Perimeter Detection Planning Checklist

Scope a perimeter and intrusion-detection build by the response window, the detection-vs-false-alarm targets, the sensor layers, and the privacy line — before you buy hardware. Companion to the article; pair it with the surveillance cost model.

1 · The rule: detection only buys time

A perimeter system does not stop an intruder; it starts the clock on a response. An intrusion is interrupted only if the response arrives before the remaining delay (the barriers still in front of the intruder) runs out. So detect as early as possible, at the outer layer - early detection is worth more than perfect detection at the wall.

2 · The two numbers - set targets, never a single 100%

Judge every sensor on probability of detection (Pd - of real intrusions, how many are caught) AND nuisance-alarm rate (NAR - how often it cries wolf). They trade off. A common operational target is fewer than one nuisance alarm per zone per day (about one per day per km of fence). The system that cries wolf gets muted, so design for the nuisance rate first. Treat any '99.95% / zero false alarm' claim as unaudited marketing - ask for both numbers with the conditions.

3 · Plan the sensor layers (no single sensor wins)

Layer	Role	Where it fits
Radar	Wide-area detection; slews a PTZ	Outer approach, open areas
Thermal + AI	Detect a body in darkness, far out	Fence line, long approaches
Visual / PTZ	Verify and identify (face / plate)	Choke points, on-alarm slew
Fence / buried	Confirm contact / covert crossing	The boundary, gaps & covert lines

4 · False-alarm tuning - tick before go-live

- [ ] Zones and lines drawn to the threat, not the whole scene (road, neighbour, tree-line excluded).
- [ ] Object filters set so only person / vehicle classes reach the rule check.
- [ ] Perspective calibrated so wrong-size objects are rejected on long runs.
- [ ] Sensitivity scheduled by day / night, by zone, and by season.
- [ ] Every zone walk-tested for detection AND watched across bad weather for nuisance alarms.
- [ ] Nuisance-alarm rate reviewed weekly and re-tuned - commissioned over weeks, not an afternoon.

5 · The privacy gate - tick before you ship

- [ ] Legitimate-interest assessment documented (GDPR Art. 6(1)(f)): purpose, necessity, proportionality.
- [ ] Cameras aimed inward; privacy masking over public footpath / road / neighbour's property (Rynes; EDPB 3/2019).
- [ ] Retention set to the minimum needed; signage / notice in place.
- [ ] DPIA done where a publicly accessible area is monitored systematically at scale (GDPR Art. 35).
- [ ] Face or plate identification kept behind a deliberate review - GDPR Art. 9 / Illinois BIPA, not a default toggle.

Engineering guidance, not legal advice. The privacy gate names GDPR Art. 6(1)(f) / Art. 9 / Art. 35, the CJEU Rynes judgment (C-212/13), and EDPB Guidelines 3/2019 as the controlling frame; confirm specifics with qualified counsel before deploying any identification analytic.