
RESEARCH AND VALUATION WHITE PAPER

Metro Manila Residential Geohazard Exposure

Liquefaction · Flood · Active-Fault Surface Rupture · Taal Volcanic Risk

PURPOSE

A map-led evidence base for residential appraisal, collateral review, development due diligence, insurance discussion and public disclosure.

STATUS

Indicative public-data screening. No map or case result in this paper is an engineering certification, permit opinion or final valuation conclusion.

Research cut-off 22 September 2026

Geography National Capital Region: 16 cities and the municipality of Pateros

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Contents

1	Executive conclusion	1
2	Scope, evidence and method	3
2.1	Purpose and decision boundary	3
2.2	Administrative and project geometry	3
2.3	Screening rules	3
3	Liquefaction	3
4	Flood	5
5	Active-fault surface rupture	7
6	Taal volcanic risk	9
6.1	Ashfall is the principal NCR pathway	9
6.2	Proximal volcanic hazards do not map across NCR	9
7	Ten-case residential screening register	11
8	What this means for valuation	11
8.1	Start with the assignment, not the map color	11
8.2	Verify hazard, vulnerability and consequence	11
8.3	Reassess highest and best use	11
8.4	Apply the three approaches without double counting	12
8.5	Insurance, finance and remaining economic life	12
8.6	Report current and conditional scenarios	12
9	How a project may be permitted when a geohazard exists	14
9.1	Hazard presence is not always a statutory prohibition	14
9.2	Separate the approvals	14
9.3	A permit is not a warranty of safety	14
10	Cuervo Appraisers evidence gate	16
11	Conclusions	16
12	Glossary	16
13	References	17

All figures show source names and research dates. Full citations and direct source links are provided in the References section. The accompanying register retains project and coordinate-source URLs for every case.

1 Executive conclusion

Metro Manila's residential market is exposed to four geohazard channels that should be kept analytically separate. Liquefaction describes earthquake-triggered loss of soil strength. Flood includes source-specific inland susceptibility and must not be conflated with PAGASA storm surge. Active-fault surface rupture is a mapped-trace and parcel-geometry question, not a general earthquake score. Taal's credible regional pathway to the National Capital Region is ashfall under suitable plume and wind conditions; the reviewed base-surge, ballistic, lava, fissure, volcanic-tsunami and lahar maps are proximal Taal products rather than NCR exposure zones. [2] [5] [6] [9] [14] [15]

This revised evidence base covers the ten cited residential cases consistently across all four hazards. Three cases retain high or highly susceptible liquefaction flags from the existing public-geometry register. Four cases intersect a high or very high MGB flood class somewhere in a cited public footprint. Two supplied representative points are within 500 m of the mapped active-fault trace, but all ten are outside the 300 m PHIVOLCS referral threshold at those points. All ten are treated as conditionally exposed to future Taal ashfall because Metro Manila was included in the mapped 2020 deposit area, while no public project-level future ashfall class was found. [2] [4] [6] [10] [11] [13]

The central valuation finding

A geohazard label is not a discount schedule. The valuer must verify identity, geometry, source date and site condition; determine legal and operational consequences; measure market, cost and income effects; avoid double counting; and disclose uncertainty. The current [Philippine Valuation Standards \(PVS\)](#) framework supports a property-specific, evidence-led conclusion rather than a universal haircut. [19] [20] [21] [22]

The permit question also has a precise answer. A project can be permitted in a mapped or nearby hazard area when the controlling rule does not impose an absolute prohibition, the approved scheme avoids prohibited portions or incorporates acceptable mitigation, and the responsible agencies and professionals approve the relevant stage. Zoning, a development permit, an [Environmental Compliance Certificate \(ECC\)](#) or certificate of non-coverage, DHSUD registration and [license to sell \(LTS\)](#), a building permit and a certificate of occupancy are separate instruments. None is a blanket warranty of safety. [26] [28] [29] [30] [31] [32] [33]

EXECUTIVE VISUAL

Metro Manila residential geohazard exposure

Four hazards, ten development cases, and one evidence rule: verify before valuing.

LIQUEFACTION

3 / 10

high / highly susceptible screening flags

FLOOD

4 / 10

high / very high maximum class in public geometry

ACTIVE FAULT

2 / 10

representative points within 500 m; none within 300 m

TAAL ASHFALL

10 / 10

conditional regional exposure; no public future parcel class

	LIQUEFACTION	FLOOD	FAULT	TAAL ASHFALL
01 Forbes Park				
02 Ayala Alabang				
03 Rockwell Center				
04 Eastwood City				
05 Serendra				
06 Acacia Estates				
07 Azure Urban Resort				
08 Vertis North				
09 Arbor Lanes				
10 The Oriana				

Circle colors are source-specific screening categories, not one combined risk score.

EVIDENCE GATE

No final valuation conclusion

until parcel geometry, current hazard evidence, site condition, permits, mitigation and market response are verified.

2 Scope, evidence and method

2.1 Purpose and decision boundary

This paper is designed for appraisal and due diligence. It identifies what the public evidence can establish, what remains unresolved, and which additional records must be obtained before a property-specific conclusion. It is not a geotechnical report, structural assessment, hydrologic model, legal opinion, permit audit, insurance determination, credit decision or signed appraisal for any named asset.

HazardHunterPH is the principal public screening gateway because it integrates data from mandated agencies and generates location-based indicative reports. Its own guidance says that outputs are reference material, that official reports may be required from the responsible agency, that boundaries are approximate and that data can be refined or updated.

[1] [2] The report therefore uses four controls: **source identity**, **data date**, **geometry quality** and **decision purpose**.

2.2 Administrative and project geometry

The official 2024 POPCEN reports 14,001,751 usual residents in NCR. The current PSA administrative universe comprises 16 cities, one municipality and 1,715 barangays. [3] The map geometry in this paper uses OCHA COD-AB v03 as an operational boundary set, which contains 17 NCR local-government features and 1,712 barangay features after filtering. The difference from the current PSA count is retained as a boundary-vintage limitation rather than imputed. [36] The ten development cases are not a census of every residential project in Metro Manila. They are the defined case portfolio supplied for this assignment. Six cases use public OpenStreetMap footprints, while the others use an official, developer or approximate point. Public OpenStreetMap geometry is useful for screening, but it is not a cadastral survey, title boundary or approved development limit. [37]

2.3 Screening rules

A polygon result reports the maximum mapped class that intersects the available public footprint. A point result reports the class or distance at the supplied representative coordinate. “No polygon at geometry” means only that the dated public layer did not intersect that screened geometry. It does not mean that the property is free of the hazard. HazardHunterPH’s barangay convention counts even a slight boundary intersection as prone; this is deliberately conservative and should be supplemented by area shares and parcel verification. [2]

The four hazard outputs are not combined into one score. Combining unlike classes would imply a mathematical equivalence between flood depth, soil susceptibility, mapped-trace distance and conditional ashfall that the source agencies do not provide.

3 Liquefaction

PHIVOLCS describes liquefaction as water-saturated sediment behaving like a liquid under strong earthquake shaking. Possible effects include settlement or tilting, sand boils and fissuring. [5] The public PHIVOLCS layer states that it was processed using geology, active faults, historical liquefaction, geomorphology, hydrology and preliminary microtremor evidence; its service acknowledgment is dated July 2018. [4]

The earlier barangay overlay found 1,504 operational NCR barangays intersecting at least one PHIVOLCS liquefaction polygon, representing 8,521,709 matched residents or 60.9% of the official NCR population denominator. Of the matched population, 6,414,170 lived in barangays whose maximum intersecting class was high or highly susceptible. Those are population-in-intersecting-barangay figures, not expected casualties, damaged buildings or value loss. The calculation depends on PSA population, OCHA boundary and PHIVOLCS hazard layers and carries the documented 1,712-versus-1,715 barangay mismatch. [3] [4] [36]

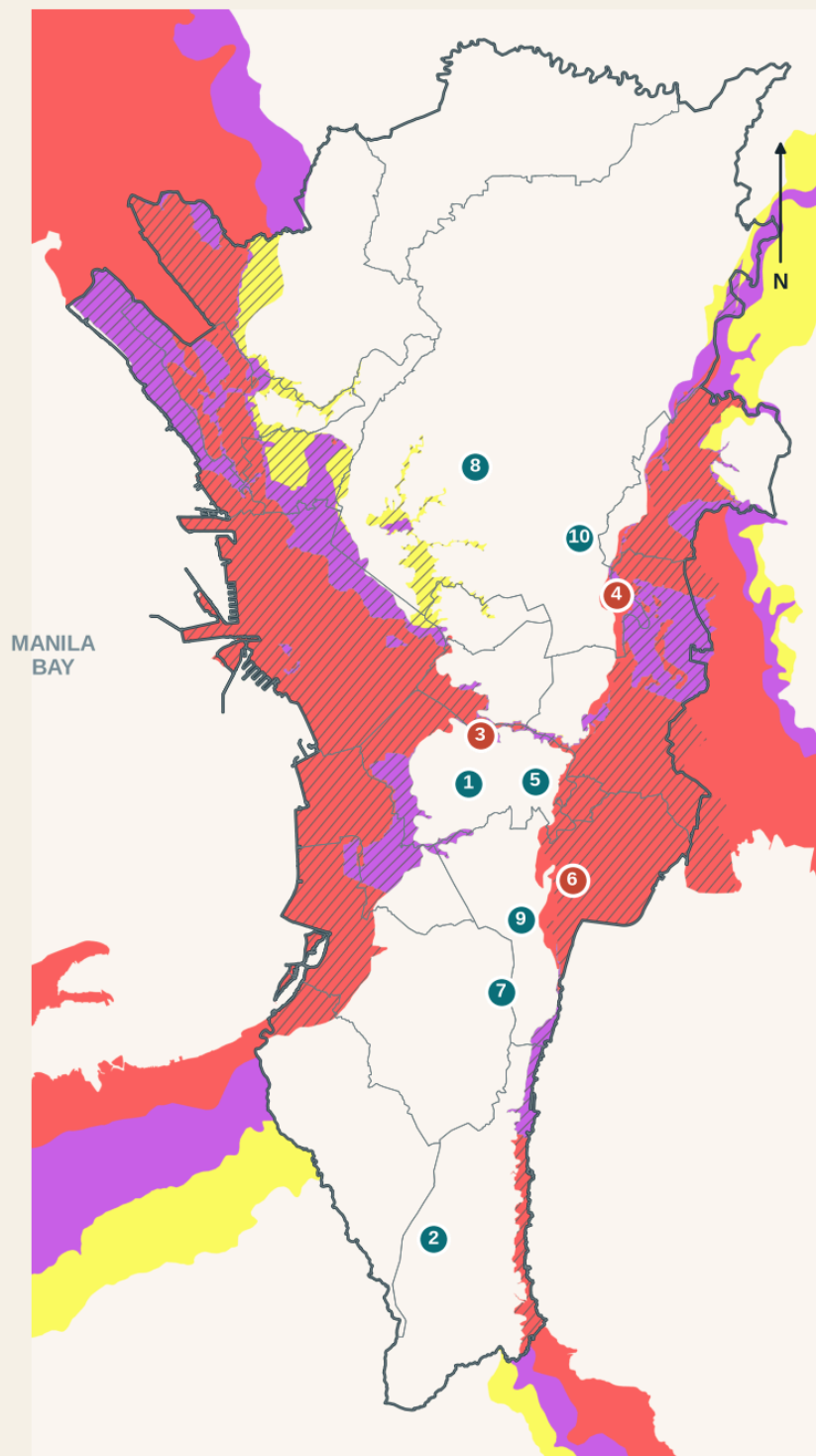
In the ten-case register, Rockwell Center, Eastwood City and Acacia Estates retain a high or highly susceptible screening flag. Their geometry differs: Eastwood is represented by an approximate point, while Rockwell and Acacia use public mapped footprints. That distinction prevents a location label from being interpreted as a surveyed project boundary. The remaining seven cases report no polygon at the screened geometry, not an absence of liquefaction risk.

For appraisal, a mapped class should trigger review of soil profile, groundwater, boreholes, standard or cone penetration testing, fines content, shaking scenario, foundation, ground improvement and building response. Recent Metro Manila research likewise uses multiple soil, groundwater and seismic-demand variables rather than map color alone. [51] [52]

MAP 01 · LIQUEFACTION

Liquefaction susceptibility and residential locations

Official PHIVOLCS polygons; maximum class across public footprint where available.



10 DEVELOPMENT LOCATIONS

1	Forbes Park No polygon at geometry
2	Ayala Alabang No polygon at geometry
3	Rockwell Center High / highly susceptible
4	Eastwood City High / highly susceptible
5	Serendra No polygon at geometry
6	Acacia Estates High / highly susceptible
7	Azure Urban Resort No polygon at geometry
8	Vertis North No polygon at geometry
9	Arbor Lanes No polygon at geometry
10	The Oriana No polygon at geometry

How to read

"No polygon at geometry" means no mapped polygon intersected the screened point/footprint in that query. It does not mean no liquefaction risk.

Sources: PHIVOLCS Liquefaction MapServer (acknowledgment as of Jul 2018); project/OSM sources in register; accessed 22 Sep 2026.

4 Flood

Flood is included as a separate core geohazard. The public DENR–MGB layer uses four susceptibility classes. Low indicates flood height of 0.5 m or less and duration of one to three days. Moderate indicates more than 0.5 m up to 1 m and one to three days. High indicates more than 1 m up to 2 m and more than three days. Very High indicates more than 2 m and more than three days. The service identifies MGB data as of July 2018. [6]

The layer does not expose a causal field that reliably separates riverine overflow from pluvial or drainage flooding. The report therefore calls the result **MGB flood susceptibility**. PAGASA flood maps and Greater Metro Manila [annual exceedance probability \(AEP\)](#) scenarios are separate products, and PAGASA storm surge is a distinct coastal mechanism caused by tropical-cyclone winds and low pressure, amplified by tides and waves. [7] [8] [9] A peer-reviewed 2015 Metro Manila model reported storm-surge depths up to 4 m and inland extents up to 6.5 km under its modeled conditions; those are scenario outputs rather than current parcel forecasts. [50]

The public MGB service rendered the complete NCR flood layer but rejected point and feature-query operations in this acquisition. The ten cases were therefore classified from the official ArcGIS raster export. Where a cited public footprint was available, the maximum rendered class across the footprint was retained and the pixel-area shares were archived; otherwise, the class was read at the representative point. This method is reproducible but less authoritative than a source vector or an official MGB assessment.

Ayala Alabang, Rockwell Center, Acacia Estates and Vertis North intersect high or very high classes somewhere in their cited public footprints. The maximum is a triage field: for example, most of the screened Rockwell footprint rendered Low, while a small edge portion rendered Very High. Serendra did not intersect a rendered MGB polygon in the public footprint. The other five cases rendered Low at the screened point or footprint. None of these results identifies the flood mechanism, recurrence, event depth at a building, finished-floor elevation, drainage performance or insurable loss.

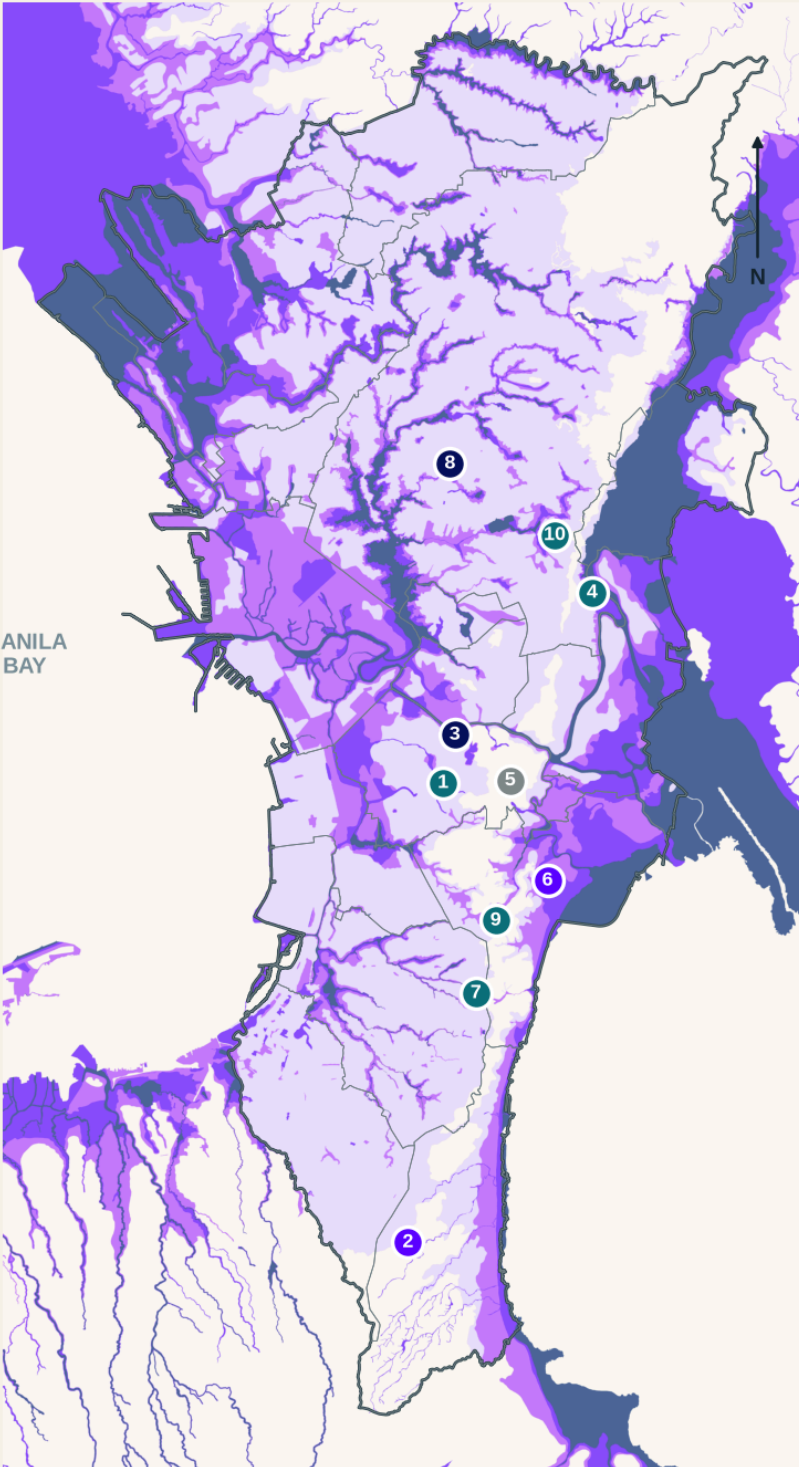
MAP 02 · FLOOD

Flood susceptibility and residential locations

MGB maximum class across a cited public footprint; point class where no footprint is available.

10 DEVELOPMENT LOCATIONS

1	Forbes Park Low susceptibility · point
2	Ayala Alabang High susceptibility · footprint
3	Rockwell Center Very High susceptibility · footprint
4	Eastwood City Low susceptibility · point
5	Serendra No rendered MGB polygon across public footprint · footprint
6	Acacia Estates High susceptibility · footprint
7	Azure Urban Resort Low susceptibility · footprint
8	Vertis North Very High susceptibility · footprint
9	Arbor Lanes Low susceptibility · point
10	The Oriana Low susceptibility · point



Class meaning

Low ≤0.5 m / 1–3 days · Moderate >0.5–1 m / 1–3 days · High >1–2 m / >3 days · Very High >2 m / >3 days.
MGB's public layer does not identify riverine versus pluvial cause. Storm surge is a separate PAGASA hazard.

Sources: DENR–MGB Flood MapServer, data source as of Jul 2018; OSM public footprints; HazardHunterPH methods; accessed 22 Sep 2026.

5 Active-fault surface rupture

Ground rupture is the surface expression of displacement along an active fault. It is distinct from regional ground shaking and from liquefaction. [5] PHIVOLCS FaultFinder is a proximity tool that reports the nearest mapped fault, segment, distance, mapping year and scale. PHIVOLCS directs users to the Institute for an official hazard assessment when required. [11]

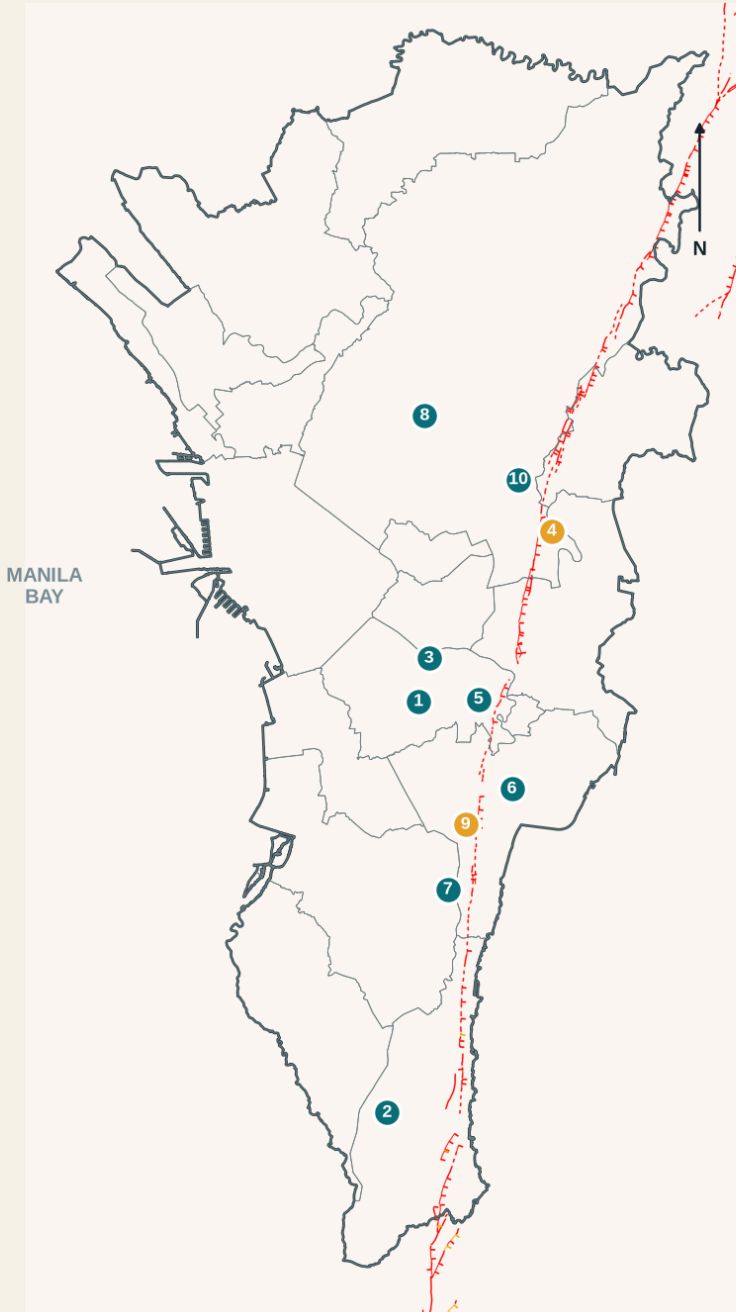
The public active-fault service renders the Valley Fault System and provides mapping metadata. Its feature-query operation was not available through the public endpoint used for the map, so the paper preserves the official service rendering and the approximate point-to-trace distances obtained during the research run. [10] PHIVOLCS's large-scale mapping program also warns that traces can be revised as new information becomes available. [12]

The closest supplied points are Arbor Lanes at approximately 446 m and Eastwood City at approximately 474 m. All ten supplied points are outside the 300 m HazardHunterPH referral threshold. [2] This does not establish that the legal parcel is outside a fault-related control area, because the representative coordinate may not describe the parcel's nearest edge. A verified surface-rupture conclusion requires the current PHIVOLCS layout, an authoritative parcel survey, a common [coordinate reference system \(CRS\)](#), stated tolerance and professional review.

MAP 03 · ACTIVE-FAULT SURFACE RUPTURE

Mapped active-fault context and residential locations

Distance is from the supplied representative point to the public mapped trace—not a parcel intersection.



10 DEVELOPMENT LOCATIONS

1	Forbes Park ~2,881 m to mapped trace
2	Ayala Alabang ~2,225 m to mapped trace
3	Rockwell Center ~3,049 m to mapped trace
4	Eastwood City ~474 m to mapped trace
5	Serendra ~736 m to mapped trace
6	Acacia Estates ~1,153 m to mapped trace
7	Azure Urban Resort ~917 m to mapped trace
8	Vertis North ~5,036 m to mapped trace
9	Arbor Lanes ~446 m to mapped trace
10	The Oriana ~1,097 m to mapped trace

What this map can say

The two nearest supplied points are Arbor Lanes (~446 m) and Eastwood City (~474 m). All ten points are outside the 300 m PHIVOLCS referral threshold. Parcel intersections remain unverified.
Sources: PHIVOLCS ActiveFault MapServer and FaultFinder; OCHA COD-AB v03; project register; accessed 22 Sep 2026.

6 Taal volcanic risk

6.1 Ashfall is the principal NCR pathway

The 12 January 2020 Taal eruption produced a 17–21 km plume. A peer-reviewed reconstruction mapped tephra deposits over 8,605 km², including Metro Manila, and as far as approximately 70 km north–northeast of Taal. [13] PHIVOLCS's event history records a 10–15 km steam-laden tephra column and northward drift during the event; its records are under ongoing audit. [55]

The observed footprint demonstrates regional exposure but is not a permanent hazard boundary. Future ashfall depends on eruption magnitude, plume height, wind direction, rain and duration. PHIVOLCS explains that ashfall can affect roofs, water, transport, power, aircraft and machinery, and its Taal alert framework includes widespread downwind ashfall among highly hazardous eruption conditions. [15] [16]

All ten project cases are therefore classified as **conditional regional ashfall exposure**. The paper does not assign a project-level ash thickness, probability or return period because no public, versioned Taal future-ashfall grid with those fields was identified. Distance to Taal is retained as context, not as a substitute for a plume model. The 70 km line in the visual is explicitly a distance guide rather than an ashfall contour. The reference coordinate is published by the Smithsonian Global Volcanism Program. [49]

6.2 Proximal volcanic hazards do not map across NCR

The reviewed PHIVOLCS products map Taal base surge or **pyroclastic density current (PDC)**, ballistic projectiles, volcanic tsunami and fissuring around Volcano Island, Taal Lake and lakeshore communities. [14] A field study of the 2020 base surges documented impacts on Volcano Island and about 600 m offshore, not a flow path to Metro Manila. [17] PHIVOLCS defines lava as terrain-controlled flow from a vent and lahar as water-rich volcanic debris moving through channels. [15] The reviewed public products do not establish direct NCR exposure to Taal base surge/PDC, ballistics, lava, fissure, volcanic tsunami or lahar.

Historical review nevertheless supports keeping Taal ashfall in NCR risk analysis: tephra has dispersed toward Manila, and a future explosive eruption with a Metro Manila-directed plume could disrupt aviation, transport, utilities and business. [18]

MAP 04 • TAAL VOLCANIC RISK

Taal ashfall pathway to Metro Manila

Observed 2020 ashfall context and conditional future exposure; proximal Taal hazards remain separate.



WHAT REACHES NCR?

ASHFALL

Conditional regional exposure

The 2020 deposit study included Metro Manila and mapped deposits to about 70 km NNE. A future footprint depends on plume and wind.

PDC / BASE SURGE

Not mapped in NCR

Published Taal products are proximal/lakeshore scenarios.

BALLISTIC / LAVA

Not mapped in NCR

Near-vent and terrain-controlled hazards.

FISSURE / TSUNAMI / LAHAR

Not mapped in NCR

Taal basin, lakeshore, or channel hazards in reviewed products.

7 Ten-case residential screening register

The table below is the compact publication view of the full machine-readable register. “Footprint” means a cited public mapped footprint and does not imply cadastral accuracy. Flood classes use the maximum across that footprint where available. Fault distance is approximate and measured from the supplied representative point. Taal ashfall is conditional regional exposure for every case.

No.	Development	Liquefaction	Flood	Fault distance	Taal ashfall
1	Forbes Park	No polygon	Low · point	2,881 m	Conditional
2	Ayala Alabang	No polygon	High · footprint	2,225 m	Conditional
3	Rockwell Center	High flag	Very High · footprint	3,049 m	Conditional
4	Eastwood City	High flag	Low · point	474 m	Conditional
5	Serendra	No polygon	No rendered polygon	736 m	Conditional
6	Acacia Estates	High flag	High · footprint	1,153 m	Conditional
7	Azure Urban Resort	No polygon	Low · footprint	917 m	Conditional
8	Vertis North	No polygon	Very High · footprint	5,036 m	Conditional
9	Arbor Lanes	No polygon	Low · point	446 m	Conditional
10	The Oriana	No polygon	Low · point	1,097 m	Conditional

Project identity and location evidence is drawn from the relevant LGU or developer source for Forbes Park, Ayala Alabang, Rockwell Center, Eastwood City, Serendra, Acacia Estates, Azure, Vertis North, Arbor Lanes and The Oriana. [39] [40] [41] [42] [43] [44] [45] [46] [47] [48] Public footprints use OpenStreetMap geometry and retain the attribution and geometry limitations described above. [37]

The table is complete for the defined ten-case portfolio, not for every residential project in Metro Manila. A market-wide development inventory would require a separate authoritative project database, consistent parcel footprints and a new screening run.

8 What this means for valuation

8.1 Start with the assignment, not the map color

The appraisal must first identify the asset, property interest, intended use, intended users, valuation date and basis of value. For market value, the governing premise is a willing buyer and willing seller acting knowledgeably and without compulsion on the valuation date. [19] [20] A hazard screen is relevant because market participants may consider physical damage, permitted use, mitigation cost, insurance, finance, access, downtime, buyer perception and uncertainty. It does not automatically quantify any of them.

The current PVS incorporates IVS concepts and requires a scope appropriate to the assignment, evidence that is accurate, complete, timely and transparent, justified methods, clearly communicated significant assumptions and sufficient documentation. [19] Republic Act No. 12001 and its implementing rules establish the PVS-based public valuation architecture and a market-value framework for real-property assessment and government transactions. [20] [21] That framework does not make an LGU schedule of market values, assessed value or zonal value interchangeable with a private market-value appraisal.

8.2 Verify hazard, vulnerability and consequence

A valuer should obtain title and survey documents, the legally relevant parcel and building geometry, permits and occupancy records, as-built plans, geotechnical and structural reports, drainage and elevation information, prior damage and claims, repair and maintenance history, insurance terms, lender conditions, leases and operating evidence. Hazard-HunterPH and agency maps start the inquiry; they do not replace site investigation or specialist advice. [1] [2]

The analysis should distinguish five evidence states: mapped exposure only; suspected but unquantified condition; confirmed condition with a costed mitigation plan; active or recurring condition with operational effects; and a legally constrained or unsafe condition. These labels organize the scope of work. They do not replace a value conclusion.

8.3 Reassess highest and best use

A geohazard can affect highest and best use (HBU) by changing physical buildability, legal permissions, feasible density, construction cost, finance, insurance, absorption, downtime and market demand. Continued residential use may remain the maximally productive option with accepted mitigation. In other cases, a lower density, different building form, open space, relocation of buildable areas, restricted use or no-build conclusion may control. Development-property valuation

requires explicit attention to zoning, permissions, geotechnical conditions, infrastructure, construction cost, demand and completion risk. [19]

8.4 Apply the three approaches without double counting

Market approach. Build a comparable set that records hazard status, disclosure, building resilience, foundation, elevation, access, insurance, financeability and permitted use. Use closed, arm's-length transactions where possible. Paired sales, repeat sales, days on market, price-to-list ratios, rent and occupancy can support an adjustment only when the evidence isolates the hazard-related difference. A "stigma" allowance cannot substitute for market evidence. [19] [22]

Cost approach. Separate land value, replacement or reproduction cost, physical deterioration, functional obsolescence, external obsolescence, repair, mitigation, monitoring, relocation, downtime and residual risk. Engineering costs must be based on a qualified scope and current rates. Cost does not necessarily equal value added, especially when mitigation is incomplete, not durable or not recognized by the market. [19] [22]

Income approach. For income-producing residential assets, reflect supported effects through rent, vacancy, expenses, insurance, reserves, capital expenditure, downtime, discount or capitalization rate and terminal liquidity. State exactly where the hazard is reflected and prevent the same risk from being counted in cash flow, rate and a separate deduction. [19] [22]

8.5 Insurance, finance and remaining economic life

Insurability and financeability are separate evidence questions. The Insurance Commission maintains catastrophe-pricing rules, while actual availability, exclusions, deductibles, limits and premiums remain property- and insurer-specific. [25] BSP rules require sound valuation and collateral marketability; the maximum 60% collateral value for qualifying real-estate collateral is a prudential lending rule, not a 40% market-value discount. [23] [24] Remaining economic life should reflect condition, maintenance, code compliance, legal use, expected capital expenditure, feasible mitigation, obsolescence and market demand. A hazard map alone cannot support a fixed reduction in useful or economic life.

8.6 Report current and conditional scenarios

The report should separate the current-condition value from any "as if mitigated" or restricted-use scenario. A significant assumption may concern an uncertain fact that could be true on the valuation date, such as no undisclosed structural damage. A special or hypothetical assumption may describe a condition that is contrary to fact, such as valuing the property as if a future mitigation program were complete. Both require clear disclosure and relevance to the intended use. [19]

PROFESSIONAL PRACTICE

How to value a geohazard-exposed asset

The hazard map starts the scope of work; it does not supply the discount.

1

VERIFY

Identity, surveyed parcel, building footprint, title, map version and hazard class.



2

DIAGNOSE

Separate hazard, vulnerability and consequence. Obtain geotechnical, structural or hydrologic evidence.



3

TEST USE

Reassess physical possibility, legal permissibility, financial feasibility and highest productivity.



4

VALUE

Market: hazard-aware comparables.
Cost: cure, downtime, obsolescence.
Income: rent, vacancy, insurance, capex and liquidity.



5

RECONCILE

Avoid double counting. State significant assumptions, scenarios, uncertainty and specialist reliance.

NO UNIVERSAL GEOHAZARD HAIRCUT

Any adjustment must be property-specific, observable, supportable and free of double counting.

Sources: Philippine Valuation Standards, 3rd ed. (BLGF, 2026); RA 12001; IVS 105; BSP and Insurance Commission rules.

9 How a project may be permitted when a geohazard exists

9.1 Hazard presence is not always a statutory prohibition

A mapped hazard is a physical or screening fact. The legal consequence depends on the mechanism, the exact parcel and buildable footprint, project type, controlling zoning and development rules, the technical evidence available on the decision date, and the conditions attached to approval. The National Building Code does not state that every parcel intersecting every hazard layer is automatically unbuildable; it requires a permit, signed and sealed plans, inspection, compliant construction and a certificate of occupancy. [26] [27]

The result can differ under more specific rules. The revised PD 957 rules for residential subdivisions say projects should be on suitable sites outside hazard-prone and protection areas, that critical areas including flooding, landslides and unstable soil must be avoided, and that the site must support foundation loads without excessive grading, cutting or filling. [31] A defensible approval in or near a mapped area may therefore require exclusion of affected portions, redesign, open-space treatment, setbacks, drainage or slope works, a site-specific determination that the mapped condition does not control the buildable area, or denial where the rule requires avoidance.

9.2 Separate the approvals

Local zoning and development permission address land-use conformity and project layout under the ordinance and delegated procedures. The LGU's general-welfare authority includes health, safety and balanced ecology. [28] An ECC or certificate of non-coverage addresses the Environmental Impact Statement System and any environmental-management conditions; DENR rules expressly state that it does not replace permits required by other laws. [32] [33] DHSUD development approval, registration and LTS protect buyers and regulate the covered real-estate project. DHSUD explains that an approved subdivision or condominium plan and development permit do not by themselves authorize selling units or lots. [29] [30] A building permit then authorizes construction under approved plans, while a certificate of occupancy follows completion and final inspection. [26]

9.3 A permit is not a warranty of safety

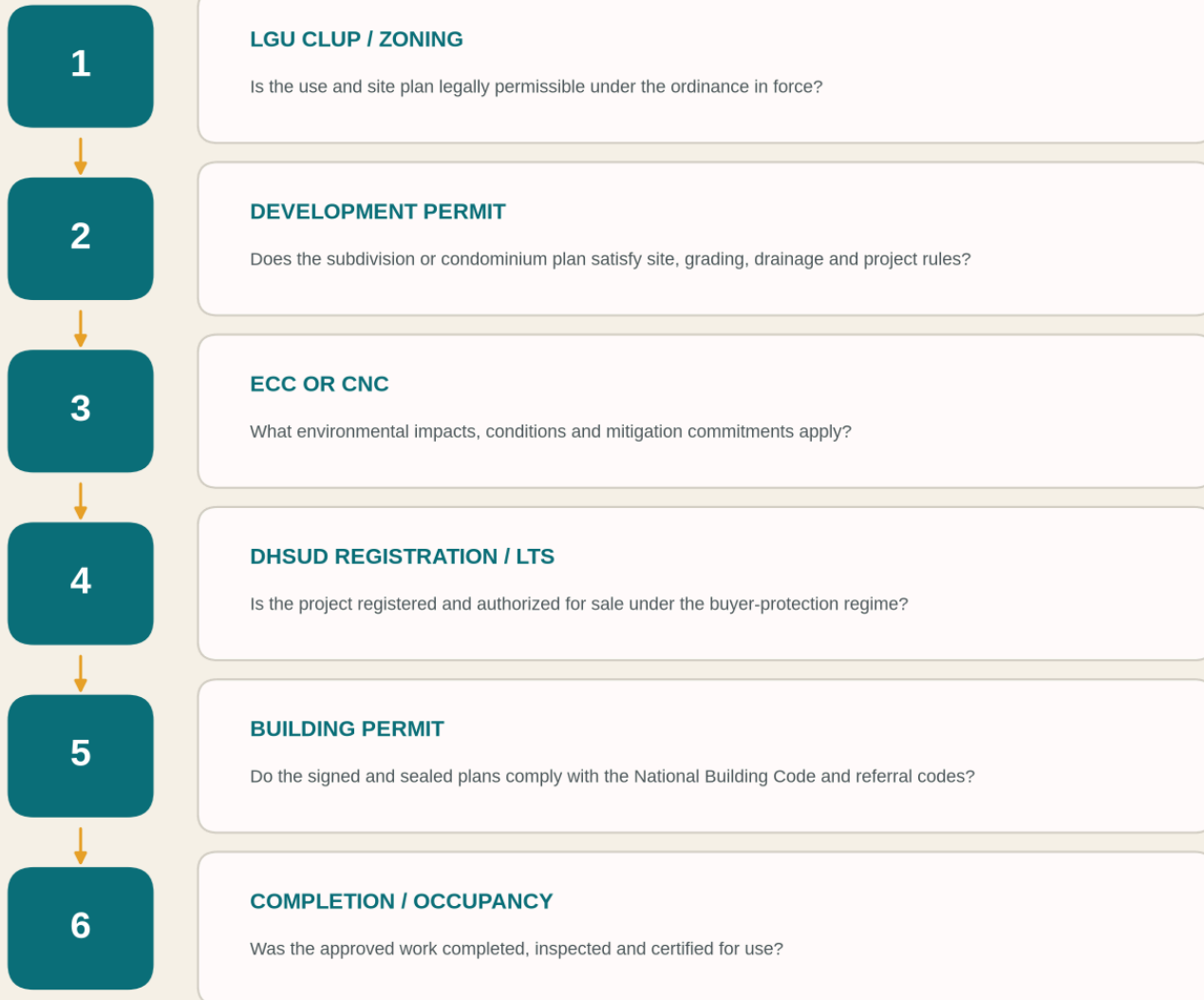
Each instrument answers a limited question and relies on submitted information, professional certifications and the evidence then available. Hazard layers have scale, vintage and scenario limitations. Safety also depends on construction, maintenance, drainage, groundwater, later alterations and extreme events. The Building Official can inspect, stop contrary work, require corrections and suspend or revoke permits for defective plans, inaccurate information or noncompliance. [26] The Supreme Court has likewise described compliance as a joint responsibility of owners, professionals and contractors rather than a government guarantee. [35]

For a named development, the correct review is chronological. It should obtain the legal parcel, approved plans, decision-date zoning, hazard-map version, geotechnical and structural reports, drainage and grading design, environmental conditions, DHSUD records, building-permit revisions, inspection logs, completion certificate, occupancy certificate and any later notices. A current hazard map alone cannot prove that an earlier approval was unlawful, but an old permit alone cannot prove current safety.

PERMITTING

How a project may be permitted despite a mapped geohazard

Different approvals answer different questions; none is a blanket warranty of safety.

**WHY A PERMIT CAN STILL EXIST**

Hazard presence may trigger avoidance, setbacks, engineering, conditions or monitoring rather than an automatic ban—unless the controlling rule requires avoidance. A permit remains conditional and can be corrected, stopped, suspended or revoked for defective plans, inaccurate information or noncompliance.

10 Cuervo Appraisers evidence gate

A valuation file should not assign a final exposure label until the following evidence is closed:

Identity and geometry

Title or condominium certificate; approved survey; parcel, building and development footprints; access; CRS geometry confidence.

Hazard and date

Agency, layer, class or scenario, map scale, update/publication date, query or intersection method, source archive and current bulletin status.

Site and building

Geotechnical, structural, hydrologic or volcanic specialist evidence; finished-floor elevation; drainage; foundation; observed damage; mitigation and maintenance.

Law and permits

Zoning, development approval, environmental clearance, DHSUD registration/LTS, building permit, completion and occupancy; conditions and subsequent changes.

Market response

Hazard-aware comparable transactions, rents, occupancy, absorption, marketing time, insurance, lender terms, repair/mitigation cost and buyer knowledge.

Valuation conclusion

Basis of value, HBU, approach selection, significant assumptions, scenarios, double-counting control, uncertainty and review/sign-off.

When a decision-critical field remains missing, the appropriate status is **No Final Determination**. That statement protects the user of the appraisal from a false “safe” or “unsafe” label and identifies the next evidence request.

11 Conclusions

Metro Manila’s residential geohazard exposure is multi-channel. The public evidence supports a strong regional screening system and a disciplined appraisal workflow. It does not support one combined risk score, a uniform percentage discount or a blanket claim that a permit proves safety.

The defined ten-case portfolio contains three liquefaction flags, four high/very-high maximum flood-footprint classifications, two sub-500 m active-fault proximity cases and ten conditional Taal ashfall exposures. Every result depends on the dated source and screened geometry. The flood findings are particularly sensitive to public-footprint extent and a July 2018 MGB layer; the fault findings are point-to-trace distances; and the ashfall finding is a regional scenario conclusion rather than a future project-level contour.

Cuervo Appraisers’ professional role is to convert those screening facts into a defensible valuation scope: verify the asset; obtain the relevant specialist and permit evidence; identify the market channels; apply the appropriate valuation approaches; reconcile without double counting; and disclose what remains uncertain. The result may be no adjustment, a supported market adjustment, a cost or income effect, a changed HBU, a conditional scenario or no final determination. The evidence—not the hazard label—decides.

12 Glossary

AEP – annual exceedance probability: The probability that a specified event magnitude will be equalled or exceeded in any year.

CRS – coordinate reference system: The spatial reference used to align map layers and calculate distance or intersection.

ECC – Environmental Compliance Certificate: A DENR–EMB decision under the Environmental Impact Statement System that carries environmental conditions; it is not a building permit or safety warranty.

HBU – highest and best use: The reasonably probable use that is physically possible, legally permissible, financially feasible and maximally productive.

LTS – license to sell: The separate DHSUD authorization required for offering covered subdivision lots or condominium units for sale under PD 957.

PDC – pyroclastic density current: A hot, fast-moving mixture of volcanic gas, ash and fragmented material; a base surge is a dilute, mobile form associated with explosive phreatomagmatic activity.

PSGC – Philippine Standard Geographic Code: The PSA coding system used to version the administrative universe for cities, municipalities and barangays.

PVS – Philippine Valuation Standards: The Philippine valuation standards maintained through the Bureau of Local Government Finance framework.

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