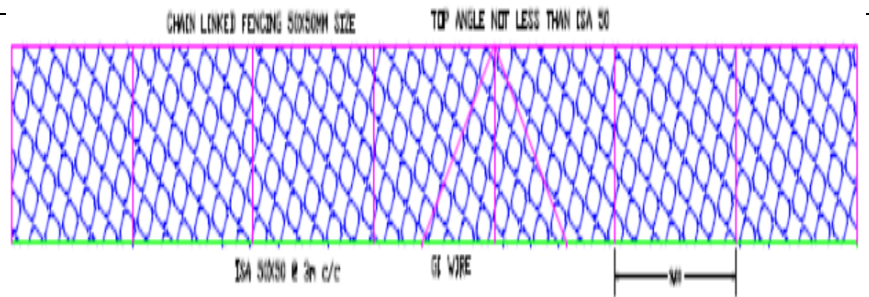
Single Chain Fencing with appropriate Signage Board (Refer Annexure 2)

7. Vent Raise Bore – Surface



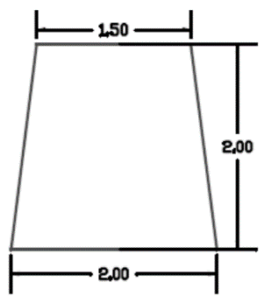
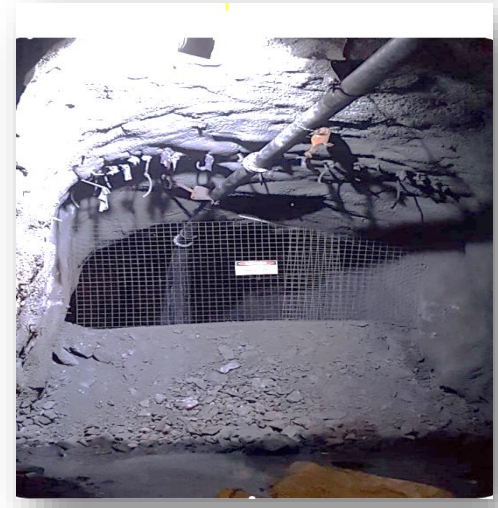
0.40 meter thick brick wall not less than 1.2 meters high with a chain link fencing not less than 0.6 meters high on top.

8. Vent Raise Bore – UG Level



Chain link fencing 2 meters height covering entire cross cut width; with signage (Refer Annexure-2).

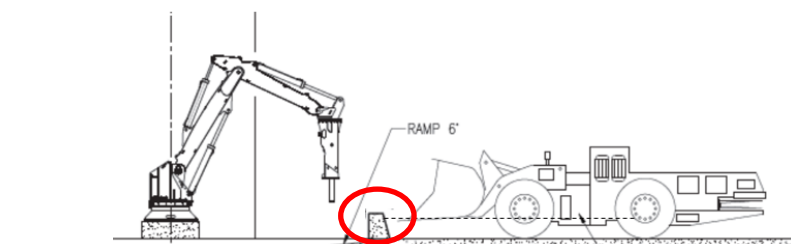
9. Paste Fill Area Fencing



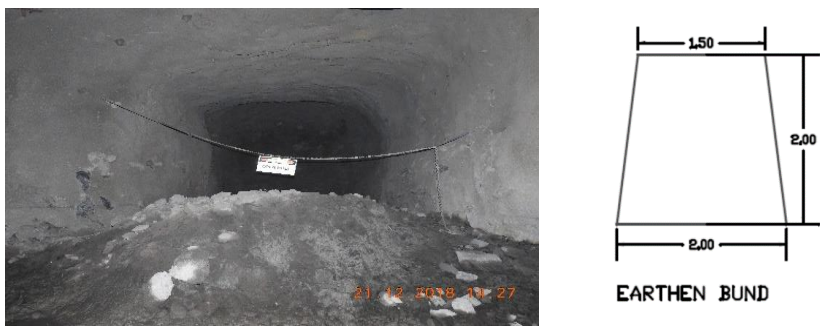

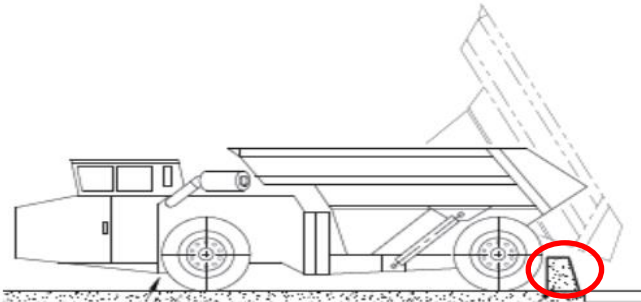

EARTHEN BUND

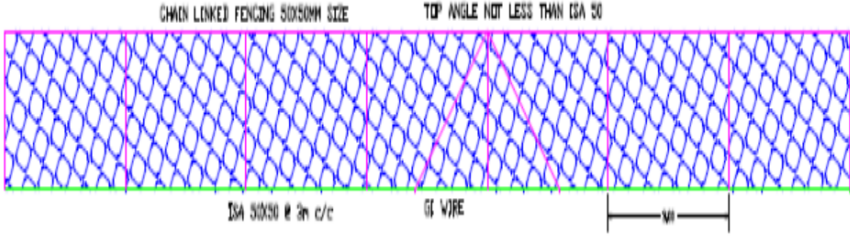
Retainment Bund (Top Level): 2*1.5 Meters number may vary based on filling requirement;
Containment Bund (Bottom Level): 2*1.5 Meters number may vary based on filling requirement along with signage board and fencing.

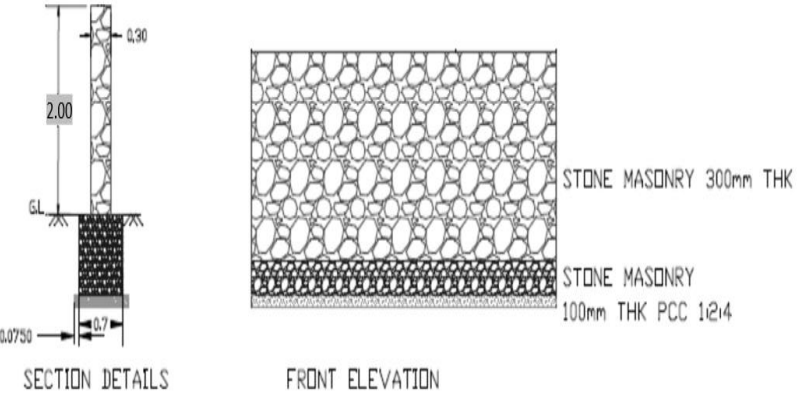
10. Ore Pass / Waste Pass Area Fencing – UG: LHD Operation

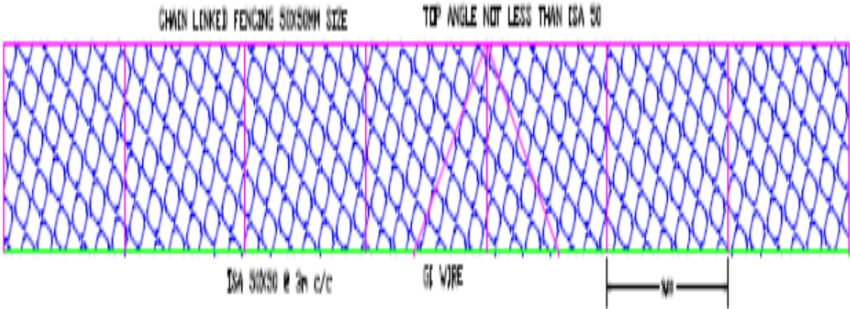


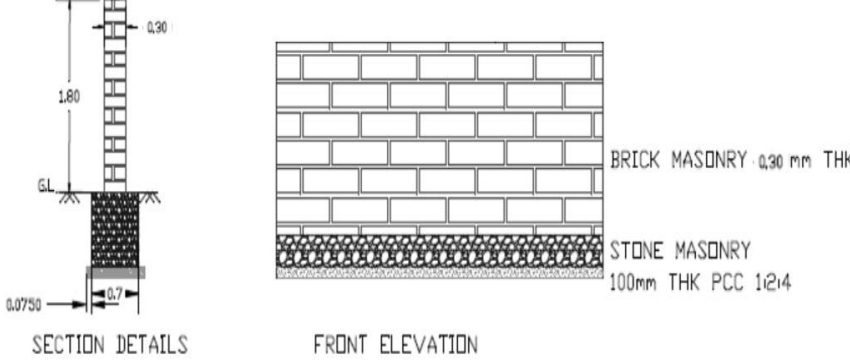
RCC bund wall with Height not less than (Where grizzle is absent) half of the tyre dia of LHD tyre and chain fencing with signage Board

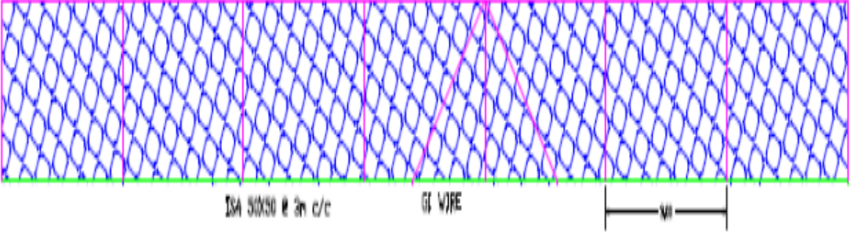

<p>11.</p>	<p>Stoping Area Fencing – UG</p>	 <p>The photograph shows a dark, tunnel-like underground stope area with a chain fence and a sign. To the right is a technical drawing of an earthen bund, which is a trapezoidal shape with a top width of 1.50 meters, a bottom width of 2.00 meters, and a height of 2.00 meters. The drawing is labeled 'EARTHEN BUND'.</p> <p>Draw Level: Bund - 1.5 Meter Width, 2 Meter Height + Chain Fencing with Signage Board Drill Level: Single Chain Fencing with Signage Board</p>
<p>12.</p>	<p>UG Substation, Reserve Station and Lube Storage</p>	 <p>The photograph shows an underground substation area with wire mesh fencing and a gate. The area is dimly lit with overhead lights.</p> <p>Chain link fencing “Wire Mesh” with gate (Fencing from ground level to top of the roof and all sides extend - where required)</p>
<p>13.</p>	<p>Surface Crusher – Ore Tipping Point (Crush Box) & UG Ore pass / Waste pass dumper side</p>	 <p>The technical drawing shows a side view of a dumper truck. A red circle highlights a detail on the rear wheel area, which is likely the location of the bund wall mentioned in the text.</p> <p>RCC bund wall with Height not less than 700 mm and single chain fencing with signage Board (Refer Annexure 2)</p>
<p>14.</p>	<p>Any Opening in Plant</p>	 <p>The photograph shows a walkway with yellow handrails and grating, likely used for access to various parts of the plant.</p> <p>Handrail [Top Rail Height: 1050 mm; Mid Rail Height: 525 mm with toe guard 150 mm] or MS Grating, /FRP Grating.</p>

15.	Gas Cylinder and Petroleum Storage – Area Periphery Fencing	 <p>Chain link fencing (CLF) 2 meters height</p>
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16.	Explosives (Magazine Storage) – Area Fencing	 <p>0.3 meter thick stone wall not less than 2 meters high.</p>
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17.	Explosives Van – Area Fencing	 <p>Chain link fencing (CLF) 2 meters height</p>
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17.	LPG tank Storage Area – Periphery Fencing	 <p>0.3 meter thick brick masonry compound wall not less than 1.8 meters height</p>
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18.	LPG Truck Parking Area	<p style="text-align: center;">CHAIN LINKED FENCING SIXXSOH SIZE TOP ANGLE NOT LESS THAN 60° 50'</p>  <p style="text-align: center;">Chain link fencing (CLF) not less than 2 meters height</p>
19.	Berm at Mine Haul Road – Open Pit & Waste Dump	 <ul style="list-style-type: none"> (i) Width at top not less than 1 m (ii) Width at bottom not less than 2.5 m (iii) The height not less than the diameter of tyre of largest vehicle plying on road.

Annexure -1

Emergency Ppe's, Equipment & Caution Board Display at Sumps & Reservoirs
Size of Board (3 * 2 Feet)



Place minimum 2 no's of lifebuoy at reservoirs jacket



Person working at sump/reservoir must wear life



Signages:

Annexure -2



Released by Chief HSE Officer- HZL
