

Terra Lens — Land History Report (radar section)

Westville Heights, Palinpinon, Valencia — subdivision development (radar) · report date 2026-08-27 · sensor Sentinel-1 RTC gamma0 · contract construction-sar-v1 · generated deterministically from the frozen pipeline (zero LLM)

	1 · Parcel identifier and geometry source
Parcel identifier	westville-heights-palpinon
Public label	Westville Heights, Palinpinon, Valencia — subdivision development (radar)
Geometry source	OpenStreetMap way 1461506228 (landuse=construction, mapped 2025-12-25), (c) OpenStreetMap contributors, ODbL — a mapped polygon, not a cadastral survey, not a title boundary
Geometry confidence	coordinates-only
Window bbox (lon/lat)	123.25296, 9.31110 – 123.25537, 9.31289
Parcel area (G17)	3.41 ha — a parcel attribute disclosed as such; v1 does no per-pixel mapping and draws no sub-patch boundaries
	The analysis unit is the provided polygon (a parcel-level radar zone), not a titled boundary.

2 · Record period and radar observation coverage

Sensor record	Sentinel-1 RTC gamma0, 136 valid acquisitions 2023-01-07 → 2026-08-20
Pinned orbit (G1)	relative orbit 61, descending passes
Platform mix	SENTINEL-1A, SENTINEL-1C, SENTINEL-1D
Anchor (D8)	2026-08-20 — last valid acquisition in the pinned inventory; the deterministic eligibility anchor, no wall-clock
Scannable years	2024, 2025

Radar coverage and acquisition gaps

Radar coverage for this parcel uses Sentinel-1 satellite images from one fixed orbit path (relative orbit 61, descending passes) so that radar values stay comparable across the whole period. Radar has its own coverage limits, separate from cloud: in 2023 and 2024 the archive over the Philippines came from a single satellite (Sentinel-1A) that revisited about every 12 days, and it includes a 119-day gap with no usable acquisitions from 2024-09-10 to 2025-01-08. A construction start inside that gap cannot be dated more precisely than the first acquisition after it. From 2025 a second satellite (Sentinel-1C) improved the effective revisit to about 6 days, and from 2026 Sentinel-1D also appears in the record. Acquisitions with too few valid radar pixels over the parcel are treated as gaps and never filled in. Radar acquisition gaps play the same role as the cloud-blind intervals disclosed for the optical record: where there is no usable acquisition, no determination is made. Every radar acquisition gap longer than 24 days in this parcel's series is listed below.

Radar acquisition gap (> 24 days)	From	To	Days
	2024-09-10	2025-01-08	119

Platform mix on the pinned orbit: SENTINEL-1A, SENTINEL-1C, SENTINEL-1D (cross-platform steps inside one pinned orbit are disclosed, not gated).

3 · SAR verdict — construction-SAR (LIKELY on the 2025 scan)

Change family: construction — inferred from radar backscatter statistics over the parcel zone, not field-verified. Levels use the SAR vocabulary instance of the frozen lattice (OBSERVED / LIKELY / POSSIBLE / UNOBSERVED); this radar instance is never fused with the optical one.

Scan year	Level	Reason code	E_vv (dB)	E_vh (dB)	min m (dB)	Guard Gd_vv	Guard Gd_vh	Persistence
2024	UNOBSERVED	no-qualifying-signal	-0.60	-1.29	-1.29	+0.44	+0.15	—
2025	LIKELY	persistence-partial	+2.43	+2.00	+2.00	-0.77	-1.40	P-PARTIAL (11/30)

LIKELY (2025): a construction-type radar signature met the detection gates, but the sustained-step check is partial or was cut short by a radar acquisition gap — reason code: persistence-partial.

Guard values are disclosed pass or trip (G11); years outside the scannable set are not rendered (out of verified span, optical convention); once a step is reported in year Y, following years' baselines absorb the built state — the rule reports the TRANSITION year, it does not re-report the continued built state.

	4 · Methodology — radar section
Satellite	Copernicus Sentinel-1 RTC gamma0 (C-band, 10 m, VV+VH dual-pol), Microsoft Planetary Computer STAC sentinel-1-rtc, anonymous access
Contract	construction-sar-v1 (frozen M3-T01, countersigned 2026-08-27); gates G1–G18 — no run-time parameters; provenance research/sar-spike/rules.md (pre-registered)
Orbit pin (G1)	single relative orbit with the most admitted items (deterministic tie-break: smallest orbit number)
Series (G2–G4)	zonal-mean-multilook v1: per acquisition and polarization, power-domain mean of linear gamma0 over valid pixels (centres inside the polygon, nodata –32768 incl. RTC shadow, > 0); dB = 10·log10(mean); ≥ 25 valid pixels per polarization or that polarization is na — recorded as a gap, never interpolated
Detection (G10–G12)	elevation E = median(post) – median(baseline) per polarization over the annual H1 scan grid (G6–G8, minima 6/3/3); construction bar m = min(E_vv, E_vh) ≥ +2.0 dB on BOTH polarizations; +1.0 dB sub-threshold floor; YoY seasonal guard either-pol
Persistence (G13–G16)	confirming acquisition ≥ +2.0 dB over baseline on both pols; P-FULL = every valid acquisition in Jul–Dec confirms AND ≥ 6 confirmations; P-PARTIAL = not P-FULL with ≥ 3 valid; P-HOLE = < 3 valid; gaps > 24 d split the window and are disclosed, never bridged
Detection unit (G17–G18)	parcel-level zonal event; event area = the parcel polygon area, disclosed as such; minimum parcel area 0.50 ha at onboarding
Vocabulary	SAR instance of OBSERVED / LIKELY / POSSIBLE / UNOBSERVED mapped deterministically from the gate combinations (lattice V1–V10); never fused with the optical instance, never rendered as a composite or cross-sensor level

	5 · Limits — radar section
Scan grid	annual H1-only audit (the pre-registered and demonstrated form): a construction starting in H2 surfaces at the following year's scan; the latest scannable year is the last complete calendar year; no onset dating finer than the post window

Revisit eras	12-day effective revisit through 2024 (single satellite after the 2021-12 S1B loss), ~6-day from 2025, with the 119-day acquisition hole of 2024-09-10 → 2025-01-08 — a construction start inside it cannot be dated more precisely than the first acquisition after it
Detection geometry	parcel-level zonal statistics: no per-pixel mapping, no sub-patch boundaries; the event area is the parcel polygon area
Sensor	C-band, 10 m; radar has its own coverage limits separate from cloud — where there is no usable acquisition, no determination is made
Truth basis	the construction known-truth basis of this contract is one curated site; rates on non-curated parcels are measured separately (BETA-02) and never inferred from this capability example

6 • Disclaimers

Decision-support document only. This report is not a survey, is not field-verified, and makes no legal claim. Detections are candidates pending human confirmation.

Data attribution: Contains modified Copernicus Sentinel-1 data (2023-2026), processed to RTC gamma0 by Microsoft Planetary Computer (anonymous access).