APPENDIX N – Storage Yard

Storage Yard Track Access Guide (RWP-SY)

1. Section Overview

Locations: Yard Led • Mainline Crossover (Switches 1A / 1B) • Inspection Tracks (1–6) • Wash Track • Shop Access Track • OCS Yard Feed Poles • Storage Staging Lanes
Line: Blue Line (A Line) / Orange Line (B Line) – Operations & Maintenance Yard Interface
Track Type:
Combination of ballasted lead track and embedded yard slab track within a secured facility. The yard connects to the mainline through powered switches and features manual hand-throws for storage and inspection tracks. The alignment supports low-speed train movements under OCC control, with limited clearances, overhead OCS poles, and multiple walkway crossings.

2. Work Activity Description

All roadway worker protection (RWP) activities within the Storage Yard are coordinated through the Operations Control Center (OCC) and Maintenance of Equipment (MOE).

Typical activities include:

- Switch inspection, adjustment, and lubrication.
- OCS and feeder maintenance on fixed-pole structures.
- Inspection pit access and undercarriage examination. (Movement governed by non-controlled tracks and SOP 1700.01)
- Track tamping, alignment checks, and debris removal.
- Wash track and pantograph inspection activities.

All work must occur under Exclusive Track Occupancy (ETO) or In-Charge Person (ICP) authority. Movements of LRVs, shop trucks, or maintenance vehicles must be suspended within defined limits.

Crews use barricades, cones, or blue flags at track entry points. At this point, movements within the shop are done under non-controlled tracks and SOP 1700.01. A lookout or watchperson must be assigned when multiple tracks are active.

Safe zones are located along the yellow-striped walkways and between designated refuge platforms; step-off clearance is restricted between storage tracks. Overhead OCS

hazards exist throughout; all employees must observe the 20-foot minimum approach unless OCS power has been de-energized and grounded

Risk & Hazard Assessment

Location	Hazard ID	Hazard Description	L	S	Risk	Controls / Mitigations
Yard Lead / Switches 1A–1B	SY-1	Conflicting movement with yard or mainline train during entry/exit.	Med	High	High	OCC coordination and radio clearance required; ETO limits must cover both switches; yard gates locked and flagged.
	SY-2	Switch misalignment or power correspondence fault.	Low	High	Med	Verify indication via OCC and visual check before release; inspect switch rods before movement.
	SY-3	Restricted step-off areas near powered switch motors.	Med	Med	Med	Use designated walkway; post cones; maintain 3-foot clearance.
Storage Tracks (1–6)	SY-4	Worker struck or pinned between stored LRVs.	Med	High	High	Verify no equipment movement; apply blue flags both ends; ensure OCC aware of personnel on track.

Location	Hazard ID	Hazard Description	L	S	Risk	Controls / Mitigations
	SY-5	Limited refuge between parallel tracks.	High	Med	High	Identify escape route prior to entry; maintain lookout; position tools clear of walkways.
Inspection Pit / Shop Access	SY-6	Fall hazard into open pit or trench.	Med	High	High	Use guardrails or covers; ensure pit lighting and ventilation; post “Open Pit” signage.
	SY-7	Electrical hazard from OCS proximity above pit.	Med	High	High	Confirm OCS de-energized before roof-mounted work; use LOTO tags; maintain 20-foot clearance.
	SY-8	Slip hazard from fluids, grease, or cleaning residue.	Med	Low	Med	Maintain housekeeping; use absorbent mats; wear slip-resistant footwear.
Wash Track Area	SY-9	Unauthorized vehicle entry into wash lane.	Med	Med	Med	Close gates and post “Do Not Enter” signs; maintain supervision during wash operations.
	SY-10	Chemical exposure from	Low	Med	Low	Use PPE and eye protection;

Location	Hazard ID	Hazard Description	L	S	Risk	Controls / Mitigations
		detergents and spray.				confirm wash chemicals stored per SDS; ventilate area.
OCS Yard Poles / Feeder Line Zone	SY-11	Electrical contact during maintenance.	Low	High	High	De-energize and ground; confirm isolation via OCC; maintain LOTO tagout until release.
	SY-12	Elevated work near parked trains or cranes.	Med	Med	Med	Maintain 10-foot setback; use spotter; barricade lift zone.
Yard Gate & Vehicle Interface	SY-13	Collision with maintenance trucks or LRV during gate transition.	Med	High	High	Assign flagger at gate; radio clearance with OCC; stop LRV outside gate until clear.
	SY-14	Poor visibility at night or during rain.	High	Med	High	Use portable lighting; reflective PPE; minimize vehicle crossings.

4. Segment Hazard Checklist

Segment	Access	Braking	Visibility (Curves / Portals / Distractions)	Environmental	Notes / Comments
Yard Lead / Switches 1A–1B	☑	☑	☑ (Curves near gate)	☑	Dual-track lead with powered switches; limited walkway clearance near fence line.
Storage Tracks (1–6)	☑	☐	☑ (Obstructed by parked LRVs)	☑	Narrow spacing and confined walkways; high visibility vest required.
Inspection Pit / Shop Access	☑	☐	☑ (Interior glare / shadows)	☑	Pit fall risk; ensure ventilation and lighting.
Wash Track	☑	☐	☑ (Wet floor reflection)	☑	Surface wetness and noise; watch electrical panels.
OCS Feeder / Yard Poles	☑	☐	☑ (Overhead obstructions)	☑	Maintain clearance; use lift spotters.

5. The Four Standard Hazard Categories

Access Limitation –
Restricted walkways, fencing, and stored LRVs reduce available movement space. Entry and egress points are fixed and require controlled gate access. All personnel must sign in/out with OCC and MOW Yardmaster prior to entry.

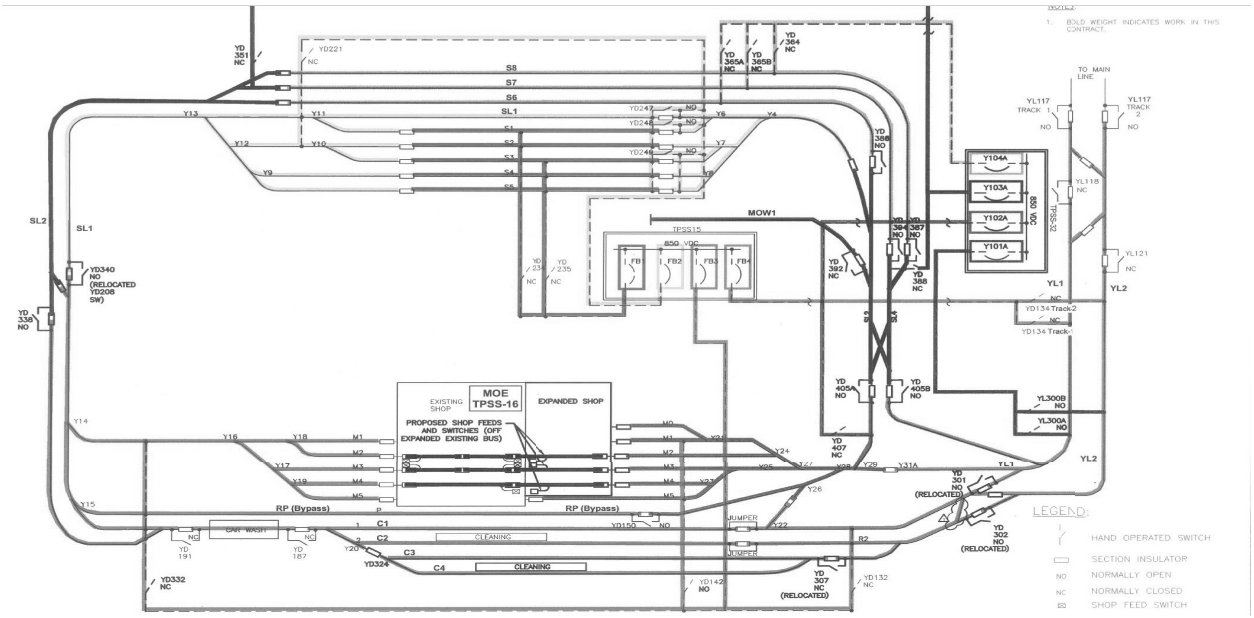
Braking Distance –
LRVs operate at low speeds within the yard (≤5 mph), but short stopping distances and multiple crossovers create collision potential if clearance is not confirmed. Yard personnel must maintain visual contact and radio coordination when any movement is authorized.

Visibility –
Obstructed sightlines from parked vehicles, equipment, and OCS poles limit operator and worker visibility. Night operations require portable lighting and reflective PPE, and may optionally have a designated watchpersons to maintain situational awareness.

Environmental Factors –
Workers are exposed to high radiant heat from concrete slabs, water overspray from the wash track, noise from compressors, and glare from yard lighting. Enforce heat stress protocols, hydration, and hearing protection as required by Valley Metro SOP 400.7 (Adverse Weather) and SOP 500.3 (Shop Operations).




202
202
4
Sonora Granite


MOE
TPSS-16
EXISTING SHOP
EXPANDED SHOP
PROPOSED SHOP FEEDS AND SWITCHES (OFF EXPANDED EXISTING BUS)
MOW1
TPSS15
850 VDC
TPSS16
850 VDC
TO MAIN LINE
RP (Bypass)
RP (Bypass)
CAR WASH
CLEANING
CLEANING
JUMPER
JUMPER
LEGEND:
HAND OPERATED SWITCH
SECTION INSULATOR
NO NORMALLY OPEN
NC NORMALLY CLOSED
SD SHOP FEED SWITCH







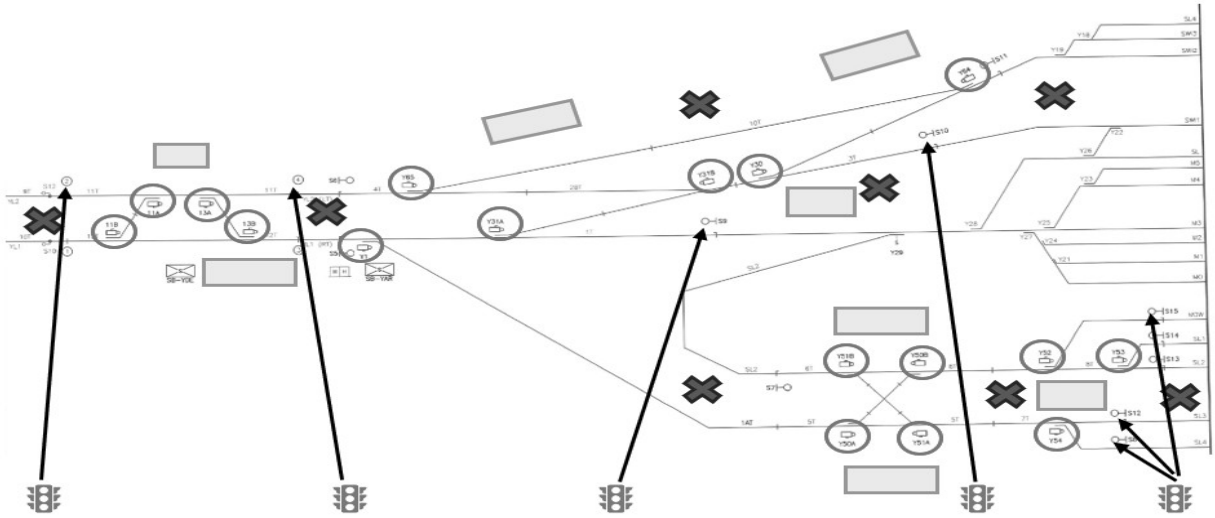


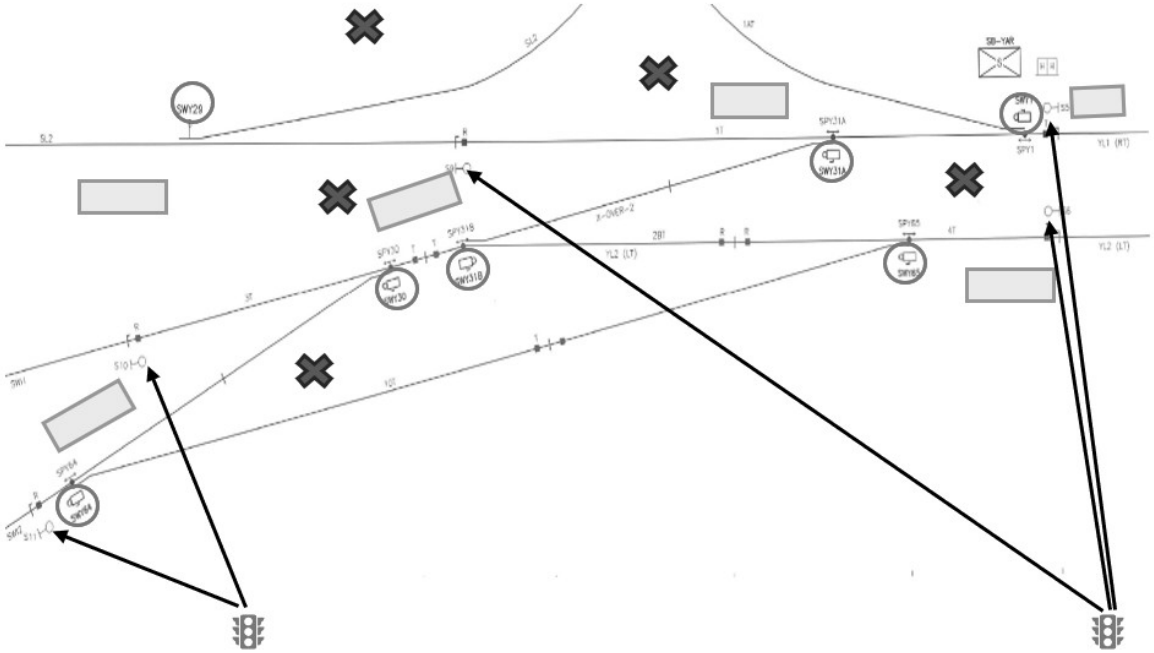

S5
S5

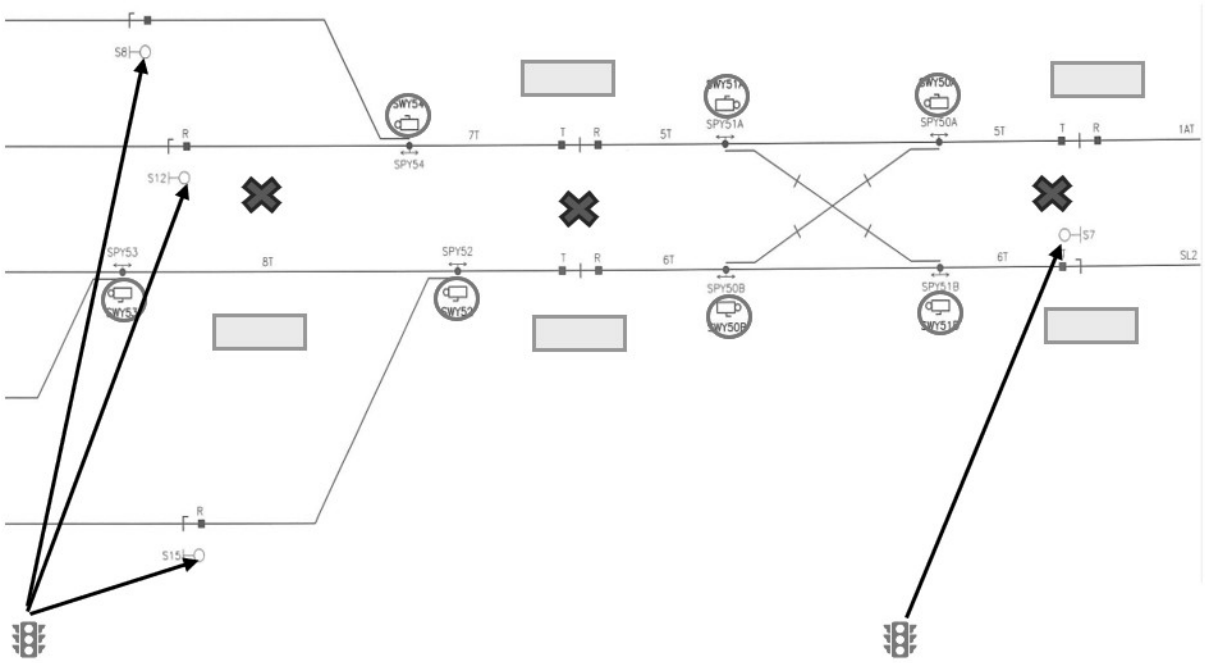









SWY29
SPY31A
SWY31A
SPY1
SWY1
SPY31B
SWY31B
SPY30
SWY30
SPY65
SWY65
SPY64
SWY64
S10
S11
S5
YL1 (RT)
YL2 (LT)


S8
S12
S15
S7
SPY54
SWY54
SPY53
SWY53
SPY52
SWY52
SPY51A
SWY51A
SPY50A
SWY50A
SPY50B
SWY50B
SPY51B
SWY51B
7T
5T
8T
6T
1AT
SL2

Storage Yard — Powered Switches & Signal Aspects (Operations Within Yard Limits)

Aspect conventions (yard):
• STOP = Red (default / not lined / occupied / blue-flag / LOTO)
• PROCEED (yard move) = Lunar/Restricting or Green (when lined, track circuit clear, protections removed)
• DIVERGING = Yellow (if equipped; many yard dwarfs show Restricting instead of a full diverging)
• Signals remain STOP on any occupancy, conflicting route, loss of correspondence, or active blue-flag.

Yard Led (inside yard limits)

Switch ID	Default Aspect	Cleared Aspect (when route lined & TC clear)	Notes
11A	Red	Amber or Green	Paired with 11B; yard dwarf/home indications.
11B	Red	Amber or Green	Route must be fully proved; blue-flag overrides.
13A	Red	Amber or Green	Often used for ladder access within lead.
13B	Red	Amber or Green	Verify correspondence before movement.

East Yard

Switch ID	Default Aspect	Cleared Aspect (when route lined & TC clear)	Notes
50A	Red	Amber or Green	East ladder may feed multiple storage tracks.
50B	Red	Amber or Green	Interlocked with adjacent ladder routes.
51A	Red	Amber or Green	Same ladder group as 51B.
51B	Red	Amber or Green	Maintain lookout due to close clearances.
52	Red	Amber or Green	Single powered turnout; check local indicator.
53	Red	Amber or Green	Typical dwarf aspects for yard shoves.

54	Red	Amber or Green	Conflicts locked out by occupancy logic.

South Yard

Switch ID	Default Aspect	Cleared Aspect (when route lined & TC clear)	Notes
1	Red	Amber or Green	South ladder; short approaches.
30	Red	Amber or Green	Verify route through adjacent ladders.
31A	Red	Amber or Green	Paired with 31B on same ladder.
31B	Red	Amber or Green	Watch close clearances between parked LRVs.
64	Red	Amber or Green	May be tied to wash/shops interlocks if nearby.
65	Red	Amber or Green	Local panel indication should prove correspondence.

Operational notes (apply to all above)

- Default is STOP (Red) until the switch is aligned, correspondence proved, track circuit is clear, and any blue-flag/LOTO is removed.
- Where installed, yard dwarf signals may display Green for a proved straight route and Yellow for diverging—confirm against the MSF BC sheets.
- Loss of correspondence, occupied block, or conflicting lined route will hold at STOP.
- Treat wash/shops interlocks (if any are tied to these ladders) as higher-priority inhibits—no aspect will clear until those systems are satisfied.

■ ■ ■