Organisation Banner

Risk Assessment Report

Risk Assessment UID	H/APS/BFF/26/00002	**Site Name**	Avali, Grava Residences, Apas, Grava, MH99, Nishada, Precast Plant, Raka, Sayuk, Tridasa, Bommera, Casting Testing Site, New Location testing, City Center, City Center Road, VR Site, Simanchal
Risk Assessment Name	Back Filling	**Status**	Publish
Next Revision Date	26-Feb-2026	**Revision Number**	12234
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Activity: Back Filling

Sub-Activity: Soil placement (dumpers/tippers unloading)

Hazard

Hazard	Overloading of truck → Vehicle topple

Risk	Fatal accident, multiple injuries
Likelyhood	4
Consequences	5
RR	20
Risk Level	High Risk

Control Measures

E - Elimination	Eliminate overloading by strictly prohibiting loads above the truck/tipper rated capacity. Remove unfit vehicles from operation (old, unstable, defective hydraulic tipping systems).
SB – Substitution	Use higher-capacity dumpers on sites with heavy earth movement requirements. Substitute manual loading with controlled loading using excavators to avoid uneven load distribution.
EC – Engineering Controls	Install onboard load indicators or weighbridge systems to ensure compliant loading. Maintain uniform loading—avoid one-side heavy loading that increases rollover risk. Use stable, compacted unloading platforms with level ground. Provide wheel chocks when unloading on mild gradients.
AD – Administrative Controls	Implement load-limit SOP and train loading operators. Conduct pre-operation checks for hydraulic system, tires, brakes, and body lock. Ensure only trained and licensed drivers operate dumpers. Maintain a safe exclusion zone around trucks during unloading. Stop operations during heavy rain or during soft ground conditions.
PPE – Personal Protective Equipment	Safety helmet. High-visibility jackets for workers near traffic. Safety shoes.

Residual Risk

Likelyhood	3
Consequences	5
Residual RR	15
Risk level	High Risk

Additional Control Measures	NA
Opportunities	NA

Hazard

Hazard	Material fall from truck body

Risk	Crush injury
Likelyhood	4
Consequences	4
RR	16
Risk Level	High Risk

Control Measures

E - Elimination	Eliminate manual removal of stuck soil—use mechanical means (excavator) instead of workers entering the truck body. Remove hanging or unstable loads before movement.
SB – Substitution	Use tippers with smooth surface bodies to reduce material sticking. Replace worn-out tailgates with self-locking hydraulic gates.
EC – Engineering Controls	Install tailgate locking mechanisms and check before every dump. Provide physical barricading around the unloading zone. Use truck body vibration systems for safer material discharge.
AD – Administrative Controls	Conduct toolbox talk on hazards of standing behind/under the tailgate. Only trained workers may guide unloading operations. Do not allow anyone to stand within the truck's rear path. Use a designated dumping zone with controlled entry.
PPE – Personal Protective Equipment	Helmets, gloves, safety shoes. High-visibility clothing for spotters.

Residual Risk

Likelyhood	3
Consequences	4
Residual RR	12
Risk level	Meduim Risk

Additional Control Measures	NA
Opportunities	NA

Hazard

Hazard	Unstable tipper parked at edge

Risk	Vehicle slide into pit → Fatality
Likelyhood	4
Consequences	5
RR	20
Risk Level	High Risk

Control Measures

E – Elimination	Eliminate tipping at unsafe edges or near weak embankments. Remove loose soil and soft edges before using the area as a dumping spot.
SB – Substitution	Use smaller-capacity tippers in narrow/unstable zones. Substitute edge dumping with dozer spreading where possible.
EC – Engineering Controls	Provide compacted, stable berms (minimum 1 m height, site-specific). Install stop-blocks or wheel chocks at dumping edges. Maintain minimum safe distance (2–3 m) from the drop edge depending on soil condition. Ensure ground compaction before allowing tipper movement.
AD – Administrative Controls	Risk-assess the ground condition daily (post-rainfall checks mandatory). Use flagman or signalman to guide trucks near edges. Allow only one truck at a time at the dumping edge. Train operators on blind-spot and tipper-instability hazards.
PPE – Personal Protective Equipment	Helmet, reflective jackets. Safety shoes with good traction.

Residual Risk

Likelyhood	3
Consequences	5
Residual RR	15
Risk Level	High Risk

Additional Control Measures	NA
Opportunities	NA

Hazard

Hazard	Reversing truck without flagman

Risk	Struck-by workers, Fatal accident
Likelyhood	3
Consequences	5
RR	15
Risk Level	High Risk

Control Measures

E – Elimination	Eliminate unnecessary reversing by redesigning traffic flow to allow forward entry and exit where possible.
SB – Substitution	Use trucks with reverse cameras and proximity sensors. Replace manual flagging with GPS-based site vehicle guidance where applicable.
EC – Engineering Controls	Install reverse alarms, beacon lights, and rear-view cameras on every tipper. Provide designated one-way access routes and turning radii. Barricade pedestrian walkways separate from vehicle movement areas.
AD – Administrative Controls	Mandatory flagman/signaller for every reversing movement. Conduct traffic-management training for all drivers and ground staff. Enforce speed limits (10 km/h in work zones). Keep workers out of truck blind-spot zones using exclusion markers. Use communication protocol (hand signals, two-way radios).
PPE – Personal Protective Equipment	Reflective jackets (high-visibility mandatory). Helmet and safety shoes. Gloves for flagmen.

Residual Risk

Likelyhood	2
Consequences	5
Residual RR	10
Risk Level	Medium Risk

Additional Control Measures	NA
Opportunities	NA

Sub-Activity: Compaction (roller/plate compactor)

Hazard

Hazard	Roller overturn on loose soil slope

Risk	Fatal injury
Likelyhood	4
Consequences	5
RR	20
Risk Level	High Risk

Control Measures

E - Elimination	Eliminate roller operation on excessively loose, uncompacted, or steep slopes. Remove unstable soil surfaces before allowing heavy compaction machines.
SB – Substitution	Use smaller walk-behind compactors where rollers cannot safely operate. Substitute heavy rollers with remote-controlled compactors in high-slope zones.
EC – Engineering Controls	Maintain slope gradient within manufacturer's safe operating limits. Compact soil in layers (200–300 mm) to ensure stability before roller movement. Provide edge berms or physical barriers on embankments to prevent rollover. Install rollover protection structures (ROPS) and seat belts on all rollers. Ensure proper drainage so water accumulation does not weaken soil.
AD – Administrative Controls	Conduct pre-work soil stability inspection by site engineer. Only trained and licensed roller operators allowed to operate equipment. Keep workers away from edges during compaction. Provide communication protocol between roller operator and banksman. Stop work in heavy rain or when soil becomes slippery.
PPE – Personal Protective Equipment	Safety helmet, high-visibility vest. Safety shoes with good grip. Seatbelt mandatory for operator (part of ROPS system).

Residual Risk

Likelyhood	3
Consequences	5
Residual RR	15
Risk Level	High Risk

Additional Control Measures	NA
Opportunities	NA

Hazard

Hazard	Vibration hazards

Risk	Hand-arm vibration syndrome, long-term injury
Likelyhood	3
Consequences	3
RR	9
Risk Level	Medium Risk

Control Measures

E - Elimination	Eliminate prolonged continuous use of plate compactors by rotating tasks. Remove old, high-vibration equipment from service.
SB – Substitution	Use low-vibration or vibration-dampened plate compactors. Substitute manual compaction with mechanical rollers where possible.
EC – Engineering Controls	Install anti-vibration handles on plate compactors. Use machinery with built-in vibration limiting technology. Maintain compaction equipment regularly (poor maintenance increases vibration levels).
AD – Administrative Controls	Limit exposure time—follow safe vibration exposure thresholds. Provide HAVS awareness training for workers. Implement job rotation schedule to reduce long-term exposure. Monitor operators for early symptoms (tingling, numbness).
PPE – Personal Protective Equipment	Anti-vibration gloves. Safety boots and helmets. Hearing protection if compaction noise levels are high.

Residual Risk

Likelyhood	2
Consequences	3
Residual RR	6
Risk level	Low Risk

Additional Control Measures	NA

Opportunities	NA

Hazard

Hazard	Operator hit by reversing roller

Risk	Crush injuries
Likelyhood	4
Consequences	4
RR	16
Risk Level	High Risk

Control Measures

E – Elimination	Eliminate reversing wherever possible by creating forward-only movement paths. Remove pedestrian access from roller operating areas completely.
SB – Substitution	Use rollers with rear-view cameras and proximity sensors. Use remote-controlled compactors in confined or high-risk areas.
EC – Engineering Controls	Install reverse alarms, beacon lights, and mirrors. Provide designated, barricaded pathways separating pedestrians and machinery. Ensure compaction zone is fully leveled, compacted, and free of obstructions. Use spotter/flagman for guiding the roller in tight areas.
AD – Administrative Controls	Mandatory pre-work checklist for rollers (reverse alarm, brakes, steering). Only authorized operators allowed within compaction zone. Workers must not stand behind or near the roller path. Daily toolbox talks on reversing hazards. Enforce strict speed limits.
PPE – Personal Protective Equipment	High-visibility clothing. Safety shoes and helmets. Gloves

Residual Risk

Likelyhood	3
Consequences	4
Residual RR	12
Risk level	Medium Risk

Additional Control Measures	NA
Opportunities	NA

Sub-Activity: Working near open pits/structures

Hazard

Hazard	Collapse of adjacent excavation wall due to backfill pressure

Risk	Burial, fatality
Likelyhood	4
Consequences	5
RR	20
Risk Level	High Risk

Control Measures

E – Elimination	Ensure 0 workers enter the excavation during backfilling operations.
SB – Substitution	Use lightweight fill material with a density < 1,800 kg/m³ to reduce lateral pressure. Replace manual compaction with remote compactors allowing workers to stay ≥ 3 m away from the pit edge.
EC – Engineering Controls	Maintain excavation slope at 1H:1V (or as per soil test). Install trench shoring capable of resisting ≥ 50 kN/m² of lateral earth pressure. Perform backfilling in layers not exceeding 200–300 mm thickness. Keep heavy equipment at least 1.5 × excavation depth away from the edge. Ensure dewatering maintains water table ≥ 1 m below excavation level.

AD – Administrative Controls	Conduct 1 inspection every shift by a competent person. Enforce a 2 m exclusion zone during compaction. Provide minimum 30-minute toolbox talk/week on soil stability.
PPE – Personal Protective Equipment	Hard hat meeting EN 397 / ANSI Z89.1; Safety boots with 200 J toe protection.

Residual Risk

Likelyhood	3
Consequences	5
Residual RR	15
Risk Level	High Risk

Additional Control Measures	NA
Opportunities	NA

Hazard

Hazard	Fall of men into unprotected pits during backfilling

Risk	Fatality
Likelyhood	4
Consequences	5
RR	20
Risk Level	High Risk

Control Measures

E – Elimination	Ensure 0 requirement for workers to work within 1 m of pit edge during backfilling.
SB – Substitution	Use prefabricated walkways rated for ≥ 2 kN/m² for crossing areas instead of temporary wooden planks. Replace temporary ropes with mobile barricade panels 1.0–1.2 m high.
EC – Engineering Controls	Install guardrails 1.1 m high with mid-rail at 0.5 m. Provide pit covers capable of supporting minimum 5 kN load. Ensure jobsite lighting of ≥ 50 lux around excavation areas. Maintain walking paths at least 1.5 m away from pit edges.
AD – Administrative Controls	Allow access only to authorized persons: max 2 designated spotters during backfilling. Place warning signage at 10 m intervals around the excavation. Conduct communication checks every 30 minutes during the operation.
PPE – Personal Protective Equipment	Use full-body harness when working within 1 m of unprotected edge. High-visibility vest

Residual Risk

Likelyhood	3
Consequences	5
Residual RR	15
Risk Level	High Risk

Additional Control Measures	NA
Opportunities	NA

Hazard

Hazard	Retaining wall failure due to improper compaction

Risk	Structural collapse → Fatality
Likelyhood	4
Consequences	5
RR	20
Risk Level	High Risk

Control Measures

E – Elimination	Reduce temporary retained height to < 1.2 m where possible to eliminate engineered wall need.
SB – Substitution	Switch to lightweight engineered fill with density < 1,600 kg/m³ behind retaining wall. Use low-vibration plate compactors with impact force < 15 kN near the wall.
EC – Engineering Controls	Compact backfill in layers ≤ 250 mm thick. Achieve a minimum relative compaction of 95% of Proctor density. Install drainage behind wall capable of discharging ≥ 20 L/min. Keep vibratory rollers at least 2 m away from retaining wall. Use geogrids with tensile strength ≥ 30 kN/m as per design.
AD – Administrative Controls	Perform compaction testing once every 20 m² of backfill. Conduct wall stability inspections twice per shift. Allow only certified operators with minimum 2 years experience to operate compactors.
PPE – Personal Protective Equipment	Helmet, safety shoes, gloves reflective vest compliant with EN/ANSI standards.

Residual Risk

Likelyhood	3
Consequences	5
Residual RR	15
Risk Level	High Risk

Additional Control Measures	NA
Opportunities	NA

Sub-Activity: General hazards

Hazard

Hazard	Dust generation during dry backfilling

Risk	Respiratory issues
Likelyhood	4
Consequences	4
RR	16
Risk Level	High Risk

Control Measures

E – Elimination	Avoid dry backfilling by slightly moistening the soil before use. Use pre-moistened backfill to prevent dust creation.
SB – Substitution	Replace dusty soil with granular or coarse material that naturally produces less dust. Use water-treated fill instead of very dry, fine soil.
EC – Engineering Controls	Use water spraying or misting during backfilling to keep dust down. Install temporary wind barriers or dust screens. Ensure equipment cabins are enclosed and fitted with basic dust filters.
AD – Administrative Controls	Keep unnecessary workers away from dusty areas. Carry out backfilling during low-wind conditions if possible. Provide awareness training on dust hazards and safe work practices. Conduct periodic site checks to monitor dust levels visually.
PPE – Personal Protective Equipment	Provide suitable dust masks (N95/FFP2 or equivalent). Use safety goggles to protect eyes from irritation.

Residual Risk

Likelyhood	3
Consequences	4
Residual RR	12

Risk Level	Medium Risk

Additional Control Measures	NA
Opportunities	NA

History

Created On	Created By	Comment	Attachments
23-Feb-2026 12:08:31 PM	Rajkumar Pativada	A new record was created: Hira Type set to 'Back Filling' Hira Status set to 'Submit' Next Revision Date set to '26-Feb-2026'	